

EMERGENCY

Preparedness
and Response



American Veterinary
Medical Association



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AVMA POLICY

TAB A AVMA Policy

Section 1: AVMA Emergency Management Roadmap

GOAL

The goal of the AVMA's Emergency Management Program is to encourage and foster veterinary leadership and guidance in local, state and federal efforts within the United States in preparation for: disasters and emergencies involving animals, animal and public health, and other veterinary issues.

OBJECTIVES

The objective of this program is to advocate for appropriate support for all veterinary aspects of disaster and emergency situations within the United States.

RESPONSIBILITIES

The AVMA staff with oversight and input by the Committee on Disaster and Emergency Issues, is responsible for the coordination of information and people in order to advance all species/all hazards animal emergency preparedness and response. AVMA staff scope of work includes supporting policy development, education and outreach including compilation and distribution of educational materials, routine communication with membership and external customers and oversight of the Veterinary Medical Assistance Teams. . The Committee on Disaster and Emergency Issues is responsible for the creation of recommendations for consideration by the AVMA Executive Board concerning strategic guidance and fiscal and policy oversight.

PROGRAM COMPONENTS

PREVENTION

- Provide educational materials on mitigation to practitioners
- Educate emergency managers and state veterinary associations on appropriate plans and mitigation measures
- In cooperation with animal industry, deliver biosecurity education to practitioners and materials for their clients

DETECTION

- Provide education on Foreign Animal Disease (FAD) awareness and reporting protocols to membership
- Support efforts nationally to enhance the food safety, zoonotic disease and animal disease surveillance systems

PREPAREDNESS

GENERAL

- Support national coalitions of animal health emergency management stakeholders to provide a world-class animal emergency management system
- Coordinate with the United States Department of Agriculture (USDA), Department of Health and Human Services, and Department of Homeland Security (DHS) to rapidly identify and communicate with practitioners willing to serve in animal emergency situations
- Explore the opportunity for AVMA PLIT to establish disaster coverage
- Assist Federal or State agencies in streamlining animal health resource utilization through the Emergency Management Assistance Compact or other mutual aid agreements

AVMA POLICY

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Assist Federal or State agencies in ensuring that animal health, food safety and zoonotic disease issues are included in the National Response Framework and state-level emergency operations plans

Support a State and county-level infrastructure for response to incidents no matter the scope

Foster cooperation with human medical counterparts for all phases of the program

Represent the membership in national emergency management system development such as the United States Animal Health Association's National Animal Health Emergency Management System Strategic Plan and other planning efforts

Continue to maintain and update the AVMA Disaster Preparedness Series

Support legislative efforts for government preparedness for animal emergencies and for funding of animal research relating to disasters

Support the development of standards for essential information needs for national foreign animal disease events

Support the development of mass euthanasia guidelines

Support the development of carcass disposal guidelines

COMMUNICATION

Communicate proactively with other animal welfare stakeholders to coordinate resource allocation, and create appropriate memoranda of understanding regarding emergency response efforts

Disseminate information about the VMATs, USDA-APHIS National Animal Health Emergency Response Corps, State-level veterinary reserve corps, and other opportunities for veterinarians in the emergency response system

Anticipate public affairs requirements during emergencies by preparing fact sheets for likely scenarios, and coordinate their review by veterinary specialty organizations or academia

VMAT SUPPORT

Assist in the recruitment, training, development, and oversight of the VMAT program

Work to develop and modify policy for VMATs that defines their mission, organization, training requirements, and utilization

Explore continued VMAT sponsorship through direct funding from AVMF/AVMA, and other funding opportunities that might be available

ALL HAZARDS, ALL SPECIES RESPONSE

Provide assessment assistance to the veterinary community and the local communities following a disaster

Guide potential requesting organizations in VMAT request procedures and educate them about their capabilities

Work with AVMF to appropriately target needs for AVMF grants

Assist DHS-FEMA, USDA and Department of Health and Human Services (DHHS) in communications with veterinarians during emergency response efforts

Provide educational material to private practitioners during an incident

Work with the incident public information officer to provide information through appropriate media to the public during a real or perceived incident

RECOVERY

Assist in providing information to veterinarians in the state on status of recovery

AVMA POLICY

Coordinate appropriate after action reviews, recommendations, and education on how to improve prevention, preparedness and response efforts

(Oversight: CDEI; EB-04/08)

AGENCY COORDINATION

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TAB B Agency Coordination Section 1: Incident Command System

All emergency response operations work under a defined command and control system, often referred to as an Incident Command System (ICS). Incident Command Systems are designed to coordinate the activities of responding agencies and ensure that all forces work toward the single goal of resolving the crisis as quickly and efficiently as possible. The Incident Command System is a model for organizing a chain of command. It is expandable and flexible to adapt to any type or size of emergency. It includes many different groups under one command. An effective ICS includes six major components that are established and incorporated into the total response program for any given incident.

- 1** Integrated communications using common terminology is the most important factor in the success of any operation. All units must be clearly understood, and every unit must be able to contact and communicate with every other unit, directly or indirectly, both verbally and in writing (For example: safety personnel must be able to alert all units of possible hazards, and veterinarians must be able to contact logistic personnel for supplies).
- 2** Modular organization allows the ICS to expand and contract as necessary. The modular organization of the ICS is divided into five functional areas: Command, Operations, Planning, Logistics, and Finance.
- 3** Unified command structure is necessary for situations that are multijurisdictional in nature. For example, an oil spill in coastal waters, which would be handled by both the US Coast Guard and state wildlife personnel, needs a central unified command structure to coordinate actions of the separate agencies.
- 4** Consolidated action plans are vital in the preparedness phase of any operation. The plans entail written actions that are designed to define and achieve all goals and objectives during the entire operation. Checklists are effective tools to assist agencies in responding in a predetermined fashion and to ensure that all functions are performed. Incorporating veterinarians in the recall process of written action plans of federal and local agencies will ensure that contact is made at the earliest possible time and will greatly enhance veterinarians' ability to provide the best possible care to injured animals.
- 5** Span-of-control deals with the effective management of personnel. Under the ICS, the number of personnel under any supervisor ranges from three to seven; five is optimal.
- 6** Designated incident facilities are critical locations for staging and command. The Command Post is the location from which all operations are directed. It is always located a safe distance from the disaster scene to ensure unhampered communications and access. Veterinarians would most likely be directed to incident bases or staging areas where supplies, equipment, and personnel are held until needed and from where they are dispatched or deployed.

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The ICS chain of command structure consists of five groups of response personnel that are recalled and integrated as necessary. Not all groups are activated at all times. The ICS is similar to an “on-call” system, in which only the minimal number of personnel are mobilized for a given situation.

1 The Command group comprises the Incident Command Staff, which usually is based at the Command Post. The Command staff includes several representatives, each with specific responsibilities:

A. Incident Commanders are the designated individuals from the public agencies or other responsible parties who have the authority to act on behalf of their respective groups.

B. Chiefs of Staff are responsible for the internal management of the agencies that they represent. They may serve as agency Incident Commanders, in the absence of an Incident Commander.

C. Safety Officers assess safety hazards and unsafe situations, and they have the authority, when necessary, to bypass the chain of command to correct unsafe acts immediately.

D. Liaison Officers are the points of contact for assistance and to coordinate activities among agencies.

E. Information Officers are responsible for interfacing with the media.

F. Legal Counsel is appointed to represent the involved agencies and to ensure that legal issues do not impede response effectiveness.

G. Investigations Officers determine cause and responsibilities as required.

2 The Planning Section is responsible for collection, evaluation, dissemination, and use of information about the development of the incident and the status of resources. Effective planning ensures an aggressive, comprehensive approach to problems that may be encountered.

3 The Operations Section and its various branches manage tactical operations at the incident scene. The Wildlife Operation Branch is important to veterinarians. It is responsible for the recovery and rehabilitation of wildlife that are affected by the disaster. Other branches include, but are not limited to, Staging, Air Operations, and Waste Handling.

4 The Logistics Section is responsible for providing facilities, services, and materials for the response forces. Several logistics branches are of concern to veterinarians. They are the Communications Branch, Service Branch, and Support Branch. The Service Branch is further divided into Medical and Food Units, which provide medical care and meals for response personnel.

5 The Finance Section monitors costs and weighs financial considerations, such as reimbursement for the use of private-sector resources. It is critical that all responding

AGENCY COORDINATION

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parties adopt consistent cost documentation for later recovery from federal and state funds or other responsible parties.

In the AVMA Emergency Response Plan, veterinarians will be integrated with the ICS. As a recognized component of the response force, veterinarians will receive early notification of disasters, and can provide a more timely response. There is a distinct probability that veterinarians who are not included in the ICS structure will be denied access to a disaster area.

To provide effective assistance to animals during disasters, veterinarians must design local/county and state emergency preparedness plans that are based on the ICS model. All of the major components of the ICS need to be in place: communications, action plans, organizational recall structure, and a manageable span-of-control. Most important in the Veterinary Incident Command System is a well-defined chain of command. The chain of command enables agencies that request veterinary assistance to know whom to contact and enables all parties to know who is empowered to act and to make decisions. The federal government will have a single point of contact within the veterinary profession who will be notified in case of a national or multi-state disaster. The Veterinary Incident Commander will then initiate a recall of the appropriate personnel and resources to respond to the disaster.

Veterinarians have the opportunity to respond to the growing demand to address human-animal bond and animal welfare issues related to disasters. Veterinarians must be provided access to disaster scenes, supplies, and the support of the response force. This will only come about when veterinarians are able to demonstrate their ability to perform services that help to resolve the crisis. Disaster response is predicated on the desire to resolve the situation as quickly and efficiently as possible, which means that all responding personnel are expected to be trained in emergency response. A clear understanding of the ICS, its structure and components, enables veterinarians to work within the system. This is most valuable in obtaining needed support and resources.

Updated 08/08

AGENCY COORDINATION

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TAB B Agency Coordination Section 2: National Response Framework Fact Sheet

WHAT IS THE NATIONAL RESPONSE FRAMEWORK?

The National Response Framework is a guide that details how the Nation conducts all-hazards response— from the smallest incident to the largest catastrophe. This document establishes a comprehensive, national, all-hazards approach to domestic incident response. The Framework identifies the key response principles, as well as the roles and structures that organize national response. It describes how communities, States, the Federal Government and private-sector and nongovernmental partners apply these principles for a coordinated, effective national response. In addition, it describes special circumstances where the Federal Government exercises a larger role, including incidents where Federal interests are involved and catastrophic incidents where a State would require significant support. It lays the groundwork for first responders, decision-makers and supporting entities to provide a unified national response.

In addition to releasing the NRF base document, the Emergency Support Function Annexes and Support Annexes are available on-line at the NRF Resource Center (www.fema.gov/nrf). The annexes are a total of 23 individual documents designed to provide concept of operations, procedures and structures for achieving response directives for all partners in fulfilling their roles under the NRF.

Audiences

The NRF is written especially for government executives, private-sector business, and nongovernmental leaders and emergency management practitioners. The NRF’s clear, simple style makes the serious work of incident management understandable for newly elected or appointed government officials, business executives, as well as seasoned practitioners.

The NRF is addressed to senior elected and appointed leaders, such as Federal department or agency heads, State governors, mayors, tribal leaders or city managers – those who have a responsibility to provide for effective emergency management.

The NRF also informs emergency management practitioners, explaining the operating structures and tools used routinely by first responders and emergency managers at all levels of government.

The NRF Resource Center (www.fema.gov/NRF) is an important online reference center that provides stakeholders at all levels of government, the private sector and non-governmental organizations access to the NRF and supporting documents.

Identifies Response Doctrine

The NRF retains the same core principles of the National Incident Management System (NIMS) in which first responders from different jurisdictions and disciplines can work together more closely to effectively respond to natural disasters and emergencies, including acts of terrorism.

Draws Focus on Preparedness

Effective preparedness is a critical precondition for successful response. The NRF encourages a higher level of readiness by drawing a sharper focus on the value of the following preparedness activities: planning, organizing, training, equipping, exercising, and applying lessons learned. Mastery of these

AGENCY COORDINATION

key functions supports unity of effort, and thus our ability to save lives, protect property, and meet basic human needs.

Guides the Conduct of All-Hazards Response

Through engaged partnerships with elected and appointed officials, dedicated emergency management practitioners, nongovernmental organizations, and the private sector, and by applying common NIMS principles and response doctrine, government at all levels can respond more effectively to incidents and better serve our communities and the nation.

The NRF is built on the following five principles:

- Engaged partnerships
- Tiered response
- Scalable, flexible and adaptable operational capabilities
- Unity of effort through unified command
- Readiness to act

PLANNING AND PREPARATION

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TAB C

Planning and Preparation

Section 1: Development of State and Local Animal Care Plans

By: Jacob Casper, DVM
Emergency Management Coordinator
Maryland Department of Agriculture

I. LOBBYING EFFORTS

The state Veterinary Medical Association (VMA) should petition and lobby the proper state officials – whether it be the governor, county executive, state department of agriculture, director of emergency planning, or state legislators for inclusion of veterinary medicine in all phases of the state’s emergency management plan. Veterinarians should be included on state and local emergency advisory councils, in development of the emergency plans at all levels, and on the staff at the central and local emergency operating centers during actual emergency events.

The VMA should petition for a representative of the association to fill a position of Veterinary Liaison Officer in the state emergency management agency or state emergency planners’ office. If the assignment is to be made by political appointment, the organization may wish to suggest several names to the official so that they may ultimately choose one. County/local VMA’s should petition to have a representative in the county or local emergency planners’ office. Such appointments may come under the jurisdiction of the local board of health.

II. ESTABLISHMENT OF A COMMITTEE TO ASSIST IN DEVELOPMENT OF AN EMERGENCY PROCEDURE

Once appointed, the Veterinary Liaison Officer should seek the formation of a Disaster Medicine Committee to assist in development of a suitable program for their localities. It is suggested that the committee consist of veterinarians representing all or some of the following aspects of veterinary medicine within the state:

- 1 Large animal practitioner
- 2 Small animal practitioner
- 3 Department of Agriculture veterinarian(s)
- 4 State Animal Health Officials
- 5 Meat & Poultry Inspection
- 6 Diagnostic Laboratory Veterinarian
- 7 Department of Natural Resources – veterinarian or game warden
- 8 Zoo veterinarian
- 9 Veterinary school representative
- 10 Animal control veterinarian
- 11 Laboratory animal veterinarian
- 12 Animal welfare organizations/shelter representation

Once formed, the committee should meet as often as needed until the program is formulated and then meet a minimum of twice yearly thereafter.

The chair of the Disaster Medicine Committee may be the Veterinary Liaison Officer, the alternate Veterinary Liaison Officer, or another member. The chair is appointed by the president of the state VMA. The committee’s duties are to determine the responsibilities and liability of veterinarians in emergency operations; coordinate with the emergency management agency in development and

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revision of the state emergency operations plan as it involves veterinarians and other animal care persons; coordinate veterinary services and animal care responsibilities with the Departments of Health, Agriculture, Wildlife, and Environmental Protection; and encourage and assist local veterinary associations in contributing to county emergency planning and operations.

III. SURVEY OF EXISTING LAWS

Certain agencies and groups often are designated by specific laws to handle certain situations in the state involving animals. (Example: Stray animal control may be the responsibility of county animal control agencies.) The committee should research existing laws to accurately determine the responsibilities of various agencies. If there is any overlapping of functions, a written memorandum of understanding should be developed that specifically identifies each agency's functions. Laws or regulations regarding foster/adoption of lost/abandoned pets and livestock as well as laws governing carcass disposal should be examined. Natural resources and wildlife agencies have legal responsibilities for wildlife; therefore, care of wildlife affected by disasters must be coordinated with these agencies.

IV. FUNDING

The issue of funding for equipment, drugs, feed, and supplies used during an event must be addressed in advance and included in the final plan. Needed items may be donated by vendors or funding may be accomplished by state support through special legislative funding, donations, grants, billing the individual animal owners, or by other methods. Specific guidelines for rapid distribution of emergency funds and persons authorized to release the funds should be established prior to any emergency. Guidelines for proper documentation of distributed funds and supplies should be determined. Accurate record keeping is important so that donations are securely handled and not misappropriated or misdirected.

V. ANIMAL CENSUS

A statewide, countywide, and locality-wide census of the animal population should be taken. Included in the census should be the location, type, and numbers of livestock and poultry, and the location of private and public zoos, aquariums, laboratory animal facilities, aquaculture centers, and other similar operations, with an indication of the numbers and type of animals in each. The Department of Natural Resources should provide some estimate as to the location, type, and numbers of wild animals in the state, if possible. Lastly, some estimates of companion animals should be included. This information can be estimated from formulas found in the AVMA's U.S. Pet Ownership and Demographics Sourcebook. Once this information is assimilated, it should be keyed onto a map for easy reference, so that emergency responders will immediately know, for the area of emergency, the type, location, and number of animals involved. The state department of agriculture and USDA may already have this on file and can be helpful in providing this data for farm animals.

VI. DEVELOPMENT OF A PERSONNEL LIST

A list of individuals who can be consulted during an emergency and who can act as a responder at the emergency site to assist during the event should be developed. Veterinarians, veterinary technicians, livestock inspectors, state animal health officials, game wardens, animal control personnel, farmers, and kennel owners should be included (prime representative and at least one backup). Current phone numbers (cell phone, pager, home and work) should be included in the list along with a brief summary of the individual's expertise and reason for inclusion on the list, particularly if the individual will be responsible for hands-on care. Once the list is developed, it should be reviewed and updated at least twice yearly or more often as needed to ensure that individuals are still willing to serve and that their phone numbers are current. Once the list is complete, individuals should be advised of exactly what their responsibilities will be and how they will be directed to respond. The organization should be developed statewide, as well as by regions, so that all areas of the state are covered.

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The success of any emergency operations plan depends on the effectiveness of the chain of command and control. The Veterinary Liaison Officer and the alternate, by nature of their appointment by the Board of Health or other responsible agency, have an obligation to coordinate local veterinary service and animal care activities. Their willingness to be nominated, however, and the participation of veterinary, humane society, and animal control personnel are on a voluntary basis. During emergencies, voluntary helpers usually are plentiful; coordination of their efforts is the challenge. Coordination of state agencies and volunteer activities with the incident commander (IC) at the disaster site is essential. It is through the Veterinary IC that local veterinary efforts can be coordinated and integrated within the National Incident Management System (NIMS). Online training on NIMS is free through the U.S. Government, and resources can be procured from the Federal Emergency Management Agency.

VII. COMMUNICATIONS

As important as the chain of command is, it is ineffective without adequate communications. Phone lines often are down or access is restricted during times of disaster. Prior arrangements should be made with the local phone company for the provision of open lines between the Disaster Medicine Committees' office and the state and county emergency operations centers. In addition, a list of people willing to provide ham-radios, walkie-talkies, facsimile machines, portable satellite telephones, cellular phones, and expertise on their use should be obtained. Coordination of communications with other emergency responders, such as offices of fire, police, and rescue squads, as well as the emergency management center is important. A phone tree to organize the response to a disaster should be arranged to prevent unnecessary overloading of the phone lines.

VIII. SUPPLY LIST

A list of supplies that might be needed for hands-on animal care during an emergency should be developed. Once the list is developed, sources of those supplies should be determined. The list should include food for large and small animals, medical supplies (including medical, necropsy, and restraint equipment), and record keeping supplies.

Depots at various locations throughout the state could be stocked with a minimal amount of supplies. Existing facilities such as feed mills, poison control depots, veterinary hospitals, and pharmaceutical distributors may be used as supply sources. A source list for selected items should be developed so that the emergency response coordinator will know where to obtain particular supplies. Included in the supply list should be a suggested cost of the items and how the individual vendor will be paid to avoid budgetary problems and actual release of the supplies by the vendor. The vendor or source list should also include normal work hours and after-hours phone numbers and the names of contact persons. The list should be updated periodically as phone numbers may change and vendors may go out of business. During an emergency, the coordinator should arrange for obtaining and shipping supplies to a central point at the emergency scene.

A list of facilities available for possible use as warehouses for donated supplies during times of disaster should be compiled. Most importantly, a list of volunteers willing to staff those warehouses during the disaster response is needed.

IX. EVACUATION LOCATION AND SHELTER

During certain emergencies, it may be necessary to temporarily evacuate the areas. Public Service Announcements should be broadcast instructing owners that conditions unsafe for people are unsafe for animals.

A list of shelters where animals can be taken should be developed. For farm animals, shelters could include sale barns, racetracks, or fairgrounds. For pets, it could include veterinary hospitals, boarding kennels, or fairgrounds. Officials should develop memoranda of understanding with local sheltering facilities, transport services, and humane nongovernmental partners. Through the Pet Evacuation and

PLANNING AND PREPARATION

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Transportation Standards Act and the Post-Katrina Reform Act, states can be reimbursed for providing shelter and medical procedures performed for animal health and well-being. Specific reimbursement information can be located at FEMA's Disaster Assistance Policy 9523.19.

A plan for handling pets that arrive with their owners at mass care centers should be developed. Contact the local chapter of the American Red Cross. A list of the sources and types of vehicles that could be used for animal evacuation should be organized. Routes for evacuation will have to be coordinated with the Department of Transportation at the time of the evacuation; however, the routes should be separate, if possible, from routes used to evacuate people so that the movement of animals does not interfere with the mass movement of people. If large animals cannot be evacuated, then instructions for owners should be developed. During an emergency, consideration should be given to appointing owners of these animals as emergency workers so they can be allowed back into the area to care for their own animals. Workers that will handle animals should be issued badges or easily distinguishable armbands so that others will readily know of their identity and they will not inadvertently be excluded from the scene.

X. TRANSPORTATION

Checklists of transportation resources should be developed. Transportation resources should be separated into those for cattle, horses, and small animals. Dog clubs and breeder groups often can mobilize and transport dogs on short notice. They have the vehicles and cages to transport large numbers. The local chapter of the American Red Cross should be contacted to discuss transportation of animals from Red Cross shelters to animal hospitals or shelters. The American Red Cross has designated the American Humane Association and the Humane Society of the U.S. as the lead groups responsible for rescue, feeding, and sheltering of animals during a disaster response.

XI. CONTROLLED SLAUGHTER, EUTHANASIA, AND DISPOSAL PROCEDURES

Depending on the nature of the disaster, animals may die or need to be euthanatized. Should laboratory analysis of carcasses be needed for disease control, a protocol for sample collection and submission must be developed prior to the emergency. If animals are to be euthanatized, accepted methods for individual or mass euthanasia should be documented, brief guidelines are provided in this guide. Guidelines for euthanasia of animals with absentee owners should be developed and then shared with the respective state veterinary oversight entity for compliance of state regulations. Procedures for how carcasses will be disposed of also must be determined. Carcass disposal may be by burning, burial, composting, or rendering, pending state and local approval. A list of renderers, crematoriums, and heavy earth-moving equipment suppliers should be developed to meet this need. If mass burial is to be done, consultations should be held with officials of the Department of the Environment to ensure that the burials will not cause contamination of water sources or harm other natural resources. In some instances, animals may be slaughtered for food purposes as a means of euthanasia. The slaughtered animal must be inspected for wholesomeness.

XII. CARE OF INJURED, SICK, AND STRAY ANIMALS

Care of sick or injured animals will depend on the condition at the emergency site. In some cases, normal veterinary procedures can be used. In others, a triage system will have to be developed, especially if mass casualties exist. Decisions on treatment versus euthanasia may have to be made. Stray animals need to be caught and confined or euthanatized by the appropriate officials. Plans need to be developed in advance but modified for each circumstance during an emergency. The prime concerns in handling sick, injured, or stray animals should be the normal treatment, if possible. If the normal standards of care are not attainable the goal is to alleviate as best possible the animal's pain and suffering, and to minimize injury by the animal to human beings and prevent/control the spread of zoonotic diseases.

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XIII. INTEGRATION WITH THE MASTER PLAN

The various resources, personnel, and census lists, along with any procedures and protocols developed, should be integrated into the state or subdivision's master plan. Many emergency management agencies are computerizing such information on maps. Because the prime function of all plans is the protection of life and property, priorities of animal care will have to be developed. Support agencies may not be willing to have their resources used to care for animals if human life is in danger. This should be discussed in advance of emergencies, thus, coordination should be made with state and local officials and FEMA representatives.

XIV. EDUCATION AND PUBLIC INFORMATION

After lists are developed and a plan devised, all key personnel must be educated as to their responsibilities. This may be done by formal training sessions, brochures, telephone conversations, or videotapes. The use of NIMS is recommended. Prior to events and during emergencies, an individual (public information officer) that can provide information to the public should be designated and used as necessary.

XV. PRACTICE EXERCISES

At least twice yearly or more often if needed, a practice exercise should be conducted. Exercises may or may not be announced and should be held at different times of the day, night, and week. Exercises can be held in coordination with state planned exercises or independently. During these exercises all phases or only certain parts of the plan may be implemented. A script should be developed that would effectively challenge the responders. After the exercise is completed, a debriefing and critique must be held to determine whether any modifications to the plan are required.

(Rev. 08/08)

PLANNING AND PREPARATION

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TAB C Planning and Preparation Section 2: Model VSAC Annex-State EOP

Tab _____ to Annex ____ (Public Health) of the _____ Emergency Operations Plan

VETERINARY SERVICE AND ANIMAL CARE

I. PURPOSE

The purpose of this Veterinary Service and Animal Care Annex (tab) to the (state) Emergency Operations Plan is to provide guidelines for rapid response to disasters affecting the health, safety, and welfare of human beings and animals. Veterinary medicine and animal care resources in emergency preparedness, response, and recovery include, but are not limited to, small and large animal care, facility usage, and displaced pet/livestock assistance.

II. SITUATION AND ASSUMPTION

A. Situation

1. A disaster or major emergency is any occurrence, natural or man-made, that causes substantial suffering to human beings and animals, and catastrophic damage to property. Examples include hurricanes, earthquakes, tornadoes, floods, fires, snowstorms, drought, explosions, nuclear accidents, hazardous materials spills, structure collapse, riots, terrorism, transportation wrecks, and outbreaks of contagious disease.

B. Assumptions

1. The (state) Veterinary Medical Association (VMA) represents veterinarians of the state and maintains liaison with the emergency management and environmental protection agencies; Departments of Public Health, Agriculture, Environment, Natural Resources, Public Health, and Wildlife; and humane societies and animal control agencies. The Association's address and telephone number are:

2. The Disaster Medicine Committee consists of members representing the (state) veterinary medical association, state veterinarian's office, _____ College of Veterinary Medicine, (state) veterinary technician's association, State Departments of Agriculture, Environment, Natural Resources, Public Health, Wildlife, (state) animal control association, humane organizations, and veterinarians representing large animals, small animals, and exotic animals.

3. The Disaster Medicine Committee coordinates veterinary involvement with the State Emergency Management Agency.

4. Memoranda of Understanding will be developed between the (state) Emergency Management Agency, and AVMA Veterinary Medical Assistance Teams, sheltering facilities, humane nongovernmental organizations, and transportation companies; communications equipment suppliers; manufacturers of cages, portable fences, pet foods, livestock foods; and pharmaceutical firms.

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5. Veterinarians residing in each county are the first line for response to emergencies involving animals or animal food products in their communities.
6. If an emergency incapacitates local veterinary activities or if the magnitude of the emergency exceeds local veterinary resources, veterinary resources from adjacent counties may be requested in accordance with any pre-existing agreements.
7. The state Emergency Operations Plan is consistent with the National Response Framework.

III. CONCEPT OF OPERATIONS

A. Mitigation

1. Zoological and wildlife parks, marine animal aquariums, laboratory animal research facilities, animal shelters, and university veterinary medical and animal science centers will be (encouraged/required) to develop emergency procedures and evacuation plan for the animals in their care and to provide copies of the plans to the (state) Emergency Management Agency.
2. Permit applications to maintain a wild/exotic animal recommend or require applicants to file an emergency procedures and evacuation plan with the (state) Emergency Management Agency and to maintain possession of a suitable container to transport the animal during evacuations.

B. Preparedness

1. The state VMA assists the State Emergency Management Agency (EMA) in developing an organizational structure and chain of command, and an outline of the duties and responsibilities of veterinarians involved in implementation of the response to a disaster or major emergency following Incident Command System (ICS).
2. Coordinating with the state and/or the state animal response team, the state VMA provides the names of current state and county Veterinary Liaison Officers to the Coordinator of Emergency Preparedness and Response for the AVMA.
3. Coordinating with applicable county animal response teams and county emergency boards, the state VMA provides a current directory of county Veterinary Liaison Officers (county veterinary coordinators) and member licensed veterinarians residing in the county/city to the local Emergency Management Agency (EMA) Coordinator.
4. The state VMA works with state policymakers to develop and enact state laws modeled after the Uniform Emergency Volunteers Health Practitioners Act.
5. Veterinary personnel, previously credentialed and certified as required by state law, participate in emergency exercises and training.
6. Directories of humane society and private animal holding facilities are provided to the county.
7. Humane society and animal control personnel participate in emergency exercises and training.
8. Veterinary services and animal care activities are incorporated into local Emergency Operations Plans (EOP).
9. Copies of animal-escape/evacuations plans for zoologic, wildlife, and aquarium parks; laboratory animal research facilities; animal shelters; and university veterinary medical and animal science centers are provided to the (state) Emergency Management Agency.

C. Response

1. Veterinarians involved in emergency management will:
 - a. First seek appropriate credentialing and certification as required by the State.
 - b. Coordinate with governmental authorities in establishment of emergency aid stations and staging of emergency relief.
 - c. Coordinate with governmental authorities in matters of evacuation.
 - d. Cooperate with governmental authorities in matters of equipment use and provision of transportation.
 - e. Cooperate with mutual aid operatives.

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- f. Cooperate in matters of salvage and restoration of community order.
- g. Maintain security of veterinary medical facilities and supplies.
- h. Coordinate with public information operations, specifically the Public Information Officer, to communicate alert status, volunteer mobilization, and casualty and damage information.
- i. Temporarily arrange for or provide food, water, and shelter for small and large animals.
- j. Provide care for sick/injured animals.
- k. Assist in the coordination of efforts with animal control officials to apprehend animals that have escaped their confinement as recommended within the ICS structure of the incident at hand.
- l. Recommend methods of proper disposal of dead animals; coordinate with (state) Departments of Agriculture, Health, Wildlife and (state) Environmental Protection Agency.
- m. Recommend methods and supervise prevention and control of zoonotic diseases.
- n. When medical facilities are unavailable, and when directed by state authorities, permit use of veterinary facilities and equipment for temporary human medical care during extreme emergencies involving mass casualties.

D. Recovery

- 1. Provide documentation of injuries and deaths of animals for insurance and reimbursement purposes.

IV. ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

A. The (state) Veterinary Medical Association is the primary organization for coordinating voluntary veterinary services needed in emergencies. It will liaison with the State Emergency Management Agency and other applicable State agencies.

1. President:

- a. Responsible for informative communications with constituent veterinarians and related organizations.
- b. Appoints the (state) Veterinary Liaison Officer.

2. Executive Director:

- a. Responsible for daily operation of VMA office in (location).
- b. Maintains frequent communication with the state Veterinary Liaison Officer.
- c. Coordinates disaster activities with the Coordinator of Emergency Preparedness and Response for the AVMA.
- d. Coordinates multi-state disaster response with other state VMAs.
- e. Maintains a list of county Veterinary Liaison Officers (county veterinary coordinators) and their alternates.
- f. Activates the phone tree, when necessary.
- g. Coordinates press releases and public service announcements, assists (state) VMA spokesperson, establishes and manages a veterinary medical media liaison center, and coordinates with other professional media centers.
- h. Coordinates with the Dean of the (state) College of Veterinary Medicine for assistance in disaster relief.
- i. Coordinates efforts of national organizations involved in assisting veterinarians with insurance matters or practice management problems related to the disaster.
- j. Solicits and coordinates donations for the American Veterinary Medical Foundation and State Veterinary Medical Foundation (as applicable).

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- k. Maintains list of retired/volunteer veterinarians who are willing to assist in emergency response situations.
- l. Provides contact information for the American Veterinary Medical Foundation to veterinarians whose practices were affected by the incident, for financial support opportunities.
- m. At the direction of the (state) VMA, establishes an emergency fund for supplies, food, reimbursement of veterinarians for supply costs, and to assist disaster-affected veterinary practices.
- n. Determines what special training (hazardous materials training) is necessary for veterinarians to enter disaster areas.

3. State Veterinary Liaison Officer:

- a. Serves in the state Emergency Operations Center (EOC) as a state level liaison between the (state) VMA and the (state) EMA; other representatives in the EOC; county Veterinary Liaison Officers (county veterinary coordinators); the (state) Departments of Public Health, Environment, and Agriculture; National Animal Disaster Coalition (NADC) representative; and local emergency responders (veterinarians, humane society and animal control personnel) during disasters requiring veterinary services and animal care.
- b. Establishes procedure for requesting Veterinary Medical Assistance Teams from the AVMA.
- c. Establishes procedure for requesting military veterinary service assistance through the Federal Coordinating Officer at the state EOC.
- d. Maintains liaison with federal, state, and local regulatory agencies.

4. President of the (state) Federated Humane Societies:

- a. Appoints or serves as state-level liaison (state Humane Liaison Officer) between the VMA representative (state Veterinary Liaison Officer) and local humane organizations.
- b. Coordinates all humane society animal relief/rescue efforts with the EOC and the state Veterinary Liaison Officer.
- c. Serves as the in-state coordinator for all relief efforts of regional or national humane organizations.

5. Head of the (state) Animal Control Association or local Animal Control Department:

- a. Appoints or serves as state-level liaison between the VMA representative (state Veterinary Liaison Officer) and local animal control personnel.
- b. Coordinates all animal rescue/control efforts with the EOC.

V. DIRECTION AND CONTROL

A. The initial point of contact is the Executive Director or President of the VMA who will contact the Chairperson or his/her designee of the Disaster Medicine Committee. The chair will contact the state Veterinary Liaison Officer who will coordinate activities with the county Veterinary Liaison Officers (county veterinary coordinators), the state Humane Liaison Officer, and the animal control association representative. The state Veterinary Liaison Officer will coordinate veterinary services and animal care with the (state) Department of Health or Agriculture representative at the state level.

B. During times of federal assistance, the Incident Commander is the liaison to the involved federal agencies

C. Veterinarians, animal control, and humane society personnel will participate in emergency operations on a voluntary basis.

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VI. CONTINUITY OF GOVERNMENT

A. During emergencies, the line of succession for VMA Veterinary Liaison Officer will be the other members of the VMA Disaster Medicine Committee.

VII. ADMINISTRATION AND LOGISTICS

A. The (state) Veterinary Liaison Officer serves on the staff of the (state) EOC.

B. Reimbursement for use of facilities, supplies, and personnel associated with pets and service animals will be provided by the State EMA Coordinator as applicable based on FEMA Disaster Assistance Policy 9523.19.

C. Federal financial assistance associated with livestock will be sought by the State Veterinarian. If the State Veterinarian and Area Veterinarian-In-Charge (AVIC) conclude that federal assistance is needed, the Regional Veterinary Services office will be consulted. The Region will contact the National Veterinary Stockpile (NVS) as necessary and NVS will maintain communications between the Region, AVIC, and State Veterinarian.

VIII. PLAN DEVELOPMENT AND MAINTENANCE

A. The Chairperson of the VMA Disaster Medicine Committee reviews this annex/tab to the (state) EOP to ensure that necessary updates and revisions are prepared and coordinated, based on deficiencies identified in exercises and emergencies.

B. Changes to this annex/tab will be coordinated by the (state) EMA and distributed to all holders of the (state) Emergency Operations Plan (EOP).

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TAB C Planning and Preparation Section 3: Model VSAC Annex-County EOP

I. PURPOSE

To establish the contribution of veterinary medicine and animal care resources in emergency preparedness, response, recovery, and mitigation management in _____ County.

A. Situation

1. A disaster or major emergency is any occurrence, natural or man-made, that causes substantial suffering to human beings and animals, and catastrophic damage to property. Examples include hurricanes, earthquakes, tornadoes, floods, fires, snowstorms, draught, explosions, nuclear accidents, hazardous materials spills, structure collapse, riots, terrorism, transportation wrecks, and outbreaks of contagious disease.

B. Assumptions

1. The county or regional veterinary medical association represents local veterinarians and maintains liaison with emergency management, public health, agriculture, humane society, and animal control agencies (names and telephone numbers are listed at Attachment 1).

2. The Association's address and telephone number are:

3. A veterinarian (county Veterinary Liaison Officer or county veterinary coordinator), identified by the state or local veterinary medical association and appointed by the local Board of Health, will liaison with veterinary, agricultural, humane society, and animal control involvement in emergency management within the _____ County Health Department, _____ County Emergency Management Agency (County EMA), State Emergency Operations Center, County USDA Emergency Board, state Veterinary Liaison Officer, other county Veterinary Liaison Officers, County Sheriffs' office, and the county/local Veterinary Medical Association (VMA) or locally practicing veterinarians.

4. A person identified as the county Humane Liaison Officer will be recommended by and will represent animal control agencies, humane organizations, and animal rescue groups residing in or acting within the county.

5. The veterinary, humane society, and animal control staffs residing in a county are the first line of response to emergencies involving animals in their communities.

6. If an emergency incapacitates local response capability, veterinary, humane society, and animal control resources from adjacent counties may be requested through the County EMA Coordinator or County USDA Emergency Board.

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II. RESPONSIBILITIES

A. The State Veterinary Medical Association-identified veterinarian will be the county Veterinary Liaison Officer (county veterinary coordinator) in the County Emergency Operations Center (County EOC) and will be responsible to the Chief Executive Officer for all activities within the scope of this plan. The County EMA Coordinator will appoint a County EOC Veterinarian-in-charge, if more than one veterinarian is assigned to the EOC.

III. CONCEPT OF OPERATION

A. Mitigation

1. Arrange for emergency generators to provide electricity required for emergency heating, feeding, and watering of highly vulnerable animal populations.

B. Preparedness

1. Seek training of the use of NIMS in emergency response.
2. Assist in coordinated relief efforts with the county emergency preparedness office, county USDA/extension office, local animal control department, humane organizations, local law enforcement agencies, local chapter of the American Red Cross, and others providing emergency services.
3. Guide agencies/departments/organizations responsible for search and rescue efforts for injured, stray, or abandoned animals.
4. Guide agencies/departments/organizations responsible for transportation of injured animals to veterinary facilities and back after treatment.
5. Liaison with agencies/departments/organizations that will provide feeding, sheltering, and routine care of stray or abandoned pets, livestock or exotics.
6. Liaison with the American Red Cross in developing a plan to transport animals to animal care facilities when owners are evacuated to shelters.
7. Develop list of registered veterinary service volunteers.
8. Provide listing of animal clinics, shelters, and their supervisors to the County EMA Coordinator.
9. Provide maps of affected area and prepare overlays plotting locations of veterinary hospitals/clinics, animal shelters, animal control facilities, designated emergency animal holding facilities, livestock market facilities, fairgrounds, feedlots, and supply distribution points.
10. Establish work schedules and practice call-downs.
11. Form mobile veterinary response teams and assign areas of responsibility. Response teams may be organized by city, county, or multi-county, depending on the extent of the disaster and the number of veterinary personnel participating.
12. Coordinate the veterinary logistical supply system: Determine requirements, identify supply sources, method of acquisition, fund requirements, shipping methods, storage, and method of distribution.
13. Identify communications equipment for use during any disaster.
14. Involve veterinary, humane society, agricultural, public health, and environmental, and animal control personnel in emergency exercises and training.
15. Determine high-density animal populations at high risk in the event of a disaster.
16. Establish county/state bilateral communications procedure for requesting AVMA Veterinary Medical Assistance Teams.
17. Establish procedures for requesting military veterinary service assistance through the Federal Coordinating Officer at the state EOC.
18. Develop a list of vehicles and trailers to provide transport of personnel and animals.
19. Develop a preventive health program for all housed animals.

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20. Provide means for identification of lost or abandoned animals.
21. Agree on establishment of a uniform “hotline” number for animal retrieval and other animal-related information.
22. Develop a plan for rapid disposal of dead domestic animals and contaminated carcasses. (Plans for collection and disposal of dead wildlife must be coordinated with state departments of wildlife.)

C. Response

1. Assist in apprehension of animals that have escaped their confinement.
2. Establish a local animal retrieval plan in conjunction with animal control and humane society personnel.
3. Establish a foster/adoption procedure in the event that lost animals cannot be reclaimed by their owners in a reasonable period of time. Agreements must be legally written to protect the rights of the original animal owners. Ascertain that such procedures are in accordance with applicable state/county laws.
4. Recommend methods of proper disposal of dead animals; coordinate with Departments of Agriculture, and/or Public Health, and/or Wildlife, and/or Environmental Protection.
5. Recommend methods and supervise prevention and control of zoonotic and food-borne diseases in coordination with the county Departments of Agriculture and Health.
6. Provide health care for injured animals, including search and rescue and police dogs and horses.
7. Temporarily arrange for or provide food, water, and shelter for displaced animals.
8. Maintain frequent communications with (state) VMA.

D. Recovery

1. Provide documentation of injuries and deaths of animals for insurance purposes.
2. Establish methods and procedures for the appropriate use and accountability of donated funds.
3. Debrief participants and prepare after action reports.

IV. ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

A. The city, county, or regional Veterinary Medical Association, designated as the Association in I.B.2. is the primary organization for coordinating veterinary services and will liaison with the EMA and USDA for animal care needs in emergencies. The Association’s president is responsible for:

1. Informative communications with constituent veterinarians and related organizations.
2. Recommending to the local Board of Health a veterinarian, and an alternate, to serve as Veterinary Liaison Officer (county veterinary coordinator).

B. Board of Health

1. The Board of Health considers the recommendation of the president of the Lead Veterinary Medical Association and appoints the county Veterinary Liaison Officer.

C. County Veterinary Liaison Officer (VLO)

1. The VLO is responsible for coordination of veterinary, humane society, and animal control activities with the local health agency, the Emergency Operations Center (EOC) supervisor, county USDA office, and other appropriate local and state agencies.

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D. County Humane Liaison Officer (HLO)

1. The HLO is responsible for coordination of relief efforts by humane societies, animal control agencies, and animal rescue groups with the VLO and local law enforcement agencies.

E. County USDA Emergency Board

1. The County USDA Emergency Board comprises the County Farm Service Agency (FSA) Director (Chair), District Conservationist, Cooperative Extension Service County Director, the USDA Fishery/Game Biologist, and other representatives as available.

2. The Board will report to the USDA State Veterinarian on pending animal-associated disasters and post-disaster. The board will describe livestock species and numbers, feeds, and facilities affected. The Board will also request (as necessary) emergency release of grain and/or set-aside acreage for haying/grazing.

V. DIRECTION AND CONTROL

A. The VLO will coordinate veterinary, humane society, and animal control activities with the Health Department representative to the EOC.

B. Veterinarians, humane societies, county USDA/extension offices, law enforcement, public health personnel, and animal control personnel participate in emergency operations on a voluntary basis.

VI. CONTINUITY OF GOVERNMENT

A. During emergencies, the line of succession for the ____ county Veterinary Liaison Officer (VLO) will be the alternate VLO, followed by a veterinarian appointed by the Chief Executive Officer of the lead veterinary medical association and approved by the local Board of Health.

VII. ADMINISTRATION AND LOGISTICS

A. The VLO works under the supervision of the local Board of Health.

B. Reimbursement for use of facilities, supplies, and personnel associated with pets and service animals will be provided by the State EMA Coordinator as applicable based on FEMA Disaster Assistance Policy 9523.19.

C. Financial assistance associated with livestock will be sought by the USDA County Emergency Board.

VIII. PLAN DEVELOPMENT AND MAINTENANCE

A. The VLO reviews this tab to the county EOP to ensure that necessary updates and revisions are prepared and coordinated, based on deficiencies identified in exercises and emergencies.

B. Changes to this tab will be coordinated by the county EMA Director and distributed to all holders of the county EOP.

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TAB C

Planning and Preparation

Section 4: Emergency Preparedness for Private Practices

STRATEGIC DISASTER BUSINESS PLANNING

Veterinary practices are not immune to serious disruption resulting from natural disasters such as hurricanes, tornadoes, and floods. Serious damage or even the end of a practice can result from fires, riots, theft, litigation, or even a downturn in the economy. Any disruption of normal practice operation can be financially devastating. Although nothing can completely prepare the practice owner for these serious events, pre-disaster business planning could lessen the initial shock and strengthen the ability of practitioners to recover from their losses.

Business Planning

Few veterinary practices (probably <3%) have written business plans. The information in a well-written business plan is invaluable in coping with business disruption, in decision-making, and in the documentation of inventories and equipment in the event of losses. Advance preparation could alleviate some of the stress encountered during the recovery period.

The primary challenge in the recovery process of a disaster is to minimize the long-term financial losses. Risk management requires sound business planning, which will greatly aid the business decision-making process. A common business error of veterinary practice managers is procrastination of the planning process until after a disaster happens. The result is lost valuable time in the recovery process and poor quality business decision-making.

Business decision-making is difficult under ideal situations; it is more complicated during times of duress. Decisions such as whether to rebuild or to relocate often become monumental because of the shifting economics and demographics of the area. Even though it may be difficult to accurately project the outcome of specific disasters, business planning could dramatically assist in the recovery process.

The Planning Process

Planning should involve the entire staff. People are more likely to implement what they have helped develop. This is an effective tool in helping the staff take “ownership” as well as being a powerful internal force for motivating the practice team. The process of planning may be more important than the actual plan, because it forces the entire staff to work together in thinking through various aspects of the practice. This process has the side benefit of helping to build a cohesive team, which will strengthen the normal operations of the practice.

The first step of disaster planning is to prepare a well thought-out business plan. When a business plan is completed, many of the elements of the disaster plan will already be in place. Assign various parts of the planning process to each staff member and let them do some personal planning and research on their assignments. If this is the first business plan developed by the practice, it is wise to obtain the services of a planning facilitator.

Resources Available

Knowledge of the sources of available assistance is helpful in developing the business plan. Begin by checking the resources available in state and national disaster units. Valuable information may often be obtained from large bank planning departments, chambers of commerce, economic development units, small business development centers, state insurance and commerce departments, local Occupational Safety and Health Administration (OSHA) Offices, Senior Corp of Retired Executives (SCORE), private accountants, attorneys, insurance broker or carrier, and business consultants. The American Academy on Veterinary Disaster Medicine is also a valuable resource for disaster information.

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Development of a Planning Outline

Developing a business plan outline will assist in making assignments to your staff for advance planning. A possible outline could look similar to this:

- Executive Summary (write this last)
- History—Philosophy—& Services of the Practice (Vision, Mission, Values)
- Future Plans & Objectives (Goals, Key Objectives, and Time Lines)
- Practice Organization (Who is responsible for what?)
- Market Analysis & Strategy (Marketing Plan)
- Financial Planning
- Working Capital
- Budget
- Break-Even Analysis
- Cash Flow Projections
- Proforma Income Statements (Conservative, Probable, Optimistic)
- Disaster Plan (Risk Management & Contingency Plans)
- Conclusions and Summary
- Vitae
- Equipment lists
- Amortization schedules
- Personal financial statements

Disaster Planning

After the development of the business plan, the next step is to focus on the contingency plans in the event of a disaster. The staff should answer questions such as “What If?” —a fire—tornado—hurricane—flood—riot—depression—or other disaster should strike the practice? Using the business plan, ask these questions of the staff and develop several alternative plans and several possible solutions.

The answers to these questions will uncover the necessity of adequate insurance; financial reserves, drugs and supplies, as well as emergency plans for animal care, staffing, communications, and a plan of action for management.

Other important considerations will become apparent: alternative power sources; medical, financial, and client record storage; video tapes of premises, equipment, and furniture; emergency radio, lighting, and water supplies; protocol for evacuation; and protocol for emergency medical treatment of animals and staff, if required.

The next step is the training and retraining of the entire practice staff. Let each person be responsible for the leadership and training of the rest of the staff in their specific areas of responsibility. Staff turnover will require new staff members to be oriented and trained.

Business Decisions

One of the most difficult decisions for an owner whose practice is destroyed in a disaster is, “should I rebuild or relocate?” “If I rebuild, will my client base still be viable?” “Can I financially survive while my practice is rebuilding?” These are important questions that require accurate diagnosis of the problem. The generation of several alternatives will be helpful in decision-making. The quality of decisions making will improve when problems are:

- identified and properly diagnosed;
- several possible solutions are generated and evaluated; and
- best possible solutions are selected, implemented, and monitored.

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Leadership

During a crisis, the need for leadership is crucial for a smooth recovery. Coordination of all the various aspects of the recovery process is very important. Planning prior to the disaster is the best way to be prepared to address these complex issues. Good leadership is evidenced by having a vision of the practice. The ability to coordinate, provide direction, and give encouragement is also essential. Without a written business plan, leaders will not be as prepared to effectively lead the practice team through a disaster.

Development of the Document

When all aspects of the planning process are completed, the last step is to put together a written document. This may seem like an overwhelming project. When it is broken down into segments, it is not as formidable as it might seem. It will all come together as a workable plan as each part is planned and developed. The proforma financial estimates of projected income and expenses is one of the most difficult parts of developing the business plan. There are various commercial software programs available to help with these financial projections and calculations. Keep in mind, it is not the document that is so important, it is the planning process itself. It is thinking through your business before problems arise.

Conclusion

Business and disaster planning is an important aspect of the successful practice of veterinary medicine. During times of disaster, this need is accentuated because of the resulting stress and chaos. Prior preparation, paying "due diligence," regular training, and periodic updating of the plan, are all essential ingredients to ensure planned growth and continuity of the veterinary medical practice.

Suggested Reading and Resources

- Cramer K, *Staying on Top When Your World Turns Upside Down*, Viking, 1990.
- Flach F, *Resilience*, Fawcett, NY, 1988.
- Jenkins, Michael D, *Small Business Advisor Software*, Issaquah, WA, 1993.
- Jian Venture Partners, *BizPlanBuilder Software*, Los Altos, CA, 1993.
- Kaufman R, Stone B, *Planning for Organizational Success*, Wiley Press, 1983.
- Peters T, *Liberation Management*, Knopf Inc., 1983.
- Peters T, *Thriving on Chaos*, Knopf Inc., 1987.
- Emergency Management Guide for Business & Industry, www.fema.gov/library

RECORD KEEPING

Veterinarians should make a list of essential records and prepare duplicate copies to be maintained off premises in a safe place. A periodic review of these items should be built into future business practice and the records updated or culled as necessary.

A minimal set of duplicates might include family health records; a record of insurance policies (include the company, the number of policies, a memo of riders, and proof of current premiums); tax records; real estate ownership records (list location of deed, pertinent facts regarding dates of acquisition, purchase, and building costs); copies of major notes and accounts payable; a record of satisfied notes; partnership, lease, or purchase agreements; and building plans and construction permits. If computerized patient/client records are maintained, a copy is valuable. The above list is suggestive; individual needs may dictate additional ones.

Veterinarians also can take steps to protect hard copy office records when there is a warning of problems. Well built secure file cabinets that can be covered with plastic and sealed with waterproof tape will provide a degree of protection from damaged roofs and ceilings and subsequent rain. Records maintained at floor level should be elevated.

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Insurance needs

Property and casualty coverages that veterinarians should consider when insuring their practice to protect against disasters include property liability, general liability, professional liability, professional extension, automobile liability, umbrella liability, and workers' compensation. Major medical and life insurance also should be considered because of the risk of disasters causing bodily harm to veterinarians on staff.

A package policy is an insurance contract that includes property and general liability coverages, which prior to 1970, were written separately. The property section of a package should cover:

- buildings (at replacement cost)
- contents (at replacement cost)
- business interruption
- accounts receivable
- valuable papers
- building glass
- theft or destruction of money
- employee dishonesty
- property away from your premises and in transit
- debris removal

The liability section should cover claims in which veterinarians become legally obligated to pay because of:

- premises liability (slips and falls)
- personal injury (libel, slander, defamation of character)
- operations (damage to property or injury to persons away from the veterinarian's premises)
- products liability (damage to property or injury to persons by a product manufactured or sold by a veterinarian after it has left the veterinarian's premises, other than those products that are directly related to the provision of a professional service.)

Individual veterinary practices may require coverage's not described, which is why veterinarians should work with a broker who is experienced in the needs of a veterinary practice. Depending on your size and location you may need flood insurance, earthquake coverage, employment practices liability, directors & officers coverage, or license defense coverage. All of these should be discussed with a broker like Hub International Midwest Limited, the administrator and broker for the AVMA PLIT-sponsored business insurance program.

No standard package policy exists in the insurance industry. All of the coverages mentioned are subject to extensions, limitations, and exclusions that vary by insurer. Some policies, therefore, are much broader than others, which is why it is important for veterinarians to base their selection of an insurer on more than price.

The type of package policy most often used to insure veterinary practices is called a Business Owner's Policy. These policies are usually composite-rated rather than being rated by each coverage provided in the policy. For example, an insurer files rates for buildings and contents. The premium includes most of the ancillary property coverages listed and all of the general liability coverage.

Beyond the basic coverages described, practice owners should be aware of coverage available for damage to outdoor signs, computers, and software; losses resulting from off-premises power interruption, breakdown of heating and air conditioning equipment, and problems with the sewer system.

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Another important coverage for a veterinary practice is Animal Bailee coverage, referred to as Professional Extension. Extension coverage protects the practice in claims arising from the injury, death, or loss of animals at the practice during boarding or hospitalization, and claims arising from perils unrelated to professional treatment. These perils include fire, wind, theft, vandalism, escape, or injury caused by other animals.

One of the most important coverages for a veterinarian is professional liability (malpractice) insurance. This is a highly specialized type of insurance that requires experienced claims adjusters, attorneys, and a network of credible expert witnesses. Because a veterinarian's reputation is on the line when an allegation of malpractice is made, an insurer should not be able to settle a claim without the veterinarian's consent. Except for the AVMA Professional Liability Insurance Trust (PLIT), other carriers might have little or no experience in adjusting claims or defending veterinary malpractice suits but are willing to offer professional liability insurance as an add-on to a package to reduce costs. Because all professional liability insurers are not alike, veterinarians should look beyond cost when choosing this insurance.

If vehicles are owned in the practice's name, automobile insurance should be secured. If the practice does not own automobiles, non-owned and hired auto liability coverage should be purchased. This protects the practice from claims arising from an employee's use of his or her own vehicles for business purposes, such as running an errand. (It does not cover bodily injury to the employee).

An umbrella liability policy is available to provide higher limits for premises liability coverages, products liability, automobile liability, and employers' liability (excess of employers' liability provided in the practice's workers' compensation policy). An umbrella policy enables a veterinarian to carry \$5,000,000 or more of liability coverage.

Workers' compensation insurance is required by law in almost every state. Stiff penalties exist for failing to provide coverage to employees. In addition, the practice owner is liable for the medical and disability payments due to injured employees as required by the state's workers' compensations laws.

Individual veterinary practices may require coverages not described, which is why veterinarians should work with an agent who is experienced in the needs of a veterinary practice.

Safety procedures/disaster exercises

Personal protection is primary. Steps should be taken to provide basic needs of water, food, and protection. A supply of canned or bottled water and fruit juices should be prepared and canned and dried food (in protective containers) should be maintained in a protective area. A supply of matches, cigarette lighter, sterno, and a bottled gas stove also are important. Flashlights, portable radio, and a supply of fresh batteries should be obtained in preparation for a disaster. Insulated blankets and one or more plastic tarps should also be available.

After steps have been taken to protect oneself and family, veterinarians should carry the exercise further. The next steps would be to review office and hospital operations with a goal of providing additional protection. Workplace drills on the anticipated emergencies/disasters should be conducted at least annually to test the effectiveness of the emergency action plan. Primary consideration should be given to the safety of practice employees. Then provide essential protection to animals. Consider installing an emergency generator (as with other steps in the preparation exercise, it should be run periodically to ensure that it will be ready when necessary); develop alternate water sources; be sure that food is kept in a protected area; and be absolutely certain that animals are effectively identified in case they are killed, accidentally released, or if cage or stall identification is destroyed, or case records are damaged.

There are additional steps that may be taken. These include having building plans and construction records examined by an engineer to determine whether structures were built to code. Changes in construction and operations may be considered. Doors may be examined and changed if necessary to

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help guarantee easy exit. Roofs may be repaired or improved, walls may be reinforced, and window protection may be considered.

Exercises in self-preservation have a secondary benefit. As with all good exercises, they make you feel better. Veterinarians are urged to consider studying this exercise and maintaining it by periodic review.

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Section 5: Mitigating Disasters in Veterinary Practices and Humane Shelters

Sebastian E. Heath VetMB, MPVM, Dipl. ACVIM, ACVPM
“S. E. Heath, Animal Management in Disasters, Mosby, 1999”
www.animaldisasters.com

Disasters are always costly. Frequently people think of highly popularized large scale disasters seen on television as the costliest disasters. However, the common costs associated with “every day” disasters are by far the greatest disaster related costs every year in the US. Examples of the common losses are: loss of adequate animal care and health expertise, loss of income, and family support to employees. Clients may have to seek advice from a neighboring practice while their regular veterinarian’s practice is not open and being restored. Clients will be confused, as they will have to reschedule elective appointments, or seek alternate advice mid-way through therapy (this could be very difficult for a patient undergoing chemo cancer therapy where the records of the original veterinarian cannot be found). Business disruption may also affect client loyalty and a practices reputation. Accumulation or killing of animals that may have otherwise been adopted, may also result.

EXAMPLES OF COMMON LOCAL DISASTERS

Even with diligent daily back-up of records, one day the computer could fail. A replacement cannot be installed for 3 days. A new system is needed, but will generate an error rate of 5% in retrieved data.

The municipal water supply has a main burst supplying the practice or shelter.

A car hits a utility pole carrying the power to the practice or shelter. The phone and security system are no longer functional.

A transient is found dead close to business, drug related crime is suspected. The police establish a security ring around the site, which includes the access to your business.

Clients are deterred for two days and the local television news covers the story.

A fire breaks out in a neighboring dry cleaning business. Your business is evacuated.

A technician accidentally drops and breaks a bottle of halothane. All staff are evacuated, but nobody takes the MSDS with them. The fire department does not know how to deal with the problem and evacuates the area.

The manager of a practice or shelter is injured by a dog and is hospitalized for 3 days.

Large scale disasters may also affect the socio demographics of the area where a flourishing practice once stood. For example, after Hurricane Andrew the client base changed sufficiently for veterinarians to have to revisit their clientele base before resuming work or making a major financial commitment for future plans.

GETTING INVOLVED IN DISASTER PREPAREDNESS

There are three levels of disaster preparedness which businesses (veterinary practices, veterinary accessory stores, and animal shelters) in the animal care industry can become involved:

- 1 Personal preparedness at work through Emergency Contingency Planning in accordance with the guidelines of OSHA.
- 2 Business preparedness through business resumption planning in the case of a major disaster. Veterinary practices and humane shelters should be considered “critical facilities”.

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- 3 Community preparedness as community leaders in veterinary emergency management for the care of animals and their owners in disasters. These programs can only be developed correctly under the guidance of the local Emergency Management Agency.

These three areas should be seen as sequential steps for becoming involved in disaster management programs. In particular the types of problems that will occur in a veterinary practice, humane shelter, or pet and feed store in a disaster are likely to be the same as in every day operations, they just occur on a larger scale.

Disasters do not create new conditions, they merely exacerbate existing ones. Therefore, learning to deal with common problems that occur frequently and locally, and are dealt with through local resources is the best way for groups to prepare themselves and their communities for disasters. Local disaster preparedness is also best because it follows the priorities of those who are permanently vested in the local community.

OSHA AND DISASTER PREPAREDNESS

Meeting the legal requirements for a business to be compliant with OSHA is a good starting point for becoming involved in disaster management programs at all levels, because the vast majority of issues that arise in disasters are the same as those that occur during every day business. The OSHA requires that all business with more than 10 employees have a written Emergency Contingency Plan (ECP). For businesses with 10 or less employees a written plan is not mandated, but highly recommended. The purpose of an ECP is to prevent accidents, and if they do occur to be able to effectively control them and reduce their impact.

To some, OSHA regulations may seem like an imposition, however, they have evolved from the experience that disasters and emergencies are a common cause of human injury in the work place, and that many of these can be prevented. OSHA requires a systematic approach to disaster preparedness for businesses. Complying with the regulations set out by OSHA are generally beneficial to companies in that compliance results in lower number of injuries to staff, decreased severity of injury when accidents occur, and decreased losses due to business disruption and the consequences of litigation when procedures have not been followed. These are the identical goals of any business or community disaster preparedness program. Adaptation of the principles of human safety in emergencies, such as evacuations, can be readily adapted by animal health professionals to the care of animals.

BUSINESS DISRUPTION AND DISASTER PREPAREDNESS

Typical losses suffered by businesses in disasters

In a study of business disruption after the Northridge earthquake business owners described the extent of damages and costs to their businesses. The most common damages are summarized in the following table.

Extent of damage (%)	Likelihood of occurrence (%) interrupted	Average cost (\$) of damage per sq.ft.	Average total cost (\$)	Average days
Extensive (50)	14	25.21	50,833	17
Moderate (15)	21	18.50	28,125	7.2
Slight (1-5)	57	1.83	13,408	5
None	8	0	8,375	2

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Repair costs

In this study the average repair costs were over \$15,000 per business. The effect of not being adequately prepared is reflected in the amount of damage that was paid for by the owner of the business: 38% of owners paid for all of the repairs themselves, and an additional 29% of owners paid for part of the repairs out of their personal savings. Only 17% had adequate insurance for the insurance company to pay for all of the repair costs. Most insurance claims were settled within 6 weeks. Only 19% of businesses applied for a small business loan from the Small Business Association to help finance the cost of repairs. The range of time to payment on these loans was 56 to 300 days.

Correlation between damage cost and business interruption

As much as 90% of damages to businesses were estimated to be non-structural or contents related damage. Therefore, structural data may not be the best indicator of the cost of damages to businesses. Long term consequences of business disruption also included changes in the clientele base. 35% of businesses reported a decrease in the number of clients/customers in the 14 months following the earthquake. The owners of these businesses estimated that this loss of clientele resulted in an overall loss to their business by 23%. Although some businesses reported no change in clientele or even an increase in the number of customers, the 2 medical related businesses in this study both reported losses due to decreased numbers of clients. Five out of six businesses that reported extensive damages also had to lay off employees permanently. Other businesses reported temporary layoffs for 7-60 days.

Reopening costs

The cost of reopening differed primarily between who owned the business. Businesses that were part of national chains had their costs of reopening usually covered by the head office. By comparison, 88% of local businesses paid for the cost of reopening out of their own resources.

The impact of floods on businesses

In another study of 1079 businesses after the floods of 1993 in Iowa common causes of business disruption were identified. Flooded businesses tended to be older businesses. The median number of hours businesses were closed by type of business are summarized in the following:

Economic sector	Percent closed	Median hours closed
Wholesale and retail trade	42.5	72
Manufacturing and construction	51.1	72
Business and professional service	45.6	120
Finance, insurance and real estate	39.9	72

Disaster mitigation through insurance

The single most important advice of over 40% of business owners whose businesses had been affected by disasters was to increase insurance coverage. This was supported by the finding that nearly 30% of all business owners, whether they had insurance or not, had to pay for some or all of the costs of damage themselves. Insurance payments were also made much quicker than SBA loans. Adequate insurance may be difficult to obtain in some areas where premiums for likely hazards can be prohibitively high to remain profitable. However, many very effective types of insurance are obtainable at a reasonable cost and contribute significantly to the future success of a disaster struck business.

Poorly insured businesses have a very low chance of returning to normal function. Some estimates suggest that small businesses affected by major disaster have a less than 10% chance of returning to function within three years of the disaster. Insurance should cover all aspects of business: property, facilities, equipment, liability, and protection against losses from interruption. Employers who cannot pay their staff to help clean up the mess after a fire will be out of business for much longer and at much greater expense than if they were able to continue to pay their staff.

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The two most common causes of under insurance and problems with filing claims are not updating insurance as new equipment is purchased and filing claims late. Late claims, especially if they are submitted after repair work has been carried out, are frequently associated with the insured finding out that certain aspects of the cost were not covered in the way they were handled, but could have been handled more cost effectively if a claim had been file early.

Examples of the type of insurance that businesses should consider are:

- Property
- Liability
- Workman's compensation
- Disability
- Life
- Personal accident
- Loss of earnings
- Business interruption (current and future)
- Hazard specific: fire, flood, sewer back flow, earthquake
- Endorsements: valuable papers and documents, breakdown of equipment, software, cost of equipment rental or lease

However, insurance is by no means a substitute for good plans. Effective plans are what prevent disasters in the first place or, if they do occur, reduce damages to a minimum.

Community plans

It should always be remembered that the planning process is just as, if not more, important than the final plan itself. During the planning process, people and organizations learn to work as a team. Remember it will be local people and local resources that will have to carry the greatest responsibilities and burdens when a disaster occurs. There are three circumstances under which plans will be developed:

- 1 The preferred method: in the absence of immediate or recent threat from disaster
- 2 The common method: immediately following a disaster
- 3 The necessary method: at the time of a disaster

The latter two should be avoided.

What is needed?

Some communities may not have Emergency Operation Plans (EOP's) that address animal related issues in disasters. Therefore, to begin with persons interested in developing a local EOP should first determine if their local government has an EOP. If there is an EOP it should be determined to what extent the care of animals and their owners are addressed. To create a plan, a commitment needs to be made at the very outset. Persons/positions who can provide that commitment are: the director of Emergency Management Agency (EMA) (or in rare cases the governor or county commissioners), the state veterinarian or state public health veterinarian (state EOP) or Director of Animal Care and Control (local EOP). Only once there is a commitment by these persons should the development of a formal EOP proceed.

Planning team

Just like responding to a disaster, developing a plan is a team effort. Start by forming a committee of individuals who can contribute. The committee should be co-chaired by emergency management personnel and a representative from the animal care community. Veterinarians, county extension agents, and directors of humane shelters or animal control are examples of suitable animal care industry representatives. Members of this committee should ideally possess the following credentials:

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authority to represent
control over resources that can be used in an disaster
experience or knowledge of disasters.

True representation of groups by appropriate individuals is critical. This must be determined by either formal recognition by the groups being represented or appointment to the position. If formal representation is not assured, then the contribution and the availability of promised resources that a group will be able to make must be questioned. Participation of Animal Control is essential in all plans that intend to deal with stray animals in disasters.

Sources of information

There is wealth of material available from federal and state emergency management agencies on how to develop disaster preparedness plans. Materials from FEMA should be used as much as possible. FEMA has provided guidance to local emergency operations planners for developing Emergency Operations Plans (EOPs) under its Integrated Emergency Management System (IEMS). This guide, CPG 1-8, describes a recommended form, content, and development process of EOP. It sets forth FEMA's policy concerning plans produced with federal assistance. The State and Local Guide for All Hazard Emergency Operations Planning, SLG (101), details plan development, responsibilities and tasking, including the responsibilities for the care of animals. FEMA publishes the "Animals in Disasters" independent study guide, which is available from the Emergency Management Institute, 16825 South Seton Avenue, Emmitsburg, MD 21727.8998.

The American Red Cross, emergency management agencies, and other groups also have many educational materials on how to develop personal and family disaster preparedness plans. Familiarity with these materials is essential before developing plans for a community. The best results have resulted when interested groups have coordinated their efforts with the appropriate level EMA from the outset. The development of plans for the care of animals should proceed as for any other annex or tab for an EOP. There is nothing magical or unusual about the care of animal owners and their animals. Animal owners should simply be viewed as another group with special needs. With that there is an existing industry that is available to help identify needs, resources, and coordinate care.

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Section 6: Preparing Emergency Action Plans

(Reprinted from the Journal of the AVMA, 204:5, pp732-734)

When it comes to preparing for emergencies, most veterinarians immediately think about fire prevention. Although smoke detectors and fire extinguishers are vital components of a hospital's emergency plans, they are, by no means, the only elements that must be considered. There are many hazards, common to veterinary hospitals, that have the potential to cause serious injury to workers or serious damage to equipment or facilities, and veterinary hospitals must prepare for accidents and emergencies. This article will identify some of the dangers in veterinary hospitals and outline the types of emergency action and fire prevention plans required by the Occupational Safety and Health Administration (OSHA).

Each business that has 11 or more employees must have a written emergency action plan.¹ Businesses with 10 or fewer employees must also have emergency action plans; however, these plans do not necessarily have to be written down. Owners of these small businesses should be careful about exercising their right to have verbal emergency action plans. Without documentation, it may be almost impossible to prove that all OSHA requirements have been adequately satisfied.

An important part of any emergency action plan is assigning duties to specific staff members. Make sure that staff members understand the tasks they have been assigned and are competent to perform them. Making these duties part of each staff member's job description is not adequate. As leader of the team, the veterinary hospital's owner is responsible for providing adequate training for all workers.

COMPONENTS OF AN EMERGENCY ACTION PLAN

The purposes of an emergency action plan are, first, to prevent accidents and, second, to control and respond to the accidents that inevitably happen. The emergency action plan must address all potential emergencies, no matter how remote the possibility that a particular emergency will arise. Hospitals may choose to write a separate plan for each type of emergency or a master plan that will cover several similar emergencies. Remember that the plan needs to be comprehensive, but simple enough that it can be easily understood. Do not attempt to cover all emergencies in one master plan if the final plan is just going to confuse the readers.

According to the OSHA, certain elements, intended to prevent or reduce the extent of injuries or damages, must be included in all emergency action plans.²

Emergency escape procedures and emergency escape route assignments. Workers should be informed of what actions are expected of them during an emergency. When animals are to be evacuated, there must be plans for controlling the animals during evacuation and for where they are to be taken. The emergency action plan should include a floor plan or diagram that clearly shows the location of all fire extinguishers, control valves, dangerous areas, and escape routes.

Procedures to be followed by workers who remain behind to perform or shut down critical operations before they evacuate. Clearly defined, step-by-step details of the procedures that must be performed prior to final evacuation must be developed. Some of these procedures might include disabling the central oxygen system or the utilities, when practical. A specific individual must be assigned to perform each procedure. Because the hospital owner cannot be on the premises every minute of the day, identifying the owner as the individual to perform all these functions is clearly not adequate.

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Procedures to account for all employees after emergency evacuation. Designating a central place for everyone to assemble after an emergency will make accounting for all employees fast and easy. Designate one person to take charge of the scene until emergency personnel arrive.

If professional rescue or medical personnel could be delayed in responding, assign rescue and medical duties to those workers who are able to perform them. For most veterinary hospitals, this will not be a concern, but it could be important for hospitals that are physically remote. In those hospitals, an adequate number of workers on each shift should be trained in basic first aid for people. Training and certification is available through organizations like the American Red Cross or through the local fire department.

Outline the preferred means of reporting fires and other emergencies. Don't assume that everyone knows to call 9-1-1 during an emergency: post emergency phone numbers near each phone. Appoint one individual to call emergency personnel. Sometimes, during an emergency, everyone assumes that someone else has called for help. Make sure that there is a procedure for calling for emergency assistance if the building has to be evacuated before a phone call can be made. Is there another telephone nearby? If you have a central alarm system, make sure all employees know how to manually activate it.

List the name or regular job titles of persons to be contacted for further information about or for explanation of duties in the plan. As with all plans, someone must be responsible for developing, updating, and explaining the plan. Make sure that this person keeps the plan current.

TRAINING FOR EMERGENCIES

As with all other OSHA programs, training of employees is of paramount importance. In all instances, employees must receive training when they are initially hired, before they are exposed to the danger, or when the plan is first developed. Usually, additional training is necessary only when the plan changes or when new hazards are introduced into the workplace.

It is recommended that at least one trial run of the emergency plan be conducted. Although assigned duties may have been discussed during staff meetings, workers will usually fail to recall their assigned duties during a real or staged emergency. Remember to keep records of all training and practice exercises that are conducted.

SPECIFIC EMERGENCY ACTION PLANS

Fire Prevention Plan

In addition to the general emergency action plan, businesses are required to prepare and implement a specific fire prevention plan. The following are the minimum elements of a fire prevention plan.³

Major fire hazards in the workplace, and their proper handling and storage procedures, potential ignition sources (e.g., open flames and electrical sparks) and type of fire protection equipment necessary to control each major hazard,

Procedures to control accumulations of flammable and combustible waste materials;

Procedures for regular maintenance of safeguard installed on heat-producing equipment to prevent the accidental ignition of combustible materials;

Name of job title of employees responsible for maintaining equipment to prevent or control sources of ignition or fires, and;

Name or job title of employees responsible for the control of fuel source hazards.

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An evacuation diagram is a good start for a fire prevention plan. Also, use different colored inks or symbols to mark the location of each fire hazard. For each fire hazard identified (e.g., oxygen tanks, hazardous chemicals), attach a simple protocol detailing when regular checks of the area should be performed and what special fire protection or suppression methods are necessary. Also, mark the location of smoke detectors and fire extinguishers, and indicate when they were last inspected.

If portable fire extinguishers are a part of the fire defense system, employees must be trained to use them properly. Make sure that fire extinguishers are in place, functional, and have the proper rating for the conditions.

Provide a copy of your fire prevention plan to your local fire department. They will need this information in case of an emergency.

Emergency plan for hazardous chemical spills:

The OSHA's Identification, Classification, and Regulation of Carcinogens Policy⁴ is very strict, and any hospital that exposes its workers to agents that can cause cancer must have specific safeguards in place. Ethylene oxide and formaldehyde are human carcinogens and, therefore, pose serious dangers to employees of facilities that use these agents. Each employer must develop a plan that would address appropriate responses to all foreseeable emergencies, including spills. Employees must receive any training, information and equipment required by a response plan. Proper housekeeping includes maintenance of equipment, surveillance and detection of leaks, containment of spills by trained employees wearing protective clothing, and proper disposal⁵.

In addition to federal requirements, each practice should contact their state's respective occupational safety agency to ensure full compliance of both federal and state regulations.

OTHER SAFETY CONSIDERATIONS

Evacuation Routes

Evacuation routes are important in today's workplace. (See the article in the February 1, 1994 issue of the Journal of the AVMA for minimum requirements for safe evacuation routes.) Often, veterinary hospitals are tight on space and use basements and attics as offices, kennels, and grooming areas and for other nonmedical functions. For a basement, usually two exits, separate from each other, are necessary, and for an attic, at least one window or escape opening must be available. Sometimes, this will mean that a contractor will have to install an exit or window. Even though this could be expensive, if a hospital requires workers to perform duties in one of these areas, then the hospital must ensure that there are safe exits that can be used during an emergency. State and local governments should be contacted for specific requirements.

Emergency Lighting

Power outages may be rare, especially in certain parts of the country; however, they do occur. Veterinary hospitals must provide emergency lighting for areas if someone working in that area would have a difficult time finding an exit or completing a hazardous procedure if the power went out. Even areas with exterior windows must have provisions for emergency lighting. Remember that there is not much light coming in a window when it is dark outside.

Hand-held flashlights or other lights that must be activated manually are not appropriate emergency lights, because it may be difficult to locate the switch in the dark. Emergency lights should come on automatically when the flow of power to the main lights is interrupted. There are several styles of emergency lights, ranging from plug-in types to separate emergency lighting fixtures. If in doubt, consult a lighting specialist.

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One of the most effective and affordable emergency lighting systems consists of a battery-powered ballast that can be installed directly into existing fluorescent fixtures. These ballasts will light half the bulbs in a fluorescent fixture for up to 90 minutes during a power failure and will recharge themselves when the electricity comes back on. These battery-powered ballasts are available at most professional electrical supply stores, but are usually not available at home centers.

Crime Prevention

Although the OSHA does not specifically mandate steps to be taken to prevent robberies or assaults, it has developed recommendations on this subject: Guidelines for Preventing Workplace Violence for Health Care and Social Service Workers. Veterinary hospitals should consider instituting crime prevention programs. Like all other businesses, veterinary hospitals take in money and, therefore, are not immune to robbery. Many hospitals have extended their hours or operate around the clock, and employees leaving these practices may be victims of assault.

Hospital owners and directors should include a robbery prevention and response training session in their hospital's training schedules. Contact the local police department for advice. Often, they will send a special officer to conduct training at the hospital and can usually provide robbery prevention and security checklists. Emergency practices and 24-hour practices, especially, should make safety of personnel a number-one concern. Install buzzers to control access from the front door and one-way locks on the remaining doors. Remember that although the door should be locked to outsiders, employees should still be able to exit quickly in the event of an emergency. Consider adding panic buttons that tie into a central alarm system at strategic locations throughout the hospital. If staff members ever go outside to help with injured patients, a personal panic button-it looks like a beeper-would be a wise investment.

Animal Handling

The unpredictability of some animals means that performing even simple procedures on these animals can sometimes be dangerous. Hospital owners should make sure that all employees, including volunteers, are properly trained in restraint procedures. In addition, veterinarians should practice due diligence in ensuring safe handling of animals that have clinical signs for reportable diseases.

EXPERTISE ASSISTANCE

Remember, the purposes of an emergency action plan are, first, to prevent accidents and, second, to control or respond to them when they do occur. When developing a fire or emergency action plan, use the expert resources that are available. Start with your local fire marshall or fire station. They will usually conduct a complimentary fire safety inspection and recommend specific actions for circumstances in your individual hospital. Often, they will even conduct training classes on fire safety and proper fire extinguisher operation.

These OSHA standards originally were developed from the National Fire Protection Association's codes. The National Fire Protection Association can be contacted directly for written references and helpful information. In addition, the National Safety Council offers periodicals and reference sources and provides training and consulting services. Finally, the AVMA has resources available to veterinarians and to the public at www.avma.org/disaster.

References

- 1 Title 29, Code of Federal Regulations, section 1910.38.
- 2 Title 29, Code of Federal Regulations, section 1910.38 (c).
- 3 Title 29, Code of Federal Regulations, section 1910.39.
- 4 Title 29, Code of Federal Regulations, section 1990.
- 5 Title 29, Code of Federal Regulations, Section 1910.1048(j).

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Footnotes

A National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269.
B National Safety Council, 1121 Spring Lake, Itasca, IL 60143-3201.

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Section 7: Disaster Preparedness for Veterinary Practices

IT IS ESSENTIAL THAT A VETERINARY PRACTICE HAVE A WRITTEN DISASTER PLAN THAT INCLUDES

- 1 Emergency Relocation of animals
- 2 Medical Record back-up
- 3 Continuity of Operations
- 4 Security
- 5 General emergency planning
- 6 Fire prevention
- 7 Insurance and Legal issues

Information about each of these criteria is listed below.

Many private companies now exist that can help you formulate disaster plans, including maintaining business continuity in the face of disaster. A simple internet search for business continuity planning is recommended if you would like additional information on this specific topic.

YOUR WRITTEN DISASTER PLAN SHOULD INCLUDE:

- 1 Emergency Relocation of Boarded or Hospitalized Animals
Leashes, carriers and other species specific supplies
Appropriate, pre-arranged animal transportation
Temporary animal holding location
24-hour client contact list (off-site access)
Secure and weather resistant patient identification
In conjunction with appropriate legal council; involving your staff, clients and their pets in disaster planning and disaster drills can help ensure community buy-in and dedication to the plan
- 2 Medical Record Back-up
Off-site computer back-up (fireproof safes will not prevent melting)
Off-site copies of important documents
Itemized inventory (on-site & off-site)
Digital storage
- 3 Continuity of Operations
Communications (do not rely on landlines, cell phones or pagers)
Alternate power source (i.e. generators with regular maintenance and training for staff; ideally professionally installed and able to provide long-term power to the entire facility)
Generator fuel source
Continued refrigeration
List of suppliers with current 24-hour contact information
Alternate food and water sources in case of contamination
5-7 days worth of food and water for on-site staff and patients
5-7 days of personal medications for on-site staff

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Alternate Practice Location (within your vicinity)
Contact your local and state Veterinary Medical Association for potential resources
Yours may be the only practice affected in area (i.e. hospital fire)
No inconvenience to your clients
Eliminate a need for your clients to obtain services elsewhere
Adopt a Sister Practice (outside your vicinity)
Contact your local and state Veterinary Medical Association for potential resources
Many practices in your area affected
Avoid a gap in client services
Pay the sister practice a % of your income for the use of their facility
Setup a reciprocal arrangement
Practice disaster drills together uniting two communities that may not have otherwise communicated

- 4** Security of Building and Personnel
Contact state/local municipality for specific requirements
Outline preferred means of reporting emergencies, including designated person for communicating with local emergency responders
Local fire department: free inspection and evacuation drills
Water system independent from electrical system
Oxygen tanks isolated for safety
Secure practice from theft, looting, and other crime
Floor plan or diagram that clearly shows the location of all fire extinguishers, control valves, dangerous areas, and escape routes
Emergency lighting
Multiple exits
Regular disaster/evacuation drills (local fire department, local police, clients)
Office phone-tree (24-hour numbers)
Pre-arranged off-site meeting location for staff and account for all employees
Pre-arranged conference call capability to keep all staff informed
Encourage and help to develop each employee's personal family disaster plan (if they are prepared at home they will be better able to assist the practice)
Hazardous Materials inventory with Material Safety Data Sheets (accessible off-site)
Employee identification cards (access to disaster stricken area)
First-aid training for employees in each work shift in the practice

- 5** General Emergency Planning
Plan should address appropriate responses to all foreseeable emergencies, including hazardous chemical spills
Employees must receive any training, information and equipment required by a response plan
Proper housekeeping includes maintenance of equipment, surveillance and detection of leaks, containment of spills by trained employees wearing protective clothing, and proper disposal
Contact their state's respective occupational safety agency to ensure full compliance of both federal and state regulations

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- 6** Fire prevention
Identify major fire hazards in the workplace, proper handling and storage procedures, potential ignition sources (e.g., open flames and electrical sparks) and type of fire protection equipment necessary to control each major hazard
Procedures to control accumulations of flammable and combustible waste materials
Procedures for regular maintenance of safeguards installed on heat-producing equipment
Name of job title of employees responsible for maintaining equipment to prevent or control sources of ignition or fires
- 7** Insurance coverage and legal issues
Current and comprehensive insurance policy
Discuss the details of disaster drills with your legal counsel to make sure you are covered for any injuries that might occur during the drill
Receipts for all purchases
Videotape and photograph inventory
In the event the practice is damaged, it is important to take measures to avoid further damage i.e. – if a practice's roof is damaged in a disaster, but the contents in the building are ruined because of subsequent rains, your possessions may not be covered by your insurance policy if the rain is deemed "after the initial disaster" and you did not take steps to secure a tarp over the top of your building preventing further damage.
Familiarize yourself with tax laws and deductible disaster expenses
Business Owners Policy, AVMA PLIT, 800-228-PLIT, www.avmaplit.com
Make sure your insurance coverage addresses:
- Business Interruption (continuing expenses) – find out exactly when it ends and what triggers the end
 - Extra Expense (payments to keep insured's business open during rebuild/repair/replacement)
 - Professional Extension (provides coverage for injury/loss/death of animal in a practice's care, custody or control. Normal professional liability only provides coverage during a case of treatment)
 - Loss of Income
 - Large animal and equine practitioners should consider "mobile loss of income" (which provides coverage in case a piece of equipment or vehicle cannot be used)
 - Personal Property (replacement value)
 - Automatic Inflation
 - Fire Damage (typically included in business packages)
 - Water Damage (NOT typically covered in business packages---make sure you have flood insurance if you are in a flood zone)
 - Debris Removal/Cleanup
 - Civil Ordinance Coverage (provides coverage in case the practice is unable to function because of an act of government)
 - Comprehensive building and structure replacement
 - Coverage of rented and leased equipment
 - Interruption of power, heating/air and sewer
 - Coverage of Worker's Compensation
 - General and professional liability

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AMERICAN VETERINARY MEDICAL FOUNDATION

Founded in 1963, the American Veterinary Medical Foundation (AVMF) is a 501(c)(3) organization that raises and disburses funds for initiatives supporting its mission statement, "Advancing the care of animals with an emphasis on disaster preparedness and response, and animal health studies". Contributions made to the AVMF are tax deductible. The AVMF Animal Disaster Relief and Response Fund provides support for emergency veterinary aid for the health, safety, and welfare of animals affected by disasters at the local level, emergency preparedness at the state level, and the Veterinary Medical Assistance Teams at the national level.

To contribute to the AVMF Animal Disaster Relief and Response Fund, please mail your check to:

AVMF Animal Disaster Relief and Response Fund
Department 20-1122
P.O. Box 5940
Carol Stream, IL 60197-5940
Or call: 847-285-6689
www.avmf.org

AVMA
www.avma.org/disaster

Federal Emergency Management Agency
Disaster Impact Helpline 800-462-9029
www.fema.gov

Occupational Safety & Health Administration
www.osha.gov

Small Business Administration
Disaster Loans 800-488-5323
www.sba.gov
www.sba.gov/disaster

The American Red Cross
www.redcross.org

Internal Revenue Services Tax assistance
www.irs.ustreas.gov/pas/disaster/default.htm

Farm Service Agency
Farm assistance
www.fsa.usda.gov/pas/disaster/default.htm

Social Security Administration
Social Security benefits
www.ssa.gov

Department of Veterans Affairs
Veterans benefits
www.va.gov

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TAB C Planning and Preparation Section 8: NEMA Model Emergency Support Function

NATIONAL EMERGENCY MANAGEMENT ASSOCIATION

Model Emergency Support Function for Production Agriculture, Animal and Animal Industry
SEPTEMBER 2002

Produced by: The National Emergency Management Association

Funded by: The United States Department of Agriculture

Statement of Need for Model Plan

Time is of the essence.

Since 1997, efforts have been underway to develop a national response capability to an animal health emergency such as recently seen in the United Kingdom with foot and mouth disease. Much has been accomplished but much is left to do.

The events of September 11, 2001, and the realization of the potential for agroterrorism have put the need for uniformity of response on a fast track. The United States Department of Agriculture (USDA) and the Federal Emergency Management Agency (FEMA) have done much in this area in recent months in the form of detailed operational procedures. However, these plans have a place in less than half of the state and local emergency operations plans. Currently, no federal program for outreach or development is in place to assist state emergency management agencies to develop such plans needed for appropriate response.

National Emergency Management Association (NEMA) received a grant from USDA in September of 2001 to write a model plan that would bridge the current gap. The enclosed document is a draft of that model.

The following model or example plan is intended to be a guide for those states developing a state plan for production agriculture, animal and animal industry and as a source of information on national trends for those already having such plans. This plan is written in a comprehensive emergency management format as provided by the Federal Emergency Management Agency, Emergency Management Institute, and National Emergency Management Training Center. Recognizing the differences in format that is seen in the various state plans, (emergency support function [ESF], Annex, etc.) the comprehensive emergency management format was chosen for the model to provide for a generally recognized format that is easily adapted to any state plan regardless of its structure.

This model is general in content so as to allow for inclusion in a State Emergency Operations Plan. Such plans are supported by more detailed and more voluminous Concepts of Operations and Standard Operating Procedures written by the identified primary and support agencies. USDA in collaboration with State Departments of Agriculture and State Boards of Animal Health has already produced such Concepts of Operation in most cases. Recognizing that mutual aid is a key component to a successful regional or national response to catastrophe, it is only safe to assume that mutual aid will play an enormous role in response to an animal health emergency or act of agroterrorism. Uniformity of plans is a necessary component in dovetailing mutual aid from one state to another.

Comment has already been heard recognizing the need for consistent local plans for counties or jurisdictions. It is not the intent of this current initiative to address how a

PLANNING AND PREPARATION

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Model ESF 2

State deals with local plans within the state. Most state plans are mirrored at the local level as a prerequisite for federal funds. The state will support local program development. State primary and support agencies will write and coordinate more detailed standard operating procedures based on state response structure and available resources.

This model plan is not intended to create a “cookie cutter” approach to state emergency management planning for production agriculture, animals and animal industry in catastrophic events. It is intended to provide a format for addressing certain key elements for an adequate state response while at the same time providing for a seamless regional and national response.

Plans are written to be edited, modified and changed as operating such plans may require. This is a start. Time is of the essence.

Model ESF 3

ASSUMPTIONS

The Stafford Act has as a primary mission to protect human life and property.

Disasters in the past decade have shown that damage to production agriculture can be not only an economic crisis to individuals and communities but, especially in animal production agriculture, can prove to be an environmental and public health challenge.

Foreign animal disease can wreak havoc on the economy of not only a region but on the entire United States. Foreign animal disease can be used as a weapon of mass destruction, causing enormous economic damage, but may also pose as a vehicle or reservoir for zoonotic disease that may threaten human life and the ability to feed the nation.

Disasters of the past decade have illuminated the existence of a human animal bond that has time and again affected the behavior of large segments of the population and how they behave in disaster situations.

People with companion animals frequently will choose not to evacuate rather than leave animals behind. People will frequently try to reenter an area to retrieve animals before an all clear is given.

People will frequently live in the streets rather than abandon animals so that they may enter evacuation shelters. This type of population behavior puts the animal owners and emergency responders at risk.

Integrated emergency management has for the past 23 years dealt with similar life, safety and property issues by utilizing federal, state, local and private sector agencies and resources.

Federal and state emergency operation plans based on statutory authority and executive order authority assigned to various agencies can through emergency support functions accommodate all areas of emergency response.

Private sector agencies, whether through Congressional mandate as with the American Red Cross (ARC) or missions assigned through Voluntary Organizations Active in Disaster (VOAD), play an enormous role in disaster response.

For issues not addressed in other extraordinary disaster declarations for production agriculture and animal issues, this same methodology of integrated emergency management can be used to solve such issues.

Model ESF 4

The following enclosure is presented as a model plan that addresses only the key elements that should be present in a state plan to provide for the compatibility necessary for successful mutual aid.

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Generic in scope, this plan can be applied to any statutory government structure. The generalities in this document are to allow for flexibility to adapt to any statutory format while at the same time addressing the necessary authority to accomplish the task.

The document is based on the emergency management emergency support function structure and the Federal Emergency Management Institute Comprehensive Emergency Management format.

Model ESF 5

I. INTRODUCTION

This Emergency Support Function (ESF) is not currently applicable to any ESF in the Federal Response Plan. A state agency or agencies with the statutory authority for animal and animal industry issues will be the primary agency. This may be either the State Department of Agriculture and/or a State Board of Animal Health, or Animal Health Commission. An ESF may have more than one primary agency where overlapping authority may occur. The primary agency will be responsible for but not limited to coordinating the disposition of abandoned, diseased, disabled or dead animals, animal protection, animal health emergency management and agroterrorism. This ESF will recognize certain catastrophic events related to animals, animal and production agriculture as events requiring activation of the state emergency operations plan. This ESF will coordinate with and support ESF 8 in zoonotic disease or toxicosis where the public health may be affected. This ESF will support ESF 8 in acts of terrorism where animal industry and or production agriculture is the vehicle for dissemination of a chemical or biologic agent.

II. PURPOSE

To coordinate application of state resources in mitigation, planning, training, response and recovery to assist animals and production and animal agriculture in an animal health emergency, natural disaster or other catastrophic event whether natural or man-made and, where necessary, provide for a seamless integration of county, state and federal response.

III. RESPONSIBILITY

A. Primary Agency

State Department of Agriculture and/or Board of Animal Health or Animal Health Commission.

B. Support Agencies

RESOURCE NEEDED	EXAMPLE AGENCY
Procurement, emergency contracts, etc.	State Procurement office
General Equipment, Personnel, Aircraft and Vehicles	Department of Corrections
Specialized Equipment, Personnel, Aircraft, Vehicles, Tents, Supplies, Herd Depopulation and Biosecurity	Department of Defense, National Guard
Specialized Facilities, Personnel and Training	Department of Education

Disaster Resource Materials (Fact Sheets)

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TAB D

Disaster Resource Materials (Fact Sheets)

Section 1: Disaster Assistance for Homeowners, Renters and Business Owners

VETERINARY BUSINESS ASSISTANCE

Agency	Assistance	Eligibility	Resource
American Veterinary Medical Foundation (AVMF)	Animal Health Care Reimbursement Grant	For reimbursement of out-of-pocket expenses incurred from direct costs of medical supplies used to treat animals affected by disasters	www.avmf.org
	Veterinary Practice Relief Grant	For restoration of veterinary infrastructure damages resulting from disasters	
	Start-up Grants	For state veterinary medical associations or non-profit organizations in early stages of disaster preparedness and response planning	
	Matching and Challenge Grants	For established state veterinary medical associations or non-profit organizations in disaster preparedness and response planning	

GENERAL BUSINESS ASSISTANCE

Agency	Assistance	Eligibility	Resource
Small Business Administration (SBA)	Physical Disaster Loans, to repair or replace real estate, equipment, furniture, etc.	For small or large businesses located in counties included in Presidential-declared disasters.	www.sba.gov/services

Disaster Resource Materials (Fact Sheets)

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	Physical Disaster Loans, to mitigate/prevent future losses	For small or large businesses located in counties included in Presidential-declared disasters.	
	Economic Injury Disaster Loans, for economic injuries caused by disasters	Available only to small businesses and agricultural cooperatives	
Farm Service Agency (FSA)	Livestock Compensation Program (LCP) and Livestock Indemnity Program (LIP), for losses of feed and livestock (respectively)	For producers affected by natural disasters in specific sites between January 1, 2005 and February 28, 2007	www.fsa.usda.gov
	Dairy Disaster Assistance III Program, for dairy production losses	For producers affected by natural disasters in specific sites between January 1, 2005 and February 28, 2007	

EMERGENCY ASSISTANCE

Agency	Assistance	Eligibility	Resource
American Red Cross and its partners	Shelter, food, and medical and mental health services	For individuals and families with disaster related emergency needs.	www.redcross.org
Federal Emergency Management Agency (FEMA)	“Other than Housing” needs: disaster-related costs such as medical, funeral, clean-up, and household item expenses	For households of U.S. citizens in Presidential-declared areas, for costs not covered through insurance/other federal loans	www.fema.gov

Disaster Resource Materials (Fact Sheets)

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HOUSING ASSISTANCE

Agency	Assistance	Eligibility	Resource
Federal Emergency Management Agency (FEMA)	For temporary housing, and/or repair, replacement, and permanent housing construction	Available to U.S. citizens in Presidential-declared areas for primary residence damage costs not covered by insurance	www.fema.gov
Small Business Administration (SBA)	Physical Disaster Loans, for repairing/replacing real property, refinancing, or to mitigate/prevent future losses	For homeowners (renters: only repairing/replacing real property) in counties included in Presidential-declared disasters.	www.sba.gov/services

ADDITIONAL ASSISTANCE

Agency	Assistance	Eligibility	Resource
Federal Emergency Management Agency (FEMA)	Crisis Counseling Assistance and Training Program (CCP) Immediate and Regular Services funding for states	Available through states under Presidential-declared disaster, to treat mental disease associated with a disaster.	www.fema.gov
	Disaster Unemployment Assistance	For state employment services-registered persons without employment and without coverage by other compensation programs	
	Legal Services	For low-income individuals unable to secure legal advice needed as a consequence of a Presidential-declared disaster	
	National Flood	Residence in a	www.floodsmart.gov

Disaster Resource Materials (Fact Sheets)

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	Insurance Program (NFIP)	community registered with the NFIP	
Internal Revenue Service (IRS)	Special Tax Considerations: Tax deductions and expedited tax refunds	For casualty losses during Presidential-declared disasters	www.irs.gov
Social Security Administration (SSA)	Expedited benefits delivery during/after disasters	For individuals who are applying for and due benefits, and who are facing a financial emergency	www.socialsecurity.gov/

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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TAB D

Disaster Resource Materials (Fact Sheets)

Section 2: American Veterinary Medical Foundation Guidelines for Grants

HOW TO APPLY

Individual Reimbursements to Licensed Veterinarians or Staff Members

Two types of reimbursements are available

Animal Health Care Reimbursements for out-of-pocket expenses related to the veterinary care of animal victims of current named disasters, and Veterinary Practice Relief for the restoration of Veterinary infrastructure affected by disaster. Up to \$2,000 per request is currently available for qualified applicants.

Animal Health Care Reimbursement Application for Disasters that occurred after February 3, 2008

Animal Health Care Reimbursement Application for Disasters that occurred before February 3, 2008

Veterinary Practice Relief Application

State Preparedness

AVMF has established two grant categories to support state animal disaster preparedness and response efforts:

Start-up Grants

Start-up grants of up to \$5,000 will be available to qualified state VMAs and IRS classified 501(c)(3) or 501(c)(6) organizations in the early stages of disaster preparedness and response planning. Start-up grants can be used for expenses related to state training and training-related activities.

Matching and Challenge Grants

Matching and Challenge Grants of up to \$20,000 are available to those who are further along in the disaster preparedness and response process. Matching and Challenge Grants can be used for expenses related to state training and training-related activities, medical supplies, and disaster response-related equipment. Grants will be made based on Foundation priorities, the individual merits of each request, and the allocation of available funds.

State Grant Application

(08/08)

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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TAB D

Disaster Resource Materials (Fact Sheets)

Section 3: Working with the News Media

It is the nature of the beast. The news business is highly competitive and getting more so everyday. Media pursue the stories that attract viewers/listeners/readers...and advertising dollars. They want what sells: the drama, the conflict, the tragedy; the unique and emotional images, the colorful and compelling quotes, the poignant human-interest angle.

View the media as an ally, not an adversary

Use the news media to your advantage, as a tool to inform, educate and enlist. Media can help convey your message to a very large audience; they can activate a disaster response and mobilize volunteers; they can stimulate disaster relief.

Media relations should be an integral part of your emergency response plan. Get to know your local reporters and assignment editors, their needs, deadlines (and personal styles). Find out how they respond during natural disasters and how they would handle something like an animal rescue. Tell them about your program. Invite them to your drills.

Develop a fact book or background material to familiarize reporters with animal issues and terms.

Try to include the media in your planning efforts

Making a media representative a part of your disaster response planning team will work wonders when you call on them for help in most situations. If you use prepositioned news releases, ask the media for input when updating them. This will make them feel needed, while actually helping you to come up with something easier for the public to understand. Make sure the media has a thorough understanding of the time frame under which you operate in advance of any emergencies.

Never forego a media opportunity

Use every media opportunity presented to you. The more exposure you get, the greater your name recognition among those in the public sector. If the general public does not know you, they will not be inclined to place much credibility in what you say during an emergency situation, when getting them to take quick action could mean the difference between living and dying.

Take advantage of all forms of media, no matter what the situation. Do not take a defensive posture with the media. Make periodic phone calls to your media outlets, checking on staff changes and simply letting them know you are aware of their existence. If you play your cards right, you will always get what you want out of the media to advance your program, while still satisfying their need for information.

Always return phone calls from the media promptly

This is not to say that you must jump on the phone immediately; however, you should never disregard a call or dismiss it as unimportant. It may be something that will promote your program. Also do not ever make the mistake of telling them not to call you at home.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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At the site of a disaster

Designate one person as your media liaison and make certain all personnel know whom that contact is. A well-informed spokesperson can greatly reduce demands on other key personnel and explain activities or actions that otherwise might be misinterpreted by reporters (and other observers).

Remember that detaining or excluding the news media is always counter-productive. If reporters or camera operators are in your way, find a better place for them as close to the action as possible. If danger exists, tell them about it and suggest a safer location, but never use danger as an excuse for keeping reporters at bay. You are not responsible for their safety!

Always maintain control of an interview situation

You must be the one to set the ground rules when agreeing to be the subject of any interview. The topic(s) to be discussed should be mutually agreed upon at the outset. If you are not prepared to discuss a certain subject, do not attempt it just for the sake of the interview. Do not be afraid to ask questions of your interviewer. Find out where the reporter stands in terms of subject knowledge. This will allow you to determine what direction the interview will take. Never make a habit of doing "off-the-cuff" interviews.

If you are being interviewed

Know who you are talking to and establish how the information is going to be used.

Know your subject and be clear on the message you are trying to convey.

Say the "important stuff" first.

Anticipate questions. In addition to the usual who, what, when, where, why, what are the toughest questions the reporter is likely to ask? Think about your answers. Is there possible controversy?

Fill in the background if you think there are gaps in the reporter's knowledge/understanding of the situation.

Be prepared to provide expert opinion to a non-expert. Make your information concise and understandable. Use plain talk. Avoid technical jargon.

Be open and friendly, but be careful with humor.

Stick to the facts. Avoid speculation.

Don't be afraid to say, "I don't know" but, always get back to them with the answer.

Never say "no comment." (Do you have something to hide?)

Never ask to speak "off the record", always assume that you are speaking for the record.

Document your contacts with the media: date, time, reporter's name, place, subject.

Mistakes will be made in media coverage; don't make a big deal out of minor glitches. Choose your battles!

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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Remember that while there are big egos in every profession, most reporters you encounter will be: 1) regular human beings; 2) eager to do their job in a professional manner; 3) perhaps a bit anxious because they are on unfamiliar turf—your turf. Be empathetic.

For a print interview

Print media can address complex subjects better than electronic media. Reporters generally want detailed information and lots of it.

Respond to questions in simple concise sentences.

Repeat yourself if necessary to make certain the reporter is getting all the information.

Newspaper photographers must have excellent photos in order to compete with television, so try to be accommodating.

For a television interview

Television leans toward action, entertainment, and emotion. Stories usually run about 30 seconds. Your quote or “sound byte” may be no longer than 15 seconds so you need to get your message across quickly, clearly, and concisely. Most interviews are taped for future broadcast, but you could be asked to do a “live remote”.

If you are standing for your interview, put one foot slightly in front of the other so that you don't sway. If you are seated, lean forward slightly so you don't look like you are slouching.

Maintain eye contact with the reporter, not the camera lens. The slightest movement (up/down, sideways) will be exaggerated on camera and could make you look nervous or unreliable, limit head and arm movement.

Try to breathe normally; keep your voice slow and steady.

If you make a mistake, say so right away and try again. (Hooray for editing!)

Fight the urge to fill “dead air”, that is the reporter's problem not yours. Avoid “yes”/“no” answers.

Act as if you are on camera until you are absolutely certain that you aren't!

Don't forget about the radio station

Because they are not visual and don't provide a glamour image, the radio folks are often forgotten until such a time as we really need them to disseminate an emergency message. Make sure you know which of your market stations have local news and maintain a relationship with these people. Track staff changes as best you can in order to establish a rapport with these reporters.

For a radio interview

Radio wants to be first and they want their information fast. You may be asked to do a radio interview from the scene or over the telephone. Most interviews are taped for later broadcast.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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Find out if you are to give a straight report or respond to a series of questions. Keep your responses clear and concise (try for 10 second sound bytes).

If during a taped interview, you flub an answer or get tangled up in a long response, stop talking and tell the reporter you want to start over. If it's a live interview, correct your information immediately.

In summary

Work toward a strong, positive relationship with your local news media. Make their needs an integral part of your emergency response plan. Enlist their help in educating and informing your community. Help them reach their goals and you will find it easier to reach yours!

Guidelines for Working with Media in a Crisis Situation

1 Spokesperson

- a. Determine the person to speak for the organization.
- b. This person must be available at all times for comments and statements.

2 Evaluate the situation

- a. Assess the opposition.
- b. Assess your organization.

3 Establish association position and action

- a. Develop fact sheets.
- b. Inform appropriate people: staff, board, leadership, committees, etc.
- c. Determine "others" to be informed.
- d. Prepare a written statement for the press, and if necessary clear it with your attorney, and stick with it.

4 Working with the media

- a. Don't shoot from the hip.
- b. Be truthful—don't cover up facts, don't avoid or mislead the press or public.
- c. Do not allow the spokesperson or anyone else to be quoted, except on known facts.
- d. Consider a news conference—perhaps the number of media requests for information will warrant a conference—or a conference to give the facts first before the opposition gets to the press. Remember, they already have contacts.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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- e. Be cooperative and tactful—let them know who to contact, who is your spokesperson. Don't avoid media—if information is not available, tell them.
- f. Emphasize the positive.
- g. Be prepared for a difficult time—do not lose your temper. An outburst or angry reply can undo years of good will with the press and public.

5 Options to consider with media

- a. Write a press release to summarize your positions and actions.
- b. Meet with important individual reporters to outline your positions and actions.
- c. Hold a press conference, if you have real news about a controversial situation.
- d. Prepare to demonstrate your positions and actions.
- e. Respond to every media query with the best information you can get as quickly as is possible.
- f. NEVER LIE. Once you lie, your reputation as a publicist is gone, and no media person will trust you again.
- g. Stay on top of the situation. Be sure you know about every policy decision, every speech, every charge and counter-charge, so that you can prepare responses.
- h. Confirm every bit of information you get so that nobody can accuse you of misrepresenting the situation.
- i. Phone a reporter to correct misinformation or an error in a story and offer new spokespersons or angles.
- j. Have someone who was misquoted call the reporter with a correction.
- k. Prepare positive stories about your organization to show how effective you are in general without belaboring the crisis.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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TAB D

Disaster Resource Materials (Fact Sheets)

Section 4: Earthquakes

Earthquakes strike suddenly, violently and without warning. Earthquakes can occur at anytime of the day or night and at any time of the year. Forty-one states and the territories in the United States are at moderate to high risk from earthquakes. Identifying potential hazards ahead of time and advance planning can reduce the dangers of serious injury or loss of life from an earthquake.

Earthquake Insurance

Earthquake insurance is usually an “add-on” to a standard homeowners insurance policy. Separate deductibles may apply to contents and structure. When purchasing earthquake insurance, consider the need for coverage of temporary living expenses in case it is necessary to evacuate the home.

BEFORE

Check for hazards in the home.

Fasten shelves securely to the walls.

Place large or heavy objects on lower shelves.

Store breakable items in low, closed cabinets with latches.

Hang heavy items such as pictures and mirrors away from beds, couches and any place where people or animals sit or lay.

Brace overhead light fixtures.

Repair defective electrical wiring and leaky gas connections. These are potential fire risks.

Secure water heater by strapping it to the wall studs and bolting it to the floor.

Repair any deep cracks in ceilings or foundations.

Store weed killers, pesticides and flammable products securely in closed cabinets with latches and on bottom shelves.

Identify Safe Places Indoors and Outdoors

Under sturdy furniture such as a heavy desk or table.

Against an inside wall.

Away from where glass could shatter around windows, mirrors, pictures, or where heavy bookcases or other heavy furniture could fall over.

In the open, away from buildings, trees, telephone and electrical lines, overpasses, or elevated expressways.

Educate Yourself and Family Members

Contact your local emergency management office or American Red Cross chapter for more information on earthquakes. Also read the "How-To Series" for information on how to protect your property from earthquakes.

Teach children how and when to call 9-1-1, police, or fire department and which radio station to tune to for emergency information.

Teach all family members how and when to turn off gas, electricity, and water.

Have Disaster Supplies on Hand

Flashlight and extra batteries.

Portable battery-operated radio and extra batteries.

First aid kit and manual.

Emergency food and water.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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Nonelectric can opener.
Essential medicines.
Cash and credit cards.
Sturdy shoes.
Important family documents and veterinary records
Animal Evacuation Kit – see “Saving the Whole Family,” AVMA 2007

Suggestions and Reminders: Store your supplies in a convenient place known to all family members. Keep a smaller version of the emergency supplies in the trunk of your car. Keep items in air-tight plastic bags. Change your stored water supply every six months so it stays fresh. Rotate your stored food every six months. Re-think your Emergency Supplies and family needs at least once a year. Replace batteries, update clothes, etc. Ask your physician or pharmacist about storing prescription medications, and your veterinarian about veterinary medications.

Develop an emergency communication plan.

In case family members are separated during a disaster (this is a real possibility during the day when adults are at work and children are at school), develop a plan for reuniting after the disaster.

Ask an out-of state relative or friend to serve as the “family contact.” After a disaster, it’s often easier to call long distance. Make sure everyone in the family knows the name and location of the contact person and his or her phone number.

Help Your Community Get Ready

Publish a special section in your local newspaper with emergency information on earthquakes. Localize the information by printing the phone numbers of local emergency services offices, the American Red Cross, and hospitals.

Conduct a week-long series on locating hazards in the home.

Work with local emergency services and American Red Cross officials to prepare special reports for people with mobility impairments on what to do during an earthquake.

Provide tips on conducting earthquake drills in the home.

Interview representatives of the gas, electric, and water companies about shutting off utilities. Work together in your community to apply your knowledge to building codes, retrofitting programs, hazard hunts, and neighborhood and family emergency plans.

DURING

If indoors

DROP to the ground; take COVER by getting under a sturdy table or other piece of furniture; and HOLD ON until the shaking stops. If there isn’t a table or desk near you, cover your face and head with your arms and crouch in an inside corner of the building.

Stay away from glass, windows, outside doors and walls, and anything that could fall, such as lighting fixtures or furniture.

Stay in bed if you are there when the earthquake strikes. Hold on and protect your head with a pillow, unless you are under a heavy light fixture that could fall. In that case, move to the nearest safe place.

Use a doorway for shelter only if it is in close proximity to you and if you know it is a strongly supported, loadbearing doorway.

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Stay inside until shaking stops and it is safe to go outside. Research has shown that most injuries occur when people inside buildings attempt to move to a different location inside the building or try to leave.

Be aware that the electricity may go out or the sprinkler systems or fire alarms may turn on. DO NOT use the elevators.

If outdoors

Stay there.

Move away from buildings, streetlights, and utility wires.

Once in the open, stay there until the shaking stops. The greatest danger exists directly outside buildings, at exits, and alongside exterior walls. Many of the 120 fatalities from the 1933 Long Beach earthquake occurred when people ran outside of buildings only to be killed by falling debris from collapsing walls. Ground movement during an earthquake is seldom the direct cause of death or injury. Most earthquake-related casualties result from collapsing walls, flying glass, and falling objects.

If in a moving vehicle

Stop as quickly as safety permits and stay in the vehicle. Avoid stopping near or under buildings, trees, overpasses, and utility wires.

Proceed cautiously once the earthquake has stopped. Avoid roads, bridges, or ramps that might have been damaged by the earthquake.

If trapped under debris

Do not light a match.

Do not move about or kick up dust.

Cover your mouth with a handkerchief or clothing.

Tap on a pipe or wall so rescuers can locate you. Use a whistle if one is available. Shout only as a last resort. Shouting can cause you to inhale dangerous amounts of dust.

AFTER

Expect aftershocks. These secondary shockwaves are usually less violent than the main quake but can be strong enough to do additional damage to weakened structures and can occur in the first hours, days, weeks, or even months after the quake.

Listen to a battery-operated radio or television. Listen for the latest emergency information.

Use the telephone only for emergency calls.

Open cabinets cautiously. Beware of objects that can fall off shelves.

Stay away from damaged areas. Stay away unless your assistance has been specifically requested by police, fire, or relief organizations. Return home only when authorities say it is safe.

Be aware of possible tsunamis if you live in coastal areas. These are also known as seismic sea waves (mistakenly called "tidal waves"). When local authorities issue a

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tsunami warning, assume that a series of dangerous waves is on the way. Stay away from the beach.

Help injured or trapped persons. Remember to help your neighbors who may require special assistance such as infants, the elderly, and people with disabilities. Give first aid where appropriate. Do not move seriously injured persons unless they are in immediate danger of further injury. Call for help.

Clean up spilled medicines, bleaches, gasoline or other flammable liquids immediately. Leave the area if you smell gas or fumes from other chemicals.

Inspect the entire length of chimneys for damage. Unnoticed damage could lead to a fire.

Inspect utilities.

Check for gas leaks. If you smell gas or hear blowing or hissing noise, open a window and quickly leave the building. Turn off the gas at the outside main valve if you can and call the gas company from a neighbor's home. If you turn off the gas for any reason, it must be turned back on by a professional.

Look for electrical system damage. If you see sparks or broken or frayed wires, or if you smell hot insulation, turn off the electricity at the main fuse box or circuit breaker. If you have to step in water to get to the fuse box or circuit breaker, call an electrician first for advice.

Check for sewage and water lines damage. If you suspect sewage lines are damaged, avoid using the toilets and call a plumber. If water pipes are damaged, contact the water company and avoid using water from the tap. You can obtain safe water by melting ice cubes.

DO NOT SHUT OFF UTILITIES UNLESS INSTRUCTED TO DO SO BY LOCAL OFFICIALS, OR UNLESS YOU ARE IN IMMINENT DANGER FROM SOMETHING LIKE AN OBVIOUS GAS LEAK. REMEMBER THAT YOUR GAS SUPPLY MUST BE TURNED BACK ON BY A PROFESSIONAL.

ANIMALS AFTER AN EARTHQUAKE

The behavior of animals may change dramatically after an earthquake. Normally quiet and friendly animals may become fractious. Monitor animals closely and only release them in safe and secure enclosures.

Animals may not be allowed into Red Cross shelters for health and space reasons. Prepare an emergency plan and know where you will take all of your animals in the event of a disaster. Temporary animal shelters may be set-up; however, these will fill rapidly. An ideal situation during disasters is to have pre-determined locations that will provide temporary living spaces for your whole family and your animals. Additional information on preparing for animals during disasters can be found in "Saving the Whole Family," AVMA 2007.

Make sure all animals have a current identification tag, license, and vaccinations.

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TAB D

Disaster Resource Materials (Fact Sheets)

Section 5: Floods and Flash Floods

Floods are among the most frequent and costly natural disasters in terms of human hardship and economic loss. A peaceful stream or river can dramatically change into turbulent floodwaters in a matter of minutes. Knowing what to do before disaster strikes is the key to surviving and coping during a flood.

BEFORE

Have emergency supplies on hand:

Flashlight and extra batteries

Portable battery-operated radio and extra batteries

First aid kit and manual

Emergency food and water – at least a three day supply of water and non-perishable food for each person in your household

Manual can opener

Essential medicines

Cash and credit cards

Important family documents and veterinary records

At least one complete change of clothing and footwear per person. (Include sturdy shoes and work boots, hats and gloves, rain gear, thermal underwear, blankets or sleeping bag)

Animal Evacuation Kit – see “Saving the Whole Family,” AVMA 2007

Suggestions and Reminders: Store your supplies in a convenient place known to all family members. Keep a smaller version of the emergency supplies in the trunk of your car. Keep items in air-tight plastic bags. Change your stored water supply every six months so it stays fresh. Rotate your stored food every six months. Re-think your Emergency Supplies and family needs at least once a year. Replace batteries, update clothes, etc. Ask your physician or pharmacist about storing prescription medications, and your veterinarian about veterinary medications.

To prepare for a flood, you should:

Avoid building in a floodplain unless you elevate and reinforce your home.

Elevate the furnace, water heater, and electric panel if susceptible to flooding.

Install "check valves" in sewer traps to prevent flood water from backing up into the drains of your home.

Construct barriers (levees, beams, floodwalls) to stop floodwater from entering the building.

Seal walls in basements with waterproofing compounds to avoid seepage.

Find out if you live in a flood-prone area from your local public works or emergency management office.

Ask whether your property is above or below the flood plain water level.

Learn about the history of flooding for your region.

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Familiarize yourself with the flood warning signs and your community alert signals. A flood watch indicates that the rainfall is heavy enough to cause a slow-rising flood. A flood warning indicates the expected severity of flooding (minor, moderate or major) and forecasts when and where additional flooding will begin.

A flash flood watch indicates that heavy rains are occurring or are expected to occur and that they may cause flash flooding in specific areas. A flash flood warning is announced when flash flooding is occurring or is expected to occur in certain streams and designated areas and immediate danger is imminent.

If you live in a frequently flooded area, stockpile emergency building materials such as sandbags, plywood, plastic sheeting, lumber, nails, hammer and saw, pry bar, shovels and strong filament tape.

Plan a flood-free evacuation route.

Contact the local emergency management or civil defense office or local American Red Cross chapter for a copy of the community flood evacuation plan. This plan should include information on the safest routes to shelters.

Individuals living in flash flood areas should have several alternate routes.

Develop an emergency communication plan.

In case family members are separated during a disaster (this is a real possibility during the day when adults are at work and children are at school), develop a plan for reuniting after the disaster.

Ask an out-of state relative or friend to serve as the "family contact." After a disaster, it's often easier to call long distance. Make sure everyone in the family knows the name and location of the contact person and his or her phone number.

Make sure that all family members know how to respond after a flood or flash flood.

Teach all family members how and when to turn off electricity, water and gas, if instructed to do so by authorities. Everyone in your home should know what to do, including guests, babysitters, and caregivers.

Teach children how and when to call 911, police, and fire and which radio station to tune to for emergency information.

Learn about the National Flood Insurance Program.

The National Flood Insurance Program is a Federal Emergency Management Agency program designed to provide flood protection seldom found in standard homeowners' insurance policies. Thus insurance is available to residents of communities that have agreed to adopt and enforce sound flood plain management practices. Further information is available through local insurance agents and emergency services offices. Information can also be found on the FEMA Web site at www.fema.gov.

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DURING

A Flood Watch

Fill bathtubs, sinks, and jugs with clean water.

Bring outdoor belongings such as patio furniture indoors.

Move valuable household possessions to the upper floors or to safe ground if time permits.

If you are instructed to do so by local authorities, turn off all utilities at the main power switch and close the main gas valve. **REMEMBER THAT YOUR GAS SUPPLY MUST BE TURNED BACK ON BY A PROFESSIONAL.**

Join with neighbors and volunteers to place sandbags or other protection in place.

Stack sandbags away from the outside walls of houses to prevent floodwaters from entering.

A Deep Flooding

When deep flooding is expected, let floodwaters flow freely into the basement (or, flood it yourself with clean water). This will prevent structural damage to the basement foundation by equalizing the water pressure inside and outside.

Contact local emergency management authorities for guidance.

A Flood

If a flood is likely in your area, you should:

Listen to the radio or television for information.

Get your emergency supplies.

Be aware that flash flooding can occur. If there is any possibility of a flash flood, move immediately to higher ground. Do not wait for instructions to move.

Be aware of streams, drainage channels, canyons, and other areas known to flood suddenly. Flash floods can occur in these areas with or without such typical warnings as rain clouds or heavy rain.

If you must prepare to evacuate, you should do the following:

Secure your home. If you have time, bring in outdoor furniture. Move essential items to an upper floor.

Turn off utilities at the main switches or valves if instructed to do so. Disconnect electrical appliances. Do not touch electrical equipment if you are wet or standing in water.

If you have to leave your home, remember these evacuation tips:

Do not walk through moving water. Six inches of moving water can make you fall. If you have to walk in water, walk where the water is not moving. Use a stick to check the firmness of the ground in front of you.

Do not drive into flooded areas. If floodwaters rise around your car, abandon the car and move to higher ground if you can do so safely. You and vehicle can be quickly swept away.

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Driving Flood Facts

The following are important points to remember when driving in flood conditions:
Six inches of water will reach the bottom of most passenger cars causing loss of control and possible stalling.

A foot of water will float many vehicles.

Two feet of rushing water can carry away most vehicles including sport utility vehicles (SUV's) and pick-ups.

AFTER

The following are guidelines for the period following a flood:

Listen for news reports to learn whether the community's water supply is safe to drink.

Avoid floodwaters; water may be contaminated by oil, gasoline, or raw sewage. Water may also be electrically charged from underground or downed power lines.

Avoid moving water.

Be aware of areas where floodwaters have receded. Roads may have weakened and could collapse under the weight of a car.

Stay away from downed power lines, and report them to the power company.

- Return home only when authorities indicate it is safe.
- Stay out of any building if it is surrounded by floodwaters.
- Use extreme caution when entering buildings; there may be hidden damage, particularly in foundations.
- Service damaged septic tanks, cesspools, pits, and leaching systems as soon as possible. Damaged sewage systems are serious health hazards.
- Clean and disinfect everything that got wet. Mud left from floodwater can contain sewage and chemicals.

DO NOT SHUT OFF UTILITIES UNLESS INSTRUCTED TO DO SO BY LOCAL OFFICIALS, OR UNLESS YOU ARE IN IMMINENT DANGER FROM SOMETHING LIKE AN OBVIOUS GAS LEAK. REMEMBER THAT YOUR GAS SUPPLY MUST BE TURNED BACK ON BY A PROFESSIONAL.

ANIMALS AFTER A FLOOD AND FLASH FLOOD

The behavior of animals may change dramatically after a flood or flash flood. Normally quiet and friendly animals may become fractious. Monitor animals closely and only release them in safe and secure enclosures.

Animals may not be allowed into Red Cross shelters for health and space reasons. Prepare an emergency plan and know where you will take all of your animals in the event of a disaster. Temporary animal shelters may be set-up; however, these will fill rapidly. An ideal situation during disasters is to have pre-determined locations that will provide living spaces for your whole family and your animals. Additional information on preparing for animals during disasters can be found in "Saving the Whole Family," AVMA 2007.

Make sure all animals have a current identification tag, license, and vaccinations.

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TAB D

Disaster Resource Materials (Fact Sheets)

Section 6: Thunderstorms and Lightning

In most cases, an approaching thunderstorm can be seen for a half an hour in advance. However, thunderstorms can hit without warning. Learning to recognize the danger signs, and advanced planning are the keys to lessening the damage caused by thunderstorms and lightning.

All thunderstorms are dangerous. Every thunderstorm produces lightning, which kills more people each year than tornadoes. Heavy rain from thunderstorms can lead to flash flooding, which is responsible for more fatalities than any other thunderstorm-associated hazard. Strong winds, hail, and tornadoes are also dangers associated with some thunderstorms.

BEFORE

Have emergency supplies on hand:

Flashlight and extra batteries

Portable battery-operated radio and extra batteries

First aid kit and manual

Emergency food and water – at least a three day supply of water and non-perishable food for each person in your household

Manual can opener

Essential medicines

Cash and credit cards

Important family documents and veterinary records

At least one complete change of clothing and footwear per person. (Include sturdy shoes and work boots, hats and gloves, rain gear, thermal underwear, blankets or sleeping bag)

Animal Evacuation Kit – see “Saving the Whole Family,” AVMA 2007

Suggestions and Reminders: Store your supplies in a convenient place known to all family members. Keep a smaller version of the emergency supplies in the trunk of your car. Keep items in air-tight plastic bags. Change your stored water supply every six months so it stays fresh. Rotate your stored food every six months. Re-think your Emergency Supplies and family needs at least once a year. Replace batteries, update clothes, etc. Ask your physician or pharmacist about storing prescription medications, and your veterinarian about veterinary medications.

Develop an emergency communication plan.

In case family members are separated during a disaster (this is a real possibility during the day when adults are at work and children are at school), develop a plan for reuniting after the disaster.

Ask an out-of state relative or friend to serve as the “family contact.” After a disaster, it is often easier to call long distance. Make sure everyone in the family knows the name and location of the contact person and his or her phone number

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Learn how to respond to a tornado and flash flood.

Tornadoes are spawned by thunderstorms and flash flooding can occur with thunderstorms. When a “severe thunderstorm warning” is issued, review what actions to take under a “tornado warning” or a “flash flood warning”.

Familiarize yourself with thunderstorm warning signs and your community alert signals.

A severe thunderstorm watch is issued by the National Weather Service when the weather conditions are such that a severe thunderstorm (damaging winds 58 miles per hour or more, or hail three-fourths of an inch in diameter or greater) is likely to develop. This is the time to locate a safe place in the home and tell family members to listen to the radio or television for more information.

A severe thunderstorm warning is issued when a severe thunderstorm has been sighted or indicated by weather radar. At this point the danger is very serious and everyone should go to a safe place, turn on a battery-operated radio or television and wait for the “all clear” by the authorities.

To prepare for a thunderstorm, you should do the following:

Remove dead or rotting trees and branches that could fall and cause injury or damage during a severe thunderstorm.

Remember the 30/30 lightning safety rule: Go indoors if, after seeing lightning, you cannot count to 30 before hearing thunder. Stay indoors for 30 minutes after hearing the last clap of thunder.

The following are guidelines for what you should do if a thunderstorm is likely in your area:

Postpone outdoor activities.

Get inside a home, building, or hard top automobile (not a convertible). Although you may be injured if lightning strikes your car, you are much safer inside a vehicle than outside.

Remember, rubber-soled shoes and rubber tires provide NO protection from lightning. However, the steel frame of a hard-topped vehicle provides increased protection if you are not touching metal.

Secure outdoor objects that could blow away or cause damage.

Shutter windows and secure outside doors. If shutters are not available, close window blinds, shades, or curtains.

Avoid showering or bathing. Plumbing and bathroom fixtures can conduct electricity.

Use a corded telephone only for emergencies. Cordless and cellular telephones are safe to use.

Unplug appliances and other electrical items such as computers and turn off air conditioners.

Power surges from lightning can cause serious damage.

Use your battery-operated NOAA Weather Radio for updates from local officials.

Avoid the following:

Natural lightning rods such as a tall, isolated tree in an open area.

Hilltops, open fields, the beach, or a boat on the water.

Isolated sheds or other small structures in open areas.

Anything metal—tractors, farm equipment, motorcycles, golf carts, golf clubs, and bicycles.

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DURING

If you are in a forest:

Seek shelter in a low area under a thick growth of small trees.

If you are in an open area:

Go to a low place such as a ravine or valley. Be alert for flash floods.

If on open water:

Get to land and find shelter immediately.

If anywhere you feel your hair stand on end (which indicates that lightning is about to strike):

Squat low to the ground on the balls of your feet. Place your hands over your ears and your head between your knees. Make yourself the smallest target possible and minimize your contact with the ground. **DO NOT** lie flat on the ground.

Estimating the Distance from a Thunderstorm

Because light travels so much faster than sound, lightning flashes can be seen long before the resulting thunder is heard. Estimate the number of miles you are from a thunderstorm by counting the number of seconds between a flash of lightning and the next clap of thunder. Divide this number by five for the resulting distance in miles.

Hail

Hail is produced by many strong thunderstorms. Hail can be smaller than a pea or as large as a baseball and can be very destructive. In a hailstorm, take cover immediately. Pets and livestock are particularly vulnerable to hail, so always provide animals with shelter.

AFTER LIGHTNING STRIKES A PERSON

Call 9-1-1 for medical assistance as soon as possible.

The following are things you should check when you attempt to give aid to a victim of lightning:

Breathing – if breathing has stopped, begin mouth-to-mouth resuscitation.

Heartbeat - if the heart has stopped, administer CPR.

Pulse - if the victim has a pulse and is breathing, look for other possible injuries. Check for burns where the lightning entered and left the body. Also be alert for nervous system damage, broken bones, and loss of hearing and eyesight.

ANIMALS AFTER A THUNDERSTORM

The behavior of animals may change dramatically after a thunderstorm. Normally quiet and friendly animals may become fractious. Monitor animals closely and only release them in safe and secure enclosures.

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Animals may not be allowed into Red Cross shelters for health and space reasons. Prepare an emergency plan and know where you will take all of your animals in the event of a disaster. Temporary animal shelters may be set-up; however, these will fill rapidly. An ideal situation during disasters is to have pre-determined locations that will provide living spaces for your whole family and your animals. Additional information on preparing for animals during disasters can be found in "Saving the Whole Family," AVMA 2007.

Make sure all animals have a current identification tag, license, and vaccinations.

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TAB D Disaster Resource Materials (Fact Sheets) Section 7: Fires

A small fire can engulf a home in a matter of minutes. Roughly 80 percent of all fire deaths occur where people sleep, such as in homes, dormitories, barracks, or hotels. The majority of fatal fires occur when people are likely to be less alert, such as nighttime sleeping hours. Nearly all home and other building fires are preventable. Understanding the basic characteristics of fire and learning the proper safety practices can be the key to surviving a house or building fire.

BEFORE/PREVENTION

Learn more about fire safety by contacting your local fire department.
Develop and practice an escape plan.

Draw a floor plan of your home; mark two fire escape routes for each room.

Learn the local fire department's emergency number and post the number near telephones.

Select a safe outside meeting place for everyone to meet after escaping from a fire. Gathering in a specific meeting place in front of the home will quickly let you know who is out, and allow you to advise firefighters of who may need help and their probable location inside.

Conduct a home fire drill at least twice a year with all members of your household. Practicing your plan makes the actual response more of an appropriate reaction, requiring less thinking during an emergency situation.

- Practice alerting other household members. Blowing a whistle or screaming "Fire!" several times during your escape will alert other household members.
- Practice a stay-low to the ground escape, as if you were crawling under a layer of smoke.
- Practice evacuating the building blindfolded. During a fire, smoke may make it impossible to see.
- Practice getting out of your home during the day and night.
- Teach family members to get out of the fire first, go to the meeting place, and then send one person to call the fire department from a neighbor's house or outside phone. Once you are out, stay out! Many people are overcome by smoke and poisonous gases while trying to rescue others or possessions. No one should go into a burning or smoking building except a trained firefighter who has proper breathing apparatus or protective clothing.

Smoke Alarms

Install smoke alarms. Properly working smoke alarms decrease your chances of dying in a fire by half.

Place smoke alarms on every level of your residence. Place them outside bedrooms on the ceiling or high on the wall (4 to 12 inches from ceiling), at the top of open stairways, or at the bottom of enclosed stairs and near (but not in) the kitchen.

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Test and clean smoke alarms once a month and replace batteries at least once a year. Replace smoke alarms once every 10 years.

Escaping the Fire

Review escape routes with your family. Practice escaping from each room.

Make sure windows are not nailed or painted shut. Make sure security gratings on windows have a fire safety opening feature so they can be easily opened from the inside.

Consider escape ladders if your residence has more than one level, and ensure that burglar bars and other antitheft mechanisms that block outside window entry are easily opened from the inside.

Teach family members to stay low to the floor (where the air is safer in a fire) when escaping from a fire.

Clean out storage areas. Do not let trash, such as old newspapers and magazines, accumulate.

Flammable Items

Never use gasoline, benzene, naphtha, or similar flammable liquids indoors.

Store flammable liquids in approved containers in well-ventilated storage areas.

Never smoke near flammable liquids.

Discard all rags or materials that have been soaked in flammable liquids after you have used them. Safely discard them outdoors in a metal container.

Insulate chimneys and place spark arresters on top. The chimney should be at least three feet higher than the roof. Remove branches hanging above and around the chimney.

Heating Sources

Be careful when using alternative heating sources.

Check with your local fire department on the legality of using kerosene heaters in your community. Be sure to fill kerosene heaters outside, and be sure they have cooled.

Place heaters at least three feet away from flammable materials. Make sure the floor and nearby walls are properly insulated.

Use only the type of fuel designated for your unit and follow manufacturer's instructions.

Store ashes in a metal container outside and away from your residence.

Keep open flames away from walls, furniture, drapery, and flammable items.

Keep a screen in front of the fireplace.

Have heating units inspected and cleaned annually by a certified specialist.

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Matches and Smoking

Keep matches and lighters up high, away from children, and, if possible, in a locked cabinet.

Never smoke in bed or when drowsy or medicated. Provide smokers with deep, sturdy ashtrays. Douse cigarette and cigar butts with water before disposal.

Electrical Wiring

Have the electrical wiring in your residence checked by an electrician.

Inspect extension cords for frayed or exposed wires or loose plugs.

Make sure outlets have cover plates and no exposed wiring.

Make sure wiring does not run under rugs, over nails, or across high-traffic areas.

Do not overload extension cords or outlets. If you need to plug in two or three appliances, get a UL-approved unit with built-in circuit breakers to prevent sparks and short circuits.

Make sure insulation does not touch bare electrical wiring.

Other

Sleep with your door closed.

Install A-B-C-type fire extinguishers in your residence and teach family members how to use them.

Consider installing an automatic fire sprinkler system in your residence.

Ask your local fire department to inspect your residence for fire safety and prevention.

DURING

If your clothes catch on fire you should:

Stop, drop, and roll - until the fire is extinguished. Running only makes the fire burn faster.

To escape a fire you should:

Check closed doors for heat before you open them. If you are escaping through a closed door, use the back of your hand to feel the top of the door, the doorknob, and the crack between the door and door frame before you open it. Never use the palm of your hand or fingers to test for heat - burning those areas could impair your ability to escape a fire (i.e., ladders and crawling).
Keep matches and lighters up high, away from children, and, if possible, in a locked cabinet.

If the door is hot: do not open. Escape through a window. If you cannot escape, hang a white or light-colored sheet outside the window, alerting fire fighters to your presence.

If the door is cool: open slowly and ensure fire and/or smoke is not blocking your escape route. If your escape route is blocked, shut the door immediately and use an alternate escape route, such as a window. If clear, leave immediately through the door and close it behind you. Be prepared to crawl. Smoke and heat rise. The air is clearer and cooler near the floor.

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Crawl low under any smoke to your exit - heavy smoke and poisonous gases collect first along the ceiling.

Close doors behind you as you escape to delay the spread of the fire.

Stay out once you are safely out. Do not reenter. Call 9-1-1.

AFTER

The following are guidelines for different circumstances in the period following a fire:

If you are with burn victims, or are a burn victim yourself, call 9-1-1; cool and cover burns to reduce chance of further injury or infection.

If you detect heat or smoke when entering a damaged building, evacuate immediately.

If you are a tenant, contact the landlord.

If you have a safe or strong box, do not try to open it. It can hold intense heat for several hours. If the door is opened before the box has cooled, the contents could burst into flames.

If you must leave your home because a building inspector says the building is unsafe, ask someone you trust to watch the property during your absence.

- Stay out of fire-damaged homes until local fire authorities say it is safe to re-enter.
- Contact your insurance agent.

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TAB D

Disaster Resource Materials (Fact Sheets)

Section 8: Wildland Fires

The threat of wildland fires for people living near wildland areas or using recreational facilities in wilderness areas is real. Dry conditions at various times of the year and in various parts of the United States greatly increase the potential for wildland fires.

Advanced planning and knowing how to protect buildings in these areas can lessen the devastation of wildland fires. There are several safety precautions that you can take to reduce the risk of fire losses. Protecting your home from wildfire is your responsibility. To reduce the risk, you'll need to consider the fire resistance of your home, the topography of your property and the nature of the vegetation close by.

PREVENTION

Have emergency supplies on hand:

- Flashlight and extra batteries
- Portable battery-operated radio and extra batteries
- Portable gasoline-powered pump
- First aid kit and manual
- Emergency food and water – at least a three day supply of water and non-perishable food for each person in your household
- Manual can opener
- Essential medicines
- Cash and credit cards
- Important family documents and veterinary records
- At least one complete change of clothing and footwear per person. (Include sturdy shoes and work boots, hats and gloves, rain gear, thermal underwear, blankets or sleeping bag)
- Animal Evacuation Kit – see “Saving the Whole Family”, AVMA 2007

Suggestions and Reminders: Store your supplies in a convenient place known to all family members. Keep a smaller version of the emergency supplies in the trunk of your car. Keep items in air-tight plastic bags. Change your stored water supply every six months so it stays fresh. Rotate your stored food every six months. Re-think your Emergency Supplies and family needs at least once a year. Replace batteries, update clothes, etc. Ask your physician or pharmacist about storing prescription medications, and your veterinarian about veterinary medications.

Familiarize yourself with the three different classes of wildfires.

- surface fire
This is the most common type of wildfire. It burns along the floor of a forest, moving slowly and killing or damaging trees.
- ground fire
This type of wildland fire is usually started by lightning and burns on or below the forest floor in the humus layer down to the mineral soil.

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- crown fire

This wildland fire spreads rapidly by wind and moves quickly by jumping along the tops of trees.

Develop an emergency communication plan.

In case family members are separated during a disaster (this is a real possibility during the day when adults are at work and children are at school), develop a plan for reuniting after the disaster. Ask an out-of state relative or friend to serve as the “family contact.” After a disaster, it’s often easier to call long distance. Make sure everyone in the family knows the name and location of the contact person and his or her phone number.

Some preparation steps can be implemented immediately.

Others need to be considered at the time of construction or remodeling. You should also contact your local fire department, forestry office, emergency management office or building department for information about local fire laws, building codes and protection measures. Obtain local building codes and weed abatement ordinances for structures built near wooded areas.

Learn about your area’s wildfire risk.

Contact your local fire department, forestry service or other emergency response agencies for information on fire laws and wildfire risk.

Learn about the history of wildfire in your area.

Be aware of recent weather. A long period without rain increases the risk of wildfire.

Consider having a professional inspect your property and offer recommendations for reducing the wildfire risk.

Determine your community’s ability to respond to wildfire.

Are roads leading to your property clearly marked? Are the roads wide enough to allow firefighting equipment to get through? Is your house number visible from the roadside?

Learn and teach safe fire practices.

Build fires away from nearby trees or bushes.

Always have a way to extinguish the fire quickly and completely.

Install smoke detectors on every level of your home and near sleeping areas.

Never leave a fire – even a cigarette – burning unattended.

Avoid open burning completely, and especially during dry season.

Always be ready for an emergency evacuation.

Evacuation may be the only way to protect your family in a wildfire. Know where to go and what to bring with you. You should plan several escape routes in case roads are blocked by a wildfire.

Create a 30-foot safety zone around the house.

All vegetation is fuel for a wildfire, though some trees and shrubs are more flammable than others. To reduce the risk, you will need to modify or eliminate brush, trees, and other vegetation near your home. The greater the distance is between your home and the vegetation, the greater the protection. Keep the volume of vegetation in this zone to a minimum. If you live on a hill, extend the zone on the downhill side. Fire spreads rapidly uphill. The steeper the slope, the more open space you will need to protect your home. Swimming pools and patios can be a safety zone and stone walls can act as heat shields and deflect flames. In this zone you should also do the following:

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Remove vines from the walls of the house.
Move shrubs and other landscaping away from the sides of the house.
Prune branches and shrubs within 15 feet of chimneys and stove pipes.
Remove tree limbs within 15 feet of the ground.
Thin a 15-foot space between tree crowns.
Replace highly flammable vegetation such as pine, eucalyptus, junipers and fir trees with lower growing, less flammable species. Check with your local fire department or garden store for suggestions.
Replace vegetation that has living or dead branches from the ground-level up (these act as ladder fuels for the approaching fire).
Cut the lawn often keeping the grass at a maximum of 2 inches. Watch grass and other vegetation near the driveway, a source of ignition from automobile exhaust systems.
Clear the area of leaves, brush, evergreen cones, dead limbs and fallen trees.

Create a second zone at least 100 feet around the house.

This zone should begin about 30 feet from the house and extend to at least 100 feet.
Within the zone reduce or replace flammable vegetation.
If house is on a hill, the zone may need to be extended for several hundred feet for safety.

Clear all combustibles within 30 feet of any structure.

Install electrical lines underground, if possible.
Ask the power company to clear branches from power lines.
Avoid using bark and wood chip mulch.
Stack firewood 100 feet away and uphill from any structure.
Store combustible or flammable materials in approved safety containers and keep them away from the house.
Keep the gas grill and propane tank at least 15 feet from any structure. Clear an area 15 feet around the grill. Place a 1/4 inch mesh screen over the grill. Always use the grill cautiously but refrain from using it all during high risk times.

Remove debris from under sun decks and porches.

Clear leaves, trash, and other combustible materials away.
Extend 1/2-inch mesh screen from all overhands down to the ground.
Enclose wooden stilts with non-combustible materials such as concrete, brick, rock, stucco, or metal.
Use non-combustible patio furniture and covers.
If planning construction for a porch or sun deck, use non-combustible or fire-resistant materials and build the structure close to the ground to limit space underneath.

Enclose eaves and overhangs.

Cover house vents with wire mesh.

Cover all openings with 1/4 inch or smaller corrosion-resistant wire mesh.
If designing louvers, place them in the vertical wall rather than the soffit of the overhang.

Install spark arrestors in chimneys and stovepipes.

Use spark arrestors made of 12-gauge welded or woven wire mesh screen with openings 1/2 inch across.
Inquire local fire department for exact specifications.

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If planning construction of a chimney, use non-combustible materials and make certain the top of the chimney is at least two feet higher than any obstruction within 10 feet of the chimney. Keep the chimney clean.

Use fire-resistant siding.

Materials include stucco, metal, brick, cement shingles, concrete and rock. Wood siding can be treated with UL-approved fire retardant chemicals, but the treatment and protection are not permanent.

Choose safety glass for windows and sliding glass doors.

Windows allow radiated heat to pass through and ignite combustible materials inside. Dual- or triple-pane thermal glass, and fire resistant shutters or drapes, help reduce wildfire risk.

Non-combustible awnings can also be installed to shield windows. Shatter-resistant glazing such as tempered or wireglass can also be used.

Prepare for water storage by developing an external water supply such as a small pond, well, or pool.

Other safety measures to consider at the time of construction or remodeling:

Choose locations wisely; canyon and slope locations increase the risk of exposure to wildland fires. Windows allow radiated heat to pass through and ignite combustible materials inside.

Use fire-resistant materials when building, renovating, or retrofitting structures.

Avoid designs that include wooden decks and patios.

Use non-combustible materials for the roof.

The roof is especially vulnerable in a wildfire. Embers and flaming debris can travel great distances, land on your roof and start a new fire. Avoid flammable roofing materials such as wood, shake and shingle. Materials that are more fire resistant include single ply membranes, fiberglass shingles, slate, metal, clay and concrete tile. Clear gutters of leaves and debris.

BEFORE A FIRE APPROACHES YOUR HOUSE

Evacuate. Evacuate your pets and all family members who are not essential to preparing the home. Anyone with medical or physical limitations and the young and elderly should be evacuated immediately.

Wear protective clothing.

Remove combustibles. Clear items that will burn from around the house, including wood piles, lawn furniture, barbecue grills, tarp coverings, etc. Move them outside your defensible space.

Close/Protect Openings. Close outside attic, eaves and basement vents, windows, doors, pet doors, etc. Remove flammable drapes and curtains. Close all shutters, blinds or heavy non-combustible window coverings to reduce radiant heat.

Close Inside Doors/Open Damper. Close all doors inside the house to prevent draft. Open the damper on your fireplace, but close the fireplace screen.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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Shut Off Gas. Shut off any natural gas, propane or fuel oil supplies at the source.

Water. Connect garden hoses. Fill any pools, hot tubs, garbage cans, tubs or other large containers with water.

Pumps. If you have gas-powered pumps for water, make sure they are fueled and ready.

Ladder. Place a ladder against the house in clear view.

Car. Back your car into the driveway and roll up the windows.

Garage Doors. Disconnect any automatic garage door openers so that doors can still be opened by hand if the power goes out. Close all garage doors.

Valuables. Place valuable papers, mementos and anything "you can't live without" inside the car in the garage, ready for quick departure. Any pets still with you should also be put in the car.

Preparing to Leave

Lights. Turn on outside lights and leave a light on in every room to make the house more visible in heavy smoke.

Don't Lock Up. Leave doors and windows closed but unlocked. It may be necessary for firefighters to gain quick entry into your home to fight fire. The entire area will be isolated and patrolled by sheriff's deputies or police.

DURING

Survival in a Vehicle

This is dangerous and should only be done in an emergency, but you can survive the firestorm if you stay in your car. It is much less dangerous than trying to run from a fire on foot.

Roll up windows and close air vents. Drive slowly with headlights on. Watch for other vehicles and pedestrians. Do not drive through heavy smoke.

If you have to stop, park away from the heaviest trees and brush. Turn headlights on and ignition off. Roll up windows and close air vents.

Get on the floor and cover up with a blanket or coat.

Stay in the vehicle until the main fire passes.

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Stay in the car. Do not run! Engine may stall and not restart. Air currents may rock the car. Some smoke and sparks may enter the vehicle. Temperature inside will increase. Metal gas tanks and containers rarely explode.

If You Are Trapped at Home

Stay calm. As the fire front approaches, go inside the house. You can survive inside. The fire will pass before your house burns down.

Turn on a battery-operated radio, and listen to local radio or television stations for updated emergency information. Follow the instructions of local officials.

Shut off gas at the meter.

Open fireplace damper. Close fireplace screens.

Close windows, vents, doors, venetian blinds or noncombustible window coverings, and heavy drapes. Remove flammable drapes and curtains.

Move flammable furniture into the center of the home away from windows and sliding-glass doors.

Close all doors and windows inside your home to prevent draft.

If Caught in the Open

The best temporary shelter is in a sparse fuel area. On a steep mountainside, the back side is safer. Avoid canyons, natural "chimneys" and saddles.

If a road is nearby, lie face down along the road cut or in the ditch on the uphill side. Cover yourself with anything that will shield you from the fire's heat.

If hiking in the back country, seek a depression with sparse fuel. Clear fuel away from the area while the fire is approaching and then lie face down in the depression and cover yourself. Stay down until after the fire passes!

AFTER

Take care when re-entering a burned area. Hot spots can flare up without warning.

Check the roof immediately. Put out any roof fires, sparks or embers. Check the attic for hidden burning sparks.

If you have a fire, get your neighbors to help fight it.

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The water you put into your pool or hot tub and other containers will come in handy now. If the power is out, try connecting a hose to the outlet on your water heater.

For several hours after the fire, maintain a “fire watch.” Re-check for smoke and sparks throughout the house.

Avoid damaged or fallen power poles or lines, and downed wires. Immediately report electrical damage to authorities.

Be careful around burned trees and power poles.

Watch out for ash pits and mark them for safety.

Take precautions while cleaning your property. You may be exposed to potential health risks from hazardous materials.

- Debris should be wet down to minimize health impacts from breathing dust particles.
- Use a two-strap dust particulate mask with nose clip and coveralls for the best minimal protection.
- Wear leather gloves to protect hands from sharp objects while removing debris.
- Wear rubber gloves when working with outhouse remnants, plumbing fixtures, and sewer piping.
- Hazardous materials such as kitchen and bathroom cleaning products, paint, batteries, contaminated fuel and damaged fuel containers need to be properly handled to avoid risk.

If you have a propane tank system, contact a propane supplier, turn off valves on the system, and leave valves closed until the supplier inspects your system.

If you have a heating oil tank system, contact a heating oil supplier for an inspection of your system before using.

Visually check the stability of trees.

Look for burns on the tree trunk. If the bark on the trunk has been burned off or scorched by very high temperatures completely around the circumference, the tree will not survive. Where fire has burnt deep into the trunk, the tree should be considered unstable. Look for burnt roots by probing the ground with a rod around the base of the tree and several feet away from the base. Roots are generally six to eight inches below the surface. If the roots have been burned, you should consider this tree very unstable, and it may be toppled by wind.

A scorched tree is one that has lost part or all of its leaves or needles. Healthy trees are resilient and may produce new branches and leaves as well as sprouts at the base of the tree. Evergreen trees may survive when partially scorched. An evergreen tree that has been damaged by fire is subject to bark beetle attack. Please seek professional assistance from the forestry service concerning measures for protecting evergreens from bark beetle attack.

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Wells at undamaged homes should be safe, unless affected by a fuel spill.

If your house was damaged, disinfect and test water before consumption.

If you use water from a public well, have a water sample collected and tested before allowing the water to be consumed.

ANIMALS AFTER WILDLAND FIRES

The behavior of animals may change dramatically after any disruption in their routine. Normally quiet and friendly animals may become fractious. Monitor animals closely and only release them in safe and secure enclosures.

Animals may not be allowed into Red Cross shelters for health and space reasons. Prepare an emergency plan and know where you will take all of your animals in the event of a disaster. Temporary animal shelters may be set-up; however, these will fill rapidly. An ideal situation during disasters is to have a pre-determined friend or family member that will provide a living space for your whole family, including your animals. Additional information on preparing for animals during disasters can be found in "Saving the Whole Family", AVMA 2007.

Make sure all animals have a current identification tag, license, and vaccinations.

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TAB D

Disaster Resource Materials (Fact Sheets)

Section 9: Tornadoes

A tornado is a violently rotating column of air extending from a thunderstorm to the ground. They are capable of causing extreme destruction, including uprooting trees and structures, and turning normally harmless objects into deadly flying debris.

Tornadoes have been reported in every state, and though they generally occur during spring and summer, they can happen any time of the year. There are no areas immune to tornadoes; they have been reported in mountains and valleys, over deserts and swamps, from the Gulf Coast into Canada, in Hawaii and even Alaska. Regardless of the location or time of year, if conditions are right, a tornado can happen.

When a tornado is coming, there is only a short amount of time to make life-or-death decisions. Advanced planning and a quick response are the keys to surviving a tornado.

BEFORE

Have emergency supplies on hand:

Flashlight and extra batteries

Portable battery-operated radio and extra batteries

First aid kit and manual

Emergency food and water – at least a three day supply of water and non-perishable food for each person in your household

Manual can opener

Essential medicines

Cash and credit cards

Important family documents and veterinary records

At least one complete change of clothing and footwear per person. (Include sturdy shoes and work boots, hats and gloves, rain gear, thermal underwear, blankets or sleeping bag)

Animal Evacuation Kit – see “Saving the Whole Family,” AVMA 2007.

Suggestions and Reminders: Store your supplies in a convenient place known to all family members. Keep a smaller version of the emergency supplies in the trunk of your car. Keep items in air-tight plastic bags. Change your stored water supply every six months so it stays fresh. Rotate your stored food every six months. Re-think your Emergency Supplies and family needs at least once a year. Replace batteries, update clothes, etc. Ask your physician or pharmacist about storing prescription medications, and your veterinarian about veterinary medications.

Learn about your tornado risk.

While severe tornadoes are more frequent in the Plains States, tornadoes can happen in every state.

Contact your local emergency management office, local National Weather Service office, or American Red Cross chapter for more information on tornadoes.

Develop an emergency communication plan.

In case family members are separated during a disaster (this is a real possibility during the day when adults are at work and children are at school), develop a plan for reuniting after the disaster.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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Ask an out-of state relative or friend to serve as the “family contact.” After a disaster, it’s often easier to call long distance. Make sure everyone in the family knows the name and location of the contact person and his or her phone number.

Familiarize yourself with the tornado warning signs and your community alert signals.

A tornado watch is issued by the National Weather Service when the weather conditions are such that tornadoes are likely to develop. This is the time to determine a safe place in the home and to watch the sky and listen to the radio or television for further information.

A tornado warning is issued when a tornado has been sighted or indicated by radar. At this point, the danger is very serious and everyone should go to a safe place, turn on a battery-operated radio or television and wait for the “all clear” by the authorities.

Different communities have different ways of providing warnings. Many communities have sirens intended for outdoor warning purposes. Use a NOAA Weather Radio with a tone-alert feature to keep you aware of watches and warnings while you are indoors.

Be alert to changing weather conditions.

Listen to NOAA Weather radio (www.weather.gov/nwr) or commercial radio or television newscasts for the latest information.

Look for approaching storms.

Look for the following danger signs:

Dark, often greenish sky

Large hail

A large, dark, low-lying cloud (particularly if rotating)

Loud roar, similar to a freight train.

If you see approaching storms or any of the danger signs, be prepared to take shelter immediately.

Pick a safe place in your home for family members to gather during a tornado.

The safest place to be is underground, or as low to the ground as possible. If you have a basement, make it your safe place.

If you do not have a basement, consider an interior hallway or room on the lowest floor.

Make sure there are no windows or glass doors in your safe place and keep this place uncluttered.

If you live or are in a high-rise building, pick a place in a hallway in the center of the building.

If you live in a mobile home, choose a safe place in a nearby sturdy building.

Conduct periodic tornado drills, so everyone remembers what to do when a tornado is approaching.

Make a list of items to bring inside in the event of an approaching thunderstorm.

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DURING

If you are in a structure (e.g., residence, small building, school, nursing home, hospital, factory, shopping center, high-rise building):

Go to a pre-designated shelter area such as a safe room, basement, storm cellar, or the lowest building level. If there is no basement, go to the center of an interior room on the lowest level (closet, interior hallway) away from corners, windows, doors, and outside walls. Put as many walls as possible between you and the outside. Get under a sturdy table and use your arms to protect your head and neck. Do not open windows.

If you are in a vehicle, trailer, or mobile home:

Get out immediately and go to the lowest floor of a sturdy, nearby building or a storm shelter. Mobile homes, even if tied down, offer little protection from tornadoes.

If you are outside with no shelter:

Lie flat in a nearby ditch or depression and cover your head with your hands. Be aware of the potential for flooding.

Do not get under an overpass or bridge. You are safer in a low, flat location.

Never try to outrun a tornado in urban or congested areas in a car or truck. Instead, leave the vehicle immediately for safe shelter.

Watch out for flying debris. Flying debris from tornadoes causes most fatalities and injuries.

“OPEN WINDOW” MYTH

Many people mistakenly believe they should open a window when a tornado is coming. They believe that since houses are airtight, the change in air pressure during a tornado could cause a home to explode. Actually, buildings are not airtight. They leak, equalizing air pressure naturally. Opening a window allows the strong winds to enter, causing damage and increases the possibility of injury.

AFTER

Continue listening to local radio or television stations or a NOAA Weather Radio for updated information and instructions.

Check yourself for injuries.

People often tend to others without checking their own injuries first. People will be better able to care for others if they have received first aid for their injuries.

If you evacuated, return home when local officials tell you it is safe.

Help injured or trapped persons.

Call 911 and then give first aid where appropriate. Do not move the seriously injured unless they are in immediate danger of further injury.

Do not enter damaged buildings.

When entering buildings, use extreme caution.

Wear sturdy shoes and use battery-powered lanterns or flashlights when examining buildings. Inspect foundations for settling or cracking.

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Examine walls, floors, doors, and windows to determine that the building is not in danger of collapsing.

Watch for loose plaster and ceilings that could fall.

Watch for submerged furnaces or electrical appliances.

Check the gas, electrical and water lines for damage. When inspecting utilities, wear heavy shoes and work gloves as protection against debris and broken glass.

Open windows and leave the building if you smell gas. Report gas leakage to the authorities.

Check utility lines and appliances for damage. If electrical wiring appears damaged, turn off the current at the main meter box.

If you suspect sewage lines are damaged, avoid using the toilets and call a plumber.

If water pipes are damaged, contact the water company and do not use water from the tap. Obtain emergency water from hot water tanks, toilet tanks (not bowls) and melted ice cubes.

Use the telephone only for emergency calls.

Telephone lines are frequently overwhelmed in disaster situations. They need to be clear for emergency calls to get through.

DO NOT SHUT OFF UTILITIES UNLESS INSTRUCTED TO DO SO BY LOCAL OFFICIALS, OR UNLESS YOU ARE IN IMMINENT DANGER FROM SOMETHING LIKE AN OBVIOUS GAS LEAK. REMEMBER THAT YOUR GAS SUPPLY MUST BE TURNED BACK ON BY A PROFESSIONAL.

ANIMALS AFTER A TORNADO

The behavior of animals may change dramatically after a tornado. Normally quiet and friendly animals may become fractious. Monitor animals closely and only release them in safe and secure enclosures.

Animals may not be allowed into Red Cross shelters for health and space reasons. Prepare an emergency plan and know where you will take all of your animals in the event of a disaster. Temporary animal shelters may be set-up; however, these will fill rapidly. An ideal situation during disasters is to have pre-determined locations that will provide a living space for your whole family, including your animals. Additional information on preparing for animals during disasters can be found in "Saving the Whole Family," AVMA 2007.

Make sure all animals have a current identification tag, license, and vaccinations.

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TAB D

Disaster Resource Materials (Fact Sheets)

Section 10: Winter Storm

A major winter storm can be lethal. A major winter storm can last for several days and be accompanied by high winds, freezing rain or sleet, heavy snowfall, and cold temperatures. People can become trapped at home, without utilities or other services. Heavy snowfall and blizzards can trap motorists in their cars. Attempting to walk for help in a blizzard can be a deadly decision.

Winter storms are considered deceptive killers because most deaths are indirectly related to the storm. The leading cause of death during winter storms is from automobile or other transportation accidents. Exhaustion and heart attacks caused by overexertion are the two most likely causes of winter storm-related deaths.

House fires occur more frequently in the winter due to lack of proper safety precautions when using alternate heating sources. Fire during winter storms presents a great danger because water supplies may freeze and it may be difficult for firefighting equipment to get to the fire.

Preparing for all types of cold weather conditions and disasters, and responding to them effectively can reduce the dangers caused by winter storms.

BEFORE

Familiarize yourself with these terms to help identify a winter storm hazard:

Freezing Rain

Rain that freezes when it hits the ground, creating a coating of ice on roads, walkways, trees, and power lines.

Sleet

Rain that turns to ice pellets before reaching the ground. Sleet also causes moisture on roads to freeze and become slippery.

Winter Storm Watch

A winter storm is possible in your area. Tune in to NOAA Weather Radio, commercial radio, or television for more information.

Winter Storm Warning

A winter storm is occurring or will soon occur in your area.

Blizzard Warning

Sustained winds or frequent gusts to 35 miles per hour or greater and considerable amounts of falling or blowing snow (reducing visibility to less than a quarter mile) are expected to prevail for a period of three hours or longer.

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Frost/Freeze Warning

Below freezing temperatures are expected.

Have emergency supplies on hand at home:

Flashlight and extra batteries

Portable battery-operated radio and extra batteries

First aid kit and manual

Emergency food and water – at least a three day supply of water and non-perishable food for each person in your household

Manual can opener

Essential medicines

Cash and credit cards

Important family documents and veterinary records

At least one complete change of clothing and footwear per person. (Include sturdy shoes and work boots, warm coat and hat, gloves or mittens, rain gear, thermal underwear, blankets or sleeping bag)

Extra blankets and warm clothing

Non-clumping kitty litter to generate traction on icy surfaces

Rock salt to melt ice on walkways

Sand to improve traction

Snow shovels and other snow removal equipment

Animal Evacuation Kit – see “Saving the Whole Family”, AVMA 2007

Suggestions and Reminders: Store your supplies in a convenient place known to all family members. Keep a smaller version of the emergency supplies in the trunk of your car. Keep items in air-tight plastic bags. Change your stored water supply every six months so it stays fresh. Rotate your stored food every six months. Re-think your Emergency Supplies and family needs at least once a year. Replace batteries, update clothes, etc. Ask your physician or pharmacist about storing prescription medications, and your veterinarian about veterinary medications.

Know ahead of time what you should do to help elderly or disabled friends, neighbors, or employees.

Contact your local emergency management office, National Weather Service office, or American Red Cross chapter for information.

Develop an emergency communication plan.

In case family members are separated during a disaster (this is a real possibility during the day when adults are at work and children are at school), develop a plan for reuniting after the disaster.

Ask an out-of state relative or friend to serve as the “family contact.” After a disaster, it’s often easier to call long distance. Make sure everyone in the family knows the name and location of the contact person and his or her phone number.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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Learn about winter storm risk in your area.

Contact your local emergency management office, National Weather Service office, or American Red Cross chapter for information.

Familiarize yourself with winter storm and blizzard WATCHES and WARNINGS.

A National Weather Service (NWS) winter storm watch means a winter storm is possible in your area.

A NWS winter storm warning means a winter storm is occurring, or will soon occur, in your area. Freezing Rain is rain that freezes when it hits the ground, creating a coating of ice on roads, walkways, trees, and power lines.

Sleet is rain that turns to ice pellets before reaching the ground. Sleet also causes moisture on roads to freeze and become slippery.

A NWS Blizzard Warning occurs when there are sustained winds or frequent gusts to 35 miles per hour or greater and considerable amounts of falling or blowing snow (reducing visibility to less than a quarter mile) are expected to prevail for a period of three hours or longer.

Frost/Freeze Warnings occur when below freezing temperatures are expected.

Understand the hazards of wind chill, which combines the cooling effect of wind and cold temperatures on exposed skin.

As the wind increases, heat is carried away from a person's body at an accelerated rate, driving down the body temperature. "Wind chill" is a calculation of how cold it feels when the effects of wind speed and temperature are combined. A strong wind combined with a temperature of just below freezing can have the same effect as a still air temperature about 35 degrees colder.

Service snow removal equipment before winter storm season.

Make sure you have sufficient heating fuel; regular fuel sources may be cut off. For example, store a good supply of dry, seasoned wood for your fireplace or wood-burning stove.

Dress for the weather.

Wear several layers of loose fitting, lightweight, warm clothing rather than one layer of heavy clothing. The outer garments should be tightly woven and water repellent.

Wear mittens, which are warmer than gloves.

Wear a hat.

Cover your mouth with a scarf to protect your lungs.

Take an American Red Cross first aid course to learn how to treat exposure to the cold, frostbite, and hypothermia.

Frostbite

Frostbite is a severe reaction to cold exposure that can cause permanent damage.

Symptoms of frostbite are the loss of feeling and a white or pale appearance in fingers, toes, nose, and ear lobes.

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Hypothermia

Hypothermia is a condition brought on when the body temperature drops below normal due to prolonged exposure to temperatures less than 55 degrees Fahrenheit. Symptoms of hypothermia include uncontrollable shivering, slow speech, memory lapses, frequent stumbling, drowsiness, and exhaustion.

If frostbite or hypothermia is suspected

Warm the victim and seek immediate medical assistance. Never give a frostbite or hypothermia victim something with caffeine in it (like coffee) or alcohol. Caffeine, a stimulant, can cause the heart to beat faster and hasten the effects the cold has on the body. Alcohol, a depressant can slow the heart and also hasten the ill effects of cold body temperatures.

Winterize your home.

Insulate walls and attic.

Caulk and weather-strip doors and windows.

Install window covers or cover windows with plastic from the inside.

Hire a contractor to check the structural ability of the roof to sustain unusually heavy weight from the accumulation of snow or water, if drains on flat roofs do not work.

Winterize your house, barn, shed or any other structure that may provide shelter for your family, neighbors, livestock, or equipment.

Clear rain gutters.

Caulk and weather-strip doors and windows.

Install window covers or cover windows with plastic from the inside.

Prepare your car. Check or have a mechanic check the following items on your car:

Antifreeze levels - ensure they are sufficient to avoid freezing.

Battery and ignition system – should be in top condition and battery terminals should be clean.

Brakes – check for wear and fluid levels.

Exhaust system – check for leaks and crimped pipes and repair or replace as necessary.

Carbon monoxide is deadly and usually gives no warning.

Fuel and air filters – replace and keep water out of the system by using additives and maintaining a full tank of gas.

Heater and defroster – ensure they work properly.

Lights and flashing hazard lights – check for serviceability.

Oil – check for level and weight. Heavier oils congeal more at low temperatures and do not lubricate as well.

Thermostat – ensure it works properly.

Windshield wiper equipment – repair any problems and maintain proper washer fluid level.

Install good winter tires. Make sure the tires have adequate tread. All-weather radials are usually adequate for most winter conditions. However, some jurisdictions require that to drive on their roads, vehicles must be equipped with chains or snow tires with studs.

Maintain at least a half tank of gas during the winter season.

Put together a separate disaster supplies kit for the trunk of each car used by members of your household. Place a winter emergency kit in each car that includes:

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- a shovel
- windshield scraper and small broom
- flashlight
- battery powered radio
- extra batteries
- water
- snack food
- matches
- extra hats, socks and mittens
- First aid kit with pocket knife
- Necessary medications
- blanket(s)
- tow chain or rope
- road salt and sand
- booster cables
- emergency flares
- fluorescent distress flag

Have some type of safe, emergency heating equipment available.

Fireplace with ample supply of wood; small, well vented wood, coal or camp stove with fuel; portable space heaters, or kerosene heater. Note: Check with your local fire department on the legality of using kerosene heaters in your community. If kerosene heaters are used, maintain ventilation to avoid build-up of toxic fumes. Also, always refuel kerosene heaters outside and keep them at least three feet away from flammable objects.

Install and check smoke detectors.

Keep fire extinguishers on hand, and make sure everyone in your house knows how to use them. House fires pose an additional risk, as more people turn to alternate heating sources without taking the necessary safety precautions.

Keep pipes from freezing.

Wrap pipes in insulation or layers of old newspapers.

Cover the newspapers with plastic to keep out moisture.

Let faucets drip a little to avoid freezing.

Know how to shut off water valves (in case a pipe bursts).

Install snow fences in rural areas to reduce drifting in roads and paths, which could block access to homes, barns, and animals' feed and water.

If you live in a flood-prone area, consider purchasing flood insurance to cover possible flood damage that may occur during the spring thaw. Remember homeowners' policies do not cover damage from floods. Ask your insurance agent about the National Flood Insurance Program.

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Use a NOAA Weather Radio with a tone-alert feature to keep you informed of watches and warnings issued in your area.

Contact your local emergency management office or American Red Cross for information on designated public shelters in case you lose power or heat.

DURING

Listen to a battery-powered NOAA Weather Radio, or local radio or television stations for weather reports and emergency information.

Eat regularly and drink ample fluids, but avoid caffeine and alcohol.

Be aware of changing weather conditions.

Move animals to sheltered areas.

Avoid unnecessary travel. Stay indoors and dress warmly during the storm.

Conserve fuel, if necessary, by keeping your residence cooler than normal.

Temporarily close off heat to some rooms.

If the pipes freeze, remove any insulation or layers of newspapers and wrap pipes in rags. Completely open all faucets and pour hot water over the pipes, starting where they were most exposed to the cold (or where the cold was most likely to penetrate).

Maintain ventilation when using kerosene heaters to avoid build-up of toxic fumes. Refuel kerosene heaters outside and keep them at least three feet from flammable objects.

If you must go outside, protect yourself from winter storm hazards.

Wear layered clothing, mittens or gloves, and a hat.

Cover your mouth to protect your lungs from extremely cold air. Try not to speak unless absolutely necessary.

Watch for signs of frostbite. These include loss of feeling and white or pale appearance in extremities such as fingers, toes, ear lobes, and the tip of the nose. If symptoms are detected, get medical help immediately. It is best to use the buddy system in case your senses become impaired.

Watch for signs of hypothermia. These include uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness, and apparent exhaustion.

If symptoms of hypothermia are detected:

- get the victim to a warm location
- remove wet clothing

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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- put the person in dry clothing and wrap their entire body in a blanket
 - warm the center of the body first
 - give warm, non-alcoholic or non-caffeinated beverages if the victim is conscious
 - get medical help as soon as possible.
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- Avoid overexertion, such as shoveling heavy snow, pushing a car or walking in deep snow. Overexertion can bring on a heart attack – a major cause of death in the winter. If you must shovel snow, stretch before going outside.

 - Use public transportation if possible.

If you have a cell phone or two-way radio available for your use, keep the battery charged and keep it with you whenever traveling in winter weather.

If you need to drive, let someone know your destination, your route, and when you expect to arrive. Consider the following:

Travel in the day, don't travel alone, and keep others informed of your schedule
Stay on main roads; avoid back road shortcuts.

Be aware of sleet, freezing rain, freezing drizzle, and dense fog, which can make driving very hazardous.

IF YOU GET STRANDED IN YOUR VEHICLE

Pull off the highway. Turn on hazard lights and hang a distress flag from the radio antenna or window.

Stay with your vehicle where rescuers are most likely to find you. Do not set out on foot unless you can see a building close by where you know you can take shelter. Be careful; distances are distorted by blowing snow. A building may seem close, but be too far to walk in the deep snow.

Occasionally run engine and heater about 10 minutes each hour to keep warm. When the engine is running, open a downwind window slightly for ventilation and periodically clear snow from the exhaust pipe. This will protect you from possible carbon monoxide poisoning.

Leave the overhead light on when the engine is running so that you can be seen. Do minor exercises to keep up circulation, but avoid overexertion. In extreme cold, use road maps, seat covers, and floor mats for insulation. Huddle with passengers and use your coat for a blanket.

If more than one person is in the car, take turns sleeping. One person should be awake at all times to look for rescue crews.

Be careful not to waste battery power. Balance electrical energy needs – the use of lights, heat, and radio – with supply.

If stranded in a remote area, stomp large block letters in an open area spelling out HELP or SOS and line with rocks or tree limbs to attract the attention of rescue personnel who may be surveying the area by airplane.

Leave the car and proceed on foot – if necessary – once the blizzard passes.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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AFTER

Continue listening to local radio or television stations or a NOAA Weather Radio for updated information and instructions.

Help neighbors who may require special assistance.

Avoid driving and other travel until conditions have improved.

Avoid overexertion.

Follow forecasts and be prepared when venturing outside.

ANIMALS AFTER A WINTER STORM

The behavior of animals may change dramatically after any disruption in their routine. Normally quiet and friendly animals may become fractious. Monitor animals closely and only release them in safe and secure enclosures.

Animals may not be allowed into Red Cross shelters for health and space reasons. Prepare an emergency plan and know where you will take all of your animals in the event of a disaster. Temporary animal shelters may be set-up; however, these will fill rapidly. An ideal situation during disasters is to have a pre-determined friend or family member that will provide a living space for your whole family, including your animals. Additional information on preparing for animals during disasters can be found in "Saving the Whole Family", AVMA 2007.

Make sure all animals have a current identification tag, license, and vaccinations.

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TAB D

Disaster Resource Materials (Fact Sheets)

Section 11: Extreme Heat

Doing too much on a hot day, spending too much time in the sun or staying too long in an overheated place can cause heat-related illnesses. Recognizing the symptoms of heat disorders and knowing the first aid treatment can reduce the dangers of the sun.

BEFORE/PREVENTION

Learn about the risk of extreme heat in your area and how to plan for it by contacting your local emergency management office, National Weather Service office, or American Red Cross chapter.

Extreme heat-specific supplies should include additional water, basic disaster supplies, people first aid kit and manual, and pet first aid kit – see “Saving the Whole Family,” AVMA 2007.

Familiarize yourself with heat terms.

A heat wave is a prolonged period of excessive heat, often combined with excessive humidity. The National Weather Service alerts the public to Heat Advisories and Excessive Heat Warnings.

A heat index is the number in degrees Fahrenheit (F) that tells how hot it feels when relative humidity is added to the air temperature. Exposure to full sunshine can increase the heat index by 15 degrees.

Heat cramps are muscular pains and spasms due to heavy exertion. Although heat cramps are the least severe, they are often the first signal that the body is having trouble with the heat. Heat exhaustion typically occurs when people exercise heavily or work in a hot, humid place where body fluids are lost through heavy sweating. Blood flow to the skin increases, causing blood flow to decrease to the vital organs. This results in a form of mild shock. If not treated, the victim's condition will worsen. Body temperature will keep rising and the victim may suffer heat stroke.

Heat stroke is a life-threatening condition. The victim's temperature control system, which produces sweating to cool the body, stops working. The body temperature can rise so high that brain damage and death may result if the body is not cooled quickly.

Discuss extreme heat with your family.

Everyone should know what to do in the places where they spend time. Some places may not be air conditioned or safe during a heat wave, so plan alternatives. Discussing extreme heat ahead of time will help reduce fear and anxiety, and lets everyone know how to respond.

To prepare for extreme heat, you should:

Install window air conditioners snugly; insulate if necessary.

Check air-conditioning ducts for proper insulation.

Install temporary window reflectors (for use between windows and drapes), such as aluminum foil-covered cardboard, to reflect heat back outside.

Weather-strip doors and sills to keep cool air in.

Cover windows that receive morning or afternoon sun with drapes, shades, awnings, or louvers. (Outdoor awnings or louvers can reduce the heat that enters a home by up to 80 percent.)

Keep storm windows up all year.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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DURING

What you should do if the weather is extremely hot:

Stay indoors as much as possible and limit exposure to the sun.

Stay on the lowest floor out of the sunshine if air conditioning is not available.

Consider spending the warmest part of the day in public buildings such as libraries, schools, movie theaters, shopping malls, and other community facilities. Circulating air can cool the body by increasing the perspiration rate of evaporation.

Eat well-balanced, light, and regular meals. Avoid using salt tablets unless directed to do so by a physician.

Drink plenty of water. Persons who have epilepsy or heart, kidney, or liver disease; are on fluid-restricted diets; or have a problem with fluid retention should consult a doctor before increasing liquid intake.

Limit intake of alcoholic beverages.

Dress in loose-fitting, lightweight, and light-colored clothes that cover as much skin as possible.

Protect face and head by wearing a wide-brimmed hat.

Check on family, friends, and neighbors who do not have air conditioning and who spend much of their time alone.

Never leave children or pets alone in closed vehicles.

Avoid strenuous work during the warmest part of the day. Use a buddy system when working in extreme heat, and take frequent breaks.

DURING A DROUGHT

Animal producers should contact the county USDA Farm Service Agency Office for disaster assistance information.

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DISASTER RESOURCE MATERIALS (FACT SHEETS)

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TAB D

Disaster Resource Materials (Fact Sheets) Section 12: Landslide and Debris Flow (Mudslide)

Landslides occur in all U.S. states and territories. In a landslide, masses of rock, earth, or debris move down a slope. Landslides may be small or large, slow or rapid. They are activated by:

- storms,
- earthquakes
- volcanic eruptions
- fires
- alternate freezing or thawing
- and steepening of slopes by erosion or human modification

Debris and mud flows are rivers of rock, earth, and other debris saturated with water. They develop when water rapidly accumulates in the ground, during heavy rainfall or rapid snowmelt, changing the earth into a flowing river of mud or “slurry.” They can flow rapidly, striking with little or no warning at avalanche speeds. They also can travel several miles from their source, growing in size as they pick up trees, boulders, cars, and other materials.

Landslide problems can be caused by land mismanagement, particularly in mountain, canyon, and coastal regions. In areas burned by forest and brush fires, a lower threshold of precipitation may initiate landslides. Land-use zoning, professional inspections, and proper design can minimize many landslide, mudflow, and debris flow problems.

BEFORE

Have emergency supplies on hand:

Flashlight and extra batteries

Portable battery-operated radio and extra batteries

First aid kit and manual

Emergency food and water – at least a three day supply of water and non-perishable food for each person in your household

Manual can opener

Essential medicines

Cash and credit cards

Important family documents and veterinary records

At least one complete change of clothing and footwear per person. (Include sturdy shoes and work boots, hats and gloves, rain gear, thermal underwear, blankets or sleeping bag)

Animal Evacuation Kit – see “Saving the Whole Family,” AVMA 2007

Suggestions and Reminders: Store your supplies in a convenient place known to all family members. Keep a smaller version of the emergency supplies in the trunk of your car. Keep items in air-tight plastic bags. Change your stored water supply every six months so it stays fresh. Rotate your stored food every six months. Re-think your Emergency Supplies and family needs at least once a year. Replace batteries, update clothes, etc. Ask your physician or pharmacist about storing prescription medications, and your veterinarian about veterinary medications.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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Develop an emergency communication plan.

In case family members are separated during a disaster (this is a real possibility during the day when adults are at work and children are at school), develop a plan for reuniting after the disaster.

Ask an out-of state relative or friend to serve as the “family contact.” After a disaster, it’s often easier to call long distance. Make sure everyone in the family knows the name and location of the contact person and his or her phone number.

Review flood safety and preparedness measures with your family.

Teach all family members how and when to turn off electricity, water and gas, if instructed to do so by authorities. Everyone in your home should know what to do, including guests, babysitters, and caregivers.

Teach children how and when to call 911, police, and fire and which radio station to tune to for emergency information.

Protect yourself from the effects of a landslide or debris flow:

Do not build near steep slopes, close to mountain edges, near drainage ways, or natural erosion valleys.

Get a ground assessment of your property.

Contact local officials, state geological surveys or departments of natural resources, and university departments of geology. Landslides occur where they have before, and in identifiable hazard locations. Ask for information on landslides in your area, specific information on areas vulnerable to landslides, and request a professional referral for a very detailed site analysis of your property, and corrective measures you can take, if necessary.

If you are at risk from a landslide talk to your insurance agent. Debris flow may be covered by flood insurance policies from the National Flood Insurance Program (NFIP). Additional information can be found at www.fema.gov.

Minimize home hazards:

Have flexible pipe fittings installed to avoid gas or water leaks, as flexible fittings are more resistant to breakage (only the gas company or professionals should install gas fittings).

Plant ground cover on slopes and build retaining walls.

In mudflow areas, build channels or deflection walls to direct the flow around buildings.

Remember: If you build walls to divert debris flow and the flow lands on a neighbor's property, you may be liable for damages.

Recognize Landslide Warning Signs:

- Changes occur in your landscape such as patterns of storm-water drainage on slopes (especially the places where runoff water converges) land movement, small slides, flows, or progressively leaning trees.
- Doors or windows stick or jam for the first time.
- New cracks appear in plaster, tile, brick, or foundations.
- Outside walls, walks, or stairs begin pulling away from the building.
- Slowly developing, widening cracks appear on the ground or on paved areas such as streets or driveways.
- Underground utility lines break.
- Bulging ground appears at the base of a slope.

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- Water breaks through the ground surface in new locations.
- Fences, retaining walls, utility poles, or trees tilt or move.
- A faint rumbling sound that increases in volume is noticeable as the landslide nears.
- The ground slopes downward in one direction and may begin shifting in that direction under your feet.
- Unusual sounds, such as trees cracking or boulders knocking together, might indicate moving debris.
- Collapsed pavement, mud, fallen rocks, and other indications of possible debris flow can be seen when driving (embankments along roadsides are particularly susceptible to landslides).

DURING

What you should do if a landslide or debris flow occurs:

Stay alert and awake. Many debris-flow fatalities occur when people are sleeping. Listen to a NOAA Weather Radio or portable, battery-powered radio or television for warnings of intense rainfall. Be aware that intense, short bursts of rain may be particularly dangerous, especially after longer periods of heavy rainfall and damp weather.

If you are in areas susceptible to landslides and debris flows, consider leaving if it is safe to do so. Remember that driving during an intense storm can be hazardous. If you remain at home, move to a second story if possible. Staying out of the path of a landslide or debris flow saves lives.

Listen for any unusual sounds that might indicate moving debris, such as trees cracking or boulders knocking together. A trickle of flowing or falling mud or debris may precede larger landslides. Moving debris can flow quickly and sometimes without warning.

If you are near a stream or channel, be alert for any sudden increase or decrease in water flow and for a change from clear to muddy water. Such changes may indicate landslide activity upstream, so be prepared to move quickly. Don't delay! Save yourself, not your belongings. Be especially alert when driving. Embankments along roadsides are particularly susceptible to landslides. Watch the road for collapsed pavement, mud, fallen rocks, and other indications of possible debris flows.

What you should do if a landslide or debris flow occurs:

Stay alert and awake. Many debris-flow fatalities occur when people are sleeping. Listen to a NOAA Weather Radio or portable, battery-powered radio or television for warnings of intense rainfall. Be aware that intense, short bursts of rain may be particularly dangerous, especially after longer periods of heavy rainfall and damp weather.

What to do if you suspect imminent landslide danger:

Contact your local fire, police, or public works department. Local officials are the best persons able to assess potential danger.

Inform affected neighbors. Your neighbors may not be aware of potential hazards. Advising them of a potential threat may help save lives. Help neighbors who may need assistance to evacuate.

Evacuate. Getting out of the path of a landslide or debris flow is your best protection. Curl into a tight ball and protect your head if escape is not possible.

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AFTER

Guidelines for the period following a landslide:

Stay away from the slide area. There may be danger of additional slides.

Listen to local radio or television stations for the latest emergency information.

Watch for flooding, which may occur after a landslide or debris flow. Floods sometimes follow landslides and debris flows because they may both be started by the same event.

Check for injured and trapped persons near the slide, without entering the direct slide area.

Direct rescuers to their locations.

Help a neighbor who may require special assistance - infants, elderly people, and people with disabilities. Elderly people and people with disabilities may require additional assistance.

People who care for them or who have large families may need additional assistance in emergency situations.

Look for and report broken utility lines and damaged roadways and railways to appropriate authorities. Reporting potential hazards will get the utilities turned off as quickly as possible, preventing further hazard and injury.

Check the building foundation, chimney, and surrounding land for damage. Damage to foundations, chimneys, or surrounding land may help you assess the safety of the area.

Replant damaged ground as soon as possible since erosion caused by loss of ground cover can lead to flash flooding and additional landslides in the near future.

Seek advice from a geotechnical expert for evaluating landslide hazards or designing corrective techniques to reduce landslide risk. A professional will be able to advise you of the best ways to prevent or reduce landslide risk, without creating further hazard.

ANIMALS AFTER LANDSLIDES AND DEBRIS FLOWS

The behavior of animals may change dramatically after landslides and debris flows. Normally quiet and friendly animals may become fractious. Monitor animals closely and only release them in safe and secure enclosures.

Animals may not be allowed into Red Cross shelters for health and space reasons. Prepare an emergency plan and know where you will take all of your animals in the event of a disaster. Temporary animal shelters may be set-up; however, these will fill rapidly. An ideal situation during disasters is to have pre-determined locations that will provide living spaces for your whole family and your animals. Additional information on preparing for animals during disasters can be found in "Saving the Whole Family," AVMA 2007.

Make sure all animals have a current identification tag, license, and vaccinations.

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TAB D Disaster Resource Materials (Fact Sheets) Section 13: Volcano

A volcano is a vent through which molten rock escapes to the earth's surface. Unlike other mountains, which are pushed up from below, volcanoes are built by surface accumulation of their eruptive products – layers of lava, ash-flows, and ash. When pressure from gases within the molten rock becomes too great, an eruption occurs. Explosive eruptions can shoot columns of gases and rock fragments tens of miles into the atmosphere, spreading ash hundreds of miles downwind.

Lava flows are streams of molten rock that either pour from a vent quietly or explosively by lava fountains. Because of their intense heat, lava flows are also great fire hazards. Lava flows destroy everything in their path, but most move slowly enough that people can move out of the way. The speed at which lava moves across the ground depends on several factors, including the type of lava erupted, the steepness of the ground, and the rate of lava production vent.

Volcanic hazards include gases, lava and pyroclastic flows, landslides, earthquakes, and explosive eruptions.

Volcanoes usually give warning that they will erupt. The U. S. Geological Survey scientists have developed a forecasting system to alert public officials and the general public to the fact that a volcano may erupt.

BEFORE

Have emergency supplies on hand:

Flashlight and extra batteries

Portable battery-operated radio and extra batteries

First aid kit and manual

Emergency food and water – at least a three day supply of water and non-perishable food for each person in your household

Manual can opener

Essential medicines

Cash and credit cards

Important family documents and veterinary records

At least one complete change of clothing and footwear per person. (Include sturdy shoes and work boots, hats and gloves, rain gear, thermal underwear, blankets or sleeping bag)

A pair of goggles and throw-away breathing mask for each member of the household in case of ashfall.

Animal Evacuation Kit – see “Saving the Whole Family,” AVMA 2007.

Suggestions and Reminders: Store your supplies in a convenient place known to all family members. Keep a smaller version of the emergency supplies in the trunk of your car. Keep items in air-tight plastic bags. Change your stored water supply every six months so it stays fresh. Rotate your stored food every six months. Re-think your Emergency Supplies and family needs at least once a year. Replace batteries, update clothes, etc. Ask your physician or pharmacist about storing prescription medications, and your veterinarian about veterinary medications.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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Develop an emergency communication plan.

In case family members are separated during a disaster (this is a real possibility during the day when adults are at work and children are at school), develop a plan for reuniting after the disaster.

Ask an out-of state relative or friend to serve as the “family contact.” After a disaster, it’s often easier to call long distance. Make sure everyone in the family knows the name and location of the contact person and his or her phone number.

Learn about volcanic activity in your community.

Contact your local emergency management office or American Red Cross chapter, or state geological survey or department of natural resources.

Find out if your home, school, workplace or other frequently visited locations are in volcanic hazard areas.

Learn about your community warning systems and emergency plans.

Different communities have different ways of providing warnings and different responses. Discuss volcanic activity. Many communities have sirens intended for outdoor warning purposes.

Use a NOAA Weather Radio with a tone-alert feature to keep you aware of watches and warnings while you are indoors.

What to do before a volcanic eruption:

Add a pair of goggles and disposable breathing mask for each member of the family to your disaster supply kit.

Stay away from active volcano sites.

If you live near a known volcano, active or dormant, be ready to evacuate at a moment’s notice.

DURING

If a volcano erupts where you live:

Follow the evacuation order issued by authorities and evacuate immediately from the volcano area to avoid flying debris, hot gases, lateral blast, and lava flow.

Be aware of mud flows. The danger from a mud flow landslide increases near stream channels and with prolonged heavy rains. Mud flows can move faster than you can walk or run. Look upstream before crossing a bridge, and do not cross the bridge if a mud flow is approaching.

Avoid river valleys and low-lying areas.

Remember to help your neighbors who may require special assistance - infants, elderly people, and people with disabilities.

Protection from falling ash:

Listen to a battery-powered radio or television for the latest emergency information.

If you have a respiratory ailment, avoid contact with any amount of ash.

Wear long-sleeved shirts and long pants.

Use goggles and wear eyeglasses instead of contact lenses.

Use a dust mask or hold a damp cloth over your face to help with breathing.

Stay away from areas downwind from the volcano to avoid volcanic ash.

Stay indoors until the ash has settled unless there is a danger of the roof collapsing.

Close doors, windows, and all ventilation in the house (chimney vents, furnaces, air conditioners, fans, and other vents).

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Clear heavy ash from flat or low-pitched roofs and rain gutters.
Avoid running car or truck engines. Driving can stir up volcanic ash that can clog engines, damage moving parts, and stall vehicles.
Avoid driving in heavy ash fall unless absolutely required. If you have to drive, keep speed down to 35 MPH or slower.

AFTER

Continue to listen to a portable, battery-operated radio or television for updated emergency information and instructions.

Check yourself for injuries. People often tend to others without checking their own injuries first. People will be better able to care for others if they have received first aid for their injuries.

If you evacuated, return home when local officials tell you it is safe.

Help injured or trapped persons. Call 911 and then give first aid where appropriate. Do not move the seriously injured unless they are in immediate danger of further injury.

If possible, stay away from volcanic ashfall areas.

When outside, protect yourself from the fine, glassy particles of volcanic ash.

Clear roofs of ashfall.

Avoid driving in heavy ashfall.

If you have a respiratory ailment, avoid contact with any amount of ash. Stay indoors until local health officials advise it is safe to go outside.

ANIMALS AFTER A VOLCANO

The behavior of animals may change dramatically after a volcano. Normally quiet and friendly animals may become fractious. Monitor animals closely and only release them in safe and secure enclosures.

Animals may not be allowed into Red Cross shelters for health and space reasons. Prepare an emergency plan and know where you will take all of your animals in the event of a disaster. Temporary animal shelters may be set-up; however, these will fill rapidly. An ideal situation during disasters is to have pre-determined locations that will provide living spaces for your whole family and your animals. Additional information on preparing for animals during disasters can be found in "Saving the Whole Family," AVMA 2007.

Make sure all animals have a current identification tag, license, and vaccinations.

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DISASTER RESOURCE MATERIALS (FACT SHEETS)

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TAB D Disaster Resource Materials (Fact Sheets) Section 14: Tsunami

Tsunamis are ocean waves most often generated by earthquake-induced movement of the ocean floor. Landslides, volcanic eruptions, and even meteorites can also generate a tsunami. A tsunami can move hundreds of miles per hour in the open ocean and smash into land with waves as high as 100 feet or more.

All tsunamis are potentially dangerous, even though they may not damage every coastline they strike. A tsunami can strike anywhere along most of the U.S. coastline. The most destructive tsunamis have occurred along the coasts of California, Oregon, Washington, Alaska, and Hawaii.

BEFORE

Have emergency supplies on hand:

Flashlight and extra batteries

Portable battery-operated radio and extra batteries

First aid kit and manual

Emergency food and water – at least a three day supply of water and non-perishable food for each person in your household

Manual can opener

Essential medicines

Cash and credit cards

Important family documents and veterinary records

At least one complete change of clothing and footwear per person. (Include sturdy shoes and work boots, hats and gloves, rain gear, thermal underwear, blankets or sleeping bag)

Animal Evacuation Kit – see “Saving the Whole Family,” AVMA 2007.

Suggestions and Reminders: Store your supplies in a convenient place known to all family members. Keep a smaller version of the emergency supplies in the trunk of your car. Keep items in air-tight plastic bags. Change your stored water supply every six months so it stays fresh. Rotate your stored food every six months. Re-think your Emergency Supplies and family needs at least once a year. Replace batteries, update clothes, etc. Ask your physician or pharmacist about storing prescription medications, and your veterinarian about veterinary medications.

Develop an emergency communication plan.

In case family members are separated during a disaster (this is a real possibility during the day when adults are at work and children are at school), develop a plan for reuniting after the disaster.

Ask an out-of state relative or friend to serve as the “family contact.” After a disaster, it’s often easier to call long distance. Make sure everyone in the family knows the name and location of the contact person and his or her phone number.

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Learn about tsunami risk in your community.

Contact your local emergency management office or American Red Cross chapter.

Find out if your home, school, workplace or other frequently visited locations are in tsunami hazard areas.

Know the height of your street above sea level and the distance of your street from the coast or other high-risk waters. Evacuation orders may be based on these numbers.

Familiarize yourself with tsunami warnings.

Warning

A tsunami was or may have been generated, which could cause damage; therefore, people in warned areas are strongly advised to evacuate.

Watch

A tsunami was or may have been generated, but is at least two hours travel time to the area in watch status. Local officials should prepare for possible evacuation if their area is upgraded to a warning.

Advisory

An earthquake has occurred in the Pacific basin, which might generate a tsunami. The West Coast/Alaska Tsunami Warning Center and the Pacific Tsunami Warning Center will issue hourly bulletins advising of the information.

Information

A message with information about an earthquake that is not expected to generate a tsunami. Usually only one bulletin is issued.

The following are guidelines for what you should do if a tsunami is likely in your area:

Turn on your radio to learn if there is a tsunami warning if an earthquake occurs and you are in a coastal area.

Move inland to higher ground immediately and stay there.

Stay away from the beach. Never go down to the beach to watch a tsunami come in. If you can see the wave you are too close to escape it.

CAUTION - If there is noticeable recession in water away from the shoreline this is nature's tsunami warning and it should be heeded. You should move away immediately.

A tsunami WATCH

Listen to a NOAA Weather Radio, Coast Guard emergency frequency station, or other reliable source for updated emergency information.

Check your disaster emergency supplies.

Review evacuation plans with family members.

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If you have special evacuation needs (small children, elderly people, persons with disabilities, or animals) consider early evacuation.

If time permits, secure unanchored objects around your home or business.

Be ready to evacuate.

A tsunami WARNING

Listen to a NOAA Weather Radio, Coast Guard emergency frequency station, or other reliable source for updated emergency information.

Follow instructions issued by local authorities.

If you hear an official tsunami warning or detect signs of a tsunami, evacuate at once.

Take your emergency supplies.

Get to higher ground as far inland as possible.

Return home only after local officials tell you it is safe.

AFTER

Continue listening to a NOAA Weather Radio, Coast Guard emergency frequency station, or other reliable source for emergency information.

Stay away from flooded and damaged areas until officials say it is safe to return.

Stay away from debris in the water; it may pose a safety hazard to boats and people.

Save yourself – not your possessions.

Check yourself for injuries. People often tend to others without checking their own injuries first. People will be better able to care for others if they have received first aid for their injuries.

Help injured or trapped persons.

Use the telephone only for emergency calls.

Inspect utilities.

Check for gas leaks. If you smell gas or hear blowing or hissing noise, open a window and quickly leave the building. Turn off the gas at the outside main valve if you can and call the gas

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company from a neighbor's home. If you turn off the gas for any reason, it must be turned back on by a professional.

Look for electrical system damage. If you see sparks or broken or frayed wires, or if you smell hot insulation, turn off the electricity at the main fuse box or circuit breaker. If you have to step in water to get to the fuse box or circuit breaker, call an electrician first for advice.

Check for sewage and water lines damage. If you suspect sewage lines are damaged, avoid using the toilets and call a plumber. If water pipes are damaged, contact the water company and avoid using water from the tap. You can obtain safe water by melting ice cubes.

DO NOT SHUT OFF UTILITIES UNLESS INSTRUCTED TO DO SO BY LOCAL OFFICIALS, OR UNLESS YOU ARE IN IMMINENT DANGER FROM SOMETHING LIKE AN OBVIOUS GAS LEAK. REMEMBER THAT YOUR GAS SUPPLY MUST BE TURNED BACK ON BY A PROFESSIONAL.

ANIMALS AFTER TSUNAMIS

The behavior of animals may change dramatically after a tsunami. Normally quiet and friendly animals may become fractious. Monitor animals closely and only release them in safe and secure enclosures.

Animals may not be allowed into Red Cross shelters for health and space reasons. Prepare an emergency plan and know where you will take all of your animals in the event of a disaster. Temporary animal shelters may be set-up; however, these will fill rapidly. An ideal situation during disasters is to have pre-determined locations that will provide living spaces for your whole family and your animals. Additional information on preparing for animals during disasters can be found in "Saving the Whole Family," AVMA 2007.

Make sure all animals have a current identification tag, license, and vaccinations.

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TAB D Disaster Resource Materials (Fact Sheets) Section 15: Hurricane

There are no other storms like hurricanes on Earth. According to the U.S. National Oceanic and Atmospheric Administration (NOAA), an average season has 11 named storms, six of which become hurricanes. Of these six, two will be major hurricanes of category 3 or higher. Additional information on season predictions and updates can be found at www.noaa.gov.

Over the past several years, U.S. hurricane warning systems have provided adequate time for people on barrier islands and the immediate coastline to move inland when hurricanes threaten. However, due to rapid population growth, it is becoming more difficult to evacuate people from the barrier islands and other coastal areas because roads have not kept pace with the expansion. The problem is further compounded by the fact that the majority of the population now living in hurricane prone areas has never experienced the core of a major hurricane. Many of these people have been through weaker storms. The result is a false impression of a hurricane's damage potential. This often leads to complacency and delayed actions, which could result in the loss of many lives.

BEFORE

Have emergency supplies on hand:

Flashlight and extra batteries

Portable battery-operated radio and extra batteries

First aid kit and manual

Emergency food and water – at least a three-day supply of water and non-perishable food for each person in your household. An additional week's supply of food and water should be kept during this type of disaster.

Manual can opener

Essential medicines

Cash and credit cards

Important family documents and veterinary records

At least one complete change of clothing and footwear per person. (Include sturdy shoes and work boots, hats and gloves, rain gear, thermal underwear, blankets or sleeping bag)

Animal Evacuation Kit – see "Saving the Whole Family," AVMA 2007

Suggestions and Reminders: Store your supplies in a convenient place known to all family members. Keep a smaller version of the emergency supplies in the trunk of your car. Keep items in air-tight plastic bags. Change your stored water supply every six months so it stays fresh. Rotate your stored food every six months. Re-think your Emergency Supplies and family needs at least once a year. Replace batteries, update clothes, etc. Ask your physician or pharmacist about storing prescription medications, and your veterinarian about veterinary medications.

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Learn about your community's risk from hurricanes.

Contact your local emergency management office, local National Weather Service office, or local chapter of the American Red Cross for more information on hurricanes and how to prepare for them.

If you live in a risk area, learn what types of supplies should be stored to protect your home from floodwaters. Knowing the elevation of your property in relation to nearby streams and dams will let you know if forecasted flood levels will affect your home.

Familiarize yourself with the hurricane warning signs and your community alert signals.

A National Weather Service Watch is a message indicating that conditions favor the occurrence of a certain type of hazardous weather. A Hurricane Watch is issued when there is a threat of hurricane conditions within 24 to 36 hours.

A National Weather Service Warning indicates that a hazardous event is occurring or is imminent in about 30 minutes to an hour. A Hurricane Warning is issued when hurricane conditions are expected in 24 hours.

Learn about the National Flood Insurance Program.

The National Flood Insurance Program is a Federal Emergency Management Agency program designed to provide flood protection seldom found in standard homeowners' insurance policies. Thus insurance is available to residents of communities that have agreed to adopt and enforce sound flood plain management practices. Further information is available through local insurance agents and emergency services offices. Information can also be found on the FEMA website at www.fema.gov.

Ask about your community's hurricane preparedness plan.

The local emergency management office or local chapter of the American Red Cross should be able to provide you with details of this plan, including information on the safest evacuation routes, nearby shelters, advice on when schools would be closed and what conditions are necessary for recommended evacuation of certain areas.

Develop an emergency communication plan.

In case family members are separated during a disaster (this is a real possibility during the day when adults are at work and children are at school), develop a plan for reuniting after the disaster.

Ask an out-of state relative or friend to serve as the "family contact." After a disaster, it's often easier to call long distance. Make sure everyone in the family knows the name and location of the contact person and his or her phone number.

Review flood safety and preparedness measures with your family

Teach all family members how and when to turn off electricity, water and gas, if instructed to do so by authorities. Everyone in your home should know what to do, including guests, babysitters, and caregivers.

Teach children how and when to call 911, police, and fire and which radio station to tune to for emergency information.

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To prepare for a hurricane, you should take the following measures:

Make plans to secure your property. Permanent storm shutters offer the best protection for windows. A second option is to board up windows with 5/8" marine plywood, cut to fit and ready to install. Tape does not prevent windows from breaking.

Install straps or additional clips to securely fasten your roof to the frame structure. This will reduce roof damage.

Be sure trees and shrubs around your home are well trimmed.

Clear loose and clogged rain gutters and downspouts.

Determine how and where to secure your boat.

Consider building a safe room.

If you live in a flood plain or are prone to flooding, also follow flood preparedness precautions.

DURING

If a hurricane is likely in your area, you should:

Listen to the radio or TV for information.

Secure your home, close storm shutters, and secure outdoor objects or bring them indoors.

Turn off utilities if instructed to do so. Otherwise, turn the refrigerator thermostat to its coldest setting and keep its doors closed.

Turn off propane tanks. Avoid using the phone, except for serious emergencies.

Moor your boat if time permits.

Ensure a supply of water for sanitary purposes such as cleaning and flushing toilets. Fill the bathtub and other large containers with water.

You should evacuate under the following conditions:

If you are directed by local authorities to do so. Be sure to follow their instructions.

If you live in a mobile home or temporary structure—such shelters are particularly hazardous during hurricanes no matter how well fastened to the ground.

If you live in a high-rise building—hurricane winds are stronger at higher elevations.

If you live on the coast, on a floodplain, near a river, or on an inland waterway.

If you feel you are in danger.

If you are unable to evacuate, go to your safe room. If you do not have one, follow these guidelines:

Stay indoors during the hurricane and away from windows and glass doors.

Close all interior doors—secure and brace external doors.

Keep curtains and blinds closed. Do not be fooled if there is a lull; it could be the eye of the storm - winds will pick up again.

Take refuge in a small interior room, closet, or hallway on the lowest level.

Lie on the floor under a table or another sturdy object.

AFTER

The danger is not necessarily over after the hurricane ends. Listen to a radio or television and do not return home until the authorities have indicated it is safe to do so.

Check yourself for injuries.

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People often tend to others without checking their own injuries first. People will be better able to care for others if they are not injured or have received first aid for their injuries.

If you evacuated, return home when local officials tell you it is safe.

Stay alert for extended rainfall and subsequent flooding, even after the hurricane or tropical storm has weakened.

Stay away from floodwaters.

If you come upon a barricade, follow detour signs and turn around and go another way.

Help injured or trapped persons.

Call 911 and then give first aid where appropriate. Do not move the seriously injured unless they are in immediate danger of further injury.

When entering buildings, use extreme caution.

Wear sturdy shoes and use battery-powered lantern or flashlights when examining buildings. Watch out for displaced wildlife, especially poisonous snakes that may have come into buildings with floodwaters. Use a stick to poke through debris.

Inspect foundations for settling or cracking.

Examine walls, floors, doors, and windows to determine that the building is not in danger of collapsing.

Watch for loose plaster and ceilings that could fall.

Watch for fire hazards.

Broken or leaking gas lines.

Flooded electrical circuits.

Submerged furnaces or electrical appliances.

Flammable or explosive materials coming from upstream.

Do not use water or eat food that has come in contact with floodwaters.

Pump out flooded basements gradually (about one-third of the water per day) to avoid structural damage.

Damaged sewage systems are health hazards. Service damaged septic tanks, cesspools, pits and leaching systems as soon as possible.

Check the gas, electrical and water lines for damage. When inspecting utilities, wear heavy shoes and work gloves as protection against debris and broken glass.

Open windows and leave the building if you smell gas. Report gas leakage to the authorities.

Check utility lines and appliances for damage. If electrical wiring appears damaged, turn off the current at the main meter box.

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If you suspect sewage lines are damaged, avoid using the toilets and call a plumber.

If water pipes are damaged, contact the water company and do not use water from the tap. Obtain emergency water from hot water tanks, toilet tanks (not bowls) and melted ice cubes.

Use the telephone only for emergency calls.

Telephone lines are frequently overwhelmed in disaster situations. They need to be clear for emergency calls to get through.

DO NOT SHUT OFF UTILITIES UNLESS INSTRUCTED TO DO SO BY LOCAL OFFICIALS, OR UNLESS YOU ARE IN IMMINENT DANGER FROM SOMETHING LIKE AN OBVIOUS GAS LEAK. REMEMBER THAT YOUR GAS SUPPLY MUST BE TURNED BACK ON BY A PROFESSIONAL.

ANIMALS AFTER A HURRICANE

The behavior of animals may change dramatically after a hurricane. Normally quiet and friendly animals may become fractious. Monitor animals closely and only release them in safe and secure enclosures.

Animals may not be allowed into Red Cross shelters for health and space reasons. Prepare an emergency plan and know where you will take all of your animals in the event of a disaster. Temporary animal shelters may be set-up; however, these will fill rapidly. An ideal situation during disasters is to have a pre-determined locations that will provide living spaces for your whole family and your animals. Additional information on preparing for animals during disasters can be found in "Saving the Whole Family," AVMA 2007.

Make sure all animals have a current identification tag, license, and vaccinations.

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DISASTER RESOURCE MATERIALS (FACT SHEETS)

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TAB D

Disaster Resource Materials (Fact Sheets) **Section 16: Hazardous Materials Accidents**

A hazardous materials accident can occur anywhere. Hazardous materials are substances that, because of their chemical, biological or physical nature, pose a potential risk to life, health or property if released. Potential hazards can occur during any stage of use from production, storage, transportation, use or disposal. Communities located near chemical manufacturing plants are particularly at risk. However, because hazardous materials are transported on our roadways, railways, and waterways daily, any area is considered vulnerable to an accident.

BEFORE/PREVENTION

Have emergency supplies on hand:

Flashlight and extra batteries

Portable battery-operated radio and extra batteries

First aid kit and manual

Emergency food and water – at least a three day supply of water and non-perishable food for each person in your household

Manual can opener

Essential medicines

Cash and credit cards

Important family documents and veterinary records

At least one complete change of clothing and footwear per person. (Include sturdy shoes and work boots, hats and gloves, rain gear, thermal underwear, blankets or sleeping bag)

Animal Evacuation Kit – see “Saving the Whole Family,” AVMA 2007

Suggestions and Reminders: Store your supplies in a convenient place known to all family members. Keep a smaller version of the emergency supplies in the trunk of your car. Keep items in air-tight plastic bags. Change your stored water supply every six months so it stays fresh. Rotate your stored food every six months. Re-think your Emergency Supplies and family needs at least once a year. Replace batteries, update clothes, etc. Ask your physician or pharmacist about storing prescription medications, and your veterinarian about veterinary medications.

Develop an emergency communication plan.

In case family members are separated during a disaster (this is a real possibility during the day when adults are at work and children are at school), develop a plan for reuniting after the disaster.

Ask an out-of state relative or friend to serve as the “family contact.” After a disaster, it’s often easier to call long distance. Make sure everyone in the family knows the name and location of the contact person and his or her phone number.

What to do Before a Hazardous Materials Incident

Many communities have Local Emergency Planning Committees (LEPCs) whose responsibilities include collecting information about hazardous materials in the community and making this information available to the public upon request.

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The LEPCs also are tasked with developing an emergency plan to prepare for and respond to chemical emergencies in the community. Ways the public will be notified and actions the public must take in the event of a release are part of the plan.

Contact the LEPCs to find out more about chemical hazards and what needs to be done to minimize the risk to individuals and the community from these materials.

Your local emergency management office can provide contact information on the LEPCs. Find your state office or agency of emergency management by going to www.fema.gov/.

You should add the following supplies to your disaster kit:

Plastic sheeting

Duct tape

Scissors

Plan several evacuation routes in case an evacuation order is issued following a hazardous material accident.

Be familiar with local public warning systems.

Be familiar with evacuation plans for workplace and schools.

Check your home for hazardous materials.

Some cleaners can cause an explosion or fire if they come in contact with each other, water, heat, or flames.

Make a list of hazardous products in your home. List the product name and emergency care information.

Store hazardous household products according to safety recommendations.

Store hazardous materials in a safe, dry location.

Be sure containers are closed to avoid spills and escaping vapors.

Store flammable products and corrosive products in separate locations. The label will indicate if the product is corrosive or flammable.

Place oily polishing rags or waste in covered metal cans.

Never store aerosols on or near fireplaces, radiators, space heaters, wood stoves, pilot lights, furnaces, and kitchen appliances.

Keep herbicides and pesticides away from any heat source.

Store herbicides separately from pesticides. Herbicide vapors can contaminate other products.

Store pesticides and herbicides away from fertilizer. Their vapors can contaminate fertilizers.

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Periodically check hazardous product containers for deterioration and possible leaks.

Periodically check to be sure that labels on hazardous products are secure and readable.

Store hazardous products on high shelves or in locked cabinets to prevent poisoning of children and pets.

Do not store flammable liquids such as gasoline and kerosene in a garage or utility room attached to the house.

Never store flammable liquids or even a lawn mower filled with gasoline near a heat source such as gas water heaters, furnaces, radiators, space heaters, etc. Spontaneous combustion can occur if the flammable liquid vapors escape.

DURING

Listen to a local radio or television stations for detailed information and instructions. Follow the instructions carefully. You should stay away from the area to minimize the risk of contamination. Remember that some toxic chemicals are odorless.

If you are asked to evacuate:

Do so immediately.

Stay tuned to a radio or television for information on evacuation routes, temporary shelters, and procedures.

Follow the routes recommended by the authorities--shortcuts may not be safe. Leave at once.

If you have time, minimize contamination in the house by closing all windows, shutting all vents, and turning off attic fans.

Take pre-assembled disaster supplies.

Remember to help your neighbors who may require special assistance--infants, elderly people and people with disabilities.

If you are caught outside:

Stay upstream, uphill, and upwind! In general, try to go at least one-half mile (usually 8-10 city blocks) from the danger area. Move away from the accident scene and help keep others away. Do not walk into or touch any spilled liquids, airborne mists, or condensed solid chemical deposits. Try not to inhale gases, fumes and smoke. If possible, cover mouth with a cloth while leaving the area.

Stay away from accident victims until the hazardous material has been identified.

If you are in a motor vehicle:

Stop and seek shelter in a permanent building. If you must remain in your car, keep car windows and vents closed and shut off the air conditioner and heater.

If you are requested to stay indoors:

Bring pets inside. and seek shelter in a permanent building.

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Close and lock all exterior doors and windows. Close vents, fireplace dampers, and as many interior doors as possible.

Turn off air conditioners and ventilation systems. In large buildings, set ventilation systems to 100 percent recirculation so that no outside air is drawn into the building. If this is not possible, ventilation systems should be turned off.

Go into the pre-selected shelter room. This room should be above ground and have the fewest openings to the outside.

Seal gaps under doorways and windows with wet towels or plastic sheeting and duct tape.

Seal gaps around window and air conditioning units, bathroom and kitchen exhaust fans, and stove and dryer vents with duct tape and plastic sheeting, wax paper or aluminum wrap.

Use material to fill cracks and holes in the room, such as those around pipes.

If gas or vapors could have entered the building, take shallow breaths through a cloth or a towel. Avoid eating or drinking any food or water that may be contaminated.

Shelter Safety for Sealed Rooms:

Ten square feet of floor space per person will provide sufficient air to prevent carbon dioxide build-up for up to five hours, assuming a normal breathing rate while resting.

However, local officials are unlikely to recommend the public shelter in a sealed room for more than 2-3 hours because the effectiveness of such sheltering diminishes with time as the contaminated outside air gradually seeps into the shelter. At this point, evacuation from the area is the better protective action to take.

Also you should ventilate the shelter when the emergency has passed to avoid breathing contaminated air still inside the shelter.

AFTER

The following are guidelines for the period following a hazardous materials incident: Return home only when authorities say it is safe. Open windows and vents and turn on fans to provide ventilation.

Act quickly if you have come in to contact with or have been exposed to hazardous chemicals. Do the following:

- Find out from local authorities how to clean up your land and property.
- Report any lingering vapors or other hazards to your local emergency services office.

ANIMALS AFTER HAZARDOUS MATERIALS ACCIDENTS

The behavior of animals may change dramatically after any disruption in their routine. Normally quiet and friendly animals may become fractious. Monitor animals closely and only release them in safe and secure enclosures.

Animals may not be allowed into Red Cross shelters for health and space reasons. Prepare an emergency plan and know where you will take all of your animals in the event of a disaster. Temporary animal shelters may be set-up; however, these will fill rapidly. An ideal situation during disasters is to have pre-determined locations that will provide living spaces for your whole family and your animals. Additional information on preparing for animals during disasters can be found in "Saving the Whole Family," AVMA 2007.

Make sure all animals have a current identification tag, license, and vaccinations.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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ACCIDENTAL PETROLEUM DISCHARGE

Oil spills may occur from ships far out at sea or at dockside, from land-based or off shore wells, from pipelines, from storage tanks, or from vehicles transporting oil on land. Consequently, nearly every type of environment and many species of wildlife are subject to accidental oil contamination.

Wildlife response to oil spills is a complex challenge requiring a teamwork approach between trustees, the responsible party (RP), a contracted qualified wildlife responder (QWR) and carefully trained volunteers. All wildlife actions must be coordinated with the On Scene Coordinator (OSC).

Trustees: Trustees are governmental officials designated to act on the public's interest concerning wildlife. Trustees are authorized to act on behalf of the public's interest in the protection of natural resources. The Department of Interior (DOI) has trustee responsibility for migratory birds under the Migratory Bird Treaty Act (16-USC 703-722) and for threatened and endangered species under the Endangered Species Act (16 USC 1531-1544). The DOI also has trustee responsibility for sea otters, dugong, walrus, and manatee under the Marine Mammal Protection Act (16 USC 1361-1407). Trustee responsibility for other marine mammals (whales and seals) falls to the Department of Commerce. The Department of Commerce and Department of Interior share trustee responsibility for anadromous fish under the Anadromous Fish Conservation Act (16 USC 7571-757f). State agencies have trustee responsibilities for other game and non-game species not listed above. States also may possess co-trustee responsibility for above-mentioned species.

BEFORE

Identify areas at risk.

Some areas are more susceptible to oil discharge, such as docks where oil is off-loaded or transferred, exposed pipelines, or areas surrounding oil terminals. Some environments and the wildlife living there are impacted more heavily by oil than others; e.g., wetlands and marshes absorb and hold oil and contain more fragile plant and animal life than do swift moving rivers.

Identify potential wildlife in the area (seasonal).

A variety of wildlife species are at risk to oil spills, depending on the spill location and time of year. These different species have individual treatment, handling, housing, and nutritional requirements. Plans should be in place to meet the needs of each of the area species that may be impacted by the spill.

Become familiar with local Area Contingency Plans.

U.S. Coast Guard and U.S. Environmental Protection Agency (EPA) agencies have regional plans for responding to oil spills. These plans are required to contain arrangements for the care of impacted wildlife.

Attend Regional Response Team meetings.

Area Coast Guard and EPA agencies hold regular meetings to discuss changes in the Area Contingency Plans and to identify areas where more planning is required.

Receive oiled wildlife response training.

Wildlife response training is available through Tri-State Bird Rescue & Research, Inc. or International Bird Rescue Research Center. Prior training will result in a more rapid and efficient response.

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Arrange for training of local volunteers.

Citizens with prior training will be of great asset in the early stages of a response. Records of trained individuals are retained for use when needed. Other volunteers can be trained during the first 24-48 hours following the disaster.

Obtain OSHA training.

A minimum of 24 hours of Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) training is required for anyone in a management position of an oil spill response (including oversight of animal care). Four to six hours of the Occupational Safety and Health Administration (OSHA) training are required for all volunteers assisting with the wildlife portion of a response.

Identify a response facility.

A good response requires a suitable facility, and prior identification will help to expedite the response.

Equip facility and/or stockpile supplies.

Identify a team to manage the wildlife response.

Most Area Contingency Plans require the presence of a Qualified Wildlife Responder (QWR) to manage the wildlife aspect of an oil spill response. The experience and expertise of a QWR is the single most important factor in a successful response to a large spill.

Obtain the proper state and federal permits.

Federal permits are required to care for any threatened or endangered species or for any migratory birds. Individual state permits are required in addition to the federal permits to care for any protected wildlife species within a specific state. Additional permits are often required to care for oiled wildlife, depending on the requirements of the individual states.

DURING

Effective wildlife response to oil spills requires a team approach as specialists in government and the private sector lend their skills to the response efforts. Oversight of the response, however, rests with the trustees.

Identify the spilled product and all health-associated risks

Obtain product analysis and material safety data sheets (MSDS) and obtain the appropriate protective equipment.

Field Assessment of Wildlife at Risk

Assess the location, numbers, and species of wildlife at risk.

Assess and document the degree of oil contamination of animals and habitat.

Provide thorough field notes for Natural Resources Damage Assessment (NRDA).

Preventing Wildlife Contamination

Set up and implement a hazing program for uncontaminated animals.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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Search & Rescue

Retrieve oil contaminated animals for rehabilitation and carcasses for federal evidence. Perform necropsies on all deceased animals and record all findings. The United States Fish and Wildlife Service (USFWS) Law Enforcement and the National Wildlife Health Center in Madison, Wisconsin will oversee this process. Arrange for timely and appropriate transportation.

Site Safety Plan

Develop and implement a site safety plan for the response facility to meet OSHA requirements.

Record-keeping

Accurate records must be maintained on all animals, including site captured, all treatments, and release information (for NRDA purposes).

Provide medical care for impacted wildlife

Animals may need to be stabilized prior to transportation.

Flush eyes

Clean mouth and nares/nostrils

Treat for shock and traumatic injuries, if present

Restore normal body temperature

Restore normal fluid balance

Reduce stress

Because of the harm from the internal and external effects of the oil, all efforts should be made to stabilize and wash the oiled animals within 24-48 hours.

Remove oil from feathers/fur

Large (10 – 15 gallon) tubs of water at 103 – 105 degrees F.
Dawn® dishwashing liquid (1% - 8% solution)
Mammals will need to be sedated.
Agitate detergent through feathers/fur.
Proceed through series of tubs until animal is clean.

Remove cleaning agent

Large amounts of water at 103 – 105 degrees F.
Water hardness of 2.5 – 3.5 grains/gallon
Spray hoses, systematic head-to-tail approach
Water must roll off feathers/fur in droplets
Feathers/fur must be rinsed until appear dry

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Restore feather structure and/or water-proofing

Dry under free access to heat lamps in draft-free area.
Quiet, private housing – keep people away.
Present food and allow easy access to clean swimming water.

Provide proper husbandry

Caging, diet, and other husbandry needs must all meet the Minimum Standards for Wildlife Rehabilitation (published by the National Wildlife Rehabilitators Association and International Wildlife Rehabilitation Council, 1994).

All housing must be cleaned at least twice daily. Cages/housing should be disinfected between uses by different animals.

Other husbandry considerations include ventilation, swimming opportunities, nutritionally complete diets, the role of salt water in seabirds, and secondary (captive-related) problems.

Evaluate for release

Each animal should receive a pre-release physical to assure that the following criteria are met:

normal weight range

good body condition

adequate waterproofing

absence of infectious disease

resolution of all injuries

blood values which are within the normal range

A USFWS band should be placed on all birds prior to release.

Identify release site

Releases must take place in suitable habitat free from contamination, with adequate natural food sources for that species.

Transport and release

Release should take place in the first part of the day (for diurnal species) to allow the animal time to adjust to the location before nightfall.

AFTER

Post-release monitoring

The release team should observe the animals after release to determine that the animals are behaving normally. The site should be revisited after 24-72 hours to monitor released birds.

Reporting

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Accurate records must be kept on all animals treated as a result of an oil spill. These records may be federal evidence and must be kept for a minimum of seven (7) years following the incident. Annual reports must also be filed with the Federal and State offices issuing the rehabilitation permits.

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DISASTER RESOURCE MATERIALS (FACT SHEETS)

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TAB D

Disaster Resource Materials (Fact Sheets) Section 17: Household Chemical Emergency

Nearly every household uses products containing hazardous materials or chemicals.

Although the risk of a chemical accident is slight, knowing how to handle these products and how to react during an emergency can reduce the risk of injury.

There are probably many hazardous materials throughout your home. Take a tour of your home to see where these materials are located. Use the list of common hazardous household items to guide you in your hunt. Once you have located a product, check the label and take the necessary steps to ensure that you are using, storing, and disposing of the material according to the manufacturer's directions.

It is critical to store household chemicals in places where children and animals cannot access them. Remember that products such as aerosol cans of hair spray and deodorant, nail polish and nail polish remover, toilet bowl cleaners, and furniture polishes all fall into the category of hazardous materials.

COMMON HAZARDOUS HOUSEHOLD ITEMS

Cleaning Products

- Oven cleaners
- Drain cleaners
- Wood and metal cleaners and polishes
- Toilet cleaners
- Tub, tile, shower cleaners
- Bleach (laundry)
- Pool chemicals

Indoor Pesticides

- Ant sprays and baits
- Cockroach sprays and baits
- Flea repellents and shampoo
- Bug sprays
- Houseplant insecticides
- Moth repellents
- Mouse and rat poisons and baits

Automotive Products

- Motor oil
- Fuel additives
- Carburetor and fuel injection cleaners
- Air conditioning refrigerants
- Starter fluids
- Automotive batteries
- Transmission and brake fluid
- Antifreeze

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Workshop/Painting Supplies

Adhesives and glues
Furniture strippers
Oil- or enamel-based paint
Stains and finishes
Paint thinners and turpentine
Paint strippers and removers
Photographic chemicals
Fixatives and other solvents

Lawn and Garden Products

Herbicides
Insecticides
Fungicides/wood preservatives

Miscellaneous

Batteries
Mercury thermostats or thermometers
Fluorescent light bulbs
Driveway sealer

Other Flammable Products

Propane tanks and other compressed gas cylinders
Kerosene
Home heating oil
Diesel fuel
Gas/oil mix
Lighter fluid

BEFORE/PREVENTION

Guidelines for buying and storing hazardous household chemicals safely:

Buy only as much of a chemical as you think you will use. Leftover material can be shared with neighbors or donated to a business, charity, or government agency. For example, excess pesticide could be offered to a greenhouse or garden center, and theater groups often need surplus paint. Some communities have organized waste exchanges where household hazardous chemicals and waste can be swapped or given away.

Keep products containing hazardous materials in their original containers and never remove the labels unless the container is corroding. Corroding containers should be repackaged and clearly labeled.

Never store hazardous products in food containers.

Never mix household hazardous chemicals or waste with other products. Incompatibles, such as chlorine bleach and ammonia, may react, ignite, or explode.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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Take precautions to prevent and respond to accidents:

Follow the manufacturer's instructions for the proper use of the household chemical.

Never smoke while using household chemicals.

Never use hair spray, cleaning solutions, paint products, or pesticides near an open flame (e.g., pilot light, lighted candle, fireplace, wood burning stove, etc.) Although you may not be able to see or smell them, vapor particles in the air could catch fire or explode.

Clean up any chemical spill immediately. Use rags to clean up the spill. Wear gloves and eye protection. Allow the fumes in the rags to evaporate outdoors, then dispose of the rags by wrapping them in a newspaper and placing them in a sealed plastic bag in your trash can.

Dispose of hazardous materials correctly. Take household hazardous waste to a local collection program. Check with your county or state environmental or solid waste agency to learn if there is a household hazardous waste collection program in your area.

Post the number of the emergency medical services and the human and animal poison control centers by all telephones. In an emergency situation, you may not have time to look up critical phone numbers. The national poison control number is (800) 222-1222. For animals, the American Society for Prevention of Cruelty to Animals' Animal Poison Control Center is (888) 426-4435.

DURING

If there is a danger of fire or explosion:

Get out of the residence immediately. Do not waste time collecting items or calling the fire department when you are in danger. Call the fire department from outside (a cellular phone or a neighbor's phone) once you are safely away from danger.

Stay upwind and away from the residence to avoid breathing toxic fumes.

Recognize and respond to symptoms of toxic poisoning:

Difficulty breathing.

Irritation of the eyes, skin, throat, or respiratory tract.

Changes in skin color.

Headache or blurred vision.

Dizziness.

Clumsiness or lack of coordination.

Cramps or diarrhea.

If someone is experiencing toxic poisoning symptoms or has been exposed to a household chemical:

Find any containers of the substance that are readily available in order to provide requested information.

Follow the emergency operator or dispatcher's first aid instructions carefully. The first aid advice found on containers may be out of date or inappropriate. Do not give anything by mouth unless advised to do so by a medical professional.

Discard clothing that may have been contaminated. Some chemicals may not wash out completely.

ANIMALS AFTER HOUSEHOLD CHEMICAL ACCIDENTS

The behavior of animals may change dramatically after any disruption in their routine. Normally quiet and friendly animals may become fractious. Monitor animals closely and only release them in safe and secure enclosures.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

Animals may not be allowed into Red Cross shelters for health and space reasons. Prepare an emergency plan and know where you will take all of your animals in the event of a disaster. Temporary animal shelters may be set-up; however, these will fill rapidly. An ideal situation during disasters is to have a pre-determined friend or family member that will provide a living space for your whole family, including your animals. Additional information on preparing for animals during disasters can be found in "Saving the Whole Family", AVMA 2007.

Make sure all animals have a current identification tag, license, and vaccinations.

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DISASTER RESOURCE MATERIALS (FACT SHEETS)

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TAB D

Disaster Resource Materials (Fact Sheets) Section 18: Nuclear Power Plant Emergencies

Nuclear power plants use the heat generated from nuclear fission in a contained environment to convert water to steam, which powers generators to produce electricity. Nuclear power plants operate in most states in the country and produce about 20 percent of the nation's power. Nearly 3 million Americans live within 10 miles of an operating nuclear power plant.

Although the construction and operation of these facilities are closely monitored and regulated by the Nuclear Regulatory Commission (NRC), accidents are possible. An accident could result in dangerous levels of radiation that could affect the health and safety of the public living near the nuclear power plant.

Local and state governments, federal agencies, and the electric utilities have emergency response plans in the event of a nuclear power plant incident. The plans define two "emergency planning zones." One zone covers an area within a 10-mile radius of the plant, where it is possible that people could be harmed by direct radiation exposure. The second zone covers a broader area, usually up to a 50-mile radius from the plant, where radioactive materials could contaminate water supplies, food crops, and livestock.

The potential danger from an accident at a nuclear power plant is exposure to radiation. This exposure could come from the release of radioactive material from the plant into the environment, usually characterized by a plume (cloud-like formation) of radioactive gases and particles. The major hazards to people in the vicinity of the plume are radiation exposure to the body from the cloud and particles deposited on the ground, inhalation of radioactive materials, and ingestion of radioactive materials.

Radioactive materials are composed of atoms that are unstable. An unstable atom gives off its excess energy until it becomes stable. The energy emitted is radiation. Each of us is exposed to radiation daily from natural sources, including the Sun and the Earth. Small traces of radiation are present in food and water. Radiation also is released from man-made sources such as X-ray machines, television sets, and microwave ovens. Radiation has a cumulative effect. The longer a person is exposed to radiation, the greater the effect. A high exposure to radiation can cause serious illness or death.

Although the risk of a chemical accident is slight, knowing how to handle these products and how to react during an emergency can reduce the risk of injury.

BEFORE/PREVENTION

Have emergency supplies on hand:

- Flashlight and extra batteries
- Portable battery-operated radio and extra batteries
- First aid kit and manual
- Emergency food and water – at least a three day supply of water and non-perishable food for each person in your household
- Manual can opener
- Essential medicines
- Cash and credit cards
- Important family documents and veterinary records

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At least one complete change of clothing and footwear per person. (Include sturdy shoes and work boots, hats and gloves, rain gear, thermal underwear, blankets or sleeping bag)
Animal Evacuation Kit – see “Saving the Whole Family,” AVMA 2007

Suggestions and Reminders: Store your supplies in a convenient place known to all family members. Keep a smaller version of the emergency supplies in the trunk of your car. Keep items in air-tight plastic bags. Change your stored water supply every six months so it stays fresh. Rotate your stored food every six months. Re-think your Emergency Supplies and family needs at least once a year. Replace batteries, update clothes, etc. Ask your physician or pharmacist about storing prescription medications, and your veterinarian about veterinary medications.

Familiarize yourself with these terms to help identify a nuclear power plant emergency:

Notification of Unusual Event

A small problem has occurred at the plant. No radiation leak is expected. No action on your part will be necessary.

Alert

A small problem has occurred, and small amounts of radiation could leak inside the plant. This will not affect you and no action is required.

Site Area Emergency

Area sirens may be sounded. Listen to your radio or television for safety information.

General Emergency

Radiation could leak outside the plant and off the plant site. The sirens will sound. Tune to your local radio or television station for reports. Be prepared to follow instructions promptly.

BEFORE

Obtain public emergency information materials from the power company that operates your local nuclear power plant or your local emergency services office. If you live within 10 miles of the power plant, you should receive these materials yearly from the power company or your state or local government.

Minimizing exposure to radiation:

Distance: The more distance between you and the source of the radiation, the better. This could be evacuation or remaining indoors to minimize exposure.

Shielding: The more heavy, dense material between you and the source of radiation, the better.

Time: Most radioactivity loses its strength fairly quickly.

DURING

The following are guidelines for what you should do if a nuclear power plant emergency occurs. Keep a battery-powered radio with you at all times and listen to the radio for specific instructions. Close and lock doors and windows.

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If you are told to evacuate:

Keep car windows and vents closed; use re-circulating air.

If you are advised to remain indoors:

Turn off the air conditioner, ventilation fans, furnace, and other air intakes.

Go to a basement or other underground area, if possible.

Do not use the telephone unless absolutely necessary.

If you expect you have been exposed to nuclear radiation:

Change clothes and shoes.

Put exposed clothing in a plastic bag.

Seal the bag and place it out of the way.

Take a thorough shower.

Keep food in covered containers or in the refrigerator. Food not previously covered should be washed before being put into containers.

ANIMALS AFTER NUCLEAR POWER PLANT ACCIDENTS

The behavior of animals may change dramatically after any disruption in their routine. Normally quiet and friendly animals may become fractious. Monitor animals closely and only release them in safe and secure enclosures.

Animals may not be allowed into Red Cross shelters for health and space reasons. Prepare an emergency plan and know where you will take all of your animals in the event of a disaster. Temporary animal shelters may be set-up; however, these will fill rapidly. An ideal situation during disasters is to have pre-determined locations that will provide living spaces for your whole family and your animals. Additional information on preparing for animals during disasters can be found in "Saving the Whole Family," AVMA 2007.

Make sure all animals have a current identification tag, license, and vaccinations.

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DISASTER RESOURCE MATERIALS (FACT SHEETS)

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TAB D

Disaster Resource Materials (Fact Sheets)

Section 19: Terrorism

Throughout human history, there have been many threats to the security of nations. These threats have brought about large-scale losses of life, the destruction of property, widespread illness and injury, the displacement of large numbers of people, and devastating economic loss.

Recent technological advances and ongoing international political unrest are components of the increased risk to national security.

GENERAL INFORMATION

Terrorism is the use of force or violence against persons or property in violation of the criminal laws of the United States for purposes of intimidation, coercion, or ransom.

Terrorists often use threats to:

Create fear among the public.

Try to convince citizens that their government is powerless to prevent terrorism.

Get immediate publicity for their causes.

Acts of terrorism include threats of terrorism; assassinations; kidnappings; hijackings; bomb scares and bombings; cyber attacks (computer-based); and the use of chemical, biological, nuclear and radiological weapons.

High-risk targets for acts of terrorism include military and civilian government facilities, international airports, large cities, and high-profile landmarks. Terrorists might also target large public gatherings, water and food supplies, utilities, and corporate centers. Further, terrorists are capable of spreading fear by sending explosives or chemical and biological agents through the mail.

Within the immediate area of a terrorist event, you would need to rely on police, fire, and other officials for instructions. However, you can prepare in much the same way you would prepare for other crisis events.

GENERAL SAFETY GUIDELINES:

Be aware of your surroundings.

Move or leave if you feel uncomfortable or if something does not seem right.

Take precautions when traveling. Be aware of conspicuous or unusual behavior. Do not accept packages from strangers. Do not leave luggage unattended. You should promptly report unusual behavior, suspicious or unattended packages, and strange devices to the police or security personnel.

Learn where emergency exits are located in buildings you frequent. Plan how to get out in the event of an emergency.

Be prepared to do without services you normally depend on—electricity, telephone, natural gas, gasoline pumps, cash registers, ATMs, and Internet transactions.

Work with building owners to ensure the following items are located on each floor of the building:

Be aware of your surroundings.

Move or leave if you feel uncomfortable or if something does not seem right.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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Take precautions when traveling. Be aware of conspicuous or unusual behavior. Do not accept packages from strangers. Do not leave luggage unattended. You should promptly report unusual behavior, suspicious or unattended packages, and strange devices to the police or security personnel.

Learn where emergency exits are located in buildings you frequent. Plan how to get out in the event of an emergency.

Be prepared to do without services you normally depend on—electricity, telephone, natural gas, gasoline pumps, cash registers, ATMs, and Internet transactions.

Work with building owners to ensure the following items are located on each floor of the building:

- 1) portable, battery-operated radio and extra batteries
- 2) several flashlights and extra batteries
- 3) first aid kit and manual
- 4) hard hats and dust masks
- 5) fluorescent tape to rope off dangerous areas

EXPLOSIONS

Terrorists have frequently used explosive devices as one of their most common weapons. Terrorists do not have to look far to find out how to make explosive devices; the information is readily available in books and other information sources. The materials needed for an explosive device can be found in many places including variety, hardware, and auto supply stores. Explosive devices are highly portable using vehicles and humans as a means of transport. They are easily detonated from remote locations or by suicide bombers.

Conventional bombs have been used to damage and destroy financial, political, social, and religious institutions. Attacks have occurred in public places and on city streets with thousands of people around the world injured and killed.

BEFORE AN EXPLOSION

If you receive a bomb threat you should do the following:

Get as much information from the caller as possible. Try to ask the following questions:

- 1) When is the bomb going to explode?
 - 2) Where is it right now?
 - 3) What does it look like?
 - 4) What kind of bomb is it?
 - 5) What will cause it to explode?
 - 6) Did you place the bomb?
 - 7) Why?
 - 8) What is your address?
 - 9) What is your name?
- Keep the caller on the line and record everything that is said.
 - Notify the police and building management.

DURING AN EXPLOSION

If there is an explosion, you should:

Get under a sturdy table or desk if things are falling around you. When they stop falling, leave quickly, watching for obviously weakened floors and stairways. As you exit from the building, be especially watchful of falling debris.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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Leave the building as quickly as possible. Do not stop to retrieve personal possessions or make phone calls.
Do not use elevators.

Once you are out:

Do not stand in front of windows, glass doors, or other potentially hazardous areas.
Move away from sidewalks or streets to be used by emergency officials or others still exiting the building.

If you are trapped in debris:

If possible, use a flashlight to signal your location to rescuers.
Avoid unnecessary movement so you don't kick up dust.
Cover your nose and mouth with anything you have on hand. (Dense-weave cotton material can act as a good filter. Try to breathe through the material.)
Tap on a pipe or wall so rescuers can hear where you are.
If possible, use a whistle to signal rescuers.
Shout only as a last resort. Shouting can cause a person to inhale dangerous amounts of dust.

Recovering from a disaster is usually a gradual process. Safety is a primary issue, as are mental and physical well-being. If assistance is available, knowing how to access it makes the process faster and less stressful. This section offers some general advice on steps to take after disaster strikes in order to begin getting your home, your community, and your life back to normal.

SUSPICIOUS PACKAGES AND LETTERS

Be wary of suspicious packages and letters. They can contain explosives, chemical or biological agents. Be particularly cautious at your place of employment.

Some typical characteristics postal inspectors have detected over the years, which ought to trigger suspicion, include parcels that:

- Are unexpected or from someone unfamiliar to you.
- Have no return address, or have one that can't be verified as legitimate.
- Have protruding wires or aluminum foil, strange odors, or stains.
- Show a city or state in the postmark that doesn't match the return address.
- Are of unusual weight given their size, or are lopsided or oddly shaped.
- Are marked with threatening language.
- Have inappropriate or unusual labeling.
- Have excessive postage or packaging material, such as masking tape and string.
- Have misspellings of common words.
- Are addressed to someone no longer with your organization or are otherwise outdated.
- Have incorrect titles or titles without a name.
- Are not addressed to a specific person.
- Have hand-written or poorly typed addresses.

With suspicious envelopes and packages other than those that might contain explosives, take these additional steps against possible biological and chemical agents.

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- Refrain from eating or drinking in a designated mail handling area.
- Place suspicious envelopes or packages in a plastic bag or some other type of container to prevent leakage of contents. Never sniff or smell suspect mail.
- If you do not have a container, then cover the envelope or package with anything available (e.g., clothing, paper, trash can, etc.) and do not remove the cover.
- Leave the room and close the door, or section off the area to prevent others from entering.
- Wash your hands with soap and water to prevent spreading any powder to your face.
- If you are at work, report the incident to your building security official or an available supervisor, who should notify police and other authorities without delay.
- List all people who were in the room or area when this suspicious letter or package was recognized. Give a copy of this list to both the local public health authorities and law enforcement officials for follow-up investigations and advice.
- If you are at home, report the incident to local police.

BIOLOGICAL THREATS

Specific information on biological agents is available at the Centers for Disease Control and Prevention (CDC) website: www.cdc.gov.

Biological agents are organisms or toxins that can kill or incapacitate people, livestock, and crops. The three basic groups of biological agents that would likely be used as weapons are bacteria, viruses, and toxins. Most biological agents are difficult to grow and maintain. Many break down quickly when exposed to sunlight and other environmental factors, while others, such as anthrax spores, are very long lived. Biological agents can be dispersed by spraying them into the air, by infecting animals that carry the disease to humans, and by contaminating food and water. Delivery methods include:

Aerosols - biological agents are dispersed into the air, forming a fine mist that may drift for miles. Inhaling the agent may cause disease in people or animals.

Animals - some diseases are spread by insects and animals, such as fleas, mice, flies, mosquitoes, and livestock.

Food and water contamination - some pathogenic organisms and toxins may persist in food and water supplies. Most microbes can be killed, and toxins deactivated, by cooking food and boiling water. Most microbes are killed by boiling water for one minute, but some require longer. Follow official instructions.

Person-to-person - spread of a few infectious agents is also possible. Humans have been the source of infection for smallpox, plague, and the Lassa viruses.

BEFORE A BIOLOGICAL ATTACK

Check with your doctor to ensure all required or suggested immunizations are up to date. Children and older adults are particularly vulnerable to biological agents.

Consider installing a High Efficiency Particulate Air (HEPA) filter in your furnace return duct. These filters remove particles in the 0.3 to 10 micron range and will filter

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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out most biological agents that may enter your house. If you do not have a central heating or cooling system, a stand-alone portable HEPA Filter can be used.

Filtration in buildings:

Building owners and managers should determine the type and level of filtration in their structures and the level of protection it provides against biological agents. The National Institute of Occupational Safety and Health (NIOSH) provides technical guidance on this topic in their publication *Guidance for Filtration and Air-Cleaning Systems to Protect Building Environments from Airborne Chemical, Biological, or Radiological Attacks*. To obtain a copy, call 1 (800) 35NIOSH or visit the National Institute for Occupational Safety and Health Web site and request or download NIOSH Publication 2003-136.

DURING A BIOLOGICAL ATTACK

In the event of a biological attack, public health officials may not immediately be able to provide information on what you should do. It will take time to determine what the illness is, how it should be treated, and who is in danger. Watch television, listen to radio, or check the Internet for official news and information including signs and symptoms of the disease, areas in danger, if medications or vaccinations are being distributed, and where you should seek medical attention if you become ill.

The first evidence of an attack may be when you notice symptoms of the disease caused by exposure to an agent. Be suspicious of any symptoms you notice, but do not assume that any illness is a result of the attack. Use common sense and practice good hygiene.

If you become aware of an unusual and suspicious substance nearby:

- Move away quickly.
- Wash with soap and water.
- Contact authorities.
- Listen to the media for official instructions.
- Seek medical attention if you become sick.

If you are exposed to a biological agent:

- Remove and bag your clothes and personal items. Follow official instructions for disposal of contaminated items.
- Wash yourself with soap and water and put on clean clothes.
- Seek medical assistance. You may be advised to stay away from others or even quarantined.

Using HEPA filters:

HEPA filters are useful in biological attacks. If you have a central heating and cooling system in your home with a HEPA filter, leave it on if it is running or turn the fan on if it is not running. Moving the air in the house through the filter will help remove the agents from the air. If you have a portable HEPA filter, take it with you to the internal room where you are seeking shelter and turn it on.

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If you are in an apartment or office building that has a modern, central heating and cooling system, the system's filtration should provide a relatively safe level of protection from outside biological contaminants.

HEPA filters will not filter chemical agents.

Shelter Safety for Sealed Rooms:

Ten square feet of floor space per person will provide sufficient air to prevent carbon dioxide build-up for up to five hours, assuming a normal breathing rate while resting.

However, local officials are unlikely to recommend the public shelter in a sealed room for more than 2-3 hours because the effectiveness of such sheltering diminishes with time as the contaminated outside air gradually seeps into the shelter. At this point, evacuation from the area is the better protective action to take.

Also you should ventilate the shelter when the emergency has passed to avoid breathing contaminated air still inside the shelter.

AFTER

In some situations, such as the case of the anthrax letters sent in 2001, people may be alerted to potential exposure. If this is the case, pay close attention to all official warnings and instructions on how to proceed. The delivery of medical services for a biological event may be handled differently to respond to increased demand. The basic public health procedures and medical protocols for handling exposure to biological agents are the same as for any infectious disease. It is important for you to pay attention to official instructions via radio, television, and emergency alert systems.

CHEMICAL THREATS

Chemical agents are poisonous vapors, aerosols, liquids, and solids that have toxic effects on people, animals, or plants. They can be released by bombs or sprayed from aircraft, boats, and vehicles. They can be used as a liquid to create a hazard to people and the environment. Some chemical agents may be odorless and tasteless. They can have an immediate effect (a few seconds to a few minutes) or a delayed effect (2 to 48 hours). While potentially lethal, chemical agents are difficult to deliver in lethal concentrations. Outdoors, the agents often dissipate rapidly. Chemical agents also are difficult to produce.

A chemical attack could come without warning. Signs of a chemical release include people having difficulty breathing; experiencing eye irritation; losing coordination; becoming nauseated; or having a burning sensation in the nose, throat, and lungs.

Also, the presence of many dead insects or birds may indicate a chemical agent release.

BEFORE A CHEMICAL ATTACK

Check your disaster supplies kit to make sure it includes:

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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A roll of duct tape and scissors.

Plastic for doors, windows, and vents for the room in which you will shelter in place. To save critical time during an emergency, pre-measure and cut the plastic sheeting for each opening.

Choose an internal room to shelter, preferably one without windows and on the highest level.

DURING A CHEMICAL ATTACK

If you are instructed to remain in your home or office building, you should:

Close doors and windows and turn off all ventilation including furnaces, air conditioners, vents, and fans.

Seek shelter in an internal room and take your disaster supplies kit.

Seal the room with duct tape and plastic sheeting.

Listen to your radio for instructions from authorities.

If you are caught in or near a contaminated area, you should:

Move away immediately in a direction upwind of the source.

Find shelter as quickly as possible.

AFTER A CHEMICAL ATTACK

Decontamination is needed within minutes of exposure to minimize health consequences. Do not leave the safety of a shelter to go outdoors to help others until authorities announce it is safe to do so.

A person affected by a chemical agent requires immediate medical attention from a professional. If medical help is not immediately available, decontaminate yourself and assist in decontaminating others.

Decontamination guidelines are as follows:

Use extreme caution when helping others who have been exposed to chemical agents.

Remove all clothing and other items in contact with the body. Contaminated clothing normally removed over the head should be cut off to avoid contact with the eyes, nose, and mouth. Put contaminated clothing and items into a plastic bag and seal it. Decontaminate hands using soap and water. Remove eyeglasses or contact lenses. Put glasses in a pan of household bleach to decontaminate them, and then rinse and dry.

Flush eyes with water

Gently wash face and hair with soap and water before thoroughly rinsing with water.

Decontaminate other body areas likely to have been contaminated. Blot (do not swab or scrape) with a cloth soaked in soapy water and rinse with clear water.

Change into uncontaminated clothes. Clothing stored in drawers or closets is likely to be uncontaminated.

Proceed to a medical facility for screening and professional treatment.

NUCLEAR BLAST

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A nuclear blast is an explosion with intense light and heat, a damaging pressure wave, and widespread radioactive material that can contaminate the air, water, and ground surfaces for miles around. A nuclear device can range from a weapon carried by an intercontinental missile launched by a hostile nation or terrorist organization, to a small portable nuclear device transported by an individual. All nuclear devices cause deadly effects when exploded, including blinding light, intense heat (thermal radiation), initial nuclear radiation, blast, fires started by the heat pulse, and secondary fires caused by the destruction.

Hazards of Nuclear Devices. The extent, nature, and arrival time of these hazards are difficult to predict. The geographical dispersion of hazard effects will be defined by the following:

Size of the device. A more powerful bomb will produce more distant effects.

Height above the ground the device was detonated. This will determine the extent of blast effects

Nature of the surface beneath the explosion. Some materials are more likely to become radioactive and airborne than others. Flat areas are more susceptible to blast effects

Existing meteorological conditions. Wind speed and direction will affect arrival time of fallout; precipitation may wash fallout from the atmosphere.

Radioactive Fallout

Even if individuals are not close enough to the nuclear blast to be affected by the direct impacts, they may be affected by radioactive fallout. Any nuclear blast results in some fallout. Blasts that occur near the earth's surface create much greater amounts of fallout than blasts that occur at higher altitudes. This is because the tremendous heat produced from a nuclear blast causes an up-draft of air that forms the familiar mushroom cloud. When a blast occurs near the earth's surface, millions of vaporized dirt particles also are drawn into the cloud. As the heat diminishes, radioactive materials that have vaporized condense on the particles and fall back to Earth. The phenomenon is called radioactive fallout. This fallout material decays over a long period of time, and is the main source of residual nuclear radiation.

Fallout from a nuclear explosion may be carried by wind currents for hundreds of miles if the right conditions exist. Effects from even a small portable device exploded at ground level can be potentially deadly.

Nuclear radiation cannot be seen, smelled, or otherwise detected by normal senses.

Radiation can only be detected by radiation monitoring devices. This makes radiological emergencies different from other types of emergencies, such as floods or hurricanes.

Monitoring can project the fallout arrival times, which will be announced through official warning channels. However, any increase in surface build-up of gritty dust and dirt should be a warning for taking protective measures.

In addition to other effects, a nuclear weapon detonated in or above the earth's atmosphere can create an electromagnetic pulse (EMP), a high-density electrical field. An EMP acts like a stroke of lightning but is stronger, faster, and shorter. An EMP can seriously damage electronic devices connected to power sources or antennas. This includes communication systems, computers, electrical appliances, and automobile or aircraft ignition systems. The damage could range from a minor interruption to actual burnout of components. Most electronic equipment within 1,000 miles of a high-altitude nuclear detonation could be affected. Battery-powered radios with short antennas generally would not be affected. Although an EMP is unlikely to harm most people, it could harm those with pacemakers or other implanted electronic devices.

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PROTECTION FROM NUCLEAR BLASTS

The danger of a massive strategic nuclear attack on the United States is predicted by experts to be less likely today. However, terrorism, by nature, is unpredictable.

Decontamination guidelines are as follows:

Use extreme caution when helping others who have been exposed to chemical agents.

ANIMALS AFTER HAZARDOUS MATERIALS ACCIDENTS

The behavior of animals may change dramatically after any disruption in their routine. Normally quiet and friendly animals may become fractious. Monitor animals closely and only release them in safe and secure enclosures.

Animals may not be allowed into Red Cross shelters for health and space reasons. Prepare an emergency plan and know where you will take all of your animals in the event of a disaster. Temporary animal shelters may be set-up; however, these will fill rapidly. An ideal situation during disasters is to have pre-determined locations that will provide living spaces for your whole family and your animals. Additional information on preparing for animals during disasters can be found in "Saving the Whole Family," AVMA 2007.

Make sure all animals have a current identification tag, license, and vaccinations.

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ACCIDENTAL PETROLEUM DISCHARGE

Oil spills may occur from ships far out at sea or at dockside, from land-based or off shore wells, from pipelines, from storage tanks, or from vehicles transporting oil on land. Consequently, nearly every type of environment and many species of wildlife are subject to accidental oil contamination.

Wildlife response to oil spills is a complex challenge requiring a teamwork approach between trustees, the responsible party (RP), a contracted qualified wildlife responder (QWR) and carefully trained volunteers. All wildlife actions must be coordinated with the On Scene Coordinator (OSC).

Trustees: Trustees are governmental officials designated to act on the public's interest concerning wildlife. Trustees are authorized to act on behalf of the public's interest in the protection of natural resources. The Department of Interior (DOI) has trustee responsibility for migratory birds under the Migratory Bird Treaty Act (16-USC 703-722) and for threatened and endangered species under the Endangered Species Act (16 USC 1531-1544). The DOI also has trustee responsibility for sea otters, dugong, walrus, and manatee under the Marine Mammal Protection Act (16 USC 1361-1407). Trustee responsibility for other marine mammals (whales and seals) falls to the Department of Commerce. The Department of Commerce and Department of Interior share trustee responsibility for anadromous fish under the Anadromous Fish Conservation Act (16 USC 7571-757f). State agencies have trustee responsibilities for other game and non-game species not listed above. States also may possess co-trustee responsibility for above-mentioned species.

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BEFORE

Identify areas at risk.

Some areas are more susceptible to oil discharge, such as docks where oil is off-loaded or transferred, exposed pipelines, or areas surrounding oil terminals. Some environments and the wildlife living there are impacted more heavily by oil than others; e.g., wetlands and marshes absorb and hold oil and contain more fragile plant and animal life than do swift moving rivers.

Identify potential wildlife in the area (seasonal).

A variety of wildlife species are at risk to oil spills, depending on the spill location and time of year. These different species have individual treatment, handling, housing, and nutritional requirements. Plans should be in place to meet the needs of each of the area species that may be impacted by the spill.

Become familiar with local Area Contingency Plans.

U.S. Coast Guard and U.S. Environmental Protection Agency (EPA) agencies have regional plans for responding to oil spills. These plans are required to contain arrangements for the care of impacted wildlife.

Attend Regional Response Team meetings.

Area Coast Guard and EPA agencies hold regular meetings to discuss changes in the Area Contingency Plans and to identify areas where more planning is required.

Receive oiled wildlife response training.

Wildlife response training is available through Tri-State Bird Rescue & Research, Inc. or International Bird Rescue Research Center. Prior training will result in a more rapid and efficient response.

Arrange for training of local volunteers.

Citizens with prior training will be of great asset in the early stages of a response. Records of trained individuals are retained for use when needed. Other volunteers can be trained during the first 24-48 hours following the disaster.

Obtain OSHA training.

A minimum of 24 hours of Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) training is required for anyone in a management position of an oil spill response (including oversight of animal care). Four to six hours of the Occupational Safety and Health Administration (OSHA) training are required for all volunteers assisting with the wildlife portion of a response.

Identify a response facility.

A good response requires a suitable facility, and prior identification will help to expedite the response.

Equip facility and/or stockpile supplies.

Identify a team to manage the wildlife response.

Most Area Contingency Plans require the presence of a Qualified Wildlife Responder (QWR) to manage the wildlife aspect of an oil spill response. The experience and expertise of a QWR is the single most important factor in a successful response to a large spill.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

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Obtain the proper state and federal permits.

Federal permits are required to care for any threatened or endangered species or for any migratory birds. Individual state permits are required in addition to the federal permits to care for any protected wildlife species within a specific state. Additional permits are often required to care for oiled wildlife, depending on the requirements of the individual states.

DURING

Effective wildlife response to oil spills requires a team approach as specialists in government and the private sector lend their skills to the response efforts. Oversight of the response, however, rests with the trustees.

Identify the spilled product and all health-associated risks

Obtain product analysis and material safety data sheets (MSDS) and obtain the appropriate protective equipment.

Field Assessment of Wildlife at Risk

Assess the location, numbers, and species of wildlife at risk.

Assess and document the degree of oil contamination of animals and habitat.

Provide thorough field notes for Natural Resources Damage Assessment (NRDA).

Preventing Wildlife Contamination

Set up and implement a hazing program for uncontaminated animals.

Search & Rescue

Retrieve oil contaminated animals for rehabilitation and carcasses for federal evidence.

Perform necropsies on all deceased animals and record all findings. The United States Fish and Wildlife Service (USFWS) Law Enforcement and the National Wildlife Health Center in Madison, Wisconsin will oversee this process.

Arrange for timely and appropriate transportation.

Site Safety Plan

Develop and implement a site safety plan for the response facility to meet OSHA requirements.

Record-keeping

Accurate records must be maintained on all animals, including site captured, all treatments, and release information (for NRDA purposes).

Provide medical care for impacted wildlife

Animals may need to be stabilized prior to transportation.

- Flush eyes
- Clean mouth and nares/nostrils
- Treat for shock and traumatic injuries, if present
- Restore normal body temperature
- Restore normal fluid balance
- Reduce stress

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Because of the harm from the internal and external effects of the oil, all efforts should be made to stabilize and wash the oiled animals within 24-48 hours.

Remove oil from feathers/fur

Large (10 – 15 gallon) tubs of water at 103 – 105 degrees F.
Dawn® dishwashing liquid (1% - 8% solution)
Mammals will need to be sedated.
Agitate detergent through feathers/fur.
Proceed through series of tubs until animal is clean.

Remove cleaning agent

Large amounts of water at 103 – 105 degrees F.
Water hardness of 2.5 – 3.5 grains/gallon
Spray hoses, systematic head-to-tail approach
Water must roll off feathers/fur in droplets
Feathers/fur must be rinsed until appear dry

Restore feather structure and/or water-proofing

Dry under free access to heat lamps in draft-free area.
Quiet, private housing – keep people away.
Present food and allow easy access to clean swimming water.

Provide proper husbandry

Caging, diet, and other husbandry needs must all meet the Minimum Standards for Wildlife Rehabilitation (published by the National Wildlife Rehabilitators Association and International Wildlife Rehabilitation Council, 1994).
All housing must be cleaned at least twice daily. Cages/housing should be disinfected between uses by different animals.
Other husbandry considerations include ventilation, swimming opportunities, nutritionally complete diets, the role of salt water in seabirds, and secondary (captive-related) problems.

Evaluate for release

Each animal should receive a pre-release physical to assure that the following criteria are met:

- normal weight range
- good body condition
- adequate waterproofing
- absence of infectious disease
- resolution of all injuries
- blood values which are within the normal range
- A USFWS band should be placed on all birds prior to release.

Identify release site

Releases must take place in suitable habitat free from contamination, with adequate natural food sources for that species.

Transport and release

Release should take place in the first part of the day (for diurnal species) to allow the animal time to adjust to the location before nightfall.

DISASTER RESOURCE MATERIALS (FACT SHEETS)

AFTER

Post-release monitoring

The release team should observe the animals after release to determine that the animals are behaving normally. The site should be revisited after 24-72 hours to monitor released birds.

Reporting

Accurate records must be kept on all animals treated as a result of an oil spill. These records may be federal evidence and must be kept for a minimum of seven (7) years following the incident. Annual reports must also be filed with the Federal and State offices issuing the rehabilitation permits.

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TAB E Animal Care & Handling Section 1: Interim Guidelines

These Interim Guidelines have been developed by consultation between the American Veterinary Medical Association and the U.S. Centers for Disease Control and Prevention and are advisory in nature. They are intended to provide guidance for the care of animals entering shelters and for persons working with or handling the animals in response to Hurricanes Katrina and Rita. The guidance reflects information available as of September 27, 2005 and may be updated as more information becomes available.

Animals arriving at shelters as a result of hurricanes Katrina and Rita need special care. Because they have been exposed to contaminated flood waters and have not had access to safe food and fresh water, many are stressed and dehydrated and some may be injured and/or ill. Stressed animals may or may not show signs of illness and may also exhibit behavioral disorders. Following some simple animal management and disease control guidelines can help provide can help improve animal health and reduce the risk of disease transmission and injury between animals and people.

What follows are some recommendations for pets arriving at animal shelters.

ANIMAL HEALTH HISTORY, EXAMINATIONS AND IDENTIFICATION

Each animal should be examined at a triage site. Particular attention should be paid to hydration status, cuts and abrasions, paw/food/hoof health (e.g., pads and claws, area between toes), ear health (e.g., redness, discharge), oral injuries (may have occurred if animal was foraging for food), vomiting and/or diarrhea, respiratory disease, and evidence of parasite infestation.

Animals should be bathed upon entry, particularly if they may have been in contact with contaminated flood water. Dawn™ dish soap can remove petroleum and some other toxic chemicals, but care should be taken during its use on sensitive species (e.g., horses). Bathers should wear protective clothing (e.g., rain suits, ponchos), gloves, and a face shield or goggles with a surgical mask to avoid mucous membrane contact with droplets and splashes that may contain toxic materials.

Intake personnel should ask whether the pet has been in the custody of the owner since the beginning of the evacuation, and should inquire about the animal's health and vaccination history, paying particular attention to any current medical needs or chronic health problems (e.g., diabetes, which would signal a need for insulin injections). In addition, owners should be questioned about the animal's temperament (e.g., whether the animal can safely be housed with others of the same species, whether it might be aggressive toward caretakers).

A health record for each animal should be created and updated as needed. Identification information for each animal should correspond to that for the owner, so that animals and their owners can be reunited. Owned animals should be clearly marked as "owned" and not "abandoned" to reduce the risk of mix-ups. Photographs should be taken, if possible. Collars (leather or nylon, not choke

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chains) containing readily legible identification information should be placed on all animals. Ideally, all animals should be microchipped. Cages should be clearly labeled so that newly arriving personnel are easily apprised of the health status and temperament of sheltered animals. Animals arriving without owners should be scanned for microchip identification. Microchips are most often placed between the shoulder blades, but earlier models were prone to migration, so animals should be scanned from the shoulder blades down to the ventral chest. All scanners are not capable of reading all microchips, so if multiple types of scanners are available, scan with each type before declaring an animal to be microchip-free. Animals without microchips should be checked for other forms of identification such as a tag or tattoo. Tattoos on dogs may correspond to an AKC registration number and this information should be used to trace the animal, if possible.

ANIMAL HEALTH MANAGEMENT AND TREATMENT OF ZONOTIC AND NOSOCOMIAL DISEASES

Internal Parasitism

Dogs should be treated prophylactically for internal parasites including Giardia, roundworms, hookworms, and whipworms. Exposure to mosquitoes in flood-ravaged areas presents an increased risk to heartworm disease. If possible, dogs should be tested for heartworms and appropriate preventatives or treatment administered.

External Parasitism

Dogs and cats should be examined for flea and tick infestation, and treated appropriately. Preventive flea and tick treatments should be considered for all dogs and cats housed in shelters.

Vaccinations

While the American Veterinary Medical Association normally recommends that vaccination programs be customized to individual animals, in disaster situations vaccination status may be difficult, if not impossible to determine. For this reason, administration of "core" vaccines to animals upon admission to shelters when vaccination status is unavailable or not current is considered appropriate. Vaccines take some time to become effective and will not address pre-existing exposures, so personnel are cautioned to be alert for clinical signs of disease.

A rabies vaccination should be administered to dogs, cats and ferrets. This is especially important for dogs and cats housed in group settings. Personnel should be aware that rabies vaccines may take as long as 28 days to become effective. Additional core vaccinations for dogs include distemper, hepatitis, and parvovirus.

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Additional core vaccinations for cats include feline viral rhinotracheitis, panleukopenia and calicivirus. Vaccination against feline leukemia should be considered for young kittens that will be housed in contact with other cats. Vaccination (intranasal) against Bordetella bronchiseptica and parainfluenza should be considered for all dogs to reduce the incidence of kennel cough. Because leptospirosis risk is higher in flood-ravaged areas and because the disease is zoonotic, vaccination should be considered. Personnel are cautioned that leptospirosis vaccines are serovar-specific, and that the potential for adverse reactions may be higher than for some other vaccines.

Diarrheal Disease

Animals presenting with (or developing) diarrhea should be separated from healthy animals (see “Facilities Management”). Nosocomial agents of concern that may be transmitted by feces include parvovirus, panleukopenia, Giardia, and intestinal parasites. Zoonotic agents of concern for small animals include Campylobacter and Salmonella, which are highly infectious and have been associated with outbreaks in shelters and veterinary clinics.

III Birds

Ill birds are usually lethargic, depressed, and inappetent. Care should be taken when handling ill birds because they may be infected with the zoonotic bacteria Chlamydia psittaci, which causes psittacosis. Face masks should be worn when handling birds of unknown origin that are exhibiting signs of illness.

Behavioral Concerns

Fear, panic, separation anxiety, noise and storm phobias, and other behavioral disorders are common problems in displaced animals. Animals that have never had these problems may develop them and pre-existing problems are likely to worsen.

Providing housed animals with fresh food and water on a regular basis and establishing other familiar routines will assist animals in adjusting to their new environment. Food and water should be provided at multiple smaller and dispersed stations, rather than a few large clumped stations, to minimize fear, competition and fighting among unfamiliar animals.

Animals without prior history of aggression may snap, bite or hiss as a result of fear or uncertainty. Shelter personnel should approach rescued animals calmly, but cautiously. Only experienced personnel handle animals that exhibit significant behavioral disorders.

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Behavioral exercises and behavioral medications may be administered short- or long-term, as required, to help animals recover. Shelters are encouraged to seek assistance from qualified animal and veterinary behaviorists who can assist them in meeting these needs.

Euthanasia

Animals that are irreversible ill or exhibiting intractable signs of aggression should be euthanized. Records should be kept of animals euthanized. Animals that have been previously associated with transmission of monkeypox (e.g., prairie dogs, African rodents) are under legal restrictions for movement, except to a veterinarian for care. If one of these high-risk species is presented for veterinary care at a shelter, they must be kept isolated from other animals and housed in individual cages. If this cannot be accomplished, these animals must be humanely euthanized.

Medical Use, Storage and Recordkeeping

Veterinarians are responsible for making clinical judgments regarding the health of the animal and the need for medical treatment. Use of prescription drugs may be authorized only by a veterinarian.

Drugs and vaccines should be examined periodically to ensure cleanliness and current expiration date.

Records of individual animal treatments should be kept, including animal identification, date of treatment, name of product administered, name of the individual administering the product, and the name of the supervising veterinarian.

Personal Protection for Caretakers

Wash hands with soap and water

- Before and after handling each animal
- After coming into contact with animal saliva, urine, feces or blood
- After cleaning cages
- Before eating meals, taking breaks, smoking or leaving the shelter
- Before and after using the restroom.

Wear gloves when handling sick or wounded animals.

Wear gloves when cleaning cages.

Consider use of goggles or face protection if splashes from contaminated surfaces may occur

Facemasks should be worn when handling birds to minimize the risk of contracting psittacosis.

Bring a change of clothes worn at the shelter.

Do not allow rescued animals to “kiss” you or lick your face.

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Do not eat in animal care areas.

Whenever possible, caretakers should have completed a 3-dose prophylactic vaccination series for rabies.

Pregnant women and immunocompromised persons should not volunteer for positions involving direct animal contact.

Avoiding Bites and Scratches in Pet Shelters

Use caution when approaching any animals that may be sick, wounded or stressed.

If available use thick gloves, restraints or sedation to handle aggressive animals.

If bitten or scratched, thoroughly wash wound with soap and water and seek medical care.

Because the exposure histories of these animals are unknown, bites from dogs, cats and ferrets may be considered a potential risk for rabies, even if the animal appears healthy and has been vaccinated. Therefore, personnel who are bitten should be evaluated for rabies risk. Dogs, cats and ferrets that bite a person should be quarantined for 10 days and observed for signs of rabies. If an animal develops signs of rabies or dies during the 10-day period following the bite, it should be tested for rabies. Persons bitten during pet shelter operations do not require rabies postexposure prophylaxis unless the animal is diagnosed as rabid. If a person is bitten by a dog, cat, or ferret that is available for quarantine, adequate identification records and contact information must be kept for both the animal and the person bitten, so the exposed individual can be contacted in the event the quarantined animal does prove to be rabid. Persons exposed to an animal confirmed with rabies, or to an animal that is unavailable for a 10-day quarantine or testing, should receive rabies postexposure prophylaxis in accordance with the Advisory Committee on Immunization Practices Guide.

FACILITY MANAGEMENT

Separation of Animals

Animals should not be housed or permitted in food or break areas.

Separate newly arriving animals from animals that have been housed one week or longer.

Animals of different species should not be housed together (e.g., do not place a ferret and a rabbit in the same cage)

Avoid caging animals from different households together. If animals of the same species come into the shelter together and the owner requests they be caged together, this should be allowed as it may reduce an animal's stress if it is housed with a companion. This should be done if the owner indicates the animals do not get along with one another.

If animals of unknown origin must be housed together, care should be taken to not mix genders for unneutered animals.

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Routinely monitor animals for signs of illness. Separate sick animals from healthy animals, especially animals with diarrhea or signs of upper respiratory disease. If a separate room or area is not available, animals with diarrhea or signs of respiratory disease should be housed in bottom cages.

People assigned to care for sick animals should care for those animals only, and should not move between sick and healthy animals.

Limit contact of young children, the elderly, pregnant women and immunocompromised people with rescue animals: particularly animals that are ill.

Cleaning and Disposal

Thoroughly clean and disinfect cages between animals.

Remove and dispose of animal waste in a timely manner.

Double bag and remove dead animals shortly after death. A log of animals that have died or have been humanely euthanized should be kept. This log should include animal identification and/or descriptive information for each animal.

Identify an area separate from the shelter for carcass storage and disposal.

Arrange for waste removal from pet shelter.

Pet shelters should have adequate lighting, water and wastewater disposal.

Environmental Security

If at all possible, devise strategies to prevent wild rodents from mixing with shelter animals.

Keep wild rodents away from food supplies.

Additional Recommendations for Exotic Animals (including pocket pets, reptiles, amphibians, and birds)

Exotic animals should be microchipped for accurate record keeping, unless they are identified by other means such as well-secured leg bands or legible permanent tattoos. Leg bands are a reliable means of identifying birds and often will allow ownership to be traced. For this reason, these bands should be left in place unless they pose a hazard. Photographs of birds' feet may also be used to identify them. House each species of animals in separate areas to reduce stress from strange noises and environments. Do not house birds in the same area as mammals or reptiles because the presence of these animals can cause undue stress and may present a risk of infectious disease to avian species.

Make sure that diets are appropriate for each species. If the species is unfamiliar to the handler, then consult a veterinarian or handler who is experienced with the housing and husbandry of that species.

Ill birds must often be force-fed. Birds should only be force-fed by experienced handlers (see Appendix A—Safe Handling of Exotic Pets).

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Do not house more than one exotic animal in a cage unless the animals have been previously housed together.

Exotic pets should not be taken out their cages except during cage cleaning.

Confine exotic animals to other cages or escape-proof containers when cleaning permanent cages.

To prevent transmission of Salmonella and Chlamydothyla, designate a separate area for cleaning cages. Do not clean cages in sinks or bathrooms that will be used for food preparation or bathing of infants or other immunocompromised persons. After cleaning chores are completed, thoroughly disinfect the area.

It is extremely important to follow appropriate hand washing techniques after handling and feeding exotic animals or cleaning their cages, bowls, toys, and other cage furniture.

To avoid transfer of fecal matter, feathers, food, and other materials form one cage to another, bird cages should not be stacked.

Many exotic pets, especially reptiles and amphibians, have special environmental needs; these needs should be an important consideration during sheltering.

Exotic pets tend to be escape artists. Ensure that caging is properly constructed and sufficiently secure to prevent destruction and escape.

Do not release exotic animals into the wild under any circumstances.

A note on the Human-Animal Bond and the Well-being of Pets and Owners

Separation of pets and owners is a difficult issue. Media coverage of hurricanes Katrina and Rita is replete with examples of people who refused to be evacuated from affected areas without some assurance that their pets would be saved and cared for as well. When people have lost everything, their pets can be an important source of emotional support. This is particularly true for those without family or a strong human social network. Removal of this last remnant of normality and comfort can be psychologically traumatic.

Despite the importance of the owner-pet relationship, limited availability of suitable housing, as well as animal and public health and safety concerns, will make housing pets in animal shelters or foster homes not only necessary, but in the best interest of many pets and their owners. Foster homes are an alternative that can provide some semblance of routine and reduce crowding and stress in animal shelters that might otherwise predispose animals to injury or disease.

For additional information about rescue efforts, animal health and welfare, particular diseases or conditions, or infection control please call these organizations or visit their websites:

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Louisiana SPCA – Laura Maloney 225-413-8813
East Baton Rouge Animal Control – Hilton Cole 225-774-7700
LSU School of Veterinary Medicine – Dr. Becky Adcock 225-578-9900
Louisiana Veterinary Medical Association – 1-800-524-2996 or 225-928-5862
CDC Healthy Pets Healthy People – www.cdc.gov/healthypets
American Veterinary Medical Association – www.avma.org
Veterinary Medical Assistance Teams – www.vmat.org
Association of Shelter Veterinarians – www.sheltervet.org
American College of Veterinary Behaviorist – www.veterinarybehaviorist.org
The Center for Food Security and Public Health – www.cfsph.iastate.edu/brm

Appendix A—Safe Handling of Exotic Animals

Many exotic pets have unique features that need to be considered when handling these animals. Some basic guidelines for handling common exotic species follow:

Rabbits

Grasp loose skin over the neck and shoulders while directing the head away from your body.

Support the lower part of the rabbit's body with the other hand,

Never restrain a rabbit by the ears.

If the rabbit begins to struggle or kick violently, immediately place on a solid surface and calm the animal. Struggling often results in fractured spinal vertebrae and subsequent euthanasia.

Mice

Mice are generally caught and handled by their tails.

Grasp the tail between its midpoint and the mouse's body.

For more control, grasp the loose skin over the mouse's neck and shoulders using the thumb and fingers.

Do not drop mice into cages. Rather lower them into the cage and release upon contact with bedding.

Guinea Pigs

Gently, place one hand on the shoulders or chest of the guinea pig.

Use the other hand to support the animal's hindquarters.

Wrap the guinea pig in a towel or hold the animal against your body to reduce any struggling.

Do not attempt to restrain guinea pigs solely by grasping the skin. Guinea pigs lack an ample amount of loose skin to do this safely and handling them in this manner may cause hair loss.

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Birds

Pet birds, such as parrots and finches, may be restrained by capturing in a towel. Darkening the room prior to entering the cage will assist the handler in the capture process and calm the bird. Care should be taken with wild birds, such as birds of prey. These species should only be captured and restrained by qualified handlers. Quickly grab the bird's neck from behind the animal. Your hand should gently encircle the neck to elongate the neck between the head and shoulders. Once the animal is under control, grasp the legs from the front of the animal and stretch the animal as much as possible without causing injury. The weight of the towel will keep the wings at the bird's side. Ensure that the bird's ribcage is not restricted and do not hold the bird around the body. Small birds may be caught without using a towel. First, capture the bird from the rear by encircling the neck. Then grasp the feet with the other hand.

Lizards

Hold the head firmly behind the jaw with your thumb and first finger while wrapping the other fingers around the lizard's shoulders to control the front legs. Use the other hand to grasp the rear legs and tail just below the base of the pelvis. Do not grab the length of the tail. Many lizards have the ability to lost their tails as a natural defense mechanism.

Snakes

Hold the head gently by grasping behind the jaw. Allow your hand to move with the snake's head movement to prevent injury. Providing good support for the rest of the snake's body will help ensure it feels secure. Multiple handlers may be necessary for large snakes. Do not allow the snake to wrap the end of its tail around you or other objects.

Turtles and Tortoises

Grasp the shell midway between the front and rear legs. Prevent bites by not reaching across the front of a turtle or tortoise that is unrestrained. Frightened animals will often urinate on handlers as the animals are being picked up.

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Amphibians

Fine mesh nets or small plastic containers may be used for catching and transferring animals.

If the animal must be handled, protect the animal's skin by using moistened gloves and/or a moistened paper towel or dishcloth.

Large amphibians such as giant salamanders, large toads, and hellbenders should have their heads restrained to prevent biting. Place their head between your thumb and first finger.

Ferrets

Grab the loose skin around the back of the neck firmly.

Hold the ferret up so the hind feet cannot touch the ground.

Stroke the animal's underside from top to bottom to aid in relaxation.

The following references provide additional information about handling exotic animals.

The University of Iowa Animal Research Institutional Animal Care and Use Committee:
<http://research.uiowa.edu/animal>

DJ Harris. Avian Restraint and Physical Exam. In Proceedings, Atlantic Coast Veterinary Conference 2001

TA Bradley. Basic Reptile Handling and Restraint. IN Proceedings, Western Veterinary Conference 2002.

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TAB E Animal Care & Handling Section 2: Animals in Public Shelters

The following document was developed by consultation between the U.S. Centers for Disease Control and Prevention and the American Veterinary Medical Association and is advisory in nature. Guidance reflects information available as of September 22, 2005 and may be updated as additional information becomes available.

As persons are displaced from their homes into shelters in the wake of Hurricane Katrina, they often wish to bring companion animals with them. Having a pet nearby may serve as a source of comfort to someone who has lost their possessions and, perhaps, family members. Unfortunately, many disaster shelters (and specifically Red Cross Shelters) cannot accept pets because of the states' health and safety regulations. Pets kept at human shelters can sometimes pose a risk of disease or injury to other shelter inhabitants. In fact, service animals that assist people with disabilities are currently the only animals allowed in some shelters.

Animal shelters and foster homes may accommodate animals while their owners reside in temporary shelters, but these services may not be available everywhere. The following Questions and Answers were developed to address health and safety concerns regarding animals kept in non-Red Cross public shelters.

Q: What are the potential risks of housing animals and people in one location?

A: Close contact between humans and animals in evacuation shelters may pose a risk for injury or illness. Scared and stressed animals may be more likely to bite or scratch their owners, other people, or other pets. In addition to injury and potential infection from bites, scratches, bites and scratches from dogs, cats and ferrets may present a risk for rabies. Serious bite wounds may require surgical repair. Furthermore, proper care of the animal, such as collection and disposal of urine and feces, may be difficult in public shelters. This poses an additional risk of infection for people, particularly the immunocompromised. People may also be allergic to furred or feathered pets. These problems may be more serious when people do not have access to their usual medications.

Q: What are some diseases that may be transmitted by contact with pets?

A: Routine contact with dogs, and especially cats, may pose a risk of ringworm, which is a skin infection caused by a fungus. Animal feces and fecal-contaminated skin and fur may pose a risk of diarrheal illness from *Campylobacter*, *Salmonella*, and some internal parasites. Although these risks are usually small, in the wake of natural disasters such as hurricane Katrina, physical stress and exposure to floodwaters and contaminated food and water may increase the risk for diarrheal infections. Most reptiles (lizards, snakes, iguanas, turtles) shed *Salmonella* in their feces; children younger than 5 years are at high risk for this disease if they handle reptiles. Although people usually acquire toxoplasmosis by ingesting meat containing tissue cysts, young cats may rarely shed *Toxoplasma* oocysts in their stool. Prompt removal of stool from the environment minimizes that risk. Some pet rodents, such as hamsters, gerbils, and guinea pigs, can transmit lymphocytic choriomeningitis virus (LCMV). *Toxoplasma* and LCMV can cause birth defects in an unborn child if a pregnant woman becomes infected.

Q: What are the risks associated with animal bites?

A: The consequences of animal bites, especially dog bites, can be serious. The risk of a bite injury may be greater in situations that promote close contact between people and unfamiliar animals. Bites from dogs, cats, or ferrets carry a risk for rabies, even if the animal has been vaccinated and appears healthy. If a dog, cat, or ferret bites a person or another animal. They

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must be confined and observed for 10 days to see whether they develop signs of rabies. If the biting animal shows signs of rabies or cannot be reliably confined and observed, that animal must be euthanized and tested for rabies. Serious bite wounds require medical care, and surgical repair in some cases. Animal bites may also result in infection, and the injured person may need to be treated with antibiotics, a tetanus booster or receive other medical care.

Q: What are some other less common health risks associated with pets?

A: Dogs and cats may serve as a source of ticks that could bite humans and cause disease. Depending on the type of tick, Lyme disease, Rocky Mountain spotted fever, or ehrlichiosis may be of concern, although pets themselves cannot transmit these diseases to people. Cats may spread cat scratch disease (bartonellosis) through bites or scratches. Bites from pet rats may transmit a disease called rat bite fever. Exposure to infected birds may lead to psittacosis, a bacterial infection that causes pneumonia. For this reason, it is often best to also house pet birds, especially parakeets, parrots, love birds, and canaries, away from the general shelter population.

Q: What can be done to minimize the health risk of pets in human shelters?

A: The following guidelines may help reduce risk of injury or disease if it is necessary to house pets in a public shelter:

The appropriateness of housing pets in public shelters should be carefully considered. Sometimes separate areas can be established for pets. If this is done, then these areas should be staffed with animal care personnel who have been trained in the handling of animals as well as appropriate approaches to infection control. Animal shelters or foster homes may be good alternatives.

If a pet is kept at a human shelter, it should not be allowed to freely roam the facility and should be kept under control at all times, either via caging or a leash. This is for the animal's safety, as well as that of the people living in the shelter.

All dogs, cats, and ferrets must have proof of current vaccination against rabies, or be vaccinated upon entry to the shelter.

Dogs and cats should be treated for intestinal parasites while staying at the human shelter. This is particularly important when the pet is younger than 6 months old.

Dogs and cats should be treated with medications to kill fleas and ticks. In doing so, care should be taken to administer treatments that are safe for that particular species of animal (i.e., not all treatments that are safe for dogs are safe for cats).

Furred or feathered pets should be housed in areas separate from people with allergies or asthma triggered by fur, feathers, or dander.

Cats should be kept in a cage with a litter box that is cleaned frequently (at least once every 24 hours). Pregnant women or immunocompromised people should not have contact with used litter.

Dogs should be walked regularly on a leash outside of the shelter to allow them to urinate and defecate in designated areas, and any feces should be immediately collected and disposed of.

Anyone bitten by an animal should speak with a healthcare provider to discuss associated concerns (e.g., tissue trauma, infection, rabies risk). Bites and scratches should be thoroughly

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cleaned with soap and water. Arrangements should be made to confine and observe a biting dog, cat, or ferret for a period of 10 days.

People caring for pets in shelters should practice good hygiene by cleaning up after their pets (e.g., disposal of feces) and frequently washing their hands.

Children younger than 5 years old should not handle reptiles without adult supervision, hand should always wash their hands after doing so. Hand washing should be monitored by an adult.

Pregnant women and immunocompromised people should avoid contact with cat feces, and with pet rodents such as hamsters, gerbils, and guinea pigs.

People should not share food with their pets, not allow pets to lick their faces.

For more information on the value of pets, and on keeping people and pets healthy please visit:

CDC Healthy Pets Healthy People
www.cdc.gov/healthypets

American Veterinary Medical Association
www.avma.org

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TAB E Animal Care & Handling Section 3: Saving the Whole Family

Nature and life have fury days. Tornadoes, hurricanes, floods, fires, blizzards, terrorism... Devastating natural and manmade disasters can ravage our lives. No one is exempt from the possibility of being affected personally. You need to prepare for yourself and your animals in case of disaster.

The American Veterinary Medical Association (AVMA) has developed this booklet to help you avoid having to leave your animals stranded in the event of a disaster or an evacuation.

Visit www.avma.org for the most current information and for links to additional Web sites.

Do Not Wait Until It Is Too Late

Countless times people have been told to leave their homes for a "short time" only to find that they cannot return for days or weeks. Even disasters like gas leaks and minor flooding can keep you from tending to your animals for extended periods of time. To prevent situations such as these TAKE YOUR ANIMALS WITH YOU.

It is best to be overly cautious during a disaster warning. Preparing ahead of time and acting quickly is the best way to keep you and your family, including your animals, out of danger. Familiarize yourself with each type of disaster that could affect your area, not forgetting a hazardous materials spill.

Be prepared for the possible disruption of services for extended periods of time, including electric, phone, and local food and water sources.

Having a plan in place and practicing the plan prior to a disaster will help you accomplish a successful evacuation and maintain the safety of your animals.

Preparing a Disaster Plan

Set up an appointment to talk to your VETERINARIAN about disaster planning.

Assemble an animal EVACUATION KIT.

Develop an evacuation plan for all your animals and practice the plan.

If you live in an apartment, make sure your animals are on record with the management and are able to evacuate via the stairwell. Dogs should be taught to go up and down stairs to better assist rescue personnel.

Keep written directions to your home near your telephone. This will help you explain to emergency responders exactly how to get to your home.

Identify alternative sources of food and water.

Have well maintained backup generators for use in food-animal production operations.

Keep all vehicles well maintained and full of gas.

Keep emergency cash on hand.

If you have horses or livestock, good barn and field maintenance can reduce danger.

Decide on the safest housing location if evacuation is impossible, realizing that the situation is still life-threatening. Assess the stability and safety of barns and other structures, promptly remove dead trees, and minimize debris in the fields and immediate environment.

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In Case You Are Not At Home

Preplace stickers on front and back house doors, barn doors, and pasture entrances to notify neighbors, fire fighters, police, and other rescue personnel that animals are on your property and where to find your evacuation supplies.

Provide a list near your evacuation supplies of the number, type, and location of your animals, noting favorite hiding spots, in order to save precious rescue time.

To facilitate a successful rescue, provide muzzles, handling gloves, catch nets, and animal restraints where rescue personnel can find them. Keep in mind that animals may become unpredictable when frightened.

Designate a willing neighbor to tend to your animals in the event a disaster occurs when you are not at home. This person should have a key to your home, be familiar with your animals, know your evacuation procedures, and know where evacuation supplies are kept.

In your evacuation kit, keep a pre-signed letter that releases your neighbor from responsibility if one of your animals becomes injured during the evacuation.

You may also want to have a pre-signed veterinary medical treatment authorization with your Evacuation Kit – this will aid your veterinarian if your animal must be treated during your absence.

Identification

Having identification on your animals, including rabies and license tags, if applicable, may help reunite you with your animal(s) in the event that you are separated. Identification should provide your name, home address, a phone number where you can be reached, and an out-of-state phone number of someone with whom you will be in contact during or soon after the disaster/evacuation. If possible, include your veterinarian's name, location, and phone number. Examples of some forms of identification are listed below:

Small Animal

collar tag (a piece of tape applied to the back of the collar tag can provide evacuation site information – use waterproof ink)

microchip

tattoo

temporary neckband

waterproof pouch attached to collar with identification information inside

many reptiles may be marked with a permanent felt-tipped marker

clear identification on cage/housing for confined animals

Equine

microchip

tattoo

halter tag

neck collars

leg band

brand

mane clip

luggage tag braided into tail or mane

clipper-shaved information in animals' hair

livestock marking crayon, non-toxic, non-water-soluble spray paint, or non-water-soluble

markers to write on the animals' side

permanent marker to mark hooves

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Livestock

neck chain
ear notches
leg band
ear tag
brand

livestock marking crayon, non-toxic, non-water-soluble spray paint, or non-water-soluble markers to write on the animals' side
wattle notching
ear tattoo
back or tail tag

Transportation/Housing

It is important to separate animals from different households as much as possible to maintain the best possible hygiene to decrease disease transmission.

Small Animal

Leash, collar, and/or harness for each pet.

Collapsible cage or airline approved carrier should be available for each pet, and bedded properly, for transportation and housing purposes – owning enough carriers to accommodate your pets facilitates a speedy evacuation and may mean the difference between the life or death of your pet.

Familiarize your animals with evacuation procedures and cages/carriers. Take the cage/carrier out several times a year and put dog or cat treats inside with blankets or toys. By doing this, you hope to reinforce positive feelings associated with the animal carrier.

Cat carriers should be large enough to hold a small litter pan and two small dishes and still allow your cat enough room to lie down comfortably or stand to use the litter pan.

Dog kennels or collapsible cages should be large enough to hold two no-spill bowls and still allow enough room for your dog to stand and turn around.

For added assurance, clearly label each carrier with your identification and contact information. Locate and PREARRANGE an evacuation site for your family and animals outside your immediate area. Ideally, this will be a friend/relative or a pet-friendly hotel that is willing to let your family and animals stay in the event of a disaster. Other possible animals housing options include veterinary hospitals, boarding kennels, and animal shelters.

Equine/Livestock

Equine/livestock evacuation can be challenging

Develop an evacuation plan and make sure that animals are familiar with being loaded onto a trailer.

Premises with facilities that are specifically designed to load and handle livestock will be much more successful in evacuating and relocating livestock.

Locate and prearrange an evacuation site for your animals outside your immediate area.

Possible sites include:

veterinary or land grant colleges
racetracks
show grounds
pastures
stables
fairgrounds
equestrian centers
livestock corrals
stockyards or auction facilities
other boarding facilities

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If you do not have enough trailers to transport all of your animals to an evacuation site quickly contact neighbors, local haulers, farmers, producers, or other transportation providers to establish a network of available and reliable resources that will provide transportation in the event of a disaster.

Veterinary Records

Make photocopies of important veterinary documents to store in the evacuation kit.

Vaccination records

Vaccination type and date

Rabies certificate, if applicable

Medical history

Important test results, such as Feline Leukemia/Feline Immunodeficiency Virus (FeLV/FIV), heartworm, equine infectious anemia (Coggins test), tuberculosis, and brucellosis

Medical conditions and medications (including drug name, dosage, and frequency of dosing)

If your animal has a microchip, a record of the microchip number

For cattle: If an individual animal is or has been medically treated and is still under a withdrawal period, a treatment record must be maintained. The record must include the animal's ID or group ID, date of treatment/s, the drug used and drug manufacturer's serial or lot number, dosage of drug administered, route and location of administration, and the person administering the drug. The earliest date the animal could clear the withdrawal period for the administered drug should also be listed.

Proof of Ownership

Make copies of registration information, adoption papers, proof of purchase, and microchip information to store in the evacuation kit. List each one of your animals and their species, breed, age, sex, color, and distinguishing characteristics.

Keep current photographs of your animals in the evacuation kit for identification purposes. Include yourself in some of the photos to help you reclaim your lost animal(s). Consider preparing waterproof "Lost Pet" signs with your animal's photo attached, your name, and your contact information to use in case your animal is lost. If your pet has a microchip, call the company to register your pet's information and make sure to keep that information updated.

List of Important Emergency Contacts

Prepare this list now before a disaster strikes. Include addresses and 24-hour contact numbers, if available. These contacts can be used by rescue personnel responding to disasters affecting your animals or by you during a disaster or an evacuation. Keep one copy near your telephone and one copy in your animal evacuation kit.

Numbers where you may be reached (pager, cell phone, work phone)

Your prearranged evacuation site

Local contact person in case of emergency when you are not available

Out-of-state contact person

Your veterinarian's name, clinic name, and phone numbers

Alternate veterinarian (30-90 miles away, provides boarding)

Boarding facility (local)

Hotels that allow pets (90 mile radius)

Local Animal Control

Local Police Department

Local Fire Department

Local Public Health Department

Local animal shelter

Local Red Cross chapter

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Local Humane Society
Local Society for the Prevention of Cruelty to Animals (SPCA)
List of internet "lost and found" animal sites

Additional contacts for equine/livestock owners:

State veterinarian
State veterinary colleges or land grant colleges of agriculture
Private stables/farms
County Extension office; this is especially important for livestock owners
Brand inspector, if applicable
Applicable state and county livestock associations
Racetracks
Fairgrounds
Show grounds
Stockyards
Equestrian centers
Local haulers or neighbors to help with transportation
Feed distributor
American Association of Equine Practitioners (http://aaep.org/emergency_prep.htm)
American Association of Bovine Practitioners (www.aabp.org)
American Association of Small Ruminant Practitioners (www.aasrp.org)
American Association of Swine Veterinarians (www.aasp.org)
USDA-APHIS Veterinarian-in-Charge (www.aphis.usda.gov/vs/nvap/vsoffice.html)
USDA-APHIS Area Emergency Coordinator

Evacuation Essentials

The following lists will help you prepare for your animal(s) in the event of a disaster. The evacuation kit should be assembled in easy-to-carry, waterproof containers. It should be stored in an easily accessible location away from areas with temperature extremes. Replace the food, water, and medications as often as needed to maintain their quality and freshness and in accordance with the expiration dates. Indicate, if applicable, medications that are stored elsewhere due to temperature requirements such as refrigeration.

Consult your veterinarian for advice on making an animal evacuation kit and first aid kit that is appropriate for your individual animals. It is important that you become familiar with the items in your kit and their uses. Your veterinarian may recommend an animal first aid book to include in your kit. Consult your veterinarian regarding emergency first aid procedures and administration of any medications.

Small Animal Evacuation Kit

2-week supply of food (dry & canned)
2-week supply of water in plastic gallon jugs with secure lids
Batteries (flashlight, radio)
Cage/carrier (one for each animal, labeled with your contact information)
Can opener (manual)
Cat/wildlife gloves
Copies of veterinary records and proof of ownership
Emergency contact list
Familiar items to make pets feel comfortable (favorite toys, treats, blankets)
First aid kit (see below)
Flashlight
Instructions

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DIET: record the diet for each individual animal, including what not to feed in case of allergies.
MEDICATIONS: list each animal separately, including dose and frequency for each medication.
Provide veterinary and pharmacy contact information for refills.
Leash and collar or harness (for each animal)
Litter, litter pan, litter scoop
Maps of local area and alternate evacuation routes (in case of road closures)
Muzzles (dog or cat)
Newspaper (bedding, litter)
No-spill food and water dishes
Paper towels
Radio (solar and battery operated)
Spoon (for canned food)
Stakes and tie-outs
Trash bags

Small Animal First Aid Kit

Consult your veterinarian when developing the first aid kit. The items below serve only as examples of what may be included in a small animal first kit.

- Activated charcoal (liquid)
- Anti-diarrheal liquid or tablets
- Antibiotic ointment (for wounds)
- Antibiotic eye ointment
- Bandage scissors
- Bandage tape
- Betadine® (povidone-iodine) or
- Nolvasan® (chlorhexidine), scrub and solution
- Cotton bandage rolls
- Cotton-tipped swabs
- Elastic bandage rolls
- Eye rinse (sterile)
- Flea and tick prevention and treatment
- Gauze pads and rolls
- Ice cream sticks (which may be used as splints)
- Isopropyl alcohol/alcohol prep pads
- Latex gloves or non-allergic gloves
- Liquid dish detergent (mild wound and body cleanser)
- Measuring spoons
- Medications and preventatives (such as heartworm prevention), minimum 2-week supply, with clearly labeled instructions. Provide veterinary and pharmacy contact information for refills
- Non-adherent bandage pads
- Saline solution (for rinsing wounds)
- Sterile lubricant (water based)
- Styptic powder (clotting agent)
- Syringe or eyedropper
- Thermometer (digital)
- Tourniquet
- Towel and washcloth
- Tweezers

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Livestock Evacuation Kit

7-10 day supply of feed and water
Batteries (flashlight, radio)
Copies of veterinary records and proof of ownership
Cotton halter
Duct tape
Emergency contact list
Flashlight
Heavy gloves (leather)
Instructions

- DIET: record the diet for your animals.
- MEDICATIONS: record the dose and frequency for each medication. Provide veterinary and pharmacy contact information for refills.

Knife (sharp, all-purpose)
Maps of local area and alternate evacuation routes (in case of road closures)
Nose leads
Plastic trash cans with lids (can be used to store water)
Portable livestock panels
Radio (solar and battery operated)
Rope or lariat
Shovel
Water buckets
Whip, prods
Wire cutters

Equine Evacuation Kit

7-10 day supply of feed, supplements, and water
Bandannas (to use as blindfolds)
Batteries (flashlight, radio)
Blankets
Copies of veterinary records and proof of ownership
Duct tape
Emergency contact list
First aid kit
Flashlight
Fly spray
Grooming brushes
Heavy gloves (leather)
Hoof knife
Hoof nippers
Hoof pick
Hoof rasp
Instructions

- DIET: record the diet for your animals
- MEDICATIONS: record the dose and frequency of each medication. Provide veterinary and pharmacy contact information for refills.

Knife (sharp, all-purpose)
Leg wraps and leg quilts
Maps of local area and alternate evacuation routes (in case of road closures)
Non-nylon halters and leads (leather/cotton)
Paper towels
Plastic trash cans with lids (can be used to store water)
Radio (solar and battery operated)

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Rope or lariat
Shovel
Tarpaulins
Trash bags
Twitch
Water buckets
Wire cutters

Equine First Aid Kit

Consult your veterinarian when developing the first aid kit. The items below serve as examples of what may be included in an equine first aid kit.

Antibiotic ointment (for wounds)
Antibiotic eye ointment
Bandage scissors
Bandage tape
Betadine® (povidone-iodine)
Or Novalsan (chlorhexidine), scrub and solution
Cotton bandage rolls
Cotton-tipped swabs
Elastic bandage rolls
Eye rinse (sterile)
Gauze pads and rolls
Isopropyl alcohol/alcohol prep pads
Medications (minimum two week supply, with clearly labeled instructions)
Non-adherent bandage pads
Non-allergenic gloves
Saline solution (for rinsing wounds)
Sterile lubricant (water-based)
Thermometer (digital)
Tincture of green soap
Tourniquet
Towel and washcloth
Tweezers

Evacuating Other Types of Pets

Identification, medical records, and proof of ownership are equally as important for other kinds of pets as for the aforementioned animals. Transportation of these species may require additional attention and care in order to decrease chances of stress-induced illness and death. It is important to keep pets from different sources as separate as possible and maintain the best possible hygiene in order to decrease disease transmission.

Birds

Transportation of pet birds is best accomplished using small, secure, covered carriers to avoid injury.

If traveling in cold weather, always warm the interior of your vehicle before moving your bird(s) from the house to the vehicle.

Transfer your bird(s) to a standard cage upon arrival at the evacuation site; covering the cage may reduce stress; this transfer should occur in a small, enclosed room to reduce the risk of escape.

Birds should be kept in quiet areas and not allowed out of the cage in unfamiliar surroundings. Fresh food and water should be provided daily.

If your bird appears ill, be sure to lower the cage perch, food dish, and water bowl and consult with a veterinarian as soon as possible.

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In addition to the pertinent items listed under small animal evacuation kit, include:

- necessary dietary supplements
- plant mister for cooling birds in hot weather
- hot water bottle for warming birds in cold weather
- Materials to line the bottom of the cage
- cage perch
- toys

Reptiles

Transportation of small reptiles can be accomplished using a pillowcase, cloth sack, or small transport carrier.

If possible, promote defecation before transporting the animal (for example, allow tortoises, lizards, or snakes to soak in a shallow water bath before bagging or caging).

Transfer your pet to a secure cage at the evacuation site as soon as possible and if appropriate.

In addition to pertinent items listed under small animal evacuation kit, include:

- essential dietary supplements
- water bowl of soaking
- spray bottle for misting
- extra bags or newspapers
- heating pad
- battery-operated heating source or other appropriate heat source.
- extra batteries
- appropriate handling gloves/supplies
 - Since most reptiles do not eat daily, feeding during evacuation circumstances may increase stress. Determine if feeding is in the animal's best interest, especially if the container may become fouled.
 - Housing at the evacuation facility should be consistent with that required by the reptile. The enclosure should, if possible, be placed in a controlled environment, away from areas of heavy traffic, loud noises, and vibrations.
 - Make sure that the container housing the reptile is escape proof. Nonetheless, plan for escapes.

Amphibians

Transportation of amphibians can be accomplished by using water-tight plastic bags, such as the ones used for fish transport, or plastic containers, such as plastic shoeboxes or plastic food containers with snap-on lids.

It is best to place only one species or if possible only one animal per container.

Small ventilation holes should be placed in the upper wall or plastic lid. Smooth the inner surface of the holes with a file or sandpaper to prevent injury to the animal.

For terrestrial or semi aquatic amphibians use a tiny amount of water, or moistened paper towels, clean foam rubber, or moss as a suitable substrate.

For aquatic species, fill the plastic bag one third full of water, then inflate the bag with fresh air and close with a knot or rubber band. It is best to use clean water from the animal's enclosure to minimize physiologic stress.

Care must be taken to monitor water and air temperature, humidity, lighting, and nutrition during the time that the animal will be in the evacuation facility.

Housing at the evacuation facility should be consistent with that required by the amphibian.

The enclosure should, if possible, be placed in a controlled environment, away from heavy traffic, loud noises, and vibrations.

Make sure that the container housing the amphibian is escape proof. Nonetheless, plan for escapes.

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Take an extra container of water, clean moist paper towels or clean moss as is appropriate in case any of your pet's containers break or leak.

Feeding during evacuation circumstances may increase stress so it may not be in the animal's best interests to supply food, especially if the water may become fouled.

Other Small Animals

Transportation of most small mammals (ferrets, hamsters, gerbils, rats, mice, guinea pigs, etc.) is best accomplished using a secure, covered carrier or cage to reduce stress.

In addition to the pertinent items listed under small animal evacuation kit, include:

- necessary dietary supplements
- extra bedding materials
- appropriate exercise equipment

An evacuation order had been issued NOW WHAT DO YOU DO?

Evacuate your family, including your animals, as early as possible. By leaving early, you will decrease the chance of becoming victims of the disaster.

Bring your dogs, cats, and other small animals indoors.

Make sure all animals have some form of identification securely fastened to them (or their cage, in the case of smaller, caged pets). The utilization of permanent identification is encouraged.

Place all small pets, including cats and small dogs, inside individual transportable carriers.

When stressed, animals that normally get along may become aggressive towards each other.

Secure leashes to all large dogs.

Load your larger animal cages/carriers into your vehicle. These will serve as temporary housing for your animals, if needed.

Load the animal evacuation kit and supplies into your vehicle.

Call your prearranged animal evacuation site to confirm availability of space.

Implement your equine/livestock evacuation plan.

If evacuation of horses/livestock is impossible, relocate them to the safest place possible based on the imminent disaster and your environment, realizing that the situation could be life threatening.

Make sure they have access to hay or an appropriate and safe free-choice food source, clean water, and the safest living area possible including high ground above flood levels.

Do not rely on automatic watering systems, because power may be lost.

The decision to leave your horses/livestock in the field or in the barn should be based on risks of injury resulting from the disaster as well as from the horse's/livestock's immediate environment during that disaster.

Factors to consider include the stability of the barn, the risk of flooding, and the amount of trees and debris in the fields.

If time permits, secure or remove all out-door objects that may turn into dangerous flying debris.

After the disaster

Survey the area inside and outside your home to identify sharp objects, dangerous materials, dangerous wildlife, contaminated water, downed power lines, or other hazards.

Examine your animals closely, and contact your veterinarian immediately if you observe injuries or signs of illness.

Familiar scents and landmarks may have changed, and this can confuse your animals.

Release equine/livestock in safe and enclosed areas only. Initial release should take place during daylight hours, when the animals can be closely observed.

Release cats, dogs, and other small animals indoors only. They could encounter dangerous wildlife and debris if they are allowed outside unsupervised and unrestrained.

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Release birds and reptiles only if necessary and only when they are calm and in an enclosed room.

Reintroduce food in small servings, gradually working up to full portions if the animals have been without food for a prolonged period of time.

Allow uninterrupted rest/sleep for all animals to recover from trauma and stress.

If your animals are lost, physically check animal control and animals shelters DAILY for lost animals.

Post waterproof lost animal notices and notify local law enforcement, animal care and control officials, veterinarians, and your neighbors of any lost animals (utilize online resources for lost and found animals).

The American Veterinary Medical Association

The American Veterinary Medical Association (AVMA) is a professional association of more than 76,000 member veterinarians. The mission of the AVMA is to advance the science and art of veterinary medicine, including its relationship to public health, biological science, and agriculture. The Association is the recognized national voice for veterinarians in presenting their views to government, academia, agribusiness, non-profit organizations, animal owners, and other concerned members of the public.

AVMA Emergency Preparedness and Response Efforts

The AVMA has a number of educational resources for veterinarians, emergency preparedness officials, and the public regarding emergency preparedness and response. Several brochures are available, including Saving the Whole Family, Disaster Preparedness for Veterinary Practices, and the AVMA Disaster Preparedness and Response Guide. In addition, the AVMA's Disaster Preparedness website (www.avma.org/disaster) contains a multitude of resources, including training opportunities available within states, state legislative and regulatory resources, and other emergency preparedness resources.

AVMA Veterinary Medical Assistance Teams

A major initiative pursued by the AVMA has been its disaster preparedness and response efforts with the federal government. With the signing of a Memorandum of Understanding (MOU) in May 1993, veterinary services became incorporated into the Federal Response Plan, now the National Response Framework, for disaster relief as part of the National Disaster Medical System (NDMS). The AVMA's pioneering efforts in developing a world-class veterinary response team program, the Veterinary Medical Assistance Teams (VMAT), resulted in this MOU between the AVMA and the U.S. Public Health Service. The agreement yielded 14 years of collaboration between the federal government and the AVMA, during which time the AVMA VMAT provided on-the-ground veterinary response during times of national emergencies. As our world has changed since 1993, and federal laws have changed to address new national security challenges, so has the AVMA's part in federal emergency response. The AVMA is proud to have developed the model of what is now the NDMS National Veterinary Response Teams (NVRT). There are now two distinct programs, the federal NVRT program and AVMA's VMAT program. The AVMA looks forward to continued communication with the federal government on emergency issues and other critical issues. Now, the role of the AVMA VMATs has transitioned from the federal level to serve at the state and local level as early assessors of animal and veterinary medical infrastructure during emergencies and as educators in non-urgent times.

The AVMA VMAT Mission: To provide, upon request by a state, operational all hazards, all species emergency response and preparedness programs to that state's animal health authorities, veterinary medical associations, and other relevant organizations.

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The American Veterinary Medical Foundation

Founded in 1963, the American Veterinary Medical Foundation (AVMF) is a 501(c)(3) organization that raises and disburses funds for initiatives supporting its mission statement, "Advancing the care of animals with an emphasis on disaster preparedness and response, and animal health studies." Contributions made to AVMF are tax deductible. The AVMF Animal Disaster Relief and Response Fund provides support for emergency veterinary aid for the health, safety, and welfare of animals affected by disasters at the local level, emergency preparedness at the state level, and the Veterinary Medical Assistance Teams at the national level.

Contact and Contribution Information:

For additional information about the AVMA disaster relief efforts:

AVMA
1931 N. Meacham Rd., Suite 100
Schaumburg, IL 60173-4360
1-800-248-2862 ext 6632
www.avma.org/disaster

To contribute to the AVMF Disaster Relief Emergency Fund:

AVMF
www.avmf.org
1-800-248-2862 ext 6689

Acknowledgements:

The AVMA thanks:

The AVMF for its continued support of AVMA disaster relief efforts
The Iams Company for its financial support of AVMF disaster relief initiatives which resulted in the initial development and distribution of this resource
The American Association of Equine Practitioners
http://aaep.org/emergency_prep.htm
The American Association of Bovine Practitioners
www.aabp.org
The Association of Reptilian & Amphibian Veterinarians
www.arav.org
Association of Avian Veterinarians
www.aav.org
American Association of Avian Pathologists
www.aaap.info
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As the winds blow on
And the waters rise deep
You can hear their cries
You can hear them weep
Those you have brought into your home
Those who are loyal, caring and warm.
You feed them each day, and tell them to stay
And now when they need you, don't turn them away.
When you vowed to love, when you vowed to care
You vowed to sacrifice, and vowed to prepare.

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So now in times of trouble and strife
You are responsible for more than one life.
You need to plan, think, and prepare
For all those who need you
Those who depend on your care.

— Cindy Swancott Lovern

Revised 08/08

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TAB E

Animal Care & Handling

Section 4: Guidelines for Horses During Disasters

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Containment

Free roaming horses will naturally group together and move as a group. Many horses will allow themselves to be caught, especially if they are encouraged with grain. Catching a horse can be done by first placing a rope loosely around its neck, and then fitting on a halter. If a large group of horses will not allow themselves to be caught, they should be rounded up in small groups and corralled into smaller confinements. If the horses cannot be caught at all and have not suffered any obvious injuries, they may be kept fenced in and fed without further human contact. When moving horses into unfamiliar environments, the handler should allow them time to investigate their new surroundings. Not all horses are familiar with being tied to a stationary object. If horses must be tied, use a quick-release knot. Many horses have only been kept in wooden fenced paddocks. If wire fencing is all that is available, tie clearly visible cloth to the top wire every 6-10 feet.

Identification

Many horses are permanently identified with a tattoo on the inside of their upper lip, freeze brands under the mane, and brands on the outsides of their hind limbs. These are helpful in recording the identification of a horse. Other methods for identification that can be used include neck banding, microchip injection, painting or etching the hooves, and describing all whorls of the horses' coats. Photographs of the right and left sides of the body, medial and lateral aspects of the lower legs, and the face of a horse are helpful in matching owners' descriptions when trying to locate misplaced animals.

Behavior

Most horses are familiar with people and are used to being handled. When new horses are grouped together, they will seek to establish a hierarchy. If this occurs under confined conditions horses may become violent, resulting in serious injuries to each other and to persons handling them. Horses show signs of aggression toward people by pinning their ears back, extending their necks to bite, or turning their hind ends toward an approaching person. Special care should be taken to avoid standing between mares and their foals.

Methods of Restraint

Most horses will cooperate once they have a halter and lead rope on. Persons unfamiliar with horses' behavior should always work in pairs. Both persons should always stand on the same side of the horse.

Apprehensive horses can be twitched on the nose, or by grabbing a handful of skin on the lower side of the neck. Alternatively, sedatives can be used (see medications chart). Sedated horses should not be worked on until they are fully sedated. This usually takes 5-10 minutes after intravenous injection. Sedated horses may still kick if abrupt movements or sounds startle them.

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Health Concerns

Changes in diets predispose horses to colic, laminitis, and hyperlipemia. Mixing of horses from various sources predisposes them to contagious respiratory disease. The spread of contagious disease can be minimized by vaccinating all horses against Equine Herpes Virus, Equine Influenza, Eastern and Western Equine Encephalitis, West Nile Virus and tetanus. Any horse that will be spending more than a few days grazing on shared pasture should be dewormed with a paste dewormer. Consideration should also be given to the horse's Equine Infectious Anemia status.

Typical Weights

Horses are measured in "hands". One hand is equal to 4 inches. Horse's heights are measured at the highest point of the shoulder (withers). Typical weights and sizes of horses are:

	ADULT WEIGHT (lb.)	NEWBORN WEIGHT (lb.)	APPROX. HEIGHT (HANDS)
Giant Breeds	1,500-2,000	150-200	>17
Full Size	750-1,200	75-100	15-17
Pony	500-750	50-75	<15
Miniature	200-400	20-40	<40 inches

Typical Feeding Requirements of Horses

Ideally horses should be fed individually or in small groups. They should be fed twice a day at regular intervals. If horses are fed in groups, the most aggressive ones should be fed first.

If that is not possible, observation at feeding time should ensure that all horses allow each other access to feed and water.

Under resting conditions and when ambient temperatures are >40° F, horses should consume about 2% of their body weight per day in dry matter. About 75% of this should be derived from forages (hay) and 25% from grain. Oats and sweetfeed are the preferred grains. Total feed intake depends on body size. For example, a 1,000 lb. Horse will require 7.5 lb. (approximately 1/5 of a rectangular bale) of hay and 2.5 lb. of grain at each feeding. This amount should be fed in the morning and in the evening.

In addition, horses require about 2% of their body weight in fresh water per day, and 1 - 2 oz. of loose salt. All of the feeding requirements should be doubled for lactating mares and increased if ambient temperatures fall below 40° F.

Estimating the amount of feed required for a group of horses starts with estimating the biomass of horses. To determine the biomass of a population the approximate weight of all horses should be estimated and added together. Using this figure it is possible to calculate the amount of hay, grain, water, and salt needed for all horses.

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Shelter and Housing

Ideally, horses should be kept in small groups at pasture or in individual stalls. The amount of bedding required depends on the type of flooring. Porous flooring with plenty of lime mixed into it requires the least additional bedding. Concrete flooring requires the most. The approximate amount of bedding that will be required is one bale of straw per 12X12 ft. stall. Straw is the preferred bedding under emergency conditions, as it is likely to be available, is space efficient, and is most degradable. Alternatively, 2 bales per stall of conifer wood shavings or shredded newspapers can be used. Black walnut and exotic wood shavings cannot be used.

Paddocks for horses should be surrounded by fencing materials that are free of projections. Barbed wire is not a suitable material for fencing horses. Electric wire fencing can be used, but it must be made visible to the horses by ribbons at frequent intervals.

Sanitation

Horses will produce 0.5% of their body weight per day of manure. Manure should be removed from stalls at least once a day. For horses at pasture, manure should be collected once a week if possible. Manure should be stacked in neat piles, with minimal surface area, as this promotes composting and reduces fly hatching. To further reduce fly burdens, the manure pile can be sprayed every 3 days with fly spray.

Horses void about 0.5% of their body weight as urine each day. Urine is a major attractant for stable flies. To counteract this the stall bedding should be completely removed at least every third day.

The total amount of manure and bedding that will accumulate can be calculated from the number of horses, the average amount of manure produced, plus the number of bales of straw used. Manure piles should be located at least 200 yards from the stabling facilities.

Zoonoses

Salmonella is endemic in many horse populations. Stressed horses, such as those surviving a major disaster, are most likely to suffer from clinical salmonellosis and develop fulminant diarrhea. Horses that develop diarrhea may have a guarded to poor prognosis and are a potential source of infection to other horses and personnel. For these reasons, serious consideration should be given to euthanasia, especially if the horse can only be maintained by compromising the level of care to other horses.

Methods of Euthanasia

Prior to euthanasia, disposal must be considered. It at all possible, it is easiest to walk the horse to the site where the carcass will be disposed of, rather than transport a dead horse to a disposal site. The preferred method for euthanasia is by lethal intravenous injection of sodium pentobarbital. Carcasses of horses that were killed using chemical methods must be disposed of quickly and thoroughly, as the meat is heavily contaminated and poisonous to any animal that eats it. To kill a horse by gunshot, the bullet must enter the horse's skull just above the cross over point of imaginary lines between the medial canthus of the eyes and the opposite base of the ears. The bullet should be directed toward the center of the neck. Horses may thrust themselves forward when this method is used. If adequate restraint can be assured the use of captive bolts may be considered. Per rectal aortic laceration is not a suitable method of euthanasia.

Useful Drugs and Common Dosages¹

For a full-size horse, drug administration sites are: jugular vein for intravenous compounds, lower neck or pectorals for single intramuscular injections not exceeding 10 ml (e.g., vaccines, sedatives), and gluteal muscles and hamstrings for intramuscular volumes exceeding 10 ml (i.e., most antibiotics). Smaller horses have lower thresholds for maximal volumes.

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Subcutaneous drugs can be given under the skin of the neck. Inexperienced handlers should always work in pairs when administering drugs to horses.

(Rev. 08/08)

COMMON DRUGS USED IN EQUINE EMERGENCY MEDICINE¹

ANTIBIOTICS

DRUG	COMMON TRADE NAME	DOSE PER LB.	TYPICAL DOSE PER 100 LB.	ADMINISTRATION	THERAPEUTIC SAFETY MARGIN	POTENTIAL COMPLICATIONS
Procaine Penicillin	Many names	10,000 units	3 ml	BID; IM	high	score injection site, "procaine seizure"
Potassium Penicillin	Many names	10,000 units	depends on concentration	QID; IV	high	none
Tetracycline	Oxybiotic 100	3 mg	3 ml	SID; IV	moderate	diarrhea
Trimethoprim Sulfas	SMZ/TMP, Tribissen 960	15 mg (combined products)	1+1/2 960 mg tablet	BID; PO	high	diarrhea
Gentamicin	Gentocin (100 mg/ml)	1.5 mg	1.5 ml	BID; IV, IM	low	renal failure
Ceftiofur	Naxcel	1 mg	2 ml	BID; IV, IM	high	none

ANTI-INFLAMMATORIES

Phenylbutazone	Butazolidin, Phenylzone	1-2 mg	Tablets/Paste: 200 mg; Inject.: 1 ml	SID, BID, available as PO and IV preparations	low	GI ulceration, renal failure
Flunixin meglumine	Banamine	0.5 mg	1 ml	BID; IV, IM	moderate	GI ulceration
Meclofenamic Acid	Ketophen	1 mg	1 ml	SID; IV	moderate	GI ulceration
Prednisone	Prednisone (tablets)	<0.5 mg		SID; PO	high	GI ulceration
Dexamethasone	Azium 4 mg/ml	<0.1 mg	2.5 ml	SID; IV, IM	moderate	laminitis

SEDATIVES

Xylazine	Rompun (100 mg/ml)	<0.5 mg	0.2 ml	IV, IM	high	hypotension
Acepromazine	PromAce	0.025 mg	0.25 ml	IV, IM, SC	high	paraphimosis

MISCELLANEOUS

Butorphanol (analgesia) ²	Torbagesic	0.05 mg	0.5 ml	IV, IM	moderate	anxiety
Ketamine (general anesthetic) ²	Ketaset	1 mg	1 ml	IV bolus only	high	anxiety
Furosemide (diuretic)	Lasix	1 mg	2 ml	SID; IV, IM	moderate	dehydration
Pentobarbitone (euthanasia solution) ²	Uthol	50 mg	10 ml	IV only	low	death
Ivermectin (dewormer)	Ivomec	0.02 mg	see calibration	PO only	high	none
<i>Tetanus antitoxin</i>	Tetanus antitoxin	1,500 units	5 ml	SID; IV, IM, SC	high	hepatitis

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Sedation

After administering sedatives to horses, one should wait until the sedative has had full effect before performing any procedures. Combining sedatives and narcotics such as Rompun, Acepromazine, and Torbugesic in a volumetric ratio of 3:2:1 can be given to effect to a fractious horse for profound sedation.

General Anesthesia

General anesthesia can be achieved for 20 to 30 minutes by use of a combination of xylazine and ketamine. After giving the xylazine, one should wait until the horse holds its head lower than its withers before giving the ketamine.

1. Drugs and dosages were recommended by authors. Veterinarians should consult the manufacturer's literature prior to use. Not all of the drugs have been approved for use in horses.
2. Controlled substance

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TAB E Animal Care & Handling Section 5: Emergency Procedures in Equine Field Service

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This paper is written as a review of, and guide to the management of some emergency situations in an equine field service. It can be used as an organizing guide for a veterinarian and the staff members of a practice, and to unite their ways of dealing with these situations. It is not a detailed document describing the most extensive ways to handle every practice emergency. Some of the medications used in emergencies are not used frequently. Therefore, the drugs and their dosages described or referenced in this paper should be examined thoroughly by the administering veterinarians, and used after applying careful judgment in each clinical situation. Preparation for an emergency situation is the primary way an emergency can become less stressful for the equine practitioner, the practice's employees, clients, and the surrounding public. A monthly review of emergency materials, new medications, and procedures will help reduce the denial of reality that an emergency will not happen in the practice.

Group Emergencies (R. A. Mansmann)

I. Community Emergency Preparedness

A model for a community equine assistance and evacuation team has been published.¹ This volunteer group is an extension of the County Office of Emergency Services, operating under the auspices of the County Animal Control, with significant assistance from the local humane society. The goals are to provide help to horse owners and veterinarians for individual disasters such as trailer accidents and horses stuck in various precarious situations. It can also provide for disaster planning for all major types of disasters, including earthquakes, fires, hurricanes, etc. The basis of the organization is three committees: first, the Organizing Committee which provides communication, continuing education, and interaction with County officials; second, the Trailering Committee which organizes and trains volunteers with their trucks and trailers; and third, the Billeting Committee which identifies central emergency facilities and manages these facilities during a disaster. Another group in San Diego affiliated with their Humane Society, has been in existence since 1972, and operates in a military-like format with volunteers.² Continued stimulation of volunteer organizations between disasters is important to keep preparation ready.³

II. Herd Emergencies

When a horse or foal is first observed sick or dead, it becomes difficult to determine whether this is the onset of a herd situation or a single occurrence. Will the problem affect other horses on the farm, the neighboring horses, or become a serious problem for all the horses in the practice? Besides microorganism-caused contagious problems, there are lists of both naturally occurring and man-made herd emergencies. 4,5,6

In any potential herd problem you need to discuss your medical information carefully and thoroughly with the owners and their professional help. Be particularly careful of information given to boarders, visitors, and the media, especially without consultation with the owners. Involving veterinary expertise to help in these situations is better sooner than later.

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Consider the following in herd emergencies:

- 1 Identify monitoring signs (temperature, depression, discharge, etc.) and set up a chart for each normal horse. Give attendants times when to observe and record.
- 2 At minimum, obtain sera and freeze from any suspect horse.
- 3 Reduce stressful activity for all well horses.
- 4 Stop all horses from moving on and off the facility.
- 5 Reduce human traffic on farm.
- 6 Examine paddocks, pastures, and feed closely.
- 7 Stop all feeding of present stores of hay and grain. Keep samples for future testing. Obtain new temporary feeds from a different source.
- 8 Stop all medications and supplements, and save samples. Obtain new ones from a different source.
- 9 Examine water sources thoroughly. Save samples.
- 10 Photographs may be helpful.

Isolation of infected horses when contagion is suspected should be accomplished after the above considerations have occurred. Isolation within the herd can be quite difficult for a truly contagious organism. A thorough evaluation of an epidemic of neonatal Salmonella ohio diarrhea demonstrates how in-depth studies may be needed to control a contagion.⁷

Trauma Emergencies and Procedures (J.S. Jorgensen)

I. Sudden Death

One of the most alarming experiences for a horse owner is watching a horse die suddenly, or finding a horse dead in a stall or pasture with no previous warning. Veterinarians are often called with the hope that a specific etiology can be found, especially if more than one horse is involved or foul play is suspected. It is important to convey to clients at the outset that a cause may not be found even with a thorough and extensive investigation. A complete history and a thorough examination of the immediate environment are necessary. Usually a necropsy is required. Sampling should include fixed tissues for histopathology, sterile samples for culture or microbiology, and frozen tissues for toxicology. Samples should be submitted as soon as possible for optimal results. In addition, body fluids such as pericardial fluid, peritoneal fluid, pleural fluid, cerebrospinal fluid, and urine should be collected and submitted. Severe hemorrhage or acute toxicity are the most common causes of sudden death. The most common sources of hemorrhage include: pulmonary, gastrointestinal, CNS, renal, and arterial. If toxic substances are suspected, submit samples of liver, kidney, urine, blood, fat and stomach contents as well as any suspicious environmental sources.^{8,9}

II. Fracture First Aid

A limiting factor in fracture repair is the condition of the soft tissue surrounding the fracture site at initial presentation to the surgical repair center. This may be more important than the fracture itself. Therefore it is of utmost importance to protect the surrounding soft tissues from further damage when splinting the fracture for transport to a hospital.¹⁰
Splinting Techniques¹⁰⁻¹³

Forelimb:

Phalangeal and distal metacarpal fractures, and distal tendon ruptures: align dorsal cortices of the distal phalanges in a vertical position (flexed hoof) by taping the limb to a

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splint applied to the dorsal or plantar surface of the limb (e.g. rasp, PVC pipe) before cast application.

Midforelimb:

Robert-Jones bandage, using plenty of cotton, with rigid external splints such as strips of PVC pipe or wood placed at ninety-degree angles to each other (i.e. cranial and lateral or medial). The total bandage diameter should be three times the leg diameter.

Mid and Proximal Radius:

Counteract abducting forces at site of fracture with a full-limb Robert-Jones bandage, incorporating a splint (e.g. PVC pipe) that extends up lateral side of shoulder.

Proximal to elbow joint:

There is substantial muscle coverage, and splinting the limb may actually contribute to destabilization of the fracture. However, applying a full-limb Robert-Jones bandage may facilitate locomotion and comfort sufficiently to enable transportation.

Hindlimb:

Distal hindlimb same as distal forelimb.

Mid and proximal metatarsus:

Same for metacarpus, although the splint is best applied along the caudal surface of the metatarsus, because of the shape of the hindlimb.

Fracture of tibia and tarsus:

Need to counteract abduction with a full-limb Robert-Jones bandage, incorporating a lateral splint that extends up to the hip; this may be very difficult to construct in order to fit to the leg.

Femur requires no splinting.

Always apply an adequate support bandage on the opposite leg.

Transport: Horses with forelimb fractures should be placed in the trailer facing backwards, whereas horses with hindlimb fractures should be facing forward in order to alleviate concussion on the affected leg during acceleration and deceleration. Judicious use of xylazine is recommended in fracture transport since it has bone analgesic as well as sedative effects.¹⁰ Larger doses may cause clinically damaging ataxia.

III. Emergency Kit

An emergency kit is an essential item for a field service truck. It needs to be easily accessible and properly identified so that anyone could find it and bring it to the attending veterinarian when needed. It should be kept in the same area as the orthopedic splint material. The following list is an example of what an emergency kit could contain, and it should be modified to suit a particular practice's needs. The inventory list and drug dosages with conversion to volumes should be taped in the kit. Also, a list of phone numbers including poison control, state veterinarian, local police, and fire department should be attached to your kit.

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Emergency Kit Contents:

Extra Stethoscope

Catheter Kit: variety of catheters, needles and syringes, surgical scrub material, clippers, extension sets, IV caps, administration sets, suture material or super glue, adhesive tape, heparinized saline solution (2-4 units/ml for heparin flush), scissors, scalpel blades.

Tracheal Tube Kit: Clippers, surgical scrub, sterile #10 blades, and 2 sterile tracheal tubes (1 for an adult and 1 for a foal), adhesive tape.

Drugs: See Table 1.

Splint Material: PVC pipe pieces (at least 3 and 6 foot long that can be cut down to size), hack saw, sheet cotton, roll gauze, and adhesive tape.

IV. Catheterization

Each practitioner has a preferred method of placing intravenous catheters. In many emergency situations having easy access to a peripheral vein for quick drug administration can be important. Placing the catheter with aseptic technique is very important. If haste in the emergency situation prevented adequate aseptic preparation, when time permits the catheter should be resituated aseptically. Thrombophlebitis is a common complication of catheterization and catheter-related sepsis should be considered in the event of unexplained fever or deterioration of the clinical condition as patient care proceeds.¹⁴

Either attach a catheter cap or extension set to the catheter, and flush the system with heparinized saline. Secure the catheter and extension set in place with suture material or glue.

Medical Emergencies (C. King)

I. Anaphylaxis and Drug Reactions

Anaphylaxis is a severe hypersensitivity reaction which can rapidly result in death, even with prompt and appropriate therapy. The immunologic event is complex, with the reaction being either localized or generalized. The target organs in the horse are the lungs and the gastrointestinal tract.¹⁵⁻¹⁷ Several pharmaceutical agents have been reported to cause anaphylactic and anaphylactoid reactions in horses, including trimethoprim/sulfonamide antibiotics, vaccines, sera, thiamine, vitamin E/selenium preparations, anthelmintics, penicillin, halothane, thiamylal and guaifenesin.^{16,17} Onset of clinical signs may occur within 1-2 minutes or as long as 30 minutes following exposure to the antigen.

Treatment recommendations include the administration of epinephrine at a dose rate of 0.01-0.02 mg/kg (= 4-9 ml of 1:1000 solution for a 450 kg horse)¹⁸ given intravenously, intramuscularly, or into the trachea if venous access is difficult. Epinephrine should not be given subcutaneously in an emergency situation because the marked vasoconstriction which results reduces systemic absorption of the drug. Epinephrine may be repeated at 3-5 minute intervals as required.

Glucocorticoids should also be administered to prevent further production of chemical mediators. However, dose rates for anaphylactic shock in horses remain empirical. The recommended dose rate in horses for dexamethasone is 0.1-0.2 mg/kg intravenously or intramuscularly,¹⁸ although texts covering the treatment of shock in other species advocate doses of up to 10 mg/kg. Antihistamines are of limited use in anaphylactic shock in horses.

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Fluid therapy may be beneficial in protracted cases of anaphylaxis, particularly if diarrhea is present.

Procaine penicillin can cause acute and often spectacular reactions, despite careful administration. These reactions are generally not fatal, and are more characteristic of acute procaine toxicity¹⁹ or accidental intravascular injection¹⁷ than anaphylaxis. Often the self-trauma which occurs when the horse runs into a fence or other surrounding structures is more damaging than the reaction itself. Clinical signs may begin during or within 30 seconds of drug administration, and include agitation, sweating, hyperemic mucous membranes, muscle tremors, ataxia, fear and escape behaviors, reckless galloping, and collapse.¹⁹ The reaction usually lasts less than 10 minutes, and most horses are relatively normal by 30 minutes post-injection, even without treatment. Planning ahead for such a reaction by holding the horse properly in a safe enclosed place may be helpful. However, as soon as the first signs begin, try to confine the horse in a safe area, such as a closed, dark stable. Restraint of the horse is unwise, and sedation is often difficult. Diazepam (50-100 mg for a 450 kg horse) or xylazine (200-500 mg for a 450 kg horse) may be useful if administration can be achieved safely. If the horse collapses in apparent respiratory distress or cardiovascular compromise, administer epinephrine and glucocorticoids as detailed above. Once the acute signs abate, leave the horse in a quiet, dark, or familiar environment for 4-6 hours.

II. Ophthalmic Emergencies

Many conditions affecting the eye carry a better prognosis if early, aggressive medical or surgical therapy is instituted. Even in cases of acute trauma, careful examination of all of the ocular structures of both eyes is essential in order to determine the nature and extent of the lesions(s). Thorough examination may require sedation of the horse (for example, xylazine 0.5 mg/kg, detomidine 0.02 mg/kg or butorphanol 0.02 mg/kg, i/v or i/m) and regional sensory or motor anesthesia such as an auriculopalpebral nerve block.²⁰

Wounds or foreign bodies which penetrate or perforate the eye should be treated immediately with NSAID's (for example, flunixin 1.1 mg/kg, phenylbutazone 4.4 mg/kg or ketoprofen 2.2 mg/kg, iv), topical atropine (1% ointment or solution every 1-2 hours until mydriasis occurs), topical and systemic antibiotics, and tetanus toxoid (im).²¹ Corticosteroids are generally contraindicated if deep corneal lacerations are present or if infection is likely. If the foreign body is still present in the eye, it is sometimes best to leave it in place until the horse is hospitalized, and general anesthesia, specialized equipment, and expertise are available to prevent or manage rupture of the eye. Temporary tarsorrhaphy or a third eyelid flap may help protect the eye during transport. Both of these procedures may be possible in the standing horse with adequate chemical restraint and local anesthesia.

III. Neurologic Emergencies

Emergency situations involving CNS manifestations generally fall into two categories: seizures and coma. Whether the cause is intra- or extra-cranial, the immediate goals are to minimize further trauma to the patient and handlers, and to sustain vital functions until further evaluation enables diagnostic and prognostic decisions to be reached.

Seizures present several management difficulties because of the size and strength of the adult horse. Control of the seizures is necessary to minimize self-induced trauma and to allow examination of the patient, but physical restraint is generally unsafe and futile. Anticonvulsant drug dose rates for adult horses are tabulated below (Table 2).²² Repeated doses are often necessary, although a single dose should enable further evaluation of the patient. If general anesthesia is induced, ensure that the airway is patent and that the animal is breathing on its own. It is important to note that acetyl promazine actually lowers the seizure threshold, and is therefore an unsuitable drug for seizure control.²²

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Comatose horses may need both airway and cardiovascular support. If assisted ventilation is required, the prognosis is generally poor. Drugs which aid in reducing intracranial pressure are tabulated below (Table 3).²³

Spinal cord trauma may produce various degrees of ataxia, paresis and paralysis, depending upon the extent and the site of the lesions(s). Dexamethasone and DMSO are both recommended for management of these cases.²⁴ Behavioral abnormalities such as circling, head pressing, aggression, disorientation, etc., may be caused by a wide variety of conditions, and their diagnosis and management have been covered elsewhere.

IV. Upper Airway Obstruction

In cases where nasal edema such as venomous snake bite or facial paralysis cause occlusion of the airway at the nares, simply installing short intubation bilaterally such as smoothed opened syringe cases or suturing the nostrils open may be life saving. If airway obstruction is more extensive, whether due to laryngeal edema, or other obstructive conditions of the nasal, pharyngeal and laryngeal regions and trachea, it will be essential to restore a patent airway immediately if the horse is in severe respiratory distress. A large bore nasogastric tube, inserted transnasally into the trachea, may be sufficient in foals, ponies, and small horses. However, a tracheotomy may be necessary when this is not successful or not possible in cases of upper airway obstruction.

Whilst sterility is important, restoring a patent airway is the priority. Cleanse the skin and infiltrate local anesthetic if time permits over the middle third of the ventral portion of the neck, and palpate the tracheal rings. Make a 6-8 cm longitudinal incision through the skin, cutaneous muscle, and the raphe of the sterno thyrohyoid muscle to expose the trachea.²⁵ Make a transverse incision between two cartilage rings and insert a tracheotomy tube into the trachea. Be careful if extending the incision laterally, and do not incise greater than one third of the circumference of the trachea.²⁵ If no tracheotomy tube is available, use a clean, large bore nasogastric tube, a 60 ml syringe case with the end cut off, or some other hollow, cylindrical, minimally compressible item. When the tube is in place and the patient is breathing more comfortably, stabilize the tube with sutures or adhesive tape to prevent aspiration into the trachea or dislodgement. Administer broad-spectrum antibiotics, NSAID's and tetanus toxoid following the procedure.

When dyspnea is due to broncho-constriction as in hypersensitivity reactions, bronchodilation may be achieved by the administration of epinephrine, atropine, or xylazine. Tracheostomy will not help and furthermore, will be a complicating factor in successful treatment.

V. Hemorrhage

Hemorrhage can be dramatic but most bleeding wounds are not life threatening. Often, confining the horse, and applying pressure or cold packs to the wound, and ligating any exposed blood vessels are sufficient to stop or slow bleeding. Cold hosing directly onto a freely bleeding wound is not recommended, as it will prevent an adequate clot from forming. Post-castration hemorrhage is best treated by ligating the vessel(s) if possible, or firmly packing the inguinal canal and scrotum with clean gauze bandages. Anecdotally, cold hosing over the loins has sometimes helped reduce bleeding from a castration wound.

Epistaxis may be self-limiting if traumatic in origin or due to other mild inflammatory cause. However it may result in fatal hemorrhage in cases of guttural pouch mycosis. Cold hosing over the paranasal sinuses and applying pressure and cold packs over the external carotid arteries sometimes helps slow bleeding from the nasal cavities.

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If internal hemorrhage is suspected, or if blood loss cannot be controlled with pressure, vasoconstrictive drugs may be considered. Oxytocin and naloxone have been used to control hemorrhage, although the dose rates for hemorrhagic shock in horses are not known. While epinephrine is a very potent vasoconstrictor, its effects on cardiac output and systemic blood pressure may actually exacerbate hemorrhage. Sedatives which cause vasodilatation (acepromazine and alpha-2 agonists such as xylazine and detomidine) should be avoided or used with extreme caution.

Circulatory support with intravenous fluids is very important when blood loss has been severe. Crystalline solutions such as normal saline or lactated ringers will help to restore plasma volume, although colloid solutions or plasma provide more substantial volume expansion. Cross-matched whole blood is the ideal replacement therapy, although this is often not available and may require considerable volumes. Hypertonic saline has been used with some success in hypovolemic shock in the horse and other species. This must be followed by isotonic solutions in sufficient volumes to maintain cardiac output and tissue perfusion (often at least 20-30 litres).

There are wounds in areas of the horse's body that may or may not be related to excessive hemorrhage but require significant careful attention in an emergency situation. They include complex wounds such as punctures near joints, occipitus, sinuses, thoracic inlet, chest and abdominal cavities. Area cleansing, debridement, direct pressure, antibiotics, and potential surgery all need to be considered. A current review of thorough wound management is available.

Breeding and Peri-Parturient Emergencies (A.R. Abdullahi)

I. Rectal Tears

Rectal tears are most commonly encountered in the Quarter horse (63%) and the Arabian (20%).²⁷ It is most often anticipated with rectal palpation for reproductive evaluation or for other diagnostic purposes. Other cases of tears include accidental damage during breeding, or injury during parturition. It is also seen in foals during attempt to remove impacted meconium.²⁸ Most rectal tears occur dorsally 25-30 cm cranial to the anus in the peritoneal portion of the rectum. Classification of rectal tears varies according to the layers of the rectum disrupted. Grade 1 tears are restricted to only the mucosa, Grade 2 tears involve only the muscularis. Grade 3 involves all layers except the serosa, while Grade 4 tears involve all layers and perforation of the rectum. Rectal tears should be suspected 1) when blood is observed in palpator's sleeve; 2) the palpator feels a sudden release of rectal wall resistance; or 3) blood on feces after palpation.²⁹

Treatment depends on the extent of tear, but initial evaluation must be done immediately with great caution to prevent further damage and peritonitis. If a rectal tear is suspected, the horse should be given a sedative and/or epidural anesthetic. Initial careful evaluation of the area by bare handed examination or by a 30 cm long, 5 cm diameter, smooth edged circular speculum can be used to determine the grade of tear.

Grade 1 or 2 tears are usually treated conservatively with a good prognosis. When a Grade 3 or 4 tear has been diagnosed all posterior fecal material should be removed. A tube made by conforming 1 pound of moist cotton inside a 3" stockinette can be inserted up to 10 cm proximal to the tear. A purse string suture at the anus will hold the pack in place during transport to the surgical center.²⁹ The owners of their agents should be informed immediately. If the decision is made to treat, vigorous antibiotics and fluid therapy should be given. Several complex

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surgical procedures can be considered as options for ultimate rectal tear repair such as direct suture per rectum, through abdominal approach, indwelling temporary liners, or colostomy.^{28,30}

II. Dystocia

The most common causes include premature parturition, the long limbs of the equine fetus which predispose them to postural abnormalities, uterine torsion and placental hydrops. Infections that result in fetal death prevent the fetus from partaking in the parturition process and may lead to dystocia.³¹⁻³³

The aim of treatment is to maximize the chances of saving both the mare and the foal, if the latter is alive and viable. Abnormal fetal posture and position are best diagnosed and corrected with the mare in standing position. This increases the abdominal space and causes the fetus to gravitate into the abdomen allowing room for manipulation. The abdominal straining is also diminished in the standing position and may be abolished with an epidural anesthesia (1.0-1.25 ml 2% lidocaine per 100 kg bwt administered into the epidural space). Procedures lasting more than an hour may require general anesthesia. A combination of 1.0-1.5 mg/kg xylazine IV and 2.0 mg/kg IV ketamine is suitable for shorter procedures.

Another possibility of correcting a dystocia with considerable straining is to give a general anesthesia and mechanically hoisting the two hobbled hind legs with hindquarters just off the ground. This positioning shifts abdominal organs towards the diaphragm thereby relieving the pressure they would normally exert on the uterus and also creating more room for correction of dystocia.³⁴

III. Uterine Torsion

Uterine torsion accounts for about 5% - 10% of serious cases of dystocia in mares.³⁵ The exact causes are unknown but sudden falls, vigorous fetal movement, and a large fetus in a relatively small volume of fetal fluid are among the predisposing factors. Clinical signs include abdominal pain that is unresponsive to analgesia, restlessness, anorexia and sweating. Several attempts to urinate may also be observed. These signs can be severe depending on degree of torsion, gestational age and vascular derangement.³⁶ Torsion of less than 180 degrees generally requires correction, and greater rotation may compromise vascular flow to and from the uterus and the fetal viability. Vaginal involvement is infrequent and direction of the torsion may be ascertained by the direction of spiraling of the vaginal folds. The degree of rotation at the uterus can be confirmed by rectal palpation and/or speculum examination.

Surgical and non-surgical methods of correction have been used in term and pre-term torsion of the uterus.³⁶ Reposition of the fetus per vagina can be attempted with the aid of epidural analgesia and elevation of the hind quarters to reduce straining.³⁷ Semi-circular movement of the hand and arm, together with fetal movements, may correct the torsion. Cesarean section should be considered when the cervix cannot be penetrated.³⁷

IV. Uterine Hemorrhage

Rupture of the uterine and umbilical arteries can occur within 24 hours to one week of parturition. Vessels of the lining of the uterus and vagina may also be ruptured during birth. The incidence is higher with advancing age, and the condition can be fatal. The condition is not necessarily associated with dystocia. The risk to the life of the mare is less if the hematoma forms in the intact ligament of the uterus. However, if the hematoma ruptures into the peritoneum, chances of survival are reduced. Low blood copper has been associated with the condition but the enlarged vessels at full term and the considerable parturient hypertension may predispose the vessels to rupture.^{32,38,39}

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Clinical signs include abdominal pain, sweating, pale mucous membranes and elevated pulse rate, usually after the placenta has been passed. Shock and death may occur. The hematocrit may initially be elevated but later fall considerably. Rectal palpation may reveal a large swelling on the side of the hemorrhage extending below the ovary to the cervix. Blood transfusion, plasma extenders, and fluid therapy do not usually alter the course. Intravenous administration of Naloxone (8 mg) has produced encouraging results in some mares.³⁸ Oxytocin, pain relievers, tranquilizers, and corticosteroids may have some use depending on the blood loss. Mineral oil, given via nasogastric tube to keep the stools soft, can be helpful.³²

V. Uterine Prolapse

Uterine prolapse can occur after normal or difficult parturition and retention of fetal membranes. One horn may prolapse first and the attendant pain and straining may cause the second horn to prolapse. Management of the condition involves control of straining by epidural anesthesia or tranquilizers, cleaning and replacing the uterus, and preventing recurrence by suturing of the vulval labia. Tetanus toxoid, oxytocin, and antibiotics, both parenterally and intra-uterine are indicated. Intravenous fluid therapy to maintain normal hydration is important to help reduce complications such as laminitis. If no systemic signs are seen, intrauterine antibiotic therapy for a few days is suggested.

Prognosis for future breeding is good if replacement is uncomplicated. Recurrence is possible but rare. Complications of prolapse include rupture of the uterus and its vessels, and prolapse of intestines.

VI. Penile Lacerations and Abrasions

These conditions usually occur during breeding when the penis is erect and turgid. Tail hairs from the mare, poor phantom and artificial vagina design, and poorly placed breeding stitches can cause severe damage to the stallion's penis.⁴⁰ The stallion's penis can also be injured when kicked by an uncooperative mare.

Severe edema and congestion usually accompany these injuries, causing prolapse of the penis or paraphimosis if unattended, and the prepuce and scrotum can also be involved.

Treatment is directed at controlling the acute edema and inflammation. Gentle and steady massage of the penis, with demulcents and cold packs give encouraging results.⁴⁰ Anti-inflammatory agents, diuretics, and parenteral antibiotics can be useful adjuncts to topical therapy. Complete sexual rest should be enforced until healing is complete. Scar tissue may develop and interfere with the ability of the penis to have complete erection. Superficial penile lacerations heal well without compromising the integrity of the penis. Severe and deep penile injuries may require the amputation of the penis.

Medical Emergencies in the Foal (A. Benamou)

I. Sedation

"One of the most important characteristics (for the veterinarian to understand) is the tendency for the foal's condition to change dramatically, for better or for worse, very quickly; and usually with only subtle advance notice. Once a problem is identified or suspected, there is no room for the let's wait and see philosophy."⁴¹

Even more so than in the adult, the management of foal emergencies does not offer time for error or delay in treatment. Emergency situations are numerous; but in this paper we chose to address only a few of them for their life-threatening nature. Most foals in these situations are in, or will be undergoing shock, and it may be useful to establish direct venous access via an indwelling catheter.

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Because foals are so resistant to physical restraint, veterinary intervention in certain emergency situations (i.e.: fractured limb, trailer accident, hemorrhage, convulsions) will require the use of sedation to minimize further injury/stress. Since foals are especially neonates are very prone to hypotension, sedating a compromised animal should be done only if other means of restraint (tailing, ear-twitching) have failed, and moderate drug dosages should be used.

Sedatives such as acetyl promazine should be avoided because of their marked hypotensive action. In acute injuries with shock, alpha-2 adrenergic agonists such as xylazine (0.3-0.5 mg/kg IV or 20-30 mg/50 kg foal) or detomidine (5-10 ug/kg IV or 0.03 ml/50 kg foal) are a better choice: they can provide both good sedation and analgesia in a short time and can be used intravenously or intramuscularly. Analgesia can be improved if these drugs are combined with butorphanol (0.02 mg/kg or 1 mg/50 kg foal).⁴²

Sedation from the alpha-2 agonist drugs can be reversed with yohimbine (0.12 mg/kg) intravenously. Drugs capable of raising the arterial blood pressure and improving cardiac output should be readily available in case the foal exhibits severe drug-induced bradycardia/hypotension.

Dobutamine (1-5 ug/kg IV slowly; 250 ug/50 kg foal to be repeated if necessary) will increase blood pressure and heart rate within a couple of minutes.

Epinephrine (0.5 ml/50 kg foal of 1:1000, slow IV) which is generally reserved for acute cardiovascular collapse or cardiac arrest, can be used to increase arterial blood pressure, but should probably be left as a last resort, as it can cause hypertension and significant cardiac arrhythmias.⁴³

The administration of fluid can also be used to prevent or at least palliate hypotension especially in conditions where there is volume depletion.

Anaphylactic reactions can occur in foals; however, drug induced reactions are rare compared with adult horses. Treatment of anaphylaxis should include epinephrine. Other treatments of anaphylaxis have been detailed above.

II. Acute Respiratory Distress

A rapid overall assessment of the compromised foal allows the clinician to establish the need for immediate intervention. The following factors should be closely monitored: respiratory rate and effort, color of mucous membranes, pulse and heart rate, and peripheral perfusion.

Most cases of acute respiratory distress are pulmonary, but occasionally trauma to the cervical area or hypersensitivity reactions can produce local swelling to severe that the upper airway can be significantly narrowed or obstructed. If possible, placement of a nasotracheal or endotracheal tube can maintain patency of the upper airway. If a tracheal tube cannot be introduced, and if respiratory compromise is life threatening, a tracheotomy may need to be performed. A method for temporary tracheotomy has been described above. This procedure can be more difficult in foals than in adult horses since the trachea of foals is very flexible and great care must be taken not to damage subcutaneous tissues or tracheal rings.

If the respiratory compromise (elevated respiratory rate, restlessness, labored breathing, cyanotic mucous membranes) arises from the lower respiratory tract (bacterial pneumonia; aspiration pneumonia), intranasal or endotracheal supplementation of oxygen (5-10 L/min), may be very beneficial during the acute phase of the respiratory crisis and can easily be provided via portable oxygen tank. Sternal positioning of the foal enables it to ventilate more efficiently; if

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this position cannot be maintained, the foal should be turned from one side to the other every hour or so.

If necessary, and in addition to the oxygen supplementation, some drugs can be used to support the foal's breathing efforts. Bronchodilators such as aminophylline (5-7 mg/kg IV slowly or diluted in a 100 ml bag of sterile saline; 10-12 ml IV/50 kg foal) have also been shown to improve the contractility of a fatigued diaphragm. Respiratory stimulants such as Doxapram should be used only if ventilation is impaired. Doxapram 0.2 mg/kg IV; can be given in an IV drip at a dose of 0.05 mg/kg/min by adding 20 ml of Doxapram to 500 ml 5% dextrose at a rate of one drop per second.⁴⁴ In these cases the foal may need to be referred to an intensive care unit after first providing emergency care.

III. Seizures

Neonates appear to have low seizure threshold compared to the adult, presumably because of cortical immaturity. Signs of seizure activity may be difficult to recognize and can be confused with restlessness. Seizures in foals are associated with a variety of problems, such as cranial trauma, hypoxia from asphyxia, septicemia, and bacterial meningoencephalitis. Primary epilepsy is very rare in the horse. An attempt should be made at correcting the initiating cause as promptly as possible.⁴⁵

Control of convulsions is an urgent necessity, firstly to prevent self-inflicted trauma, and secondly because of the life-threatening consequences of the negative energy balance in these foals. Diazepam (Valium) is most often used since it is a tranquilizer, anticonvulsant and muscle relaxant, at a dose rate of 5-20 mg administered slowly to a 50 kg foal. Diazepam has a rapid effect but repeated dosages may be necessary to stop recurrent seizures. However, diazepam can be responsible for causing respiratory depression. Barbiturates (Phenobarbital 5-10 mg/kg IV or per os, BID or TID) may be more reliable for long-term seizure control.

Supportive therapy of convulsive foals should include:

feeding through a naso-gastic tube and maintaining adequate glucose levels, electrolytes, and hydration

protecting from trauma with padding and bedding

maintaining adequate body temperature

maintaining adequate ventilation

short-acting corticosteroids such as prednisolone sodium (5-10mg/kg IV) can be given in an attempt to control cerebral edema. Dexamethasone is also used but should be avoided if the seizures are caused by meningitis or encephalitis.

DMSO has also been used pragmatically to reduce cerebral edema. Its role is controversial. (Dose: 1 gm/kg in a 20% intravenous or oral solution, SID or BID for 3-4 days).

IV. Neonatal Isoerythrolysis (N.I.)

This may be the most common cause of anemia in the foal. It can occur from 8 to 96 hours after birth, and its severity will vary according to the amount of anti-RBC antibodies ingested; generally, the earlier the signs, the more severe the condition. Hemoglobinuria may not be present; the foal is suddenly weak, pale (+/- icteric) and the heart rate and respiratory rate are elevated.

In the field, the "jaundice agglutination test" should be run to establish a diagnosis of NI: the foal's blood (in anticoagulant) and different dilutions of the colostrums are mixed and the agglutination assessed after centrifugation (3 minutes).⁴⁶ The foal should be prevented from nursing any further, and if the hematocrit falls below 15%, a blood transfusion should be given. "Washed" red blood cells from the dam can be used; and if available, the sire's blood can be used. Plan to give 1 ml/kg of body weight of whole blood in order to raise the hematocrit of 1%.

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Pre-sampling the mare in the last month of pregnancy for a panel of hemolysins can be helpful in predicting potential NI cases. Colostrum or serum substitution can then be instituted along with denying suckling of the dam for 36 hours. The mare's colostrum should be stripped out during this time.

V. Hemorrhage

Cardiovascular collapse can rapidly result from internal or external hemorrhage; a 50 kg foal has only 3-5 liters of circulating blood. Acute blood loss may be associated with diverse clinical signs such as seizures, abnormal behavior, coma, weakness, rapid pulse, and depressed limb reflexes, depending on the location of the bleeding. Treatment should be directed towards arresting hemorrhage and restoring blood volume. Therapy includes blood transfusion and fluid and electrolyte therapy.

Hematocrit and total serum protein should be monitored frequently, where possible. If the plasma protein falls below 3.5 g/dl, fluid therapy should be reduced or discontinued, and plasma should be administered instead. If the hematocrit falls below 12-13% or the hemoglobin concentration below 5 g/dl, whole blood should be given.

Broad-spectrum antibiotics should be given because the natural barriers to infection may be depressed or destroyed in these foals. Tranquilization with hypotensive agents should be avoided in these animals.

TABLE 1

Drug, concentration	Uses & Indications	Dosage & Route of administration	Volume for 50 kg neonate	Volume for 450kg horse
Atropine sulfate 15 mg/ml	severe bradycardia, AV block; bronchoconstriction	0.01-0.1 mg/kg IV, IM, SC	Dilute 1:10, give 0.7-1.3 ml	0.3-3.0 ml
Calcium gluconate 22 mg/L	cardiac stimulation	0.2-0.4 ml/kg Iv in 1-2 L 5% Dextrose	10-20 ml in dextrose	90-180 ml in dextrose
Dexamethasone 4 mg/ml	anaphylactic shock, CNS trauma	0.5-2.0 mg/kg IV 0.1-0.2 mg/kg IV	1.3-2.5 ml	56-225 ml 11-22 ml
Diazepam 5 mg/ml	sedative, anticonvulsant	0.05-0.5 mg/kg slowly IV, repeat q 30 min as needed	0.5-4.0 ml	4.5-45 ml
Doxapram 20 mg/ml	central respiratory stimulant for perinatal apnea; xylazine overdose	0.5-1.0 mg/kg IV, repeat q 5 min. as needed; not > 2 mg/kg total in foals	1.3-2.5 ml; do not exceed 5 ml total	11-23 ml
Epinephrine 1:1,000 (1 mg/ml)	anaphylaxis, severe hypotension, dyspnea; cardiac resuscitation	0.01-0.02 mg/kg IV, IM, SC, IT, IC repeat q 3-5 min as needed	0.5 ml, dilute in sterile saline and give slowly	4-9 ml

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Pentobarbital 5 g vial	general anesthesia, seizure control	2-20 mg/kg IV as a 5% solution, give slowly to effect	dilute, give slowly to effect	give slowly to effect
Sodium bicarbonate 7.5% (75 mg/ml, 89.5 mmol/dL)	metabolic acidosis	1.6 mmol/kg IV initially, dilute in LRS or NaCl	*Do not give to foals in respiratory distress	Up to 800 ml over first 6 hrs., diluted

TABLE 2: Initial therapy for seizures in adult horses

Drug	Dosage & Route of Administration	Volume for a 450 kg horse
Diazepam	0.05-0.5 mg/kg IV, q 30 min.	5-45 ml (5 mg/ml)
Xylazine	0.5-1.0 mg/kg IV	3-5 ml (100 mg/ml)
Guaifenesin	10% solution IV to effect	40-60 g
Thiopentone	4-6 mg/kg IV, 10% solution	2-3 g
Chloral hydrate	IV to effect	15-60 g

TABLE 3: Initial therapy for CNS trauma in adult horses

Drug	Dosage & Route of Administration	Volume for a 450 kg horse
Dexamethasone	0.1-0.2 mg/kg IV	11-22 ml (4 mg/ml)
Dimethyl sulfoxide (DMSO)	1 g/kg IV as a 10% solution	450 ml DMSO in 5 L
Furosemide	1 mg/kg IV	5 ml (100 mg/ml)
Mannitol	0.25-2 g/kg IV as a 20% solution	***

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TAB E

Animal Care & Handling

Section 6: Disaster Preparedness for Small Hoofstock: Sheep, Goats, Small Antelope and Cervids, South American Camelids

By Dr. Robyn Barbiere
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Background

Small ruminants are grazers and browsers with herding tendencies. While at large they are at risk of injury from predators (including dogs), vehicles, humans, and from digestive disorders that result from overeating or ingestion of toxic plants or foreign material.

Behavior During the Disaster Event

These animals may become disoriented during the disaster. They will flee from perceived threats and are at risk of injuries during flight. Neonates and juveniles are at higher risk of trampling, exposure, exhaustion, or maternal rejection.

Behavior During the Immediate Aftermath

Small ruminants will attempt to re-group after the disaster, and may form mixed species groups. Males of most species are territorial and should be considered dangerous, both to other males and to humans who enter their perceived territory.

Directed Movements of Small Ruminants

Domesticated small ruminants can often be lead to holding areas by shaking a bucket of feed or by a feed trail. A group of animals may be herded to the holding area by manipulation of a visual barrier such as opaque plastic sheeting or baffle boards. The key is to move SLOWLY and quietly.

Care of Small Ruminants after a Disaster

Perimeter fence height is dependent on species contained and the desire of the animal to flee; 8 feet would be adequate for most species. Exotic goats are very agile and can scale most barriers. Visual barriers around the fence may help the animals feel secure. Burlap is often used, but anything attached to the fence should be on the outside to prevent ingestion. Visual barriers should also be placed within the enclosures (bales of straw or hay, large boxes, etc.). Fresh water and adequate shade for all members of the herd should be provided. Multiple feeding stations are needed to allow subordinate animals access to feed. Grass hay is adequate for short term nutrition. Legumes should be avoided or used sparingly. Small ruminants will usually consume 2 – 4% of body weight daily. Twice daily or ad lib feedings are recommended.

Health Risks for Small Ruminants after a Disaster

Unsanitary conditions may develop with time. Enteropathogens (bacteria, especially Salmonella, viruses, and parasites) can be a problem. Since inadequate ventilation can lead to respiratory problems, totally enclosed environments are not recommended. Most small ruminants can tolerate low temperatures if adequate bedding and shelter from wind, rain, and snow are provided. These animals, especially South American camelids are at risk from hyperthermia in hot or humid environments. A shower in the corner of the enclosure may help, if drainage is adequate to prevent entire yard from getting muddy.

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Goals

- 1 Provide safekeeping, adequate nutrition, and water.
- 2 Attend injured or ill animals as circumstances permit.
- 3 Humanely destroy and dispose of animals that are moribund, have intractably painful injuries, or that endanger persons or other animals.
- 4 Return animals to original facilities if intact or arrange for transfer to facilities outside the disaster area.

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TAB E

Animal Care & Handling

Section 7: Disaster Preparedness for Large Hoofstock: Elephants, Rhino, Wild Cattle

By Senior Author, Dr. Robyn Barbiers
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and
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Background

This group of animals tends to be grazers and browsers, cattle and elephants have herding tendencies. Some elephants are trained and tractable under controlled conditions but can be unpredictable when stressed. All large hoofstock should be considered dangerous. While at large, they are at risk of injury from vehicles and humans.

Behavior During the Disaster

Large hoofstock may become disoriented and panic during the disaster. They will flee from perceived threats, disregarding obstacles, and are at risk of injuries during flight. Neonatal and geriatric animals are at higher risk of trampling and exhaustion.

Behavior During the Immediate Aftermath

Social hoofstock will attempt to regroup after the disaster. As the environment becomes less threatening, they will seek water and food.

Directed Movements of Large Hoofstock

Only experienced handlers should attempt to control trained elephants in unfamiliar surroundings. An attempt may be made to direct movement of any hoofstock with the manipulation of visual barriers (such as opaque plastic sheeting) and vehicles. Great caution should be used and all extraneous people should be kept away from the area. These animals have a long flight distance and easily panic and stampede. Chemical immobilization may need to be used.

Firearms and Ammunition

Firearms and ammunition should be readily available at all times. Recapturing large hoofstock should not be attempted without an armed response present. The recommended choice of crisis situations that involve dangerous animals is the bolt action rifle. Rifles should be chambered in a heavy caliber such as .30-06 Spr., .300 H&H, .338 Win. Mag., .375 H&H, or .458 Win. and the ammunition should be of a controlled-expansion or solid design. Shotguns are not recommended. An attempt to kill large hoofstock should only be undertaken by skilled marksmen. If stressed or cornered these animals will charge with little if any warning. Extreme caution is recommended when attempting to kill an elephant, as precision marksmanship is required to place the bullet properly.

Care of Large Hoofstock After a Disaster

Areas such as stadiums or heavily roped off large stands of trees with visual barriers may be used as temporary enclosures. Loud noises, sudden movements and unfamiliar human

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presence can easily stress large hoofstock. They should be kept in quiet areas away from traffic, noise (such as heavy machinery), and inquisitive humans.

Potable water should be available at all times. Grass hays can be used for short term nutrition. Legumes and grains should only be used in limited amounts if at all. Produce may supplement the diet but is not necessary. Adequate shade and ventilation are critical. Shelter from wind, rain, and snow and bedding should be used in cold weather.

Health Risks for Large Hoofstock

Unsanitary conditions may develop. Enteropathogens, especially Salmonella, can be a problem. Hyperthermia can be a problem. Inadequate ventilation or cold, damp weather can increase the risk of pneumonia.

Goals

- 1 Provide secure environment, potable water, and adequate nutrition.
- 2 Attend ill or injured animals as circumstances permit.
- 3 Humanely destroy and dispose of animals that are moribund, have intractable injuries, or that endanger people.
- 4 Return animals to original facilities if intact or arrange for transfer to adequate facilities outside the disaster area.

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TAB E

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Section 8: Preparing the Farm and Farm Animals for Disasters

(Reprinted from the AWIC Newsletter, Oct.-Dec. 1993, Vol. 4, No. 4)

Introduction

Disasters such as hurricanes, tornadoes, floods, earthquakes, severe winter weather, hazardous material spills, or nuclear power plant accidents can occur any time. The event may occur suddenly or be anticipated for several days, such as an approaching hurricane or flood. The time to prepare for these events is long before they occur. Even at the farm level, procedures should be written. They should be kept in a safe, fireproof, quickly accessible place with other important documents. (These and any other important documents should be taken along if it becomes necessary to evacuate the farm.) Each member of the farm family and herd personnel should know of, and practice the plan so that action may be taken even in the absence of key management personnel.

The first step in planning for a disaster is to determine what type of disaster could occur on the farm and how often. It would be useless to spend time and money, for example, to plan for severe winter weather if the farm is located in a tropical environment. If the premises are near a nuclear power plant, even though the risk of an accident occurring is slim, the owners would want to consider how to protect their animals from radioactive fallout. If the farm is near a major highway, one might want to consider a hazardous material spill from a road accident in their planning. Living next to a river or stream would put planning for flooding or a barge accident in the forefront.

Only after each individual farm owner has considered their risks can they decide what priority of planning, money, and resources they wish to allocate to each. An all hazards plan is most desirable, however, plans should also be customized for specific situations. Once the risks are known, decisions can be made about what actions can be done in advance, and what actions would be required when the disaster occurs. Generally avoiding the disaster, mitigating its effect if it cannot be avoided, and sheltering the animals lessens the effects of a disaster on livestock. The approach taken would depend upon the type of disaster anticipated. Sometimes only one approach may be appropriate such as sheltering. In some instances combined approaches such as mitigation and sheltering may be required. In other events such as floods or firestorms sheltering may be the wrong thing to do.

Mitigation

Hazard mitigation is defined as any action taken to eliminate or reduce the long-term risk to life and property from natural or technological hazards. Some examples of hazard mitigation might be hurricane seeding to reduce the intensity of a storm, tying down homes or barns with ground anchors to withstand wind damage, redirecting the impact away from a vulnerable location by the digging of water channels or planting vegetation to absorb water, the establishment of setback regulations so building is not allowed close to the water's edge, and the construction of levees or permanent barriers to control flooding.

The farm and farm buildings should be surveyed to figure out what mitigation procedures should be followed based on the hazard risk. Barns and buildings can be built or repaired so they exceed building codes. Construction or moving of the buildings to higher ground could be done. Glass windows and doors could be replaced or boarded with sturdier material. Drainage furrows could be kept sodded. Trash piles and burial sites could be cleaned and moved. (Many farms contain burial sites contaminated with lead based paints, machinery grease, motor oil,

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lead lined tanks, batteries, roofing nails, asphalt, shingles, caulking compounds, linoleum, and plumbing lead. During flooding this material may leech into the crops or feed supply or be moved to a more accessible area where animals could consume them.) Toxic chemicals, pesticides, herbicides, and rodenticides could be moved or stored in secured areas to prevent their washing onto pastures where animals may be exposed. Loose items could be secured. Ponds that could cause flooding could be drained or have levees constructed around their perimeter.

A list of resources and people should be developed by the farmer and kept with important papers. This list should contain emergency phone numbers, suppliers, truckers, and people that can help with the animals especially if normal working conditions are disrupted.

Suppliers that may be needed during or after the disaster should be obtained. Many of these items may not be obtainable after the disaster. Also, by obtaining them in advance more reasonable prices will be paid. Unfortunately disasters attract individuals who gouge and prey on the misfortunes of victims. Items that could be obtained are portable radios and TV's, extra batteries, flashlights, candles, portable generators, salt, gravel, litter, fuel, antifreeze, stored feed such as hay (The amount to store would depend on the hazard. After the Washington state flood most producers vowed never to inventory large amounts of hay due to excessive flood damage and spoilage.), ropes, halters, animal restraint equipment, and medical supplies. Once obtained, they should be stored in such a manner so that they will be usable after the disaster. While in storage they should be checked at regular intervals – i.e.: Once a week to assure that they do not spoil and that electrical or mechanical appliances are still working. They should also be rechecked and evaluated after the event to assure they are still usable. A log should be kept to remember when and how often the items were monitored. Animals should be kept current on all appropriate vaccinations and booster shots before the disaster. Keep a written record of the products given and the date of injection. The stress of the event and the disruption of the environment could cause an increase in infectious disease spread. Proper vaccination could protect the animals.

Representation to Governmental Agency Managing the Disaster Response

As the disaster approaches or after it arrives the most important thing the farmer needs are truthful, accurate, and current information. A county, state, or federal emergency management agency coordinates government's response to most disasters. Representation to this agency for the farmer is critical. In most instances, a member of the division's Department of Agriculture competently does this. It is strongly suggested that farm organizations lobby for veterinary representation either through the Department of Agriculture or separately to this agency. Often, the needs of animals during disasters are given low priority. Veterinarians, who are aware of these needs and can also verify the validity of requests for help, are most suited to bring animal problems to the forefront. Often actions required protecting animals such as sheltering or evacuation must be done before a similar action is taken for people. (To move animals to shelter from pasture or evacuate them to other locations takes considerable time and many workers.) Governmental agencies will not issue such directives for animals before similar instructions are issued for people. They fear that a panic situation would occur and people might be critical about why the animals are being protected before them. (Animals can always be released from the shelter or returned from their point of evacuation if the disaster does not materialize.) What they do not consider is that it must be done while it is still safe for people to do the task since animals cannot shelter or evacuate themselves. After the disaster, government usually limits access to the disaster area. Animals will have to be fed, watered, and milked. Who is better suited to do this than the owner? Designation of farmers as emergency workers by government solves the problem of who will be responsible for this task. A veterinarian located in the emergency operating center can get these messages across.

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Evacuation

If evacuation of the animals is being considered (which may not be practical) to avoid the hazard then evacuation procedures, places, and routes should be planned. Since all animals may not be able to be evacuated, owners should decide ahead of time which are the most important ones to save. Various decision criteria can be used such as sale value, breeding quality, stage of pregnancy, stage of production, or simply sentimental preference. These animals should be identified ahead of time and a written list kept. If the owner were not home when the disaster threatens, others would then know which animals to save. Routes must not interfere with human evacuation routes. Alternate routes should be found in case the planned route is not accessible. Places where animals are to be taken should be decided in advance and arrangements made with the owners of these places to accept the animals. Trucks, trailers, and other vehicles should be obtained in advance. Acclimate the animals to them so they will not be frightened when they have to be used. Restraint equipment, food and water supplies should be available to use and move with the animals. Sufficient people should be on hand to help move the animals. The animals should be photographed and permanently identified by metal eartag, tattoo, brand, registration papers, or microchip. A permanent record of the identification must be kept. This information will be useful to resolve arguments of ownership in case the animal gets loose. Papers documenting the identification should be kept with other important papers. Ultimately the decision to evacuate will depend on the distance to be traveled, the amount of time available before the disaster is due to impact on the farm, and whether there is any advantage to moving the animals to the place selected. Sometimes, evacuation may be done after the disaster providing the roads are passable, and the equipment needed for travel usable. If this is the case, the accepting location must be contacted to find out its condition.

Sheltering

Whether to move farm animals to shelter or leave them outside will depend on the integrity and location of the shelter being used and the type of disaster. During Hurricane Andrew, some horses left outside suffered less injury than those placed in shelters. This was because some shelters selected did not withstand the high winds. Horses were injured by collapsing structures and flying objects that may have been avoided on the outside. Another reason for possibly leaving animals unsheltered is because floodwaters that inundate around a barn could trap animals inside causing their drowning. During severe winter weather shelter animals from icy wind, rain, and snow. Generally, if the structure is sound, the animal should be placed indoors. Once they are inside, secure all openings to the outside. As mentioned previously, the sheltering should be ordered and completed before similar action is taken for humans.

Farm cats and dogs should either be placed in a disaster proof place or turned loose, as they generally will stay close to their home in the immediate period following a disaster. If they are loose, however, attempts must be made to immediately catch them again after the threat is over, to prevent these animals from becoming feral and a public health hazard. Some farm dogs are dangerously aggressive, and under normal circumstances should be kept chained. These dogs cannot be kept chained or turned loose during a disaster. Ideally, all companion animals should be evacuated at the same time as people.

Human evacuation

What can be done with the animals if there is a need to evacuate the premises, and the animals have to be left unattended? There is always the risk that animals left unattended for extended periods could die or suffer injury. Sometimes, this may be the only option to protect human life. Protecting human life should always take priority in planning. Regardless, after the animals are secured in appropriate shelters food and water should be left for them, which they can obtain on their own. The amount necessary for survival is considerably less than for other purposes. If

ANIMAL CARE & HANDLING

the animals survive, then the decision can be made after the disaster whether it is worth the time and expense to bring them back to their previous condition.

Consult the table on the next page as a guide to the amount of food and water to leave.

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<i>ANIMALS</i>	WATER/DAY	FEED/DAY
DAIRY COWS		
IN PRODUCTION	9 GALLONS SUMMER	20 POUNDS HAY
	7 GALLONS WINTER	
DRY COWS	9 GALLONS SUMMER	20 POUNDS HAY
	7 GALLONS WINTER	
WEANING COWS	6 GALLONS SUMMER	8-12 POUNDS HAY
	3 GALLONS WINTER	
COW (PREGNANT)	7 GALLONS SUMMER	10-15 POUNDS LEGUME
	6 GALLONS WINTER	
COW WITH CALF	9 GALLONS SUMMER	12-18 POUNDS LEGUME
	8 GALLONS WINTER	
CALF (400 POUNDS)	6 GALLONS SUMMER	8-12 POUNDS LEGUME HAY
	4 GALLONS WINTER	
SWINE		
BROOD SOW WITH LITTER	3-7 GALLONS	8 POUNDS GRAIN
BROOD SOW (PREGNANT)	3-6 GALLONS	2 POUNDS GRAIN
150 POUND GILT OR BOAR	3-5 GALLONS	3 POUNDS GRAIN
SHEEP		
EWE WITH LAMB	4 QUARTS	5 POUNDS HAY
EWE, DRY	3 QUARTS	3 POUNDS HAY
WEANING LAMB	2 QUARTS	3 POUNDS HAY
POULTRY		
LAYERS	5 GALLONS/100 BIRDS	17 LB./100 BIRDS
BOILERS	5 GALLONS/100 BIRDS	10 LB./100 BIRDS
TURKEYS	12 GALLONS/100 BIRDS	40 LB./100 BIRDS
HORSES		
ALL BREEDS	5 GALLONS/1000 LB.	20 LB. HAY/1000 LB.
DOGS AND CATS		
LEAVE 1-QUART WATER/DAY/ANIMAL. LEAVE DRY FOOD FREE CHOICE		

ANIMAL CARE & HANDLING

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Every practical effort should be made to leave animals with sufficient food and water for their survival. Enough for 48 hours should be left. Usually within that time the initial effects of the disaster will be over. During the recovery phase the decision can then be made as to the best way to mount a rescue effort.

Special Considerations

Some practices that may be followed in planning for disasters especially during the winter require a special alert. During winter weather it is common to use portable heaters, gritty substances on the floor to prevent slipping, and antifreeze. When using these heaters, be sure they are working properly in an area where there is adequate ventilation. Heaters not working correctly could be a source of carbon monoxide, a deadly odorless colorless poison. Antifreeze used in vehicles is a deadly poison. Animals seem attracted to it and will readily consume it because of its sweet taste. Take care to properly label all containers. Do not use containers previously filled with antifreeze for other purposes especially feed and water. Promptly clean up all leaks and spills. Water supplies should be checked for freezing. Many animals have died of thirst during the winter even with abundant water sources, because they could not drink the water as it was frozen solid. If gritty material is spread on floors to prevent slipping, use only approved non-toxic materials. Recently a farmer mistakenly used Furadan, a fungicide for this purpose by mistake. Several cows that had licked it off the floor died.

Farms can be insured against catastrophic events. Insurance policies are available for replacement of materials damaged, repair work for recovery, boarding of occupants and animals if evacuated, lost production, and relocation. These should be investigated and purchased before the disaster threatens. For a farmer to claim compensation for lost production, which in many cases is the largest economic cost during a disaster, the farmer must have substantial records that document the level of production his/her herd has achieved in previous years. This is generally only successful in herds with recognized herd monitoring programs, such as Dairy Herd Improvement or other programs that are available for various species. To verify the validity of these records a herd health program should be in place, which is based on a valid veterinarian-client-animal relationship. A copy of all production records should be kept in a secure place that the details are not lost during the disaster. Many veterinarians are willing to keep copies of their clients' production records, if these are computerized and space efficient.

Conclusion

Depending upon the event, disaster preparation may or may not be successful. It is known that proper planning lessens effects of disasters. Economically it is cheaper to prevent the problem or lessen its effect than to pay the costs of recovery. The time to do this is NOW, before the disaster occurs.

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TAB E Animal Care & Handling Section 9: Hurricane Action Guidelines for Country Property

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THE LESSONS OF HURRICANE ANDREW

The leading causes of death in large animals were:

- 1 Collapsed barns, owners thought their animals were safer inside, but confinement takes away the animals ability to protect themselves.
- 2 Kidney failure due to dehydration, wandering animals were deprived of food and water for days.
- 3 Electrocution, horses seek the lowest areas, in many cases this was a drainage ditch. Power lines are strung over drainage ditches and were blown down during the storm.
- 4 Fencing failure, wandering animals, although unharmed during the storm, were hit and killed on the roadways.

Debris caused the most severe injuries...

- 1 Many horses required euthanization due to entanglement in barbed wire and the resultant severe injuries.
- 2 Debris injuries were found most often in the hindquarters, as horses turned their tails to the storm.
- 3 Don't keep your animals in the barn to prevent debris injury. Debris injuries were severe, but in most cases treatable. If your barn collapses – and there is no way to insure that it won't – large animals have no chance to save themselves and are likely to panic if they can't follow their instincts.

GUIDELINES FOR DISASTER PREPAREDNESS

Develop a Written Plan...

The first step is to develop a written plan. The first question to answer is whether or not your property is located in a storm surge flood plain. This information may be obtained from your local government.

Even if you are not in an area subject to flooding, you may want to consider evacuating horses if they are maintained in stables or in pastures of less than one acre, as this will not give sufficient area for them to avoid debris and collapsing buildings.

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If you decide you must evacuate.... DO NOT TRY TO EVACUATE WITH YOUR LIVESTOCK TRAILER UNLESS THERE IS SUFFICIENT TIME!

If you cannot BE ON THE ROAD 72 HOURS BEFORE THE STORM IS DUE TO HIT, you could easily be caught in traffic and high winds. Traffic on the highways will be moving very slowly, if at all. A livestock trailer is a very unstable vehicle in high winds and high winds will arrive 8-10 hours or more before the storm. REMEMBER, a fire engine loaded with water – a very stable emergency vehicle – is considered “out of service” when sustained winds have reached 40 mph. Therefore, long distance evacuation is not recommended as the storm may move faster than you anticipate.

Evacuating your animals out of the area may be too dangerous, but there are alternatives. MAKE PLANS NOW to move your animals to a safer area that is relatively near your home. Before hurricane season begins make sure all animals have current immunizations and Coggins tests and take the necessary papers with you if you must evacuate. Locate safe areas within your county and make arrangements now to move your animals to this location – then assist the receiving property owner in developing a disaster plan!

A written DISASTER PLAN will help you and your animals survive.

DEVELOP A SPECIFIC DISASTER PLAN FOR YOUR COUNTRY PROPERTY

Start with the farthest point of your property and move in toward the house, listing all the things that need to be done. When you write your plan, consider the following guidelines:

Install a hand pump on your well NOW. You will never make a better investment. Well water will not become contaminated unless your well is submerged by floodwaters.

As you landscape your property use native plants. Nature has evolved these species to weather hurricanes. They will be much less likely to uproot and become debris.

THINK DEBRIS! Take down and secure everything you can. Turn over and tie down picnic tables and benches or anything else too large to store.

Get mobile home tie downs (spikes and ratcheting straps) for your livestock trailer and other vehicles. Move vehicles, livestock trailer, etc. into the middle of the largest open areas away from trees and tie them down over the top of the vehicle.

Have on hand a box packed with halters, leads, tape, rope, tarps and plastic, fly spray and animal medical supplies including bandages and medicines. Bring it into the house.

Keep a supply of plastic neckbands with permanent markings to put on your animals for identification and put metal I.D. plates on halters. Animals should be haltered before the storm.

Have on hand in the house: Several flashlights, hurricane lamps, lamp oil or kerosene, fire extinguishers, batteries, battery operated radio, matches, gasoline, chlorine bleach.

Keep 2-liter soda bottles filled with water frozen in the freezer. They can be thawed in the refrigerator when electricity fails and keep the refrigerator cold. They can be used as a source of water as they thaw.

City water becomes contaminated because purification systems are inoperable. To purify water, add 2 drops of chlorine bleach per quart and let stand for half an hour.

Fill any large, outside vessels (row boats, canoes, feed troughs, etc.) with water. This keeps vessels from becoming debris and provides a source of water for animals after the storm. Pool water and collected water should be kept chlorinated so it remains usable.

Shut off main electrical breakers and close gas and water valves. Unplug appliances and turn off air conditioning.

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Chain your propane tank to the ground with tie down stakes and label it "propane". Label any hazardous material containers on your property.
Bring chain saw, ladder, axe, shovel, pry bar, come-along, metal cable, block and tackle, wire cutters, toolbox, grill, charcoal and fluid into the house.
A two-week supply of animal feed and medications should be brought into the house and stored in waterproof containers or wrapped in plastic.
Contact out-of-town friends and relatives and keep them informed of your plans. It will be easier for you to contact them than for them to contact you.
Make sure your insurance is adequate. Photograph or video all property and animals and take these with you if you must evacuate.
Remember that after the storm all transactions will have to be made in cash and that banks and gas stations will be closed.

Close barn and/or stall doors. Open all interior pasture gates. Put I.D. on all animals and **TURN YOUR LARGE ANIMALS OUT!!** They may suffer debris injuries, but at least this way they have a chance.

DON'T GO OUT DURING THE STORM!! If you are dead or injured, you can't help your animals. When any storm is named, everyone should take it seriously, watch it closely and begin implementation of their prewritten Disaster Plans.

Review and update your disaster plan with your family on a regular basis.

THE SAFEST PLACE FOR LARGE ANIMALS TO WEATHER A STORM IS IN A LARGE PASTURE

It should meet as many of the following guidelines as possible:

It should be free of exotic trees.

It should have no overhead power lines.

It should be well away from areas that might generate wind driven debris.

It should have both low areas that animals can shelter in during the storm, (preferably a pond), and higher areas that will not be flooded after the storm.

It should have woven wire fencing.

LONG RANGE DISASTER PLANNING

Fencing...

The clear winner is woven wire. It acts like volleyball net; in many cases falling trees don't even take it down. It doesn't pull apart in high winds. Animals are less likely to get caught or tangled in it.

Board fencing blows down and becomes debris. If you use it, back it with woven wire.

Avoid using barbed wire. It cuts horses to ribbons and is easily torn down by flying debris.

Lay out your fence lines to keep animals away from power lines.

Each year in May, replace rotten fence posts and make fencing repairs so your fences are as strong as possible for the start of Atlantic Hurricane Season on June 1.

Building Construction.....

Having a well-built barn keeps it from becoming debris. Never think it is safe enough to protect your animals.

A simple, well strapped, open pole barn with a flat, properly secured metal roof or a hurricane reinforced concrete barn is least likely to blow down.

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Prefab trusses may not hold up. If you use them, make sure they have hurricane straps and are properly braced.

Roofing construction should be metal or roll roofing. Shingles and tile become small lethal weapons which pastured animals cannot avoid, large sheets of anything are more easily avoided by animals.

Consider some form of hurricane shutters for all glass windows and doors. Taping may prevent shattered glass from flying, but it will not prevent wind entering through broken windows and destroying everything inside.

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TAB E Animal Care & Handling Section 10: Guidelines for Cattle During Emergencies

INFORMATION FOR VETERINARIANS

Background

Cattle are grazers and browsers by nature and are easily adaptable to new environments. They are gregarious animals that follow herd instincts, but may be excited and frightened by new persons, predators, and dogs in their midst. Because of their gregarious nature, individuals become anxious in situations that lead to their isolation from the herd. They have keen eyesight and hearing and can detect something unusual at a distance of several hundred yards.

Behavior During the Disaster Event

Cattle normally will move away from fire and flood, but in an excited state they may actually move into such a disaster. Herding and driving cattle during a disaster is made more difficult because herding instinct is overridden by survival reaction. Injuries, especially to the neonates, are much more probable during a disaster.

Behavior During the Immediate Aftermath

Most cattle, if given hay, water, and a space to stand or lie down, will acclimate well with their surroundings. The more antisocial animals, especially bulls, may not become content as quickly and may attempt escape. Bulls should always be approached with caution, particularly under stressful conditions. There is also a problem with the establishment of social dominance within a group if new members are added. This is particularly true with bulls, and though cows usually settle down soon, the bulls may continue the struggle for dominance for a protracted period.

Capture, Containment, and Restraint

Dairy cattle are used to caretakers, are socialized to human beings, and are easily penned. Beef cattle commonly are fed hay and grain in or around a barn or corral, which can aid in penning. Those not routinely cared for and those under range conditions should be driven with minimal excitement to a corral accessible by truck. Range cattle are not easily driven and may be dangerous to persons on foot, making it desirable to have horses available. If a preexisting structure is not in place, a temporary corral can be built with portable gate panels. Fencing, such as barbed wire and woven wire, should be avoided because of the danger of injury to excited animals and animals unfamiliar with fences. The portable corral also lends itself to the development of runways and chutes for restraint.

In cases where it is not possible to corral the animals, it may be necessary to chemically immobilize them through use of a capture gun. Most drugs used for this purpose in cattle are not approved for this use, and it should be remembered that such products (e.g., xylazine) are potent and toxic to human beings.

The most common and available method of restraint is the lariat and halter. This type of restraint is dependent on having something to which the animal can be secured. For particularly fractious animals, application of a nose lead in combination with a rope halter provides additional distraction and approved restraint. A properly applied tail jack will immobilize the rear quarters for the purpose of examination or other minor procedures.

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The most desirable restraint device is the portable cattle chute with a head restraint. With this equipment, diagnosis and treatment is much easier and safer. In situations requiring maximal restraint, tranquilization or sedation may be necessary. Xylazine is an effective sedative in cattle. The recommended dosage for intravenous use ranges from 0.02 to 0.15 mg/kg of body weight. Intramuscularly, dosages of 0.05 to 0.3 mg/kg are advised. At these dosages, xylazine is relatively safe, conferring sedation and strong analgesic properties for 30 minutes to 2 hours or more. Disadvantages include decreased heart and respiratory rates and bloat, resulting from depressed gastrointestinal tract motility. Xylazine should be avoided in cattle that appear debilitated. The recommended antidote for xylazine-induced sedation is tolazoline (1.1 to 4.0 mg/kg, IV).

If evacuation from the home premise is necessary, bumper-pull or fifth-wheel type stock trailers, 12' X 16' or larger and without compartments, should be used. The low bed with a low center of gravity allows easier loading and unloading and is more stable in winds and water.

Methods of Animal Identification

Permanent identification of dairy cattle is usually numerical by means of an ear tag, ear tattoo, brand, microchip, or numbered neck chain. Animals may be temporarily identified through use of livestock marking crayons.

Typical Weights

Dairy cattle- Holsteins are the largest of the 5 major breeds of dairy cattle. Cows weigh an average of 1,500 lb, with mature bulls tipping the scales at more than a ton. Jersey dairy cattle are the smallest, with mature cows weighing approximately 1,000 lb and bulls near 1,500 lb. Weigh tapes for measuring heart girth provide a fairly accurate estimate of weight in dairy cattle.

Beef cattle- There are wide variations among and within beef breeds. Weights can range from an 850-lb. British crossbred female to a 2,500-lb. Chianina male. A weight tape for beef cattle, which measures heart girth, is fairly accurate.

Nutritional Requirements

Cattle are grazing animals and can be maintained adequately on a variety of native grasses. Care should be taken in selecting the site to pen cattle, because ornamental plants, which may be appealing to hungry ruminants, can be extremely toxic if consumed by cattle. Milk production in dairy cattle can increase or decrease according to nutrient intake. Grass hay can be fed to dairy cattle for several days and they will suffer only temporary milk production loss when put back on their full production level ration. By reducing the caloric intake, a cow will reduce its milk production. For the very high milk-producing cow, the milk reduction may not be rapid enough to prevent mastitis. If the disaster causes electric power outages or if the cattle are moved to a location without milking facilities, milking even a small number of cows becomes an unrewarding and difficult task.

Beef cattle and yearling cattle require only grass hay and water for survival. If grass for pasturing cattle is not available, baled hay, fed at the rate of 20 to 25 lb/head/day is the best alternative. Calves < 3 months old will require milk or milk replacer along with grass hay. The amount of hay that is required daily is 10 kg for adult cattle (weighing 500 kg or more) and 6 kg for calves (weighing 60 to 499 kg). Clean water should be provided at the rate of 28 L (7.4 gal) for cattle > 350 kg and 20 L (5.3 gal) for those < 350 kg. In moderate weather conditions, mature dairy cattle will consume 12 to 15 gallons of water per head per day. Because contaminated water may contain pathogenic organisms, it can be treated with chlorine to make it safer. Sodium hypochlorite (household bleach) at the rate of 2 gal per 100 gal water will be beneficial. Ideally, the water should be tested, but during a disaster this may not be possible.

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Health Concerns

Emergency conditions that lead to the gathering of animals from various operations increases the risk of infectious diseases caused by a multitude of enteric and respiratory disease pathogens. In light of the difficulty imposed by attempting individual treatment, mass medication through the drinking water may be considered for treatment and control of infection. Large ruminants are frequently affected with bloat, diarrhea, and pneumonia during prolonged unusual events. Prevention of most bloat and diarrhea can be accomplished through nutritional management. Pneumonia can be partially prevented through vaccination against respiratory pathogens and providing rest and fresh air during the disaster. Even the best managed cattle will have some stress-related pneumonia and a treatment center should be set up for care of sick cattle.

Severe traumatic injuries will require individual examination and treatment. Lacerations and fractured bones may be detected in cattle during the aftermath of a disaster. The lacerations can be treated but fractures are difficult to manage in cattle and euthanasia may be required. Materials for wound repair and bandaging should be available. Aspirin, given orally at the rate of 3 to 4 boluses (240 mg) every 8 hours or flunixin meglumine (50 mg, IM or IV), can be used to provide analgesia.

Housing and Sanitation

Unless the disaster occurs during the coldest winter months, housing for beef cattle should be avoided. Dairy cattle should be kept clean, dry, and comfortable. Avoid total enclosure, but shelter animals (shade cloth, plastic tarp) from the extremes of heat or cold stress. The comfortable range in temperature for dairy cattle is between 41 and 78°F. Beef cattle requiring medical care might be housed in a confined area to expedite treatment, but healthy cattle do better in pastures or paddocks, and they tend to settle down quicker when put in an environment similar to where they had been maintained prior to the disaster. In addition, the open air will help disperse respiratory pathogens.

Provision for removal of manure is important. Cattle excrete about 5% of their body weight in manure and urine daily. Straw should be used for bedding, when required, because it probably will be easier to obtain and dispose of during times of disaster. If the disaster occurs during the hot and humid season, shade must be provided if it does not exist in the area of confinement. Cattle should be moved with care if the ambient temperature exceeds 30 °C (86 °F) in order to avoid heat stress.

Zoonoses Concerns

The greatest risk is enteric pathogens such as salmonellosis, cryptosporidiosis, campylobacteriosis, and giardiasis. Adult cattle maintained in questionable sanitary conditions can transfer these diseases without becoming clinically ill. Calves and yearlings will usually become sick and require treatment. Contaminated water can be a source of pathogens for the cattle; therefore caretakers should use caution in handling diarrheic cattle and never consume water from an unapproved source.

Euthanasia and Disposal

The recommended method of euthanasia is with an appropriate chemical injection. Beuthanasia-D Special, labeled for euthanasia of dogs, can be used to euthanize cattle but must not enter the human food supply. An intravenous dose of 60-80 mg/kg sodium pentobarbital will usually induce anesthesia and unconsciousness, leading to cerebral death in mature animals. Because of the mass injuries that can occur, the volume of chemical euthanasia solution on hand can be exhausted early. An alternative to chemical euthanasia is firing a penetrating captive bolt into the skull at a point intersected by 2 lines drawn from the horn to the opposite medial canthus of the eye. When considering use of captive bolt

ANIMAL CARE & HANDLING

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euthanasia, two aspects to bear in mind are that non-penetrating captive bolt cannot be used as the sole means of euthanasia, and that the USDA has prohibited use of air-injection captive bolt stunning in cattle. Disposal of dead cattle can create a problem due to the potential health hazard and great volume of carcasses. Methods such as deep burial or burning can be done if local air and water quality regulations permit. A good alternative is composting the dead animals with straw and urea added on top. The existing bacteria in the animal's body will digest the carcass, without causing much odor.

Livestock Behavior

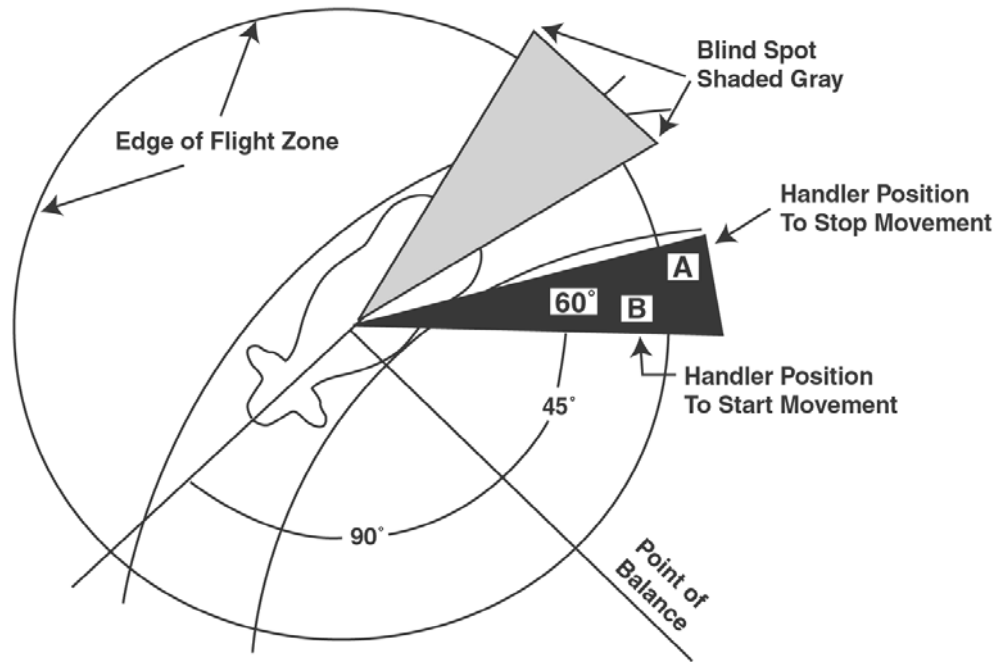
Many people and animals are injured because of a lack of understanding of animal behavior. Police and other emergency personnel often make the mistake of chasing cattle. This results in excited, stressed cattle running through city streets, charging people, and getting hit by cars. Chasing the cattle makes the situation very stressful for the animals and increases hazards to people. Sometimes the best course of action is to sit and wait. Cattle are herd animals and if they can see other cattle they will seek their company. All types of livestock can become agitated and excited within a few seconds, but up to 30 minutes is required for an excited animal to calm down. An excited lone bovine animal can be very dangerous and may charge at people. A steer or cow that is separated from its herdmates may become scared and charge at people if it feels cornered. A basic principle is to avoid chasing and keep the animal calm.

Calm animals can be easily herded and moved by people who have an understanding of the principles of flight zone and point of balance. Livestock can be moved easily by a handler who works on the edge of the flight zone. The flight zone is the animal's personal space. A completely tame animal will have no flight zone and can be touched. Most cattle and sheep will have a flight zone and they will move away when approached. The size of the flight zone is determined by both tameness and the degree of excitement and agitation.

When a person is outside the flight zone, the animals will turn and face the person. When the flight zone is entered the animals will turn around and move away. The handler must avoid deep penetration of the flight zone. Deep invasion of the flight zone may cause an animal to panic. In an attempt to escape, it may run away or turn back and possibly charge the handler.

To make the animal move forward, the handler must be behind the point of balance at the shoulder, but outside the blind spot behind the animal's hindend. The ideal location for the handler is positions A and B on the edge of the flight zone. To make an animal move backwards, the handler must move in front of the point of balance. An animal will usually move forward if the handler moves from the head toward the rear. When the point of balance is crossed, the animal will move forward. Handlers who understand these principles can quietly move cattle and other livestock off of roads and other dangerous places.

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Handler positions for moving livestock. To make an animal move forward, the handler must be behind the point of balance at the animal's shoulder.

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ANIMAL CARE & HANDLING

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TAB E

Animal Care & Handling

Section 11: Guidelines for Swine During Disasters

Contributions by: Dr. Tom Burkgren, Executive Director
American Association of Swine Veterinarians

GENERAL INFORMATION

Background

Swine may be raised in commercial production units, be kept as household pets, or be found as feral swine in southern climates. Their behavior will be dictated, in part, by their source. Commercial and feral swine will not be readily tractable and will generally congregate in groups to forage. Pet pigs are more likely to be found individually and are likely to be reasonably responsive to human handling. All swine are at risk from larger carnivores (e.g., dogs, coyotes) and from vehicular accidents. Adult commercial and feral swine are capable of inflicting injury to human beings if cornered. Pet pigs are more likely to be injured by predators, other swine, and vehicles. Swine may be aggressive toward other animals and will kill them. They should be held separate from other animals.

Behavior During and After a Disaster

Groups of swine can be expected to begin foraging for food quickly after release. They are intelligent and curious animals, with an acute sense of smell. Swine possess a strong snout, which enables them to rook extensively during their scavenging. Swine will not congregate with other animals, but will maintain loosely defined foraging groups. Mature male swine (boars) are capable of immediate and severe damage to animals and to human beings by use of their tusk teeth. Swine are not territorial by nature, thus, danger primarily arises when swine are attacked, cornered, or disturbed during feeding. With the exception of household pets, swine cannot be led or enticed to approach human beings. Swine are deceptively elusive and will attempt to run under or through barricades toward open spaces. Groups of swine are more tractable than individuals. Swine can be driven to desired locations by slowly moving toward them from the sides and rear of the intended direction. Use of gates or panels to block view of open spaces will help direct swine movement. Move slowly without excitement or they will bolt and scatter in all directions. They should be driven slowly to an enclosure with a single open entrance. Food placed on the ground within the enclosure will encourage entry.

Care of Swine After the Disaster

An appropriate gathering location should have a rigid perimeter fence at least 5 ft. high and be solid surface (e.g., tennis courts). A sleeping area of 2.5 ft.² and a minimum of 5 ft.² general space/100 lbs. of body weight is appropriate. Access to larger areas will reduce stress and fighting. Swine are clean animals if the environment allows. Perinatal and young pigs need shelter. Sleeping and feeding areas should be provided away from the low spots in the enclosure. Swine held in a grassy area or where the perimeter fence is not secured into the ground will root under a fence to escape, and will chew and root around any structures available. An electric fence, properly installed 6 to 8 inches off the ground and equal distance within the perimeter fence, will reduce perimeter rooting. Parks and yards with valuable vegetation or structures should be used as last resorts. Fresh water should be made readily

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available. Adequate drinking space should be provided. One drinking place per 8 pigs at least. Swine will drink approximately 8% of body weight/day (more in warm weather). A sunshade should be provided during warm weather (i.e., ambient temperatures > 85°F) and bedding in cold weather (< 50°F). Piles of used newspaper may be used as bedding. Feed may be thrown on the floor of the enclosure from outside. Handlers should not enter the enclosure without assistance. Where possible, swine should be separated by size and not commingled, which will minimize fighting and injury. Boars should be kept separate from one another. Pet swine must be kept away from larger pigs to avoid fighting and death.

Swine are omnivorous and can survive on a wide range of foodstuffs. Cereal grains (corn, wheat, barley, oats) are the preferred food, but vegetables and fruits can be used. Uncooked meats or garbage should not be fed to swine. Food should be spread over a wide area to enable all swine access. A daily grain allowance of approximately 0.5lb/100 lbs of body weight will maintain life for several weeks. For longer periods, a complete swine feed is necessary. Levels over 1.5 lb/100 lbs of body weight may result in weight gain. To reduce fighting and increase satiety, fibrous materials (hay or straw) may be provided daily to effect.

Health Risks for Swine

Unsanitary conditions will result in a poor environment. Manure should be scraped daily from the floor, and bedding should be added in the dry area to improve the conditions. Neonates and weanlings are most at risk of disease. Respiratory and diarrheal diseases (bacterial, protozoan, viral) are most likely increased under these stressful conditions. Extremes of temperature and wind should be moderated as possible. Perinatal and young swine need shelter. Young swine, under 60 lbs, are more susceptible to chilling from winds, cold rain, or snow. Plastic or plywood barriers outside the fence in prevailing winds may provide temporary windbreaks. Adults and hogs greater than 160 pounds are susceptible to heat stress. An overhead tarp or larger vehicle (transport or flatbed trailer) will provide adequate shade for all ages. Sick or injured swine should be separated to reduce further injury or death. Dead animals should be removed immediately to reduce cannibalism.

Goals

- 1 Remove swine from human environment to avoid unnecessary injuries.
- 2 Provide emergency shelter and food for swine.
- 3 Treat injured or sick animals, as resources are available.
- 4 Humanely destroy seriously injured, ill, or intractable swine.
- 5 Properly dispose of dead swine by burial or incineration.
- 6 Return animals to rightful owners once owners are identified and are able to care for the swine properly.

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TABLE 1. Recommended Thermal Conditions for Swine

Type and weight	Preferred range ^a	Lower intervention ^b	Upper intervention ^c
Lactating sow and litter	60-80°F for sow; piglets have 90°F creep area	50°F for sow	90°F for sow
Prenursery, 10 to 30 lb	80 to 90°F	60°F	95°F
Nursery, 30 to 75 lb	65 to 80°F	40°F	95°F
Growing, 75 to 150 lb	60 to 75°F	25°F	95°F
Finishing, 150 to 220 lb	50 to 75°F	5°F	95°
Sows or Boars	60 to 75°F	5°F	90°

^aAdapted from NRC (1981); DeShazer and Overhults (1982); Hahn (1985).
^bBedding, supplemental heat, or other environmental modification is recommended when air temperatures approach the lower intervention points.
^cExcept for brief periods above these air temperatures, some form of cooling should be provided when temperatures approach upper intervention points.

TABLE 2. Floor Area Recommended for Swine in Totally Enclosed Housing^{a,b}

Stage of production	Square feet ^c
Litter and lactating sow, pen (depending on sow size and age of litter)	31-34/pen
Litter and lactating sow, sow portion of staffd	9.2-14/stall
Growing pigs	
12-30 lb	1.7-2.5/pig
30-60 lb	3-4/pig
60-100 lb	5/pig
100-150 lb	6/pig
150-Markete	8/pig
Adultsf	14-16/adult

^a Adapted from MWPS (1983) and Fritschen and Muehling (1987).
^b Close observation and professional judgment in modern facilities may allow higher stocking densities without interfering with the pigs' welfare. Production practices, such as group size, ventilation equipment and rate, and type of floors (partial versus total slates), have an effect on proper stocking densities. Research is ongoing to study space requirements for different production systems.
^c Group area allowances for growing pigs.
^d Stall size: minimum width 22 inches; minimum length 7 feet. Young adult females may be housed in stalls 6.5 feet in length.
^e Based on market weight of 240 pounds. Additional space may be required for heavier pigs.
^f For larger boars or sows, more floor area is needed.

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TABLE 3. Space Recommendations for Pigs in Buildings with Outside Apron ^a		
<i>Space per pig</i>		
<i>Stage of Production</i>	<i>Inside</i>	<i>Outside</i>
Growing-finishing pigs	6 sq. ft.	6 sq. ft.
Sows	11-12 sq. ft.	11-12 sq. ft.
Boars	40 sq. ft.	40 sq. ft.

^a Adapted from Fritschen and Muehling (1987)

TABLE 4. Space and Shade or Shelter Recommendations for Pigs on Pasture ^{a,b}		
<i>Stage of production</i>	<i>Pasture</i>	<i>Shade or shelter</i>
Growing-finishing pigs	50-100 pigs/acre	4 sq. ft./pig to 100 lb. 6 sq. ft./pig over 100 lb.
Sows	10 sows/acre	15-20 sq. ft./sow
Sows and litters	7 sows with litters/acre	20-30 sq. ft./sow and litter
Boars	4 boars/acre	40-60 sq. ft./boar

^a Adapted from MWPS (1983) and Fritschen and Muehling (1987)
^b Space needs for pigs in outside dirt lots may be less than for pigs on pasture.

TABLE 5. Water requirements of pigs. Values (liters/day or gallons/dry) indicate the range of requirements as presented in the literature. ^a		
<i>Class of Pig</i>	<i>Liters/pig/day</i>	<i>Gallons/pig/day</i>
Nursery pigs (up to 60 lbs BW)	2.8 2.5-3.0 L/kg of feed consumed	0.7 0.3 gal/lb of feed consumed
Grower Pigs (60-100 lbs BW)	12-20 2.5-3.0 L/kg of feed consumed	2-3 0.3 gal/lb of feed consumed
Finishing Pigs (100-250 lbs BW)	12-20 2.5-3.0 L/kg of feed consumed	3-5 0.3 gal/lb of feed consumed
Non-pregnant gilts	12	3

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Pregnant sows	12-25	3-6
Lactating sows	10-30	2.5-7
Boars	20	5

^a Adapted from Almond (1995)

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TAB E

Animal Care & Handling

Section 12: Disaster Preparedness for Laboratory Animals

Contributions by: Dr. Charles P. Raflo, Secretary-Treasurer
American College of Laboratory Animal Medicine

GENERAL INFORMATION

Background

Laboratory animals include a variety of species, ranging from mice and small rodents to large primates and even ruminants. Over 90% of laboratory animals are mice and other small rodents, and many are immunocompromised and need special environmental conditions to survive. One common characteristic of laboratory animals is their acclimation to standard temperature and humidity (70° F +/- 2° and 50% relative humidity +/- 10%) and their dependence on being provided commercial food and water. Most are not accustomed to local climatic conditions and will not forage for food or know how to seek shelter. Most laboratory animal facilities have emergency preparedness plans in place and will most likely have provisions for how to handle released animals during a major catastrophe. Attempts should be made immediately to contact personnel from research institutions in the area if laboratory animals are observed at large.

Behavior During a Disaster Event

Most laboratory animals are accustomed to human beings and other animals are much more docile than their wild counterparts. Many will approach human beings in a way that may be perceived as unusual behavior for a wild animal of the same species. Others, such as large primates or carnivores, may, when severely frightened, be dangerous to people in the immediate area.

Depending on the research facility and the procedures being conducted, laboratory animals may be used for a variety of purposes, ranging from noninvasive behavioral studies to major surgical procedures such as organ transplantation or orthopedic surgery. Various species of laboratory animals are used for infectious disease studies, which may pose risks to human beings and animals in the immediate area. Efforts to contact personnel from laboratory animal facilities in the area should be of highest priority in the event that laboratory animals are released during an emergency.

Care of Animals after a Disaster

Laboratory animals require specific care depending on the species of animal and the type of study in which it was participating before the disaster. Special knowledge is required for some of the more unusual species and special food, care, and environmental requirements should be understood. In the event that knowledgeable individuals from laboratory animal facilities in the area cannot be contacted, the advice of laboratory animal medicine specialists should be sought. Several sources of such advice might be the central offices of the American Society of Laboratory Animal Practitioners (ASLAP) and the American College of Laboratory Animal Medicine (ACLAM). The addresses of these offices are provided.

ASLAP Administrative Office
11300 Rockville Pike, Suite 1211
Rockville, MD 20852-3035
Phone: 301-231-6349

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Fax: 301-231-6071
Website: www.aslap.org

ACLAM
96 Chester Street
Chester, NH 03036
Phone: 603-887-2467
Fax: 603-887-0096
Website: www.aclam.org/

In an emergency, a local university or industrial firm might be contacted for similar expert advice. These organizations have, or should have, response plans to disasters, natural or man-made. These organizations have the knowledge, skills, and personnel to handle the specialized animal species and disease status to which these animals may have been exposed.

Most laboratory animals have special identification that identifies the type of project from which they came. Ear tags are used for a variety of species; tattoos are used for dogs, nonhuman primates, and rabbits; and collars or neck chains are used for cats, dogs, primates, and some other species. Implanted computerized chips, which can be read with special reading devices, also may be used to identify laboratory animals.

Special hazards are encountered if laboratory animals have been used for infectious disease or toxicologic studies. These studies may include zoonotic agents or dangerous infectious agents for which the laboratory animals may be immunized against but for which human beings and other animals are susceptible. Extreme caution should be taken if laboratory animals are suspected to have come from infectious disease research institutes or toxicologic research centers.

Although it is highly unlikely that laboratory animals would be roaming free after a major catastrophe or natural disaster, extreme care should be taken if such an event should occur. Laboratory animal species might be incompatible with one another, (e.g., cats and mice), might be extremely dangerous to human beings in the area (e.g., large primates, dogs), might require special environmental conditions for survival (e.g., immunocompromised rodents, desert reptiles), or might require intensive care (organ transplant patients, orthopedic patients).

(Rev. 08/08)

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TAB E

Animal Care & Handling

Section 13: Disaster Preparedness for Small Mammals

Dr. Robyn Barbiers
Director of Veterinary Services/Associate General Curator
Lincoln Park Zoo, Chicago, Illinois

Background

Small mammals are primarily nocturnal or crepuscular animals. This group includes insectivorous, omnivorous, and herbivorous animals. They are primarily solitary and most are very susceptible to stress and flight injuries, with high mortality after capture. While at large, these animals are at risk from dogs and other predators, vehicles, and malicious persons.

Behavior During the Disaster Event

These animals will tend to flee and find the first available "safe" hiding spot.

Behavior During the Immediate Aftermath

These animals will remain hidden until hunger and thirst become driving forces. They will venture out during periods of decreasing light and outside activity to begin foraging or hunting for food.

Directed Movements of Small Mammals

These animals will rarely be seen. Setting baited live traps is probably the best method of capture. You may be able to net an animal if spotted. These animals are not aggressive unless threatened and unable to flee.

Care of Small Mammals after a Disaster

Most of these animals should be individually housed in small sky kennels or crates. Many of these animals dig or gnaw so crate material should be impenetrable and inspected frequently for damage. Mortality will be high after capture. Animals should be kept in a quiet darkened area, away from loud noises, traffic, and inquisitive people to minimize injuries.

Diets are varied. Insectivores can survive on a chopped meat, hard-boiled egg, milk, and produce diet. Herbivores should be given pellets (rodent or rabbit chow), produce, and good quality hay. Potable water should be available at all times. Good sanitation is essential.

Health Risks for Small Mammals after a Disaster

Unsanitary conditions may develop because of the difficulty of cleaning crates. Bacterial diseases, especially enteric, can be fatal. Leptospirosis, enteropathies, pseudotuberculosis, and pasteurellosis are common. The zoonotic disease potential must be considered, and proper hygiene of personnel is critical.

Many small mammals are susceptible to intestinal microfloral disturbance with antibiotic use. Antibiotics that significantly reduce gram-positive organisms, such as penicillin, bacitracin, tetracycline, and erythromycin, may be fatal if used in some species, especially rodents. Broad-spectrum antibiotics, such as sulfonamides or sulfonamide/trimethoprim combinations may be useful.

Tropical small mammals are not acclimated to cooler climates, and supplemental heat should be provided for these species if the temperature falls below 56°F. Shade and adequate ventilation should be provided for all species.

ANIMAL CARE & HANDLING

Goals

- 1 Provide safekeeping, adequate nutrition, and water.
- 2 Attend injured or ill animals as circumstances permit.
- 3 Humanely destroy and dispose of animals that are moribund or have intractably painful injuries.
- 4 Return animals to original facilities if intact or arrange for transfer to facilities outside the disaster area.

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TAB E Animal Care & Handling Section 14: Disaster Preparedness for Small Carnivores

By Dr. Robyn Barbiere
Director of Veterinary Services/Associate General Curator
Lincoln Park Zoo, Chicago, Illinois

Background

Most small carnivores are solitary and territorial, except the wolf which is social. Many of these animals are agile climbers. These animals can be aggressive and dangerous when threatened, hungry or injured. While at large, they are at risk from larger predators, vehicles, and human beings. The initial response may be to shoot these animals because of a perceived threat; however, most of these animals will avoid human contact.

Behavior During the Disaster Event

Carnivores may become disoriented during the disaster. They will flee and attempt to find a secure hiding spot.

Behavior During the Immediate Aftermath

Initially, carnivores are likely to remain near familiar surroundings. They will seek secure hiding spots and as the environment becomes less threatening, will begin cautious exploratory behavior. Most of these animals will become active as light decreases. Most will move independently, except the wolf and similar canids which will tend to form groups. Any of the carnivores are potentially dangerous to human beings approaching or attempting to trap them. Injured and hungry animals are less predictable and usually exhibit more aggressive behavior.

Direct Movements of Small Carnivores

Live trapping can be attempted with the smaller carnivores. Directed movement of carnivores can be accomplished to some degree by providing directed escape routes. Chemical immobilization may be the preferred option.

Care of Small Carnivores After a Disaster

Captured animals should be housed individually, unless the social structure is definitively known. Sky kennels or portable dog kennels can be used if a secure locking mechanism is available.

Fresh water, adequate ventilation and shade are necessary. Most of these animals will consume fresh meat such as mice, rabbits, and chicken. Some will consume canned cat or dog food and some will eat dry food if more preferred feed is not available. Many of these animals can tolerate cold temperatures if bedding is available and they are sheltered from wind. They should be kept in a quiet, darkened area away from traffic, noises, and inquisitive people.

Health Risks for Small Carnivores After a Disaster

Hyperthermia due to hot, humid environments or exhaustion after capture is a principal risk for carnivores. Shade, free air movement, and rest will alleviate this problem. These animals are susceptible to most domestic canine and feline infectious diseases, thus they should be kept separate from domestic carnivores.

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Unsanitary conditions or feed items containing high levels of bacteria may result in enteritis, particularly salmonellosis. Secondly, diarrhea, dehydration, and septicemia may develop.

Goals

- 1 Provide secure confinement.
- 2 Provide adequate nutrition and water.
- 3 Attend sick or injured animals as circumstances permit.
- 4 Humanely destroy and dispose of animals that are moribund, have intractable injuries, or that demonstrate a risk to humans.
- 5 Return animals to original facilities if intact or arrange for transfer to facilities outside the disaster area.

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Animal Care & Handling

TAB E

Animal Care & Handling

Section 15: Disaster Preparedness for Large Carnivores: Bears and Cats

By Senior Author, Dr. Robyn Barbiers
Director of Veterinary Services/Associate General Curator
Lincoln Park Zoo, Chicago, Illinois
and
William K. Baker, Jr., Curator
Little Rock Zoo
Little Rock, Arkansas

Background

Large carnivores are solitary and territorial, with the exception of lions which are social. Large cats and polar bears are carnivorous, while other bears are omnivorous. Most are agile climbers. Bears are great diggers and curious. Cats tend to be secretive and nocturnal. All should be considered dangerous, especially if wounded or cornered. While at large, carnivores are at risk of injury from vehicles and humans.

Behavior During the Disaster Event

Carnivores may be disoriented during the disaster. They will flee from perceived threats if possible and may attack if no escape route is available. Neonatal juveniles and geriatric animals are at greater risk of injury due to exposure or exhaustion.

Behavior During the Immediate Aftermath

Initially, large carnivores may remain near a familiar environment. They will seek a secure hiding place and begin cautious exploration when the environment becomes less threatening. Cats will usually begin searching for food at night. Bears will begin exploring sooner and during the day. All carnivores are a threat to approaching humans, especially if no escape route is available.

Directed Movements of Large Carnivores

Carnivores may return to familiar holding areas if baited with food and the area is kept quiet and free of humans. Directed movement by providing directed escape routes is difficult at best but can be tried by experienced personnel if animals present no immediate danger to people. The key is to keep human presence to a minimum. Chemical immobilization is considered the best option to move these animals.

Firearms and Ammunition

Firearms and ammunition should be readily available at all times. Recapturing a carnivore(s) should not be attempted without an armed response present. The recommended choice of crisis situations that involve dangerous animals is the bolt action rifle. Rifles should be chambered in a heavy caliber such as .30-06 Spr., .300 H&H, .338 Win. Mag., .375 H&H, or .458 Win. and the ammunition should be of a controlled-expansion or solid design. Shotguns can be moderately effective at close range. The recommended choice is the defensive pump action shotgun. It should be chambered in 12 gauge and the ammunition should be either 00 buckshot or slugs depending on the circumstances. An attempt to kill a carnivore should only be undertaken by skilled marksmen, as wounded carnivores are extremely dangerous.

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Care of Large Carnivores After a Disaster

Carnivores should be individually housed unless compatibility in small enclosures is a certainty. Large metal-lined crates (4' x 5' x 10') [1.2m x 1.5m x 3.0m] with approximately 25% surface area of bars or mesh for ventilation can be used. Bear traps made of steel or concrete culverts can also be used. Heavy chain link or ¼" (6.4mm) welded wire topped enclosures can hold most cats except lions and tigers.

Portable water should be available at all times. Cats require fresh meat or a commercial frozen diet daily at approximately 5% of body weight. If fresh meat is used long term, vitamin supplementation will be required to correct the Ca:P imbalance. Bears are more adaptable and will usually consume dog chow fed at 3-5% of body weight daily. Their diet can be supplemented with meat, fish, and produce.

Large carnivores are susceptible to hyperthermia – shade and water should be provided at all times. Misting the crates may also provide relief. Most species are fairly cold tolerant if shelter from wind is provided.

These animals are easily stressed by loud noises and human presence. They should be kept in quiet areas away from traffic, noises, and inquisitive people.

Health Risks for Large Carnivores Following a Disaster

Unsanitary conditions, contaminated food, and improper food handling may result in gastrointestinal disease. Salmonella is a likely problem and because of its zoonotic potential, personal hygiene is critical.

Goals

- 1 Provide secure environmental, potable water and adequate nutrition.
- 2 Attend ill or injured animals as circumstances permit.
- 3 Humanely destroy and dispose of animals that are moribund, have intractable injuries, or that endanger people.
- 4 Return animals to original facilities if intact or arrange for transfer to adequate facilities outside the disaster area.

02/02

Animal Care & Handling

TAB E Animal Care & Handling Section 16: Disaster Preparedness for Small Primates

By Dr. Robyn Barbiere
Director of Veterinary Services/Associate General Curator
Lincoln Park Zoo, Chicago, Illinois

Background

Most small primates are arboreal and diurnal. All primates are very agile and curious. These animals may be human-oriented if they were hand-raised as pets or housed in a facility that handled them frequently or used them for shows. Others will avoid human beings. All primates will bite when threatened and unable to flee. While at large, they are at risk from predators, vehicles, and human beings.

Behavior During the Disaster Event

These animals may become disoriented during the disaster. They will flee from perceived threats and are at risk of injuries during flight. Neonates and juveniles are at higher risk of trampling, exposure, exhaustion, and maternal rejection.

Behavior During the Immediate Aftermath

Social primates initially will hide and attempt to regroup after the disaster; non-social primates will hide. They will often remain near familiar surroundings. As the environment becomes less threatening, these animals will begin exploratory behavior and search for food.

Directed Movements of Small Primates

Primates may be able to be moved by providing directed escape routes. Baiting enclosures with a preferred food item (such as fruit) may be used if the animals are human-oriented. Netting these animals in the open areas is difficult at best due to their agility and their climbing abilities. Cornering a primate in a tree and using chemical immobilization is another option.

Care of Small Primates after a Disaster

Unless the social status of individuals is known, primates should be individually housed in sky kennels or crates. Because of their dexterity and intelligence, locks should be used to secure primate cages. Animals should be kept in quiet surroundings and away from inquisitive humans.

Potable water and adequate nutrition must be provided. Primate chow and produce are adequate for most species short-term. Adequate ventilation and shade are necessary. Most species are not acclimated to cold environments so bedding, windbreaks, and supplemental heat may be necessary if temperatures fall below 55oF.

Health Risks for Small Primates After a Disaster

Unsanitary conditions may develop in holding cages. Enteric pathogens (Salmonella, Shigella, Campylobacter) will take a toll, especially on neonates and weanlings. Many primate diseases are zoonotic, thus, proper personal hygiene of caretakers is crucial. Masks, protective clothing, and gloves should be used when servicing macaques, and all bite and scratch wounds should be treated according to the Centers for Disease Control recommendations.

Animal Care & Handling

Goals

- 1 Provide safekeeping, adequate nutrition, and water.
- 2 Attend injured or ill animals as circumstances permit.
- 3 Humanely destroy and dispose of animals that are moribund or have intractably painful injuries.
- 4 Return animals to original facilities if intact or arrange for transfer to facilities outside of the disaster area.

01/01

Animal Care & Handling

TAB E Animal Care & Handling Section 17: Disaster Preparedness for Large Primates

By Dr. Robyn Barbiers
Director of Veterinary Services/Associate General Curator
Lincoln Park Zoo, Chicago, Illinois

Background

Large primates tend to be diurnal, primarily social, although there are exceptions (orangutans, gibbons, siamangs), and can be terrestrial or arboreal. Most will resort to trees or other high places when stressed. All should be considered dangerous and unpredictable. While at large, they are at risk from vehicles and humans.

Behavior During the Disaster Event

As with all animals, large primates may become disoriented during the disaster. They will attempt to flee from perceived threats, but will attack if no escape route available. Neonates, juveniles, and geriatrics are at higher risk of exposure, exhaustion, or maternal rejection.

Behavior During the Immediate Aftermath

Initially, social primates will hide (often high in trees, roof, etc.) and attempt to regroup after the disaster – vocalizations and aggressive interactions are common during this phase. Non-social primates will hide. They will often remain close to familiar surroundings. As the environment becomes less threatening, primates will begin exploratory behavior and search for food.

Directed Movements of Large Primates

Large primates may be able to be moved by providing directed escape routes. Baiting enclosures with a preferred food item (i.e. fruit) may be used if the animals are human oriented. Cornering an animal in a tree and chemical immobilization is also an option.

Care of Large Primates After a Disaster

Unless the social status of individuals is known and the animals are monitored closely, primates should be individually housed. Since large primates can be very destructive and are extremely manipulative and intelligent, cages must be sturdy and locked at all times. Animals should be kept in quiet surroundings and away from inquisitive humans.

Potable water and adequate nutrition must be provided. Primate chow and produce are sufficient. Adequate ventilation and shade are necessary. In hot environments, misting may be needed to cool the area. In cold climates, bedding, windbreaks, and supplemental heat may be needed.

Health Risks for Large Primates

Unsanitary conditions may develop in holding cages. Enteric pathogens (Salmonella, Shigella, Campylobacter, Balantidium) will take a toll, especially on neonates, weanlings, and geriatrics. Stress and inadequate ventilation may lead to pneumonia, colds, and flu. Many primate diseases are zoonotic, so proper hygiene of caretakers is critical. Masks and gloves are recommended when servicing these animals.

Animal Care & Handling

Goals

- 1 Provide safekeeping, adequate nutrition, and water.
- 2 Attend injured or ill animals as circumstances permit.
- 3 Humanely destroy and dispose of animals that are moribund or have intractably painful injuries.
- 4 Return animals to original facilities if intact or arrange for transfer to facilities outside the disaster area.

01/01

Animal Care & Handling

TAB E Animal Care & Handling Section 18: Emergency Preparedness for Birds

By Diana Guerrero, Consultant
Ark Animals, Inc., Escondido, CA

Background

Due to the diversity of this group, birds present one of the most challenging groups to try and address in a simple format. With twenty-eight or so different orders, the diversity in behavior, feeding, and housing requirements is highly variable. It is recommended that each facility clearly delineate avian needs according to the specific collection needs.

Behavior During the Disaster Event

Birds will vary in behavior if they are wild caught versus captive reared. Most will be nervous in a crisis situation or when removed from their normal surroundings; some will be disoriented.

Behavior During the Immediate Aftermath

The tendency overall will be to flee. Territorial animals that have escaped may stay in close proximity, while colony animals will return to be with their flock members. Food seeking activity will begin almost immediately in many species.

Directed Movements of Free Ranging Animals

Fitness and conditioning will have bearing on the distance these animals travel. Leaving food and water out is essential for many of these creatures, but the risk of loss to predators is high. Using the lure of conspecifics can work well with some of these animals, baited traps, and mist nets are recommended if capture is necessary. Taking advantage of the nocturnal resting habits of many species may be necessary to successful capture.

Care of Birds after a Disaster

It is best to keep these animals in their repaired cages, or in temporary enclosures. Filtered light or covered housing areas will help to keep these creatures calm. In some cases, caging should be kept covered and the animals isolated from noise and high traffic. Avian species should have housing at some distance away from predator animals. Perching and wire cages are important for many species. Some of the more delicate animals will suffer from stress if they remain on the caging floor without perching options. Ratites will require pens and extra caution should be taken when working in close proximity. Shields or barriers are advised as a precaution. Care should be taken with parrot types since they have a tendency to chew and escape by opening latches.

Food options will vary greatly according to species. Pelleted foods, seeds, nectar, and insectivorous or carnivorous dietary needs should be addressed. Both food and potable water need to be changed and provided fresh daily. A thorough needs assessment is advised for each collection since each species may require a different diet; mixed seed diets, pellets, commercial chow, canned substitutes for protein, vegetables, fruit and other related products should also be considered as emergency provisions.

Seed should be stored in water and airtight containers to prevent mold and contamination. Food and water dishes should be changed daily. If available, fresh fruits and vegetables are recommended for applicable species however they must be properly cleaned since insecticides can pose serious health risks.

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Health Risks for Birds after a Disaster

No specific recommendations. Stress related complications are the biggest risk. Care should be taken to splint broken wings or other appendages. A bird specific coagulant should be included for blood feathers, broken toenails, or related use.

Risks can include enteropathogens, Aspergillosis, and sometimes Salmonella, or Psittacosis. Other dangers include conjunctivitis or the ingestion of strange objects. When housing avian species, separate quarters away from mammals are recommended.

Avian diversity is a challenge. Tropical birds require warm temperatures so keeping cages out of drafts and other adjustments may be essential to survival. Waterfowl, highly aquatic species such as penguins, and flamingos will require additional adaptations in housing and care.

As a general notation, if a bird is traumatized or ill, lower perches (if applicable) and put food and water dishes on floor of caging for easy access. Cage bottoms, food and water dishes should be cleaned daily to minimize vectors and disease. Newspaper or scrap paper is highly suggested to monitor droppings.

Toxicity in the environment is a hazard to avian species. Care should be taken with cleaning solutions since their fumes can be toxic to birds. Floor substrates should be used with caution since some print inks are toxic; other items could pose a threat if ingested. Galvanized wire, bowls, or other articles containing lead can be fatal to this group.

Goals

- 1 Provide for safekeeping, adequate nutrition and water of avian specimens held.
- 2 Attend injured or ill animals as circumstances require and resources permit using zoological triage parameters.
- 3 Humanely destroy and provide appropriate disposition for avian specimens that are moribund, have intractably painful injuries, or that demonstrably endanger humans or other animals.
- 4 Return animals to their exhibits or facility when appropriate, or arrange for transfer to facilities outside the disaster area.

Disaster Kits & Transport Housing Ideas

You can obtain a kit already made or devise one yourself. For birds there are several important items that can be included (See Bird Collection Checklist). Check with your Avian Veterinarian to see if there may be anything else to add.

One of the biggest concerns if you have a large collection is how do you move them and where do you find the space to store the supplies you'll need? Holding crates and vehicles are big priorities. Try buying some of the collapsible wire dog crates and lining them with mesh (on the outside) attached with wire crimps. They can be stored without taking up lots of space and will have ample ventilation and room for several birds. If you are creative you could probably think of how to design partitions.

For softbills try some of the collapsible cardboard cat carriers. The vents can be adapted or you can obtain the carriers without the holes and design them yourself. The new portable kennels for cats and dogs that make mobile tents with mesh for air are great. They require little storage space, weigh very little, and spring into shape without fuss providing tremendous space once they are expanded. They are light, compact, and easily cleaned and that sounds good to me! Brainstorm with other groups and see what you come up with. One company has recently designed handles for the wire crates from input showing they were needed!

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Disaster Preparation Checklist

- 1 Evacuation plan designed. Posted in various visible locations. Practice drills held with employees and volunteers for different scenarios. Time them.
- 2 Emergency numbers on disaster plan. Activation procedures if communication lines are down. Also include procedures for road closures.
- 3 Emergency supply cache. Emergency equipment and supplies need to be compiled into an easily accessible location. Hands Off This Stash!!
- 4 Human kits with supplies for employees and volunteers. Invest in a good prepackaged kit and add to it for your own needs. This will save space.
- 5 Other items to consider: light sticks, flashlights with batteries/solar chargers, extension cords, three prong adapters, rope medications, extra glasses, solar charged/crank power radio, hand-held CB, cellular phone, sunglasses, hats or visors, Avon Skin So Soft® products: lotion, suntan lotion, dry mist (great for bug repellent).
- 6 Vehicle needs. Include 4X4's and trailers, boats, etc.

Bird Collection Kit Checklist

Penlight/Small flashlight	Syringes (1,3,6,12 cc.)
Q-tips®/Swabs	Pedialite®
Hot Water Bottle	Lactated Ringers Solution
KY Jelly® (not oily)	Towels (Restraint/Other)
Nail Trimmers/Clippers	Scissors
Hydrogen Peroxide	Iodine Scrub (can stain)
Gauze	Nolvasan® (will not stain)
Panty Hose (restraint)	Needle Nose Pliers (Blood Feathers)
Ice Cream Sticks (Splints)	Care Fresh® or Flooring Material
Ophthalmic Drops/Ointment	Topical Ointment (Burns/Injury)
Antibiotics (Oral/Injectable)	Dexamethazone®
Sheets or other cage covers (smoke/visual barrier/heat/conservation/calming)	
Saline Solution (Flushing Wounds)	
Alcohol (Used to wet feather to inspect injuries, dries with feathers left clean and in good shape)	
Styptic Powder (Cornstarch/Flower to stop bleeding)	
Transparent Tape/Masking Tape (to hold back feather)	
Plastic bags (for soiled flooring material)	
Emergency Food/Water Bowls (Paper for daily disposal/Hygiene)	
Copies of Important Records (Veterinary/ID/Breeding/Etc.)	
Update Monthly	

Tips for Injured Birds

Keep Warm (85-90 degrees F)
Lower perches (to prevent further injury by falls)
Lower food and water for easy access
Monitor droppings
Remove grit
Isolate from others
Place in quiet environment
Avoid drafts

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Veterinary Transport

If you have to transport to the veterinarian remember to:

Leave the food and water dish in the cage or bring them.

Empty the water dish before transport, so splashing does not ruin a droppings assessment.

Remove grit to prevent over use and impaction under stress.

Bring any medications given for the veterinarian to see.

Bring the bird in its own cage if possible. If not, bag the flooring for the veterinarian to check.

Do not clean the cage before visiting the veterinarian since it is important to the assessment, especially the droppings.

Other Considerations

Plastic and fiberglass in your facility can give off toxic fumes in a fire situation. Replace them with metal.

Super glue, styptic sticks, and commercial heat/cold packs can be toxic to birds.

Most ointments are too oily for feathers.

In earthquake areas, cages should be secured. Careful placement of toys is also important to prevent injury.

Birds should have identification bands, tattoos, microchips, or DNA fingerprinting to help identify them if they escape.

Include equipment for tube (gavage) feeding in your kit in case you have babies.

Generators are critical if you have incubators, brooders, or isolettes. Don't forget the gas/fuel for the generator!

Include dried fruit/baby food in the bird kit. Don't forget the scoops and stress vitamins! (Both for yourself and the birds.)

Help Sources

Network with other professional breeders in your area, involved bird clubs, and other hobbyists in setting up a community plan. There is a great shortage of Bird Disaster Rescue Specialists, so if you know of some that are not included in the list send them to Ark Animals.

Ark Animals
PO Box 1989 PMB 215
Big Bear Lake, CA 92315
www.arkanimals.com

Tri-State Bird Rescue & Research
110 Possum Hollow Road
Newark, DE 19711
www.tristatebird.org

International Bird Rescue Research Center
699 Potter Street, Aquatic Park
Berkeley, CA 94710
www.ibrrc.org

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TAB E

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Section 19: Guidelines for Poultry During Disasters

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Background

Poultry refers primarily to chickens and turkeys. Minor species include ducks, geese, and game birds. All of these may be raised commercially or as pets or “backyard” flocks. Commercial chickens are further subdivided into broiler chickens (raised for meat and slaughtered between 5 and 9 weeks of age), layer chickens (leghorn type for table egg production as adults), and breeder chickens (either layer or broiler breeders, adults whose progeny are the two previous types). Young breeders prior to sexual maturity are referred to as pullets. Turkeys can be either breeder turkeys (adults 30 to 65 weeks of age) or meat type turkeys (slaughtered at 13-18 weeks). Most poultry are kept confined to some degree, whether in small pens or coops for yard birds, fenced ranges for turkeys in some areas, or large-scale commercial housing. Most broilers, breeders, and turkeys are now kept in large houses, loose on the floor, while layers are caged.

Poultry are flock animals; therefore, they are more comfortable being together in groups. They have a brittle bone structure due to their ancestry for flight, and any handling should be done with care to avoid bone fractures. The legs are the strongest bones so capture and gentle handling should be by the legs. Poultry, especially young birds, are not adept at regulating temperature (both high and low); therefore, it is necessary to avoid temperature extremes. They have very good eyesight and will fly or attempt to fly whenever approached by non-familiar persons or objects. Even familiar people in different clothing, i.e. white coveralls, will cause flight behavior.

Behavior During a Disaster

Poultry are very uncomfortable whenever there is a change in the daily routine or surroundings. Therefore, they will become extremely agitated and try to fly away from the unusual. They will hide under objects especially in dark or shaded locations. Adult birds can go several days without eating but will quickly dehydrate without water. Chicks or young turkeys (referred to as poults) between the ages of 1-3 days can go without eating or drinking but must have both soon. Placing birds in a quiet area of low light intensity together in a group will help to calm them. Chickens can fly and will fly out of any enclosure without a top. Turkeys are less likely to fly but can at a young age (less than 20 weeks). Moving slowly and not making sudden movements that will startle them will keep them calm and will make handling easier.

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GUIDELINES FOR BROILERS AND BROILER BREEDERS DURING DISASTERS

Behavior During and After a Disaster

Broilers and breeders are very uncomfortable with changes in the daily routine or surroundings. They will attempt to flee from unusual disturbances. In pens or buildings, fleeing birds may pile up to great depths and smother large numbers of birds. After a disturbance, the frightened birds will tend to hide under objects and in dark or shaded areas. Individual broilers and breeders usually remain in a very localized area of their pens or housing. If a poultry house is purposefully opened or severely damaged, the birds will leave the house only very gradually, and disperse only very locally over a number of days. Retrieval of large numbers of remaining dead, injured, and uninjured birds from under collapsed structures, without injury to the rescuers and remaining birds, can be a difficult and dangerous problem. In many cases, the safest, most practical, and most humane solution is to seal the structure with tarps and euthanize the remaining birds with a gas such as carbon monoxide or carbon dioxide.

Commercial meat birds do not develop oily feathers like wild birds, and are susceptible to wetting. Severe wetting can lead to hypothermia and death, even in moderate temperatures, especially in younger birds. Meat birds do not fly well and are not conditioned for extreme exertion. They are consequently very susceptible to predation if released. Chickens, especially breeders, develop stable social structures. Disturbance of this structure can result in fighting, feather picking, cannibalism, and other vices. Mixing of groups, even from different parts of the same house, is best avoided if possible. Placing groups together in a quiet area of low light intensity will help calm the birds.

Capture, Containment, Restraint, and Transport

Some broilers and breeders are curious and will approach people to investigate, but they are generally quite wary and cannot be enticed or led. They can be driven with difficulty. Several people are needed, to the sides and rear of the intended direction. Most poultry companies will have large nets that can be strategically placed to direct or capture groups. All movements should be slow and deliberate, or the group will scatter. Meat chickens can fly to a limited extent, and may escape low enclosures without a top. Care must be taken to avoid crowding and piling within pens or enclosures. Loose birds should be caught by driving into a secure pen, building, or corner, and catching by hand or with nets or catching hooks. Broilers and breeders are best caught and carried upside down by both legs, with no more than 3 per hand. Alternatively, a bird may be carried by pinning both wings over the back by the proximal humerus. Carrying birds by one leg or wing or by the distal wings may result in struggling and severe damage. When practical, it is much easier to catch commercial birds after dark or with house lights off as they become much less mobile. To catch the birds, personnel may wear headlamps with a red filter.

Transport of broilers or breeders is best accomplished in commercial wire or plastic coops designed for that purpose. These usually should be available around any poultry operation. Alternatively, boxes, crates, and so forth, with holes cut for ventilation, can be used. Density is the main consideration in transport, and is dictated mainly by the size of bird and weather conditions. As a guideline, commercial Bright coops measure (internal dimensions) about 30 x 45 inches (9.4 ft²) (76 x 114 cm, about .9 m²) and will accommodate about 20, 5-pound (2.27 kg) broilers in cool weather, or about 10 pounds per ft² (50 kg/m²). Bigger birds require more space, and density must be decreased considerably in warm or hot weather. Boxes with holes will not provide the airflow of coops, and care must be taken not to crowd or overheat birds in boxes or other transport enclosures. Birds also must be protected from extreme cold or wetting during transport.

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Care of Broilers and Breeders after a Disaster

Feed and Water

Newly hatched chicks can survive 3 days without food or water, but must have both immediately thereafter. Older birds can survive a number of days without feed, but will dehydrate rapidly without water, especially in warm weather. Cannibalism may result from feed deprivation. Also, re-feeding after even a short period of deprivation may result in piling, scratches, and smothering if the feed is not distributed widely enough to a large group. Broilers and breeders become accustomed to the style of feeders and drinkers with which they are supplied, and it is best to duplicate those systems in emergency quarters if possible. Commercial birds retain their foraging instincts and will locate feed and water presented by alternative means, however. In emergencies, feed can be scattered on the ground and water can be presented in open containers. Optimally, pullets and breeders need about 6 inches (15cm) of chain feeder per bird or 1 pan feeder per 10 birds, and 1 bell drinker per 80 birds, 1 nipple drinker per 10 birds, or 1-cup drinker per 25 birds. Broilers need at least 2 inches (5cm) of chain feeder per bird or 1 pan feeder per 50 birds, and 3/4 inch (2 cm) of linear drinker space per bird, 1 bell drinker per 100 birds, 1 cup drinker per 28 birds, or 1 nipple per 15 birds. If possible, birds should be supplied with a standard balanced poultry diet, or a close approximation. Major constituents of average diets are presented in Table 1.

Table 1. Dietary constituents of typical broiler diets:

Age (days)	Cal /lb.	% Protein	% Sulfur AA	% Avail. Phos	% Ca	% Na
0-18	1400	22.0	1.0	0.43	0.90	0.21
18-35	1430	19.5	0.88	0.39	0.82	0.22
35-market	1465	16.5	0.72	0.31	0.71	0.21
Pullets	1300	15.3	0.61	0.39	0.91	0.22
Breeders	1325	15.4	0.63	0.37	3.20	0.20

Most poultry diets are composed of about 60% corn and 25% soybean meal, with the remaining 15% consisting of fat, protein meals, minerals, and vitamins. In an emergency situation, cracked or coarsely ground grains such as cracked corn can support the birds for 7-10 days. In such a situation, supplemental vitamins via the water are advisable. Commercial poultry operations and suppliers maintain multiple vitamin packages for water administration. Breeders in lay would need extra calcium, such as 2 lbs. of feed grade limestone or oyster shell per 100 birds, mixed with the grain. Broilers and breeders would typically consume the amounts of feed in tables 2 and 3. Reduced rations may be necessary during emergencies. If breeders go out of lay due to the stress, feed consumption should be reduced accordingly.

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Table 2. Typical daily broiler feed consumption

Age (days)	Lbs/1000	Age (days)	Lbs/1000	Age (days)	Lbs/1000
1	15	20	160	39	305
2	25	21	170	40	310
3	35	22	180	41	315
4	45	23	190	42	320
5	50	24	200	43	325
6	55	25	210	44	330
7	60	26	225	45	335
8	65	27	235	46	340
9	70	28	250	47	345
10	80	29	255	48	348
11	85	30	260	49	350
12	90	31	265	50	360
13	100	32	270	51	365
14	110	33	275	52	370
15	120	34	280	53	375
16	120	35	285	54	380
17	130	36	290	55	380
18	140	37	295	56	390
19	150	38	300		

Table 3. Typical daily broiler breeder chicken feed consumption

Age (wk.)	Lbs./100	Age (wk.)	Lbs./100	Age (wk.)	Lbs./100
1	3.7	13	15.3	25	27.2
2	5.4	14	16.0	26	28.0
3	7.9	15	16.6	27	29.3
4	8.8	16	17.8	28-35	35.1
5	9.3	17	19.2	36	34.6
6	10.2	18	20.1	40	34.2
7	11.0	19	20.9	44	33.7
8	11.8	20	21.8	48	33.3
9	12.5	21	22.6	52	32.8
10	13.3	22	23.4	56	32.4
11	14.0	23	24.8	60	32.0
12	14.7	24	25.7	65	31.4

Water should be cool and potable. If water quality is doubtful, add 1 oz of household bleach (5.25 % sodium hypochlorite) per 50 gallons of drinking water. Expected consumption is given in table 4.

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Table 4. Daily water consumption of meat-type birds.

Gallons/1000		
Age (weeks)	Broilers	Pullets / Hens
1	18	18
2	28	28
3	40	40
4	50	42
5	60	
6	70	42
7	80	
8		47
10		53
12		59
14		64
16		71
18		80
20		87
22		94
24		103
26		112
28 on		140

Birds can survive on smaller amounts of water, especially if rations are decreased and production (growth, eggs) declines. This chart is based on usual production and normal brooding and ambient temperatures; very hot conditions will increase water requirements by 6.5% per 1.8 OF (1 0 C) rise in temperature.

Shelter

Commercial meat chickens (broilers) are susceptible to overheating, chilling, wetting, and predation. They should be provided with a secure enclosure that contains the birds, excludes predators, and allows easy feeding, watering, and examination of the birds. The enclosure should provide an area of complete shelter from precipitation for all birds. Shade should be provided in hot weather, and protection from wind and temperature extremes in winter. Optimally, displaced birds would be placed in another serviceable commercial facility. If none is available, in mild weather, an outdoor chicken-wire pen of sufficient height (6 feet or more) with some shade and rain shelter may suffice for short periods. In more severe weather, some sort of enclosure will usually be necessary, especially for younger birds. Table 5 gives the target temperature for various ages of broilers.

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Age (weeks)	Target Temperature	
	F	C
1	90	32
2	85	29
3	80	27
4	75	24
5 and beyond	70	21

The first 3-4 weeks of age are critical; temperatures much below those listed will result in stress, illness, or even death. Adult birds with good feathering, proper acclimation, and shelter from wind and rain can survive outdoors during a typical southern US winter, and can withstand short periods of subfreezing temperatures, but non-acclimated adults would be severely stressed by sudden exposure to cold. Conversely, adult birds become increasingly uncomfortable as temperatures exceed 90°F (32°C) and deaths may begin to occur as temperatures climb over 100°F (38°C) in commercial meat-type flocks.

Density in emergency housing is important. Commercial broilers are housed to yield about 6 pounds per square foot at slaughter age. Depending on slaughter weights, this translates into initial placement densities of anywhere from approximately 0.65 to 1.0 ft² per bird with an average of 0.78 ft² for 5-pound birds. Bear in mind that commercial structures are designed to accommodate these densities. Even in these purpose-built buildings, loss of the ventilation system (such as in a power outage) with market-age birds in warm weather can result in loss of the entire flock in as little as 30-45 minutes, due to massive heat buildup. Use of alternative structure such as barns or sheds must take into account the ventilation and heat control requirements, and much lower densities are needed. Breeders are given about 1.9 ft² per bird.

Dim light will help calm the birds. Broilers usually benefit from a period of darkness at night, but if they have been reared under continuous light, they should be gradually introduced to darkness unless, of course, light is not available. Developing pullets should be kept on their lighting schedule if possible, or their reproductive development will be impaired. Hens in lay are generally provided with about 16 or 17 hours of reasonably bright lights (at least 3 foot-candles).

If birds were to be maintained in a temporary enclosure for more than a few days, some sort of absorbent bedding would be desirable. Commercial producers prefer softwood shavings, sawdust, rice hulls, or pulverized paper. In an emergency, pine straw, chopped wheat straw, chopped leaves, ground peanut hulls, or similar fibrous plant residues could be used. Deep bedding will help birds withstand cold weather as well.

Health Concerns

Respiratory and enteric diseases are the most common problems in broilers, and the disruptions in care associated with disasters would greatly increase the probability of disease. Different commercial producers may use different vaccination programs, and mixing of birds from different sources further increases the chances of disease and should be avoided if possible. Chickens are almost always mass medicated via feed or water when treatment is needed.

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Respiratory diseases usually begin with a viral component, most commonly Infectious Bronchitis Virus or lentogenic Newcastle Disease Virus. Secondary bacterial infection of the air sacs, usually with *E. coli*, causes the more severe clinical signs and mortality. The tetracyclines (tetracycline, oxytetracycline, or chlortetracycline) at 25 mg/pound of body weight via the water, or 500 gm/ton of feed, are commonly used for air sacculitis. Sulfonamides, such as sulfadimethoxine at 1.875 gm/gallon of drinking water (0.05%), or sulfadimethoxine and ormetoprim at 113.5 gm and 68.1 gm respectively per ton of feed may be more effective.

Most broilers are continuously medicated with preventative medications for coccidiosis. Disruption of feeding programs could lead to outbreaks of coccidiosis and its common sequel, necrotic enteritis, a clostridial enteric disease. Coccidiosis is treated with amprolium at 0.012 to 0.024% in the drinking water, or sulfonamides such as sulfadimethoxine at 0.05% or sulfaquinoxalene at 0.04%. These are typically administered for 3 days, followed by a 3-day break, and then another course of 3-5 days at half the original dose. Necrotic enteritis can be treated with bacitracin at 200-400 mg/gallon of drinking water, or lincomycin at 64 mg/gallon, usually for 5 days.

Wounds may lead to outbreaks of gangrenous dermatitis, a clostridial skin infection. Lincomycin or tetracyclines can be used as above. The disruptions associated with disasters also seem to increase the likelihood of more serious endemic diseases such as mycoplasmosis and laryngotracheitis, and even exotic disease such as avian influenza and velogenic Newcastle Disease.

GUIDELINES FOR EGG-TYPE POULTRY DURING DISASTERS

Background

Egg-type birds in general are relatively resistant to environmental diversity. Young pullets (day-old to 4 weeks) are the most susceptible to environmental conditions and should receive first priority in case of a disaster and be placed in a new facility within 24 hours after the disaster. If birds are out in the open, temporary arrangements should be made for penning the birds and a means of reducing wind and rain exposure if at all possible.

Behavior During a Disaster Event

Egg-type birds are, by nature, very distrustful of humans and will attempt to run or fly away if loose. Once loose, the birds may need to be cornered by more than one person and caught in a corner or against a wall. Catching hooks or nets on long poles are very useful tools in catching loose birds. If the birds are still in their cages, the birds can be removed by grabbing both legs and gently pulling them out. Be certain to not allow the free birds to fly out of the cage while the door is open.

Transport

Transport of poultry to the temporary housing facility can be boxes such as egg cases reinforced with fiber egg flats in the bottom and air holes in the cardboard for smaller birds up to 3 kgs or plastic or wooden coops designed for poultry use for larger birds. Birds should be carried by their legs, both legs in a hand, upside down. Birds can also be temporarily restrained by tying several birds' legs (both legs) with twine or rope.

Euthanasia

Euthanasia may be needed if facilities cannot be located for placement or birds may be sufficiently injured and need to be put out of their misery. The two most commonly used, humane methods of euthanasia are cervical dislocation or CO₂ asphyxiation. Cervical dislocation can be done without any special equipment but requires training and skill while CO₂

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asphyxiation requires a CO₂ tank with a hose and a receptacle such as a large trash can (with lid) or dumpster with tarp or gas-proof cover.

Environment Requirements – Shelter

A shelter is needed that will provide the birds protection from wind, rain, predators, and the sun. Some sort of litter, such as shavings, straw, or rice hulls, will be needed for bedding on the floor. If cages can be obtained, no bedding will be required.

Environment Requirements – Space

Up to 8 weeks of age, pullets need the following space allotments per bird: Water - 0.5 in. trough, 150 birds per fount, or 1 nipple for 20 birds. Feed - 1.0 in. feeder trough or 60 birds per pan or tube feeder. Floor - 22 sq. in. cage or 0.5 sq. ft. litter floor.

Pullets from 8 to 18 weeks need the following space allotments per bird: Water - 1.0 in. trough, 100 birds per fount, or 1 nipple for 10 birds. Feed – 2 in. feeder trough or 30 birds per pan or tube feeder. Floor – 44 sq. in. cage or 1.0 sq. ft. litter floor.

Layers older than 18 weeks need the following space allotments per bird: Water – 1.0 in. trough, 75 birds per fount, or 1 nipple for 8 birds. Feed – 3 to 4 in. feeder trough or 25 birds per pan or tube feeder. Floor – 60 sq. in. cage or 1.5 sq. ft. litter floor. Nests (floor birds) – 5 birds per individual bird nest or 1 in. linear frontal space per bird with colony-type nests.

Environment Requirements – Feed

If at all possible, obtain complete rations that contain the needed protein, energy, calcium phosphorus, sodium, trace minerals, and vitamins needed for growth and/or egg production. Young pullets are normally fed a 20 % protein, 1 % calcium complete Starter ration to 4 to 6 weeks of age. Growing pullets are fed a complete 16 % protein, 1 % calcium Grower ration from 6 weeks to 16 to 18 weeks of age when a high calcium (4 %), 18 % protein complete Layer ration is fed.

Approximate daily feed consumption per 1000 birds at different ages is as follows: 1 week – 25 lbs. 5 weeks – 65 lbs. 10 weeks – 120 lbs. 15 weeks – 150 lbs. 20 weeks – 180 lbs. 25 weeks and over - 230 lbs.

Any class of birds can temporarily be fed cracked grains for up to a week if there is nothing else available. Layer birds on all grain rations also will need an additional source of calcium if laying eggs. Giving 2.25 lbs. of feed grade limestone or oyster shell per 100 birds on top of the grain mixture per day should satisfy this need. Birds receiving only grain rations should also receive daily vitamin supplementation in the water using a commercially available, complete vitamin pack for water use according to the recommendations on the packet.

Environment Requirements – Water

Water should be supplied before feed. Clean, potable water in clean troughs or round founts are desired. Clean out the troughs daily. Maintain a low water level (a 0.5 inch depth is enough) in the trough to reduce wastage and wet litter. If the potability of the water is questioned, Clorox can be added to give 1 to 2 ppm chlorine (2 tsp. per 5 gallons drinking water or, if using a medicator, add 1 ounce Clorox per gallon stock metered at 1 ounce per gallon of water). Remember that water consumption will increase dramatically (up to 50 % more) when house temperatures increase to over 80F. Approximate daily water consumption per 1000 birds @ 70 F at different ages is 5 gallons @ 1 week, 15 gallons @ 5 weeks, 25 gallons @ 10 weeks, 33 gallons @ 15 weeks, and 50 gallons during lay (after 18 weeks).

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Environment Requirements – Temperature/Ventilation

Young pullets need a relatively high temperature starting at 90 F for the first 3 days and declining to 70 F by 21 days of age. Thereafter, a 70 F house temperature is ideal but can vary down to 55 F or up to 90 F. In hot weather, fans may be needed to blow cooling air over the birds. If the shelter is tightly enclosed, an exhaust fan run on a timer (so many minutes out of ten) may be needed to remove CO₂, ammonia, and other waste gases. Litter moisture is the most useful guideline as to how to ventilate and heat a house. If litter sticks together when squeezed in the hand, it is too moist.

Environment Requirements – Light

Light is desired to give the pullets and layers greater visibility of food and water. Also, light is used to control the reproductive cycles of the birds. Pullets are kept on 22 hours of day length during the first week then can be dropped to a 14-hour day until maturity. A simple household lamp timer can be used to control the day length. At maturity, usually around 16 to 18 weeks of age, depending on weight gains and strain of bird, the day length is increased at the rate of 30 minutes per week until a final day length of 16 to 17 hours is reached.

As egg-type birds are light sensitive, a low intensity light can be used giving approximately 0.2 to 0.3 foot candles at the feeder trough.

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GUIDELINES FOR COMMERCIAL TURKEYS DURING DISASTERS

Background

Turkeys in general are relatively resistant to environmental diversity. Poults (day-old to 4 weeks), being the most susceptible to adverse environmental conditions, should receive first priority in case of a disaster and be placed in a new facility within 24 hours after the disaster. If birds are out in the open, temporary arrangements should be made for penning the birds and a means of reducing wind and rain exposure if at all possible.

Behavior During a Disaster Event

Turkeys are, by nature, very curious and inquisitive animals. If humans are in their environment, they will flock to them and follow them, but shy away from being handled. Several people working together can move small groups of birds by “herding” them, waving plastic bags to steer the birds. This technique is more efficient than trying to catch individual birds. If individual birds need to be carried, they should be carried by their legs, both legs in one hand, upside down.

Care of Turkeys After the Disaster

Poults (0 – 4 weeks of age)

Poults should be provided with shelter from the elements or, preferably, a temporary housing facility. Transport of poults to the temporary housing facility can be by boxes such as egg cases with air holes large enough to allow air movement but not so large as to allow the poults to escape. The temporary housing will need some sort of bedding. Shavings, rice hulls, straw are some commonly used bedding but anything absorbent will do.

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Adult Birds (> 4 weeks of age)

Older turkeys can be temporarily penned outdoors using chicken wire and fence posts. However, this is only temporary as they are at risk from predatory animals. Turkeys will generally not fly over fencing, especially if adequate space, flock mates, feed, and water are available within the enclosure. A shelter that will provide the birds protection from wind, rain, predators, and the sun is preferred. Plastic or plywood barriers outside a fence in prevailing winds may provide temporary windbreaks. Once the birds are put in a temporary housing, some sort of litter, such as shavings, straw, or rice hulls, will be needed for bedding on the floor.

Euthanasia

Euthanasia may be needed if adequate shelter cannot be provided or if the birds are sufficiently injured to require a humane death. The two most commonly used, humane methods of euthanasia are cervical dislocation or CO₂ asphyxiation. Cervical dislocation can be done without any special equipment but requires training and skill and is only appropriate for small numbers of animals (<50). CO₂ asphyxiation requires a CO₂ tank with a hose and an enclosed area such as a tarp laid on top of the birds with the edges buried to hold the tarp to the ground.

Environment Requirements – Feed

If at all possible, obtain complete rations that contain the needed protein, energy, calcium phosphorus, sodium, trace minerals, and vitamins needed for growth. Young poults are normally fed a 28 % protein, 1.5 % calcium and .8% available phosphorus Starter ration to 9 weeks of age. Growing turkeys are fed a 24 % protein, 1.5 % calcium and .7% available phosphorus ration from 9 weeks to 12 weeks of age for hens and 14 weeks of age for toms. Finishing hen turkeys are fed an 18% protein, 1.0% calcium, and .5% available phosphorus from 12 weeks to market. Finishing tom turkeys are fed 16% protein, 1.1% calcium, and .55% available phosphorus.

Approximate daily feed consumption per 100 birds at different ages is as follows: 1 week – .8 lbs. 9 weeks – 50 lbs. 12 weeks – 600 lbs. for hens and 1000 lbs for toms.

Any class of birds can temporarily be fed cracked grains for up to a week if there is nothing else available. Birds on all grain rations also will need an additional source of calcium and phosphorus. Top dress cracked corn with a calcium source, i.e. dicalcium phosphate or oyster shell, etc. Birds receiving only grain rations should also receive daily vitamin supplementation in the water using a commercially available, complete vitamin pack for water use according to the recommendations on the packet.

Environment Requirements – Water

Water should be supplied before feed. Clean, potable water in clean troughs or round founts are desired. Clean out the troughs daily. Maintaining a low water level (a 0.5 inch depth is enough) in the trough will reduce wastage and wet litter. If the potability of the water is questioned, Clorox can be added to give 1 to 2 ppm chlorine (2 tsp. per 5 gallons drinking water or, if using a medicator, add 1 ounce Clorox per gallon stock metered at 1 ounce per gallon of water). Water consumption increases dramatically as temperatures increase (Table 1).

Caution: Turkeys often have difficulty in locating the water if drinker type is changed. Therefore, be sure the birds have found the new water sources.

Environment Requirements – Temperature/Ventilation

Young poults need to be able to move within a range of temperatures from 80 to 90 F for the first 3 days and declining to a constant 75 F by 21 days of age. Thereafter, a 70 F house temperature is ideal but can vary down to 55 F or up to 90 F. If the temporary housing is tightly

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enclosed, fans may be needed to blow cooling air over the birds in hot weather and exhaust fans run on a timer (so many minutes out of ten) may be needed to remove CO₂, ammonia, and other waste gases. Litter moisture is the most useful guideline as to how to ventilate and heat a house. If litter sticks together when squeezed in the hand, it is too moist. If the birds are penned outside, an area with shade (cloth or tarp) will be needed in the summer and an area to shield the birds from snow/freezing rain/blowing wind (wall, overhead cover) will be necessary.

Health Risks for Turkeys

Unsanitary conditions will result in a poor environment. If the bedding becomes wet, more should be added to provide clean, sanitary living conditions for the birds. Respiratory and diarrheal diseases are most likely increased under stressful conditions. Extremes of temperature and wind should be moderated as much as possible. Sick or injured turkeys should be humanely euthanized. Dead animals should be removed immediately to reduce cannibalism.

Goals

- Remove turkeys from human environment to avoid stressing the animals.
- Provide emergency shelter and food for turkeys.
- Treat injured or sick animals, as resources are available.
- Humanely euthanize seriously injured or ill turkeys.
- Properly dispose of dead turkeys by burial, composting, or incineration.
- Return animals to rightful owners once owners are identified and are able to care for the turkeys properly.

Table 1. Water Requirements per 1000 Turkeys		
Weeks of Age	50-70 F	95+ F
1	10 Gallons	10 Gallons
5	60 Gallons	110 Gallons
10	155 Gallons	265 Gallons
15 +	215 Gallons	360 Gallons

Table 2. Environmental Needs for Turkeys			
Weeks of Age	Birds/6' Drinker	Birds/Feed Pan	Sq Ft/Bird Floor Space
0 – 6	200	25	1
6 – 12	150	60	2
13 – 17	150	60	3
17	150	60	4

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TAB E Animal Care & Handling Section 20: Reptiles – Crisis Management Protocols

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Background

Reptiles are ectothermic vertebrates that rely on the temperature of the environment for regulation of their body temperature. As a rule, reptiles are solitary creatures but may aggregate in areas with appropriate environmental conditions. Reptiles tend to be secretive. They typically hide or flee to avoid interactions with human beings and other large vertebrates such as domestic dogs.

Many people have a phobia about reptiles, especially snakes, and even harmless reptiles may be perceived as a threat to the community if unaccounted for in the wake of a crisis. Some reptiles are truly dangerous to people, and can provoke even greater concern if they are not properly contained after a disaster. Reptiles that can inflict grievous bodily harm include, but are necessarily limited to, crocodylians (alligators, caimans, crocodiles, and gavials), large monitor lizards (e.g., water monitors, Komodo dragons, Nile monitors, and any other species or specimen in excess of 2 ft snout-vent length), large tegu lizards, large iguanas (green iguanas and rock iguanas), large constricting snakes (e.g., anacondas, reticulated pythons, Burmese pythons, African rock pythons, or any other species or specimens in excess of 8 ft SVL), venomous snakes (e.g., elapids, viperids, and rear-fanged colubrids) and large aquatic turtles (e.g., snapping turtles, alligator snapping turtles, softshell turtles).

Behavior During a Crisis

Snakes, lizards and turtles are likely to leave their enclosures if a suitably sized opening occurs. Crocodylians are likely to remain in their enclosures unless a serious breach of the enclosure's perimeter has occurred, or conditions within the enclosure become intolerable.

Behavior After a Crisis

Most escaped reptiles will seek cover immediately. The immediate path of an escaped reptile is unpredictable, but once a reptile has reached a suitable hiding spot it may remain there for a considerable length of time. For this reason, escaped reptiles are unlikely to be obvious in the immediate aftermath of a crisis.

Some reptiles become aggressive when approached, and some may attack human beings if they perceive that they are being confined. Normally placid specimens may become aggressive when removed from their normal environment, and each animal should be treated as if it is a "wild" specimen. Crocodylians are extremely dangerous due to their unpredictable nature, size, strength, and speed. Even small specimens can deliver substantial wounds if not handled properly. Monitors, tegu lizards and iguanas may attack and pursue a human if cornered, biting and whipping with their tails. All snakes are likely to strike and bite if provoked. Turtles will attempt to bite if picked up or handled.

Some crocodylians, such as the Cuban crocodile, are so aggressive that they may attack a human walking nearby. If crocodylians are at large, human workers should be alerted and told to stay at least 20 feet away from any crocodylians unless they are equipped and trained to

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recapture the animal. It is highly recommended that at least four trained people are present whenever recapture of a large crocodylian is attempted.

If dangerous reptiles are loose, it is highly recommended that human workers have a buddy system to ensure that assistance is immediately available if a dangerous reptile is encountered.

The recapture rate of small specimens is likely to be low, especially of snakes. Snakes and lizards are most likely to be encountered by workers removing debris from an area.

All snakes should be treated as venomous unless a positive identification can be made otherwise. Rakes, stump-rippers, tongs, or snake hooks should be used to turn over or pick up pieces of debris to reduce accidental contact with hidden reptiles.

Venomous snakes may strike without warning. Human workers should wear high leather boots and long pants if a venomous snake is suspected of being at large.

A bite from an unidentified snake is extremely serious because it cannot be treated appropriately unless the correct antivenom is known. It is imperative that any snake involved in a bite be identified. The snake should be secured by any safe means possible, up to and including killing the snake.

Aquatic specimens such as crocodylians, aquatic turtles, some snakes and lizards will seek out a body of water for refuge. It is extremely difficult to recapture most animals that reach rivers or other flowing bodies of water.

Recapture of Reptiles

If a dangerous reptile cannot be captured without inordinant risk to the human workers, it should be killed in as humane a manner as possible. The policy towards "harmless" nonindigenous species must be decided by the individual institution, but this author strongly supports efforts to reduce introductions of foreign animals. Therefore if a specimen cannot be recaptured, it should be killed.

Crocodylians – Crocodylians should be handled with extreme caution. Crocodylians can move extremely fast. In addition to a strong bite, a crocodylian may attack by whipping its tail. The tail is strong enough to knock down and stun a human. A deck brush or broom may be used to restrain a small crocodylian's head or deflect blows from the tail. A standard approach for manual restraint of larger specimens is to lasso the crocodylian around the neck with two different ropes. A noose pole may be needed for proper placement of the lassos. Crocodylians typically roll and thrash when the first lasso tightens, and may slip the lasso off if it is not placed over the neck and one arm. Once two lassos are secured, the hold ropes are stretched tightly in opposite directions to restrict side-to-side movement of the animal. A third handler gains control of the head and jaws, and holds the jaws closed while a fourth handler wraps duct tape around the snout several times to immobilize the jaws. The eyes are then covered with a piece of cloth which is taped into place. Small crocodylians can be placed inside a large mailbag for transport. Some people prefer to take or tie the crocodylian to a length of board planking for restraint during transport. A corrugated metal sewer pipe is a better containment device of large crocodylians. Once the crocodylian has been secured with its eyes and jaws taped, the neck ropes are passed through the pipe and the animal is pulled forward into the pipe. Chemical restraint may be used to immobilize a crocodylian, and can be administered by dart gun or polo syringe. There are few drugs that are both commonly available and effective in crocodylians (succinylcholine can be used at 0.1 to 1.0 mg/kg IM), and all of the readily available chemicals are slow to take effect and have a low margin of safety. Appropriate equipment to provide respiratory support should be available if any chemical restraint is used.

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Snakes and lizards – All snakes should be handled with extreme caution until they are identified by an expert as “harmless” or “non-venomous”. A snake hook should be used to maneuver the snake, and whenever possible to lift and direct the snake. Many snakes can be encouraged to enter a dark cloth bag or garbage can turned on its side. Smaller snakes may be placed in a pillowcase or suitably sized cloth bag. These snake bags should in turn be placed inside a solid containment device (e.g., wooden box, garbage can with its lid duct-taped into place). Mail bags, garbage cans and large dog transport kennels can be used to restrain larger snakes.

If a venomous snake or lizard cannot be captured and contained safely, it should be killed. All personnel attempting to recapture known venomous or unidentified snakes or lizards should be trained in venomous snakebite first aid.

Pinning a snake behind the neck to pick it up puts the handler at risk of a bite. It is important to remember that even “harmless” snakes (and lizards) may have components in their saliva that can evoke an anaphylactic response in humans, a potentially life-threatening allergic reaction. For this reason, all workers should be trained in recognition and treatment of anaphylactic shock, and each should have an Epi-Pen, ANA-Kit or other anaphylaxis treatment immediately available whenever snakes or lizards must be manually restrained.

Large lizards may be approached in the same manner as crocodylians (i.e., a noose pole and/or lasso), or can be manually grabbed about the neck by an experienced handler. A deck brush or broom may be used to restrain a specimen’s head or deflect blows from the tail. Mailbag or other sturdy cloth bags can be used as short term containment devices for large lizards, but transfer to sturdy container (e.g., garbage can with taped lid, dog transport kennel, or wooden box) is recommended.

Small lizards may be recaptured using a noose pole. A three to four foot length of waxed dental floss or monofilament line is tied to a six foot length of thin bamboo pole or other thin pole, and a slip knot is tied at the other end for the noose. Waxed dental floss makes an excellent noose line since it retains the shape of the loop. The lizard is cautiously approached until within reach of the noose pole, and then the noose is dangled and carefully maneuvered over the lizard’s head. A quick upward jerk on the pole should tighten the noose, and tension is kept on the noose until the lizard can be grabbed by hand. Many smaller lizards will shed their tail when captured, and some species have skin which tears when handled.

The two recognized species of venomous lizards, the gila monster and beaded lizard, are easily identified by the orange-pink and black or yellow and black patterns on their pebbled skin. Neither is likely to bite unless severely provoked, and neither species is dangerously venomous. It is best to use hooks to direct the movement of these lizards, and manual capture used only as a last resort.

Snakes and lizards can sometimes be trapped. Artificial refugia, such as large sheets of plywood, sheet metal, and other flat debris may be left in place and checked daily to capture any reptiles that may seek shelter there.

Turtles – Large turtles may bite if handled. A turtle should be held from the side of its shell with the hands placed far enough back on the shell to evade bites. Various traps can be built to capture aquatic turtles, and are described in detail in the readily available book, Peterson’s Field Guide to Reptiles and Amphibians of Eastern North America. Cloth bags or garbage cans are suitable short term holding containers for turtles.

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Crisis Care of Reptiles

Allow reptiles access to clean potable water in a manner that encourages drinking. Shallow pans of water are suitable for most reptiles, but some lizards and snakes will only drink when spray-misted or showered with droplets of water. Crocodylians and aquatic turtles should be provided with enough water so that they can partially or fully submerge, but there should be easy access out of the pool so that they do not drown.

The temperature range should be between 80 and 85oF during the day for most reptiles. A hotter basking spot (around 95oF) should be provided during the day if possible. Nighttime temperatures should not drop below 75oF for most species.

Small insectivorous lizards and snakes need to be feed two to three times a week. If food is not readily available, euthanasia of these specimens may be required.

Herbivorous reptiles should be offered produce or fresh grass clippings or browse three times weekly, but they may survive for several weeks on an inappropriate diet.

Most other reptiles can go without food for several days to several weeks without incurring serious health problems.

Most reptiles are solitary and should be housed individually. Cannibalism may occur if small individuals are housed with larger individuals.

Goals During and After a Crisis

- 1 Provide for the safety of human workers and human inhabitants of the surrounding area.
- 2 Contain, capture or destroy escaped dangerous animals immediately.
- 3 Attend injured or ill animals as circumstances afford and resources allow.
- 4 Humanely destroy moribund animals, animals with intractable painful injuries, and dangerous animals that cannot be housed safely.
- 5 Place animals into suitable conditions under the care of responsible herpetoculturists as quickly as possible. Zoos, regional herpetological societies and universities in nearby unaffected areas are possible sources of temporary housing. Humane shelters are likely to be overwhelmed with domestic pets and usually do not have the equipment or trained personnel to maintain reptiles.

Closing Comments

Each institution has a unique collection of reptiles. It is essential to maintain accurate inventories of animals so that all specimens can be accounted for during a crisis. It is important to identify “dangerous” reptiles as such, and to disseminate that information within the institution so that all staff are prepared should they encounter a “dangerous” reptile during a crisis. Each institution should formulate response plans prior to a crisis, and determine their policy toward escaped reptiles.

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TAB E

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Section 21: Summary of the National Contingency Plan for Response to Unusual Marine Mammal Mortality Events

(Wilkinson, Dean M., 1996, U.S. Dept. of Commerce, NOAA Tech. Memo, NMFS-OPR-9, 118p.)

The Marine Mammal Health and Stranding Response Act required the preparation of a contingency plan for response to unusual marine mammal mortality events. The contingency plan includes all coastal regions of the United States and the adjacent waters under United States jurisdiction. It addresses all species of marine mammals. With the exceptions noted below, the National Marine Fisheries Service (NMFS) is primarily responsible for response to mortality events involving cetaceans and pinnipeds (excluding walrus), and the U.S. Fish and Wildlife Service (FWS) is primarily responsible for sea otters, walrus, manatees, and polar bears. Depending on the circumstances, other units of government may have responsibilities. As an example, if a mortality event should create a serious public health problem, a variety of other local, state, and Federal agencies would have responsibilities. Because approaches for determining the cause of an event—collecting, preserving, and analyzing tissues—are likely to be similar among the range of species, the contingency plan provides a general outline, with species differences highlighted only when appropriate. The species-specific approach is most appropriate for rehabilitating live animals (Dierauf, 1990). For example, the physical facilities needed to care for pinnipeds are less complicated than those needed for cetaceans or polar bears.

Unusual Mortality Events

The Act characterizes an unusual mortality event as having the following characteristics: (1) it is unexpected; (2) it involves a significant die-off of any marine mammal population; and (3) it demands an immediate response. In addition to the obvious circumstances involving significant numbers of marine mammal deaths within a short period of time, there are two other instances when a response would be justified—when there is a mass stranding of unusual species of cetaceans and when even small numbers of a severely endangered marine mammal species appear to be affected. Although steady declines of a population over time warrant investigation, such occurrences are part of each agency's more general charge.

Factors that can cause an unusual mortality event include, but are not limited to:

- 1 Impacts including toxicity and fouling caused by oil discharges or chemical releases or toxic runoff of anthropogenic chemicals or other impacts, such as immunological dysfunction, caused by chronic exposure to pollutants that may become apparent in an acute mortality event;
- 2 Naturally occurring biotoxins;
- 3 Changes in environmental conditions such as El Niño or a sudden change in water temperature;
- 4 Parasitic or infectious disease agents; or
- 5 Mortalities caused by direct human interactions such as bycatch in fisheries or deliberate taking.

The contingency plan includes provisions for detecting and responding to each of these conditions. The response priorities will vary depending on whether or not the cause of the event is known, the number and species of animals involved, or if the event poses a threat to public health and safety.

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To respond to marine mammal strandings, networks of volunteers have been authorized by NMFS for cetaceans and pinnipeds and by FWS for manatees and sea otters. Members of the Stranding Networks are issued Letters of Authorization by the NMFS Regional Offices. NMFS Regions are listed in Addendum A. Most of the volunteers are professionals with marine mammal experience. They may be researchers affiliated with State agencies or universities, individuals associated with public display facilities, or individuals with animal rehabilitation experience. The members of the Networks rehabilitate sick and injured marine mammals, and collect basic biological data and tissues from dead marine mammals.

Network members are the first line of response to any marine mammal strandings. They have capabilities to treat animals and collect tissues for analyses. Therefore, they are likely to be heavily involved in any response to an unusual mortality event.

Objectives of Contingency Plan

The purpose of the contingency plan is to outline actions that can/should be taken to:

- 1 Protect the public health and welfare;
- 2 Investigate and identify the cause(s) of a mortality event;
- 3 Minimize or mitigate the effects of a mortality event on the affected population(s) and provide for the rehabilitation of individual animals; and
- 4 Determine the impact of a mortality event on the affected population(s).

Achieving these goals is the responsibility of the Onsite Coordinator. The Onsite Coordinator will be either a National Marine Fisheries Service (NMFS) or U.S. Fish and Wildlife Service (FWS) Regional Director or an individual designated by the Regional Director. The primary purpose of the plan is to provide a blueprint to the Onsite Coordinator for the response to mortality events. It provides guidance to Regional Directors of NMFS and FWS on: steps to be taken to protect the public health and welfare; advance planning for such events; steps to identify the cause(s) of an event; and measures to determine the biological significance of an event. The plan contains lists of contacts for response, facilities that are capable of holding live animals, tissue collection and preparation, and analyses that may be necessary to determine causes of death and the effects that physical, chemical, or biological factors may have on marine mammal populations.

The plan is divided into several sections corresponding to different activities that may be required in a response to an unusual mortality event. Because public health and welfare is of paramount concern in any mortality event, a short section on this issue precedes all other substantive sections.

The success of a response may be dependent on having necessary equipment in place, well trained personnel, and general protocols for tissue collection. In preparation for unusual marine mammal mortality events, materials and information need to be generated in advance. The plan provides guidelines for doing that. Other sections deal with procedures in responding to an unusual mortality event. It should be noted that under certain circumstances, another entity may be responsible for response. In the case of a known oil discharge or release of a hazardous substance, either the Coast Guard or the Environmental Protection Agency will assume responsibility for a response. When the reason for a mortality event is determined to be a direct human interaction, e.g., incidental mortality in fisheries or animals being deliberately killed, the appropriate actions should be taken by either the management or enforcement sections of the two agencies and are outside the context of this plan.

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Another section details analyses that might be required, lists individuals with the skills necessary to conduct necropsies and collect tissues for detailed analysis, and locations where specific analyses may be performed. Although additional analyses may be required depending on the nature of the event, basic information is contained on the following: blood from live animals; histopathology; life history; biotoxins; heavy metals/organic contaminants; and virology/bacteriology/mycology.

There are special circumstances that may require additional actions such as the possibility of litigation; live capture to gain information not available from stranded animals; requests from independent researchers for materials; and mass strandings. Information is provided for dealing with these situations.

Discharges of Oil and Hazardous Chemicals

There is one type of unusual mortality event during which procedures laid out in the Act including responsibilities, appointment of Onsite Coordinators, and funding will not be followed. Responses to oil discharges or releases of hazardous substances are governed by either the Clean Water Act, as amended, the Oil Pollution Act of 1990, or the Comprehensive Environmental Response Compensation and Liability Act. The U.S. Coast Guard has primary responsibility for response to spills and releases within or threatening the coastal zone.

Many of the resources identified for response under the Marine Mammal Health and Stranding Response Act also will be utilized in spill emergencies. An effort has been made to help those developing regional and state oil spill contingency plans to identify those individuals and facilities that can provide treatment for impacted marine mammals and collect tissues for analyses. In the northeast, California, and Alaska, oil spill response procedures and personnel to be utilized closely parallel those set out in the contingency plan.

There are nine Coast Guard Districts (www.uscg.mil) in two marine areas. These are:

Atlantic Area

First Coast Guard District (<http://www.uscg.mil/d1>)
(CT, ME, NH, NJ, MA, NY, RI, VT)

Fifth Coast Guard District (www.uscg.mil/d5)
(DE, MD, NC, NJ, PA, VA)

Seventh Coast Guard District (www.uscg.mil/d7)
(GA, Peninsular FL, SC)

Eighth Coast Guard District (www.uscg.mil/d8)
(AL, AR, CO, FL Panhandle, GA, IA, IL, IN, KY, KS, LA, MN, MO, MS, ND, NE, NM, OH, OK, PA, TN, TX, SD, WI, WY, WV)

Ninth Coastal Guard District (www.uscg.mil/d9)
(IL, IN, MI, MN, OH, PA, NY, WI)

Pacific Area

Eleventh Coast Guard District (www.uscg.mil/d11)
(AZ, CA, NV, UT)

Thirteenth Coast Guard District (www.uscg.mil/d13)
(ID, MT, OR, WA)

Fourteenth Coast Guard District (www.uscg.mil/d14)

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(Hawaii)

Seventeenth Coast Guard District (www.uscg.mil/d17)

(Alaska)

RESPONSE

The basic steps in responding to an event include:

- 1 Based on specific criteria, the Working Group on Unusual Marine Mammal Mortality Events is responsible for determining when an unusual mortality event is occurring.
- 2 When notified by the Working Group that an unusual mortality event is occurring, the Assistant Administrator for Fisheries or, when species under FWS jurisdiction are involved, the Director of the U.S. Fish and Wildlife Service will appoint the appropriate Regional Director as Onsite Coordinator. The Regional Director may designate another qualified individual to serve in this capacity.
- 3 To accelerate response, the Onsite Coordinator will provide notification and instruction to:
 - a. Stranding Network members;
 - b. Federal beachfront agencies;
 - c. State wildlife resource agencies;
 - d. Coast Guard District Headquarters;
 - e. Public health agencies (if necessary);
 - f. Appropriate local governmental units;
 - g. NMFS, FWS, and National Biological Service laboratories;
 - h. Native American groups (as appropriate).
- 4 The Onsite Coordinator shall assess basic needs for response including: adequacy of response network in terms of coverage, ability to conduct necropsies, and ability to collect tissue samples; available equipment; and, if live animals are involved in the mortality event, the capacity and capabilities of rehabilitation facilities. If any of these is less than adequate, steps shall be taken to supplement existing resources.
- 5 If the cause(s) of an event is known, the Onsite Coordinator will make provisions for:
 - a. Adequate care of live animals;
 - b. Collection, preparation, analysis, and archiving of tissues and voucher specimens. If litigation is possible, provisions for maintaining a proper chain of custody are necessary;
 - c. Assessing the impact of the mortality event on wild populations; and
 - d. If feasible, put mitigation measures in place.
- 6 If the cause(s) of an event is unknown, all of the previous steps are necessary. In addition, in consultation with the Working Group, the Onsite Coordinator will put investigative measures in place including:
 - a. Making provision for aerial surveys, if necessary, to locate fresh carcasses and/or determine the extent of a mortality event;
 - b. Defining specific tissue collection and preparation protocols. Making arrangements for specific analyses to be performed and for shipment of samples to facilities performing analyses;
 - c. Compiling and analyzing results.

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PUBLIC HEALTH AND WELFARE

The first priority in responding to an Unusual Marine Mammal Mortality Event is public health and welfare. There are several ways in which a marine mammal mortality event could have an impact on public health or safety.

Safety and Hygienic Precautions

Although not common, if basic safety and hygienic precautions are not observed, stranded animals can cause physical injury or transmit disease to humans. Participants in a response to oil discharges or releases of hazardous chemicals are required to have OSHA training. Most of the individuals responding to mortality events under the Marine Mammal Health and Stranding Response Act will have previous experience in handling stranded animals. If less experienced personnel are utilized, the Onsite Coordinator will ensure that they are informed of safety measures. When the cause of an event is unknown, extra precautions will be taken.

Carcass Disposal

Carcasses of dead animals could be a source of either pathogens or toxins that might affect wildlife and domestic animals. Steps should be taken to avoid such possibilities, including proper isolation and disposal of carcasses. In normal circumstances, carcasses sometimes are left on the beach to decompose naturally. If there is the possibility of a transmissible pathogen or serious toxin, unused portions of carcasses should be buried, taken to a sanitary landfill, or fully destroyed by incineration. If carcasses are buried, they should be in an area where fluids will not leach into groundwater and deep enough so that they will not be dug up by scavengers or uncovered by wave action.

LIVE ANIMALS

The initial decision involving live stranded animals takes place on the beach. An expert assessment of an animal's condition is necessary before making a decision to take an animal in for rehabilitation, to euthanize it, or to treat it and release it on site. With the exception of mass strandings, the third of these options will be inappropriate in most instances. Such decisions shall only be made by competent professionals.

Available Facilities and Requirements

A list of facilities with experience in treating stranded marine mammals is included in the plan. The procedures in the contingency plan are predicated on the assumption that those with previous experience in treating marine mammals are most competent to treat live animals.

Precautions should be taken to ensure that animals being treated are quarantined from healthy captive animals and that personnel take measures to avoid cross-contamination within the facility.

Although some facilities can accommodate relatively large numbers of pinnipeds and/or sea otters, the physical facility requirements for maintenance of cetaceans are such that only limited numbers of small cetaceans can be treated during a mortality event. Cetaceans and manatees require, at a minimum, pools large enough to accommodate them. Pools should be on a separate water system so that disease cannot be spread to healthy animals within the facility. In the case of an emergency, sea otters and pinnipeds are not totally dependent on pools, and in past epizootics, pinnipeds have been accommodated in dry areas with access to fresh drinking water and saltwater baths. Even in such circumstances facilities must have the ability to isolate animals from display animals and terrestrial animals that may either transmit or be exposed to pathogens. The facilities that are authorized to provide treatment for marine

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mammals and have veterinary services (except for those designated as short-term) are listed in the plan.

The list has been provided to the agencies responsible for developing oil spill contingency plans. The Northeast, California, Washington, Oregon, and Alaska have provisions in oil spill contingency plans for involving Stranding Network members in the recovery of carcasses and the rescue and rehabilitation of live animals. In Florida, provisions are in place for manatees, but no arrangements have been made for cetaceans in any of the southeastern states.

Each facility has resources for activities such as live animal retrieval, medical diagnostic analyses, and food and pharmaceutical provisions.

It should be recognized, however, that even under the best of circumstances, a facility's physical capacity for treatment of live animals is limited. In the case of cetaceans, few facilities can manage more than an animal or tow at a time. Even in the case of pinnipeds, facilities can be filled to capacity in a relatively short time. Therefore, attention should be given to methods by which capacity can be expanded in the event of an epizootic. In the case of cetaceans, live stranded animals have occasionally been accommodated in open ocean net pens. In the case of pinnipeds, manatees, and sea otters, advance procurement of materials for temporary pools and fencing will help expand capacity.

Release Conditions

To safeguard wild populations of marine mammals, no rehabilitated animals will be released that do not meet the guidelines for release of rehabilitated animals under § 402(b) of the Marine Mammal Protection Act (MMPA). In addition, the Working Group will be consulted to determine if there should be event-specific release standards. The release standards should give priority to the health of the wild population over the health of an individual animal. Provision should be made to monitor at least a representative subset animals to determine if they survive and resume being functional components of the affected population.

MANATEES

A toll-free number has been set up in Florida to report manatee strandings. It is 1-800-342-5367.

The U.S. Fish and Wildlife Services website is www.fws.gov.

SEA OTTERS IN CALIFORNIA

The Sea Otter Hotline Number is (831) 648-4829. The U.S. Fish and Wildlife Office in Ventura, CA, is responsible for administration, (805) 644-1766.

Network Members—Live Sea Otters

Marine Mammal Center (Sausalito) (415) 289-7325

Monterey Bay Aquarium (Monterey) 831-648-4829

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Marine Mammals Management

U.S. Fish and Wildlife Service

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TAB E Animal Care & Handling Section 22: Guidelines for Humane Euthanasia of Animals

Information from the 2000 Report of the AVMA Panel on Euthanasia
Excerpted from the Journal of the American Veterinary Medical Association,
Vol. 218, No. 5, Pages 669-696 ©American Veterinary Medical Association, 2001. All Rights Reserved.

INTRODUCTION

The practice of veterinary medicine is complex and involves diverse animal species. Whenever possible, a veterinarian experienced with the species in question should be consulted when selecting the method of euthanasia, particularly when little species-specific euthanasia research has been done.

The recommendations in these guidelines are intended to serve as guidance for veterinarians who must then use professional judgment in applying them to the various settings where animals are to be euthanized.

In the context of these guidelines, euthanasia is the act of inducing humane death in an animal. It is our responsibility as veterinarians and human beings to ensure that if an animal's life is to be taken, it is done with the highest degree of respect, and with an emphasis on making the death as painless and distress free as possible. Euthanasia techniques should result in rapid loss of consciousness followed by cardiac or respiratory arrest and the ultimate loss of brain function. In addition, the technique should minimize distress and anxiety experienced by the animal prior to loss of consciousness. The panel recognized that the absence of pain and distress cannot always be achieved. These guidelines attempt to balance the ideal of minimal pain and distress with the reality of the many environments in which euthanasia is performed.

It is imperative that death be verified after euthanasia and before disposal of the animal. An animal in deep narcosis following administration of an injectable or inhalant agent may appear dead, but might eventually recover. Death must be confirmed by examining the animal for cessation of vital signs, and consideration given to the animal species and method of euthanasia when determining the criteria for confirming death.

GENERAL CONSIDERATIONS

In evaluating methods of euthanasia, the 2000 AVMA panel on euthanasia used the following criteria: (1) ability to induce loss of consciousness and death without causing pain, distress, anxiety, or apprehension; (2) time required to induce loss of consciousness; (3) reliability; (4) safety of personnel; (5) irreversibility; (6) compatibility with requirement and purpose; (7) emotional effect on observers or operators; (8) compatibility with subsequent evaluation, examination, or use of tissue; (9) drug availability and human abuse potential; (10) compatibility with species, age, and health status; (11) ability to maintain equipment in proper working order; and (12) safety for predators/scavengers should the carcass be consumed.

PHYSICAL METHODS

Physical methods of euthanasia include captive bolt, gunshot, cervical dislocation, decapitation, electrocution, microwave irradiation, kill traps, thoracic compression, exsanguination, stunning, and pithing. When properly used by skilled personnel with well-maintained equipment, physical

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methods of euthanasia may result in less fear and anxiety and be more rapid, painless, humane, and practical than other forms of euthanasia. Exsanguination, stunning, and pithing are not recommended as a sole means of euthanasia, but should be considered adjuncts to other agents or methods.

Some consider physical methods of euthanasia aesthetically displeasing. There are occasions, however, when what is perceived as aesthetic and what is most humane are in conflict. Physical methods may be the most appropriate method for euthanasia and rapid relief of pain and suffering in certain situations. Personnel performing physical methods of euthanasia must be well trained and monitored for each type of physical technique performed. That person must also be sensitive to the aesthetic implications of the method and inform onlookers about what they should expect when possible.

Since most physical methods involve trauma, there is inherent risk for animals and humans. Extreme care and caution should be used. Skill and experience of personnel is essential. If the method is not performed correctly, animals and personnel may be injured. Inexperienced persons should be trained by experienced persons and should practice on carcasses or anesthetized animals to be euthanized until they are proficient in performing the method properly and humanely. When done appropriately, the panel considers most physical methods conditionally acceptable for euthanasia.

Penetrating captive bolt

A penetrating captive bolt is used for euthanasia of ruminants, horses, swine, laboratory rabbits, and dogs.⁸ Its mode of action is concussion and trauma to the cerebral hemisphere and brainstem.^{9,10} Captive bolt guns are powered by gunpowder or compressed air and must provide sufficient energy to penetrate the skull of the species on which they are being used.⁹ Adequate restraint is important to ensure proper placement of the captive bolt. A cerebral hemisphere and the brainstem must be sufficiently disrupted by the projectile to induce sudden loss of consciousness and subsequent death. Accurate placement of captive bolts for various species has been described.⁹⁻¹² A multiple projectile has been suggested as a more effective technique, especially for large cattle.⁹

A nonpenetrating captive bolt only stuns animals and should not be used as a sole means of euthanasia.

Advantage—The penetrating captive bolt is an effective method of euthanasia for use in slaughterhouses, in research facilities, and on the farm when use of drugs is inappropriate.

Disadvantages—(1) It is aesthetically displeasing. (2) Death may not occur if equipment is not maintained and used properly.

Recommendations—Use of the penetrating captive bolt is an acceptable and practical method of euthanasia for horses, ruminants, and swine. It is conditionally acceptable in other appropriate species. The nonpenetrating captive bolt must not be used as a sole method of euthanasia.

EUTHANASIA BY A BLOW TO THE HEAD

Euthanasia by a blow to the head must be evaluated in terms of the anatomic features of the species on which it is to be performed. A blow to the head can be a humane method of euthanasia for neonatal animals with thin craniums, such as young pigs, if a single sharp blow delivered to the central skull bones with sufficient force can produce immediate depression of the central nervous system and destruction of brain tissue. When properly performed, loss of consciousness is rapid. The anatomic features of neonatal calves, however, make a blow to the

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head in this species unacceptable. Personnel performing euthanasia by use of a blow to the head must be properly trained and monitored for proficiency with this method of euthanasia, and they must be aware of its aesthetic implications.

Gunshot

A properly placed gunshot can cause immediate insensibility and humane death. In some circumstances, a gunshot may be the only practical method of euthanasia. Shooting should only be performed by highly skilled personnel trained in the use of firearms and only in jurisdictions that allow for legal firearm use. Personnel, public, and nearby animal safety should be considered. The procedure should be performed outdoors and away from public access.

For use of a gunshot to the head as a method of euthanasia in captive animals, the firearm should be aimed so that the projectile enters the brain, causing instant loss of consciousness.^{3,12-14} This must take into account differences in brain position and skull conformation between species, as well as the energy requirement for skull bone and sinus penetration.^{9,15} Accurate targeting for a gunshot to the head in various species has been described.^{14,16-19} For wildlife and other freely roaming animals, the preferred target area should be the head. The appropriate firearm should be selected for the situation, with the goal being penetration and destruction of brain tissue without emergence from the contralateral side of the head.²⁰ A gunshot to the heart or neck does not immediately render animals unconscious and thus is not considered to meet the panel's definition of euthanasia.²¹

Advantages—(1) Loss of consciousness is instantaneous if the projectile destroys most of the brain. (2) Given the need to minimize stress induced by handling and human contact, gunshot may at times be the most practical and logical method of euthanasia of wild or free-ranging species.

Disadvantages—(1) Gunshot may be dangerous to personnel. (2) It is aesthetically unpleasant. (3) Under field conditions, it may be difficult to hit the vital target area. (4) Brain tissue may not be able to be examined for evidence of rabies infection or chronic wasting disease when the head is targeted.

Recommendations—When other methods cannot be used, an accurately delivered gunshot is a conditionally acceptable method of euthanasia.^{14,22-25} When an animal can be appropriately restrained, the penetrating captive bolt is preferred to a gunshot. Prior to shooting, animals accustomed to the presence of humans should be treated in a calm and reassuring manner to minimize anxiety. In the case of wild animals, gunshots should be delivered with the least amount of prior human contact necessary. Gunshot should not be used for routine euthanasia of animals in animal control situations, such as municipal pounds or shelters.

Cervical dislocation

Cervical dislocation is a technique that has been used for many years and, when performed by well-trained individuals, appears to be humane. However, there are few scientific studies to confirm this observation. This technique is used to euthanize poultry, other small birds, mice, and immature rats and rabbits. For mice and rats, the thumb and index finger are placed on either side of the neck at the base of the skull or, alternatively, a rod is pressed at the base of the skull. With the other hand, the base of the tail or the hind limbs are quickly pulled, causing separation of the cervical vertebrae from the skull. For immature rabbits, the head is held in one hand and the hind limbs in the other. The animal is stretched and the neck is hyperextended and dorsally twisted to separate the first cervical vertebra from the skull.^{4,11} For poultry, cervical dislocation by stretching is a common method for mass euthanasia, but loss of consciousness may not be instantaneous.³³

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Data suggest that electrical activity in the brain persists for 13 seconds following cervical dislocation,²⁷ and unlike decapitation, rapid exsanguination does not contribute to loss of consciousness.^{28,29}

Advantages—(1) Cervical dislocation is a technique that may induce rapid loss of consciousness.^{6,27} (2) It does not chemically contaminate tissue. (3) It is rapidly accomplished.

Disadvantages—(1) Cervical dislocation may be aesthetically displeasing to personnel. (2) Cervical dislocation requires mastering technical skills to ensure loss of consciousness is rapidly induced. (3) Its use is limited to poultry, other small birds, mice, and immature rats and rabbits.

Recommendations—Manual cervical dislocation is a humane technique for euthanasia of poultry, other small birds, mice, rats weighing < 200 g, and rabbits weighing < 1 kg when performed by individuals with a demonstrated high degree of technical proficiency. In lieu of demonstrated technical competency, animals must be sedated or anesthetized prior to cervical dislocation. The need for technical competency is greater in heavy rats and rabbits, in which the large muscle mass in the cervical region makes manual cervical dislocation physically more difficult.³⁰ In research settings, this technique should be used only when scientifically justified by the user and approved by the Institutional Animal Care and Use Committee.

Those responsible for the use of this technique must ensure that personnel performing cervical dislocation techniques have been properly trained and consistently apply it humanely and effectively.

Decapitation

Decapitation can be used to euthanize rodents and small rabbits in research settings.. It provides a means to recover tissues and body fluids that are chemically uncontaminated. It also provides a means of obtaining anatomically undamaged brain tissue for study.³¹

Although it has been demonstrated that electrical activity in the brain persists for 13 to 14 seconds following decapitation,³² more recent studies and reports indicate that this activity does not infer the ability to perceive pain, and in fact conclude that loss of consciousness develops rapidly.²⁷⁻²⁹

Guillotines that are designed to accomplish decapitation in adult rodents and small rabbits in a uniformly instantaneous manner are commercially available. Guillotines are not commercially available for neonatal rodents, but sharp blades can be used for this purpose.

Advantages—(1) Decapitation is a technique that appears to induce rapid loss of consciousness.²⁷⁻²⁹ (2) It does not chemically contaminate tissues. (3) It is rapidly accomplished.

Disadvantages—(1) Handling and restraint required to perform this technique may be distressful to animals.⁵ (2) The interpretation of the presence of electrical activity in the brain following decapitation has created controversy and its importance may still be open to debate.^{27-29,32} (3) Personnel performing this technique should recognize the inherent danger of the guillotine and take adequate precautions to prevent personal injury. (4) Decapitation may be aesthetically displeasing to personnel performing or observing the technique.

Recommendations— This technique is conditionally acceptable if performed correctly, and it should be used in research settings when its use is required by the experimental design and approved by the Institutional Animal Care and Use Committee. The equipment used to perform

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decapitation should be maintained in good working order and serviced on a regular basis to ensure sharpness of blades. The use of plastic cones to restrain animals appears to reduce distress from handling, minimizes the chance of injury to personnel, and improves positioning of the animal in the guillotine. Decapitation of amphibians, fish, and reptiles is addressed elsewhere in these guidelines.

Those responsible for the use of this technique must ensure that personnel who perform decapitation techniques have been properly trained to do so.

SPECIAL CONSIDERATIONS

Equine euthanasia

Pentobarbital or a pentobarbital combination is the best choice for equine euthanasia. Because a large volume of solution must be injected, use of an intravenous catheter placed in the jugular vein will facilitate the procedure. To facilitate catheterization of an excitable or fractious animal, a tranquilizer such as acepromazine, or an alpha-2 adrenergic agonist can be administered, but these drugs may prolong time to loss of consciousness because of their effect on circulation and may result in varying degrees of muscular activity and agonal gasping. Opioid agonists or agonist/antagonists in conjunction with alpha-2 adrenergic agonists may further facilitate restraint.

In certain emergency circumstances, such as euthanasia of a horse with a serious injury at a racetrack, it may be difficult to restrain a dangerous horse or other large animal for intravenous injection. The animal might cause injury to itself or to bystanders before a sedative could take effect. In such cases, the animal can be given a neuromuscular blocking agent such as succinylcholine, but the animal must be euthanatized with an appropriate technique as soon as the animal can be controlled. Succinylcholine alone or without sufficient anesthetic must not be used for euthanasia.

Physical methods, including gunshot, are considered conditionally acceptable techniques for equine euthanasia. The penetrating captive bolt is acceptable with appropriate restraint.

Animals Intended for Human or Animal Food

In euthanasia of animals intended for human or animal food, chemical agents that result in tissue residues cannot be used, unless they are approved by the US Food and Drug Administration.³⁴ Carbon dioxide is the only chemical currently used for euthanasia of food animals (primarily swine) that does not result in tissue residues. Physical techniques are commonly used for this reason. Carcasses of animals euthanatized by barbituric acid derivatives or other chemical agents may contain potentially harmful residues. These carcasses should be disposed of in a manner that will prevent them from being consumed by human beings or animals.

Selection of a proper euthanasia technique for free-ranging wildlife must take into account the possibility of consumption of the carcass of the euthanatized animal by nontarget predatory or scavenger species. Numerous cases of toxicosis and death attributable to ingestion of pharmaceutically contaminated carcasses in predators and scavengers have been reported.⁷ Proper carcass disposal must be a part of any euthanasia procedure under free-range conditions where there is potential for consumption toxicity. When carcasses are to be left in the field, a gunshot to the head, penetrating captive bolt, or injectable agents that are nontoxic (potassium chloride in combination with a nontoxic general anesthetic) should be used so that the potential for scavenger or predator toxicity is lessened.

Euthanasia of Nonconventional Species: Zoo, Wild, Aquatic, and Ectothermic Animals

Compared with objective information on companion, farm, and laboratory animals, euthanasia of species such as zoo, wild, aquatic, and ectothermic animals has been studied less, and

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guidelines are more limited. Irrespective of the unique or unusual features of some species, whenever it becomes necessary to euthanize an animal, death must be induced as painlessly and quickly as possible.

When selecting a means of euthanasia for these species, factors and criteria in addition to those previously discussed must be considered. The means selected will depend on the species, size, safety aspects, location of the animals to be euthanized, and experience of personnel. Whether the animal to be euthanized is in the wild, in captivity, or free-roaming are major considerations. Anatomic differences must be considered. For example, amphibians, fish, reptiles, and marine mammals differ anatomically from domestic species. Veins may be difficult to locate. Some species have a carapace or other defensive anatomic adaptations (eg, quills, scales, spines). For physical methods, access to the central nervous system may be difficult because the brain may be small and difficult to locate by inexperienced persons.

ZOO ANIMALS

For captive zoo mammals and birds with related domestic counterparts, many of the means described previously are appropriate. However, to minimize injury to persons or animals, additional precautions such as handling and physical or chemical restraint are important considerations.²

WILDLIFE

For wild and feral animals, many recommended means of euthanasia for captive animals are not feasible. The panel recognized there are situations involving free-ranging wildlife when euthanasia is not possible from the animal or human safety standpoint, and killing may be necessary. Conditions found in the field, although more challenging than those that are controlled, do not in any way reduce or minimize the ethical obligation of the responsible individual to reduce pain and distress to the greatest extent possible during the taking of an animal's life. Because euthanasia of wildlife is often performed by lay personnel in remote settings, guidelines are needed to assist veterinarians, wildlife biologists, and wildlife health professionals in developing humane protocols for euthanasia of wildlife.

In the case of free-ranging wildlife, personnel may not be trained in the proper use of remote anesthesia, proper delivery equipment may not be available, personnel may be working alone in remote areas where accidental exposure to potent anesthetic medications used in wildlife capture would present a risk to human safety, or approaching the animal within a practical darting distance may not be possible. In these cases, the only practical means of animal collection may be gunshot and kill trapping.^{1,35-39} Under these conditions, specific methods chosen must be as age-, species-, or taxonomic/class-specific as possible. The firearm and ammunition should be appropriate for the species and purpose. Personnel should be sufficiently skilled to be accurate, and they should be experienced in the proper and safe use of firearms, complying with laws and regulations governing their possession and use.

Behavioral responses of wildlife or captive nontraditional species (zoo) in close human contact are very different from those of domestic animals. These animals are usually frightened and distressed. Thus, minimizing the amount, degree, and/or cognition of human contact during procedures that require handling is of utmost importance. Handling these animals often requires general anesthesia, which provides loss of consciousness and which relieves distress, anxiety, apprehension, and perception of pain. Even though the animal is under general anesthesia, minimizing auditory, visual, and tactile stimulation will help ensure the most stress-free euthanasia possible. With use of general anesthesia, there are more methods for euthanasia available.

A 2-stage euthanasia process involving general anesthesia, tranquilization, or use of analgesics, followed by intravenous injectable pharmaceuticals, although preferred, is often not

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practical. Injectable anesthetics are not always legally or readily available to those working in nuisance animal control, and the distress to the animal induced by live capture, transport to a veterinary facility, and confinement in a veterinary hospital prior to euthanasia must be considered in choosing the most humane technique for the situation at hand. Veterinarians providing support to those working with injured or live-trapped, free-ranging animals should take capture, transport, handling distress, and possible carcass consumption into consideration when asked to assist with euthanasia. Alternatives to 2-stage euthanasia using anesthesia include a squeeze cage with intraperitoneal injection of sodium pentobarbital, inhalant agents (CO₂ chamber, CO chamber), and gunshot. In cases where preeuthanasia anesthetics are not available, intraperitoneal injections of sodium pentobarbital, although slower in producing loss of consciousness, should be considered preferable over intravenous injection, if restraint will cause increased distress to the animal or danger to the operator.

Wildlife species may be encountered under a variety of situations. Euthanasia of the same species under different conditions may require different techniques. Even in a controlled setting, an extremely fractious large animal may threaten the safety of the practitioner, bystanders, and itself. When safety is in question and the fractious large animal, whether wild, feral, or domestic, is in close confinement, neuromuscular blocking agents may be used immediately prior to the use of an acceptable form of euthanasia. For this technique to be humane, the operator must ensure they will gain control over the animal and perform euthanasia before distress develops. Succinylcholine is not acceptable as a method of restraint for use in free-ranging wildlife because animals may not be retrieved rapidly enough to prevent neuromuscular blocking agent-induced respiratory distress or arrest.⁴⁰

DISEASED, INJURED, OR LIVE-CAPTURED WILDLIFE OR FERAL SPECIES

Euthanasia of diseased, injured, or live-trapped wildlife should be performed by qualified professionals. Certain cases of wildlife injury (eg, acute, severe trauma from automobiles) may require immediate action, and pain and suffering in the animal may be best relieved most rapidly by physical methods including gunshot or penetrating captive bolt followed by exsanguination.

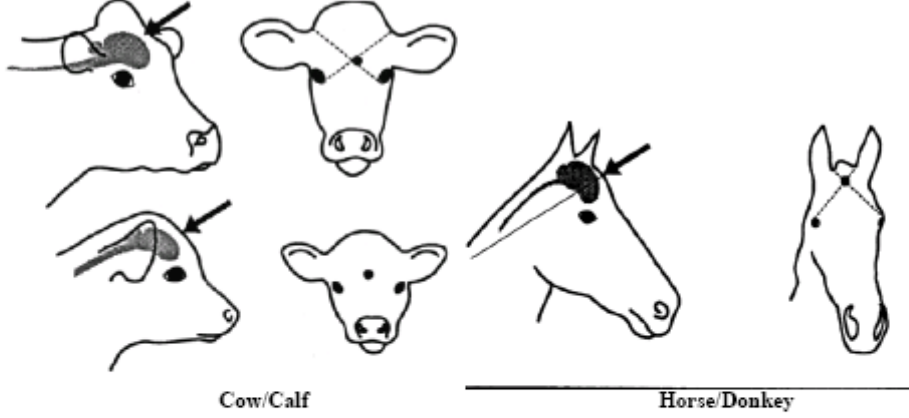
BIRDS

Many techniques discussed previously in this report are suitable for euthanasia of captive birds accustomed to human contact. Free-ranging birds may be collected by a number of methods, including nets and live traps, with subsequent euthanasia. For collection by firearm, shotguns are recommended. The bird should be killed outright by use of ammunition loads appropriate for the species to be collected. Wounded birds should be killed quickly by appropriate techniques previously described. Large birds should be anesthetized prior to euthanasia, using general anesthetics.

Mass euthanasia

Under unusual conditions, such as disease eradication and natural disasters, euthanasia options may be limited. In these situations, the most appropriate technique that minimizes human and animal health concerns must be used. These options include, but are not limited to, CO₂ and physical methods such as gunshot, penetrating captive bolt, and cervical dislocation.

[Pictures are not included in the Euthanasia Guidelines.]



Cow/Calf

Horse/Donkey



Sheep (with horns)



Cow/Calf

Horse/Donkey



Sheep (with horns)



Sheep (without horns)

Pig

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APPENDIX 1

Agents and methods of Euthanasia by species

Species	Acceptable*	Conditionally acceptable [†]
Amphibians	Barbiturates, inhalant anesthetics (in appropriate species), CO ₂ , CO, tricaine methane sulfonate (TMS, MS 222), benzocaine hydrochloride, double pithing	Penetrating captive bolt, gunshot, stunning and decapitation, decapitation and pithing.
Birds	Barbiturates, inhalant anesthetics, CO ₂ , CO, gunshot (free-ranging only)	N ₂ , Ar, cervical dislocation, decapitation, thoracic compression (small, free-ranging only), maceration (chicks, poults, and pipped eggs only)
Cats	Barbiturates, inhalant anesthetics, CO ₂ , CO, potassium chloride in conjunction with general anesthesia	N ₂ , Ar
Dogs	Barbiturates, inhalant anesthetics, CO ₂ , CO, potassium chloride in conjunction with general anesthesia	N ₂ , Ar, penetrating captive bolt, electrocution
Fish	Barbiturates, inhalant anesthetics, CO ₂ , tricaine methane sulfonate (TMS, MS 222), benzocaine	Decapitation and pithing, stunning and decapitation/pithing

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	hydrochloride, 2-phenoxyethanol	
Horses	Barbiturates, potassium chloride in conjunction with general anesthesia, penetrating captive bolt	Chloral hydrate (IV, after sedation), gunshot, electrocution
Marine mammals	Barbiturates, etorphine hydrochloride	Gunshot (cetaceans < 4 meters long)
Mink, fox, and other mammals produced for fur	Barbiturates, inhalant anesthetics, CO ₂ (mink require high concentrations for euthanasia without supplemental agents), CO, potassium chloride in conjunction with general anesthesia	N ₂ , Ar, electrocution followed by cervical dislocation
Nonhuman primates	Barbiturates	Inhalant anesthetics, CO ₂ , CO, N ₂ , Ar
Rabbits	Barbiturates, inhalant anesthetics, CO ₂ , CO, potassium chloride in conjunction with general anesthesia	N ₂ , Ar, cervical dislocation (< 1 kg), decapitation, penetrating captive bolt
Reptiles	Barbiturates, inhalant anesthetics (in appropriate species), CO ₂ (in appropriate species)	Penetrating captive bolt, gunshot, decapitation and pithing, stunning and decapitation
Rodents and other small mammals	Barbiturates, inhalant anesthetics, CO ₂ , CO, potassium chloride in conjunction with general anesthesia, microwave irradiation	Methoxyflurane, ether, N ₂ , Ar, cervical dislocation (rats < 200 g), decapitation
Ruminants	Barbiturates, potassium chloride in conjunction with general anesthesia, penetrating captive bolt	Chloral hydrate (IV, after sedation), gunshot, electrocution
Swine	Barbiturates, CO ₂ , potassium chloride in conjunction with general anesthesia, penetrating captive bolt	Inhalant anesthetics, CO, chloral hydrate (IV, after sedation), gunshot, electrocution, blow to the head (< 3 weeks of age)
Zoo animals	Barbiturates, inhalant anesthetics, CO ₂ , CO, potassium chloride in conjunction with general anesthesia	N ₂ , Ar, penetrating captive bolt, gunshot
Free-ranging wildlife	Barbiturates IV or IP, inhalant anesthetics, potassium chloride in conjunction with general anesthesia	CO ₂ , CO, N ₂ , Ar, penetrating captive bolt, gunshot, kill traps (scientifically tested)

*Acceptable methods are those that consistently produce a humane death when used as the sole means of euthanasia. †Conditionally acceptable methods are those techniques that by the nature of the technique or because of greater potential for operator error or safety hazards might not consistently produce humane death or are methods not well documented in the scientific literature.

Animal Care & Handling

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Appendix 2

Some unacceptable agents and methods of euthanasia

AGENT OR METHOD	COMMENTS
Air embolism	Air embolism may be accompanied by convulsions, opisthotonos and vocalization. If used, it should be done only in anesthetized animals.
Blow to the head	Unacceptable for most species.
Burning	Chemical or thermal burning of an animal is not an acceptable method of euthanasia.
Chloral hydrate	Unacceptable in dogs, cats, and small mammals.
Chloroform	Chloroform is a known hepatotoxin and suspected carcinogen, and therefore extremely hazardous to personnel.
Cyanide	Cyanide poses an extreme danger to personnel and the manner of death is aesthetically objectionable.
Decompression	Decompression is unacceptable for euthanasia because of numerous disadvantages. (1) Many chambers are designed to produce decompression at a rate 15 to 60 times faster than that recommended as optimum for animals, resulting in pain and distress attributable to expanding gases trapped in body cavities. (2) Immature animals are tolerant of hypoxia, and longer periods of decompression are required before respiration ceases. (3) Accidental recompression, with recovery of injured animals can occur. (4) Bloating, bleeding, vomiting, convulsions, urination, and defecation, which are aesthetically unpleasant, may develop in unconscious animals.
Drowning	Drowning is not a means of euthanasia and is inhumane.
Exsanguination	Because of the anxiety associated with extreme hypovolemia, exsanguination should be done only in sedated, stunned, or anesthetized animals.
Formalin	Direct immersion of an animal into formalin, as a means of euthanasia, is inhumane.
Household Products and Solvents	Acetone, quaternary compounds (including CCl ₄), laxatives, ^a clove oil, dimethylketone, quaternary ammonium products, acids, and other commercial and household products or solvents are not acceptable agents for euthanasia.
Hypothermia	Hypothermia is not an appropriate method of euthanasia.
Neuromuscular blocking agents (nicotine, magnesium sulfate, potassium chloride, all curariform agents)	When used alone, these drugs all cause respiratory arrest before unconsciousness, so the animal may perceive pain and distress after it is immobilized.
Rapid freezing	Rapid freezing as a sole means of euthanasia is not considered to be humane. If used, animals should be anesthetized prior to freezing.
Smothering	Smothering of chicks or poults in bags or containers is not acceptable

Animal Care & Handling

Strychnine	Strychnine causes violent convulsions and painful muscle contractions.
Stunning	Stunning may render an animal unconscious, but it is not a method of euthanasia (except for neonatal animals with thin

craniums). If used, it must be immediately followed by a method that ensures death.

Tricaine methane sulfonate (TMS, MS 222)	Should not be used for euthanasia of animals intended as food.
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*Roccal D Plus, Pharmacia & Upjohn, Kalamazoo, Michigan

Sample Forms

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TAB F
Sample Forms
Section 2: Standard Medical Record

STANDARD MEDICAL RECORD

Date _____ Disaster Name/Location _____

Name of animal (if known) _____

Breed _____ Sex _____ Age _____ Actual or Est. (circle) Weight _____

Description (size, markings, color) _____

Owner's name (if known) _____

Address _____

Phone No. _____

If owner unknown, provide:

Date found _____

Location found (address or detailed description) _____

Transportation to hospital

Vehicle _____

Driver/Sponsor _____

Holding facility or Veterinary hospital

Name _____

Address _____

Phone No. _____ Cell No. _____

I certify that I am the owner/agent of the above listed animal and authorize veterinary care as indicated. I understand that if I have not claimed my pet within 30 days that it will be considered abandoned.

Signature _____ Date _____

Sample Forms



TAB F
Sample Forms
Section 4: Photo – Video Log

PHOTOGRAPHY LOG/VIDEO CASSETTE LOG		
DATE	DESCRIPTION OF PHOTO/VIDEO CASSETTE	ROLL/CASSETTE NUMBER

NOTE: Please copy as many extra blank pages as need

T Sample Forms



TAB F Sample Forms

Section 5: Veterinary Immunization Log

VETERINARY IMMUNIZATION LOG

Date: _____ Veterinary Team ID: _____ Location: _____ Page _____ of _____

NOTE: Use Separate Lines For Separate Injections or Vaccines (i.e. not multivalent)

Patient ID#	Animal Name	Animal Owner	Gender Pregnant?	Age or DOB	Vaccine	Mfg.	Lot#	Exp Date	Injection Site	Route	Other Info

GENDER: Male/Male Neuter – M/ MN Female/Fem Spay – F / FS	APPLICABLE MANUFACTURER CODE: _____ - _____ - _____ - _____ -	INJECTION SITE CODES: Left Rear - LR Right Rear - RR Left Fore - LF Right Fore - RF Cervical – C Other - write in	ROUTE: Intramuscular – IM Subcutaneous – SQ Other – write in
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Applicable Vaccine Abbreviation Codes:

VACCINE	Abbreviation	VACCINE	Abbreviation

Sample Forms

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TAB F – Sample Forms Section 6: Log

Each animal care and holding facility should complete this log and send a copy to your Veterinary Response Historian (VRH).

Date Admitted	Description of Animal	Condition & Treatment	Disposition	Date Released

NOTE: Please copy as many extra blank pages as needed.

Sample Forms

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TAB F Sample Forms Section 7: Animal Care and Holding Survey

Facility _____

Owner's name _____

Facility address _____

Facility phone No. _____ Back line _____

Owner's home phone No. _____ Cellular phone No. _____

Owner's pager No. _____ Ham radio _____

What species of animal will you accept?

_____ Canine _____ Feline _____ Equine _____ Avian _____ Other (specify)

How many cages or stalls do you have available?

_____ Cages _____ Runs _____ Large animal stalls _____ Corrals

Are you willing to provide services during a disaster? (check one)

_____ Pro bono _____ Reduced fee _____ Standard fee

What are your minimal entry requirements for animals to your facility?

__ Not applicable __ Rabies vaccination __ Other vaccinations __ Parasite control

Do you have isolation facilities that could be used if needed?

_____ Yes _____ No

Would your facility and/or support staff be available for disasters outside normal hours of operation?

_____ Yes _____ No

Release: (to be signed by person to commit facility)

Print Name _____

Signature _____ Date _____

Sample Forms

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TAB F Sample Forms

Section 8: Veterinary Response Historian Checklist

INTRODUCTION

To preface the raw data, the VRH should complete this checklist as a minimum of data required. Please carry a journal and keep extensive notes on any information related to veterinary care during the disaster. Record successes as well as failures and suggestions for improvement as appropriate. ***Do not discard field notes.***

General Information

1. Type of Disaster (e.g., earthquake, fire, oil spill, etc.)

2. Date and Duration of Disaster

3. Geographical Boundaries (e.g., address, county, area)

Animal Information

4. Species of Animals Involved in Disaster

5. Number of Animals Involved in Disaster (by species)

6. Extent of Injuries to Animals (descriptions)

7. Number of Animals Dead (by species)

Sample Forms

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8. Number of Unclaimed Animals (by species)

9. Number of Claimed Animals (by species)

Veterinary Care

10. Number of Veterinarians Providing Support

11. Number of Veterinary Technicians/AHTs Providing Support

12. Number of Veterinary Hospitals Used

13. Approximate Total Veterinary Hours

14. Approximate Total Technician/AHT Hours

15. Approximate Veterinary Supply Cost

16. List of Contributors: (to be used for acknowledgements)

Name _____

Address _____

Brief Description of Contribution _____

Name _____

Address _____

Brief Description of Contribution _____

Name _____

Sample Forms

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Address _____
Brief Description of Contribution _____

Name _____
Address _____
Brief Description of Contribution _____

Name _____
Address _____
Brief Description of Contribution _____

Name _____
Address _____
Brief Description of Contribution _____

Name _____
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Brief Description of Contribution _____

Name _____
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Brief Description of Contribution _____

Name _____
Address _____
Brief Description of Contribution _____

Name _____
Address _____
Brief Description of Contribution _____

Name _____
Address _____
Brief Description of Contribution _____

Name _____

Sample Forms

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Address _____

Brief Description of Contribution _____

Name _____

Address _____

Brief Description of Contribution _____

NOTE: Please copy as many extra blank pages as needed prior to filling our names.

Disaster Planning Information and Available Training Courses

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TAB G

Disaster Planning Information and Available Training Courses Section 1: Disaster Emergency/Resources

For the most current training information please visit the AVMA Website at www.avma.org/disaster/training/

Selected Web sites:

- The U.S. Army Directorate of Medical Education:
www.mods.army.mil/medicaleducation
- Center for Domestic Preparedness- AGERT
<http://cdp.dhs.gov/>
- Disaster Prep 101 book
www.disasterprep101.com/
- Federal Emergency Management Agency
<http://training.fema.gov/IS/crslst.asp>
- Federal Emergency Management Agency: Electronic distance learning
<http://training.fema.gov/>
- Homeland Responder Training Network
www.homelandresponder.org/hrbrief_132.htm
- Humanitarian Resource Institute
www.humanitarian.net/biodefense/fazdc/
- Humanitarian Resource Institute: Online FAD course
www.humanitarian.net/biodefense/fazdc/fadc1/
- Iowa State University
www.cfsph.iastate.edu/
- Kirkwood Community College
www.et-online.org/et_courses.html
- Life Safety Association
www.lifesafety.com
- LifeSaving Resources, Inc.
www.lafesaving.com/

Disaster Planning Information and Available Training Courses

- Michigan Emerging Diseases Course
www.michigan.gov/emergingdiseases
- National Biosecurity Resource Center
www.biosecuritycenter.org/
- National Incident Management System Online Training
www.nimsonline.com/
- National Safety Council
www.nsc.org
- North American Emergency Management
www.naem.com
- Professional River Instruction
www.swiftwater-rescue.com/
- Purdue Extension Educators
www.ces.purdue.edu/eden/educators/index.html
- Rescue 3 International
www.rescue3.com
- Rescue Specialists
www.rescuespec.com
- Rock-n-Rescue
www.rocknrescue.com
- Ropes That Rescue
<http://ropesthatrescue.com>
- S.T.A.R.T. Rescue Training
www.startrescue.com
- Safety Advantage
www.safetyadvantage.com
- State Animal Response Teams
www.ncsart.org
- U.S. Army Chemical School
www.wood.army.mil/usacmls

Disaster Planning Information and Available Training Courses

- University of Kentucky Agroterrorism Courses
www.kiprc.uky.edu/trap/agro/
- University of Wisconsin, Disaster Management Center
www.epdweb.engr.wisc.edu/dmc/about/index.html
- USDA APHIS Veterinary Services: Professional Development Training
www.aphis.usda.gov/vs/training/
- USDA Food Safety and Inspection Service Public Health Veterinary Training
www.fsis.usda.gov/employees/Public_Health_Veterinarian/index.asp
- Veterinary Information Network
www.vin.com/CE/MULT101-0903.htm
- Washington State University: Sources for Agricultural Animal Veterinarians
www.vetmed.wsu.edu/courses-jmgay/aglinks.htm
- Western Institute for Food Safety and Security
<http://wifss.ucdavis.edu/>

Resources

TAB H Resources

Section 1: Disaster Preparedness Related Websites

ANIMAL HEALTH

Anthrax information

- AVMA Anthrax backgrounder:
www.avma.org/public_health/biosecurity/anthrax_bgnd.asp
- Concerns of Anthrax in Domestic Cats:
www.vet.cornell.edu/fhc/news/anthrax.html
- Response to Concerns of Anthrax in Domestic Cats:
www.vet.cornell.edu/fhc/brochures/anthrax.html

Avian Influenza

- American College of Veterinary Preventive Medicine:
www.acvpm.org/files/public_health_influenza.pdf
- AVMA Influenza Resources: www.avma.org/public_health/influenza/default.asp
- World Health Organization – Avian Influenza Fact Sheet:
www.who.int/mediacentre/factsheets/avian_influenza/en/

Communicable diseases

- AVMA public health information: www.avma.org/public_health/default.asp
- Los Angeles Department of Health Services: <http://lapublichealth.org/acd/>

Chronic wasting disease

- AVMA public health information: www.avma.org/public_health/default.asp
- AVMA CWD backgrounder: www.avma.org/communications/cwd/cwd_bgnd.asp
- AVMA CWD information:
www.avma.org/animal_health/brochures/cwd/cwd_brochure.asp
- USDA Animal and Plant Health Inspection Service CWD Information:
www.aphis.usda.gov/animal_health/animal_diseases/cwd/

Foreign animal diseases: general

- USDA Food Safety and Inspection Service Reporting FADs (PDF):
www.fsis.usda.gov/OPPDE/rdad/FSISDirectives/6000.1Rev1.pdf
- USDA Food Safety and Inspection Service public health veterinary training:
www.fsis.usda.gov/employees/Public_Health_Veterinarian/index.asp
- Animal Health Australia: www.animalhealthaustralia.com.au/
- Agricultural Research Service: <http://ars.usda.gov/main/main.htm>
- USDA APHIS National Veterinary Services Laboratory:
www.fsis.usda.gov/OPPDE/rdad/FSISDirectives/6000.1Rev1.pdf
- US Animal Health Association: www.usaha.org/
- United States Department of Agriculture: www.usda.gov/wps/portal/usdahome
- The Foreign Animal Disease Gray Book:
www.vet.uga.edu/vpp/gray_book02/index_not%20using.php

Resources

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- Role of the Private Veterinarian in the Diagnosis of Foreign Animal Diseases: www.inspection.gc.ca/english/anima/heasan/fad/privete.shtml
- University of Illinois Foreign and Reportable Disease Surveillance: www.cvm.uiuc.edu/frads/

National Center for Foreign Animal and Zoonotic Disease Defense: <http://fazd.tamu.edu/>

Foot and mouth disease

- AVMA FMD backgrounder: www.avma.org/public_health/fmd_bgnd.asp
- National Center for Foreign Animal and Zoonotic Disease Defense: <http://fazd.tamu.edu/>

National animal health organizations

- United States Department of Agriculture: www.usda.gov/wps/portal/usdahome
- US Animal Health Association: www.usaha.org/
- Council for Agricultural Science and Technology: www.cast-science.org/
- Department of Environment Food and Rural Affairs: www.defra.gov.uk/
- Food and Agriculture Organization of the United Nations: www.fao.org/
- Office International des Epizooties: www.oie.int/eng/en_index.htm
- The AVIS Consortium: Foot and mouth disease:
- <http://aleffgroup.com/avisfmd/a010-fmd/mod0/0000-main.html>

Reportable diseases

- USDA Food Safety and Inspection Service FADs (PDF): www.fsis.usda.gov/OPPDE/rdad/FSISDirectives/6000.1Rev1.pdf

State departments of agriculture

- Alabama Department of Agriculture and Industries: <http://agri-ind.state.al.us/>
- Alaska Division of Agricultural: www.dnr.state.ak.us/ag/index.htm
- Arizona Department of Agriculture: www.azda.gov/
- Arkansas State Plant Board: www.plantboard.org/
- California Department of Food and Agriculture: www.cdfa.ca.gov/
- Colorado Department of Agriculture: www.colorado.gov/ag
- Connecticut Department of Agriculture: www.ct.gov/doag/site/default.asp
- Delaware Department of Agriculture: <http://dda.delaware.gov/>
- Florida Department of Agriculture and Consumer Services: <http://doacs.state.fl.us/>
- Georgia Department of Agriculture: <http://agr.georgia.gov/02/doa/home/0,2473,38902732,00.html>
- Hawaii Department of Agriculture: <http://hawaii.gov/hdoa>
- State of Idaho Agriculture: www.agri.state.id.us/
- Illinois Department of Agriculture: www.agr.state.il.us/
- Indiana Department of Agriculture: www.in.gov/isda/
- Iowa Department of Agriculture: www.agriculture.state.ia.us/
- Kansas Department of Agriculture: www.ksda.gov/
- Kentucky Department of Agriculture: www.kyagr.com/
- Louisiana Department of Agriculture & Forestry: www.ldaf.state.la.us/portal/
- Maine Department of Agriculture, Food and Rural Resources: www.maine.gov/agriculture/index.shtml
- Maryland Department of Agriculture: www.mda.state.md.us/
- Massachusetts Department of Agricultural Resources: www.mass.gov/agr/

Resources

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- Michigan Department of Agriculture: www.michigan.gov/mda
- Minnesota Department of Agriculture: www.mda.state.mn.us/
- Mississippi Department of Agriculture and Commerce: www.mdac.state.ms.us/
- Missouri Department of Agriculture: www.mda.mo.gov/
- Montana Department of Agriculture: <http://agr.mt.gov/>
- Nebraska Department of Agriculture: www.agr.state.ne.us/
- Nevada Department of Agriculture: <http://agri.state.nv.us/>
- New Hampshire Department of Agriculture, Markets & Food: www.nh.gov/agric/
- New Jersey Department of Agriculture: www.state.nj.us/agriculture/
- New Mexico Department of Agriculture: <http://nmdaweb.nmsu.edu/>
- New York State Department of Agriculture and Markets: www.agmkt.state.ny.us/
- North Carolina Department of Agriculture & Consumer Services: www.agr.state.nc.us/
- North Dakota Department of Agriculture: www.agdepartment.com/
- Ohio Department of Agriculture: www.ohioagriculture.gov/
- Oklahoma Department of Agriculture, Food & Forestry: www.state.ok.us/~okag/
- Oregon Department of Agriculture: <http://oregon.gov/ODA/index.shtml>
- Pennsylvania Department of Agriculture:
www.agriculture.state.pa.us/agriculture/site/default.asp
- Rhode Island Department of Environmental Management: www.dem.ri.gov/
- South Carolina Department of Agriculture: <http://agriculture.sc.gov/>
- South Dakota Department of Agriculture: www.state.sd.us/DOA/
- Tennessee Department of Agriculture: www.state.tn.us/agriculture/
- Texas Department of Agriculture:
www.agr.state.tx.us/agr/index/0,1911,1848_0_0_0,00.html
- Utah Department of Agriculture and Food: <http://ag.utah.gov/>
- Vermont Agency of Agriculture: www.vermontagriculture.com/
- Virginia Department of Agriculture and Consumer Services: www.vdacs.virginia.gov/
- Washington Department of Agriculture: <http://agr.wa.gov/>
- West Virginia Department of Agriculture: www.wvagriculture.org/
- Wisconsin Department of Agriculture, Trade & Consumer Protection:
<http://datcp.state.wi.us/index.jsp>
- Wyoming Department of Agriculture: <http://wyagric.state.wy.us/>

Veterinary diagnostic laboratories

- American Association of Veterinary Laboratory Diagnosticians (AAVLD):
www.aavld.org/mc/page.do
- USDA APHIS National Veterinary Services Laboratory:
www.aphis.usda.gov/animal_health/lab_info_services/about_nvsl.shtml

Zoonotic diseases

- AVMA public health information: www.avma.org/public_health/default.asp
- AVMA Zoonosis Updates: www.avma.org/disaster/avma_resources.asp
- Humanitarian Resource Institute: Online zoonotic disease course:
www.humanitarian.net/biodefense/fazdc/zdc1/
- National Center for Foreign Animal and Zoonotic Disease Defense: <http://fazd.tamu.edu/>

Resources

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DISASTER/EMERGENCY RESOURCES

Agencies active in disasters

- American Humane Association: www.americanhumane.org/site/PageServer
- American Veterinary Medical Foundation: www.avmf.org/
- AVMA Veterinary Medical Assistance Teams: www.vmat.org/
- Center for International Disaster Information: www.cidi.org/
- Code 3 Associates, Inc. animal rescue: www.code3associates.org/
- The Humane Society of the United States:
www.hsus.org/hsus_field/hsus_disaster_center/
- International Fund for Animal Welfare: www.ifaw.org/ifaw/general/default.aspx
- Noah's Wish animal rescue: www.noahswish.org/
- United Animal Nations/Emergency Animal Rescue Services (EARS): www.uan.org/

Bioterrorism/agroterrorism information

- AVMA public health information: www.avma.org/public_health/default.asp
- Centers for Disease Control and Prevention: www.bt.cdc.gov/agent/agentlist.asp
- Federal Emergency Management Agency electronic distance learning:
<http://training.fema.gov/emiweb/edu/>
- National Center for Foreign Animal and Zoonotic Disease Defense: <http://fazd.tamu.edu/>
- Purdue Extension Educators: www.ces.purdue.edu/eden/educators/index.html
- Texas Department of State Health Services: www.dshs.state.tx.us/preparedness/
- University of Nebraska Institute of Agriculture and Natural Resources:
<http://citnews.unl.edu/ianrhome/inthenews/agroterrorism.shtml>

Bovine spongiform encephalopathy

- AVMA BSE backgrounder: www.avma.org/public_health/bse/bse_bgnd.asp
- AVMA public health information: www.avma.org/public_health/default.asp
- US Army Center for Health Promotion and Preventative Medicine:
<http://chppm-www.apgea.army.mil/madcowdisease/>

Disaster plans

- American Veterinary Medical Foundation: www.avmf.org/
- AVMA: www.avma.org/disaster/
- California Department of Food and Agriculture animal disaster plans:
www.cdfa.ca.gov/AHFSS/Animal_Health/
- Centers for Disease Control and Prevention animal disaster plans:
www.bt.cdc.gov/disasters/petprotect.asp
- New Ipswich emergency management plan (PDF):
www.avma.org/disaster/animalplanunh.pdf
- Pets on the Go: www.petsonthego.com/
- Pet Travel Center.com: www.pettravelcenter.com/
- Pets Welcome travel information: www.petswelcome.com/
- State animal response teams: www.ncsart.org/
- The Humane Society of the United States:
www.hsus.org/hsus_field/hsus_disaster_center/resources/hsus_disaster_planning_manual_for_animals.html

Resources

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Disaster Preparedness

- 72 hour preparation: [/www.72hours.org/](http://www.72hours.org/)
- American Veterinary Medical Foundation: www.avmf.org/
- Animal Welfare Information Center Disaster Planning: www.nal.usda.gov/awic/pubs/IACUC/dis.htm
- Animal Welfare Information Center Disaster Planning for Research and Laboratory Animal Facilities: www.nal.usda.gov/awic/newsletters/v11n1/11n1heat.htm
- AVMA disaster preparedness series: www.avma.org/disaster/
- Bernstein Crisis Management LLC: www.bernsteincrisismanagement.com/
- California Department of Food and Agriculture animal disaster plans: www.cdfa.ca.gov/AHFSS/Animal_Health/
- Canadian Council on Animal Care Crisis Management Program: www.ccac.ca/en/CCAC_Programs/Assessment/crisis.htm
- Disaster Planning for Laboratory Animal Facilities: Lessons Learned from Hurricane Katrina (PDF): http://grants1.nih.gov/grants/olaw/IACUCConf2006_stokes.pdf
- Extension Disaster Education Network: <http://eden.lsu.edu/>
- Federal Emergency Management Agency: www.fema.gov/
- Humanitarian Resource Institute: www.humanitarian.net/
- Institutional Animal Care and Use Committee: www.iacuc.org/disaster.htm
- Laboratory Animal Management Association Disaster Preparedness Resource: www.lama-online.org/OLAW-1.html
- Maryland Fire and Rescue: www.mfri.org/
- National Institutes of Health Offices and Extramural Research: http://grants.nih.gov/grants/olaw/disaster_planning.htm
- PRIM&R IACUC Conference Disaster Pan Outline (PDF): http://grants1.nih.gov/grants/olaw/IACUCConf2006_handout.pdf
- Pet Travel Center Emergency Preparedness Tips: www.pettravelcenter.com/page_items/itemList/56
- Pet Travel Center Emergency Tips: www.pettravelcenter.com/page_items/viewSingle/21
- Pets Welcome travel information: www.petswelcome.com/
- State animal response teams: www.ncsart.org/
- UC Davis DANR Guide to Disaster Preparedness: www.vetmed.ucdavis.edu/vetext/INF-DI_DANRGuide.html
- University of Florida Disaster-Related Resources on the World Wide Web: <http://disaster.ifas.ufl.edu/links.htm>
- US Department of Homeland Security: www.ready.gov/
- Whitehouse/national disaster information: www.whitehouse.gov/

Disaster response

- National Response Framework: www.fema.gov/emergency/nrf/mainindex.htm

Emergency Management

- Alabama Emergency Management Agency: <http://ema.alabama.gov/>
- Alaska Division of Homeland Security and Emergency Management: www.ak-prepared.com/
- Arizona Division of Emergency Management: www.dem.azdema.gov/
- Arkansas Department of Emergency Management: www.adem.arkansas.gov/
- California Office of Emergency Services: www.oes.ca.gov/
- Colorado Division of Emergency Management: www.dola.state.co.us/dem/index.html

Resources

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- Connecticut Department of Emergency Management and Homeland Security: www.ct.gov/demhs/site/default.asp
- Delaware Emergency Management Agency: <http://dema.delaware.gov/>
- Florida Division of Emergency Management: www.floridadisaster.org/
- Georgia Emergency Management Agency: www.gema.state.ga.us/
- Hawaii State Civil Defense: www.scd.state.hi.us/
- Idaho Bureau of Homeland Security: www.bhs.idaho.gov/
- Illinois Emergency Management Agency: www.state.il.us/iema/
- Indiana Department of Homeland Security: www.in.gov/dhs/
- Iowa Homeland Security and Emergency Management: www.iowahomelandsecurity.org/
- Kansas Division of Emergency Management: www.accesskansas.org/kdem/
- Kentucky Division of Emergency Management: <http://kyem.ky.gov/>
- Louisiana Office of Homeland Security & Emergency Preparedness: www.loep.state.la.us/
- Maine Emergency Management Agency: www.state.me.us/mema/
- Maryland Emergency Management Agency: www.mema.state.md.us/MEMA/index.jsp
- Massachusetts Emergency Management Agency: www.mass.gov/?pageID=eopsagencylanding&L=3&L0=Home&L1=Public+Safety+Agencies&L2=Massachusetts+Emergency+Management+Agency&sid=Eeops
- Michigan State Police: www.michigan.gov/msp/0,1607,7-123-1593_3507---,00.html
- Minnesota Public Safety, Homeland Security and Emergency Management: www.hsem.state.mn.us/
- Mississippi Emergency Management Agency: www.msema.org/
- Missouri State Emergency Management Agency: www.sema.dps.mo.gov/semepage.htm
- Montana Disaster and Emergency Services: <http://dma.mt.gov/des/>
- Nebraska Emergency Management Agency: www.nema.ne.gov/
- Nevada Division of Emergency Management: <http://dem.state.nv.us/>
- New Hampshire Department of Safety, Homeland Security & Emergency Management: www.nh.gov/safety/divisions/bem/
- New Jersey Office of Emergency Management: www.state.nj.us/njoem/
- New Mexico Department of Homeland Security and Emergency Management: www.nmdhsem.org/default.asp?CustComKey=270308&CategoryKey=274276&pn=Page&DomName=nmdhsem.org
- New York State Emergency Management Office: www.semo.state.ny.us/
- North Carolina Division Emergency Management: www.nccrimecontrol.org/Index2.cfm?a=000003,000010
- North Dakota Department of Emergency Services: www.nd.gov/des/
- North Mariana Islands Emergency Management Office: www.cnmiemo.gov.mp/
- Ohio Emergency Management Agency: <http://ema.ohio.gov/ema.asp>
- Oklahoma Dept. of Emergency Management: www.ok.gov/OEM/
- Oregon Emergency Management: www.oregon.gov/OMD/OEM/
- Pennsylvania Emergency Management Agency: www.pema.state.pa.us/
- Puerto Rico Emergency Management (In Spanish): www.gobierno.pr/AEMEAD/Inicio
- Rhode Island Emergency Management Agency: www.riema.ri.gov/
- South Carolina Emergency Management Division: www.scemd.org/
- South Dakota Office of Emergency Management: www.oem.sd.gov/
- Tennessee Emergency Management Agency: www.tnema.org/
- Texas Division of Emergency Management: www.txdps.state.tx.us/dem/pages/index.htm
- Utah Division of Homeland Security: <http://publicsafety.utah.gov/homelandsecurity/>

Resources

- Vermont Emergency Management: www.dps.state.vt.us/vem/
- Virgin Islands Territorial Emergency Management: No website available on publication
- Virginia Department of Emergency Management: www.vdem.state.va.us/
- Washington Emergency Management Division: <http://emd.wa.gov/>
- Washington D.C. Homeland Security and Emergency Management Agency: <http://dcema.dc.gov/dcema/site/default.asp>
- West Virginia Division of Homeland Security & Emergency Management: www.wvdhsem.gov/
- Wisconsin Emergency Management: <http://emergencymanagement.wi.gov/>
- Wyoming Office of Homeland Security: <http://wyohomelandsecurity.state.wy.us/main.aspx>

National Disaster Medical System

- National Disaster Medical System: www.hhs.gov/aspr/opeco/ndms/index.html

Search and rescue

- National Association for Search and Rescue: www.nasar.org/nasar/

State emergency medical services offices

- State emergency medical services offices [PDF]: www.avma.org/disaster/responseguide/I_medical.pdf

State Public Health Veterinarians

- State Public Health Veterinarians: www.avma.org/disaster/state_pubhealth_vets.asp

State Veterinarians

- State Veterinarians: www.avma.org/disaster/state_veterinarians.asp

State Veterinary Medical Associations

- State Veterinary Medical Associations [PDF]: www.avma.org/disaster/responseguide/I_vmas.pdf

Veterinary volunteer opportunities

- Tri-State County Animal Response Team: www.tristatecart.com/
- Volunteer Abroad: www.volunteerabroad.com/search.cfm
- Pet Travel Center – Become a haven for pets during disasters: www.pettravelcenter.com/submit_listing/index/veterinarian/
- Throughout the US and beyond: www.ruralareavet.org/

Weather related information

- National Weather Service: www.weather.gov/view/nationalwarnings.php

Public Health

Resources

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Anthrax information

- AVMA Anthrax backgrounder:
www.avma.org/public_health/biosecurity/anthrax_bgnd.asp
- Concerns of Anthrax in Domestic Cats: www.vet.cornell.edu/fhc/news/anthrax.html
- Response to Concerns of Anthrax in Domestic Cats:
www.vet.cornell.edu/fhc/brochures/anthrax.html

Avian Influenza

- American College of Veterinary Preventative Medicine:
www.acvpm.org/files/public_health_influenza.pdf
- AVMA Influenza Resources: www.avma.org/public_health/influenza/default.asp
- National Center for Foreign Animal and Zoonotic Disease Defense: <http://fazd.tamu.edu/>
- World Health Organization – Avian Influenza Fact Sheet:
www.who.int/mediacentre/factsheets/avian_influenza/en/

Chronic wasting disease:

- AVMA CWD backgrounder: www.avma.org/communications/cwd/cwd_bgnd.asp

Communicable diseases

- AVMA public health information: www.avma.org/public_health/default.asp
- Los Angeles Department of Health Services: <http://lapublichealth.org/acd/>
- National Center for Foreign and Zoonotic Disease Defense: <http://fazd.tamu.edu/>

Public health education

- AVMA public health resources (Topics include biosecurity, mad cow disease, West Nile virus, and more): www.avma.org/public_health/default.asp
- CDC Centers for Public Health and Preparedness: <http://emergency.cdc.gov/cotper/cphp/>
- Federal Emergency Management Agency: www.fema.gov/
- ISU Center for Food Security and Public Health: www.cfsph.iastate.edu/
- National Pesticide Information Center [PDF]: <http://npic.orst.edu/dpr/Disaster.pdf>
- United States Department of Agriculture: <http://npic.orst.edu/dpr/Disaster.pdf>
- US Department of Health and Human Services: www.hhs.gov/

Rendering

- National Renderers Association, Inc.: <http://nationalrenderers.org/>

Reportable diseases

- USDA Food Safety and Inspection Service reporting FADs [PDF]:
www.aphis.usda.gov/animal_health/animal_diseases/cwd/

Zoonotic diseases

- AVMA public health information: www.avma.org/public_health/default.asp
- Humanitarian Resource Institute-Online zoonotic disease course:
www.humanitarian.net/biodefense/fazdc/zdc1/
- National Center for Foreign Animal and Zoonotic Disease Defense: <http://fazd.tamu.edu/>

Resources

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Section 2: Disaster Preparedness and Response

American Veterinary Medical Association:
Coordinator of Emergency Preparedness and Response
1931 N Meacham Road Suite 100
Schaumburg, IL 60173
(800)248-2862 ext. 6632
AVMA Web site: www.avma.org

Federal Emergency Management Agency
500 C Street SW
Washington, D.C. 20472
Disaster Assistance: (800) 621-FEMA, TTY (800) 462-7585
FEMA Web site: www.fema.gov

U.S. Department of Homeland Security FEMA Regional Offices:

Region I	(CT, MA, ME, NH, RI, VT)	Boston, MA	(617) 956-7506
Region II	(NJ, NY, PR, VI)	New York, NY	(212) 680-3628
Region III	(DC, DE, MD, PA, VA, WV)	Philadelphia, PA	(215) 931-5608
Region IV	(AL, FL, GA, KY, MS, NC, SC, TN)	Atlanta, GA	(770) 220-5200
Region V	(IL, IN, MI, MN, OH, WI)	Chicago, IL	(312) 408-5500
Region VI	(AR, LA, NM, OK, TX)	Denton, TX	(940) 898-5399
Region VII	(IA, KS, MO, NE)	Kansas City, MO	(816) 283-7063
Region VIII	(CO, MT, ND, SD, UT, WY)	Denver, CO	(303) 235-4900
Region IX	(AZ, CA, GUAM, HI, NV, CNMI, FSM, RMI, American Samoa)	Oakland, CA	(510) 627-7100
Region X	(AK, ID, OR, WA)	Bothell, WA	(425) 487-4600

U.S. Department of Health & Human Services

Office of the Assistant Secretary for Preparedness and Response, National Disaster Medical System
200 Independence Ave, SW, Room 638-G
Washington, DC 20201
(202) 205-2882
Web site: www.hhs.gov/ophep

Foreign animal disease outbreak:
USDA, APHIS, Veterinary Services, Domestic Programs (301) 734-8073
APHIS Web site: www.aphis.usda.gov

American Red Cross National Headquarters

2025 E Street, NW
Washington, DC 20006
Phone: (202) 303 5000
American Red Cross Web site: www.redcross.org

Resources

American Humane Association, The

Animal Protection Services
63 Inverness Drive East
Englewood, CO 80112-5117
Ph: (303) 792-9900
Fax: (303) 792-5333
E-mail: apinfo@americanhumane.org
Website: www.americanhumane.org

The mission of the American Humane Association, as a network of individuals and organizations, is to prevent cruelty, abuse, neglect and exploitation of children and animals and to assure that their interests and well-being are fully, effectively, and humanely guaranteed by an aware and caring society.

Caribbean Disaster Emergency Response Agency

Building #1, Manor Lodge
Lodge Hill, St. Michael, Barbados
Ph: (246) 425-0386
Fax: (246) 425-8854
E-mail: CDERA@Caribsurf.com
Website: www.cdera.org

The Caribbean Disaster Emergency Response Agency (CDERA) is an inter-governmental regional disaster management organization established in 1991 by an Agreement of Heads of Government of the Caribbean Community. Its main function is to make an immediate and coordinated response to any disastrous event affecting any Participating State, once the state requests such assistance.

Emergency Management Australia (EMA)

PO Box 1020 Dickson
Australian Capital Territory 2602
Australia
Ph: +61 (0) 2 6256 4600
Fax: +61 (0) 2 6256 4653
E-mail: ema@ema.gov.au
Website: www.ema.gov.au

The Emergency Management Australia's mission is to reduce the impact of disasters and emergencies in Australia and its region.

Public Safety Canada

269 Laurier Avenue West
Ottawa, Ontario
Canada K1A 0P8
Ph: (613) 994-4875 (general inquiries) (613) 991-7000 (Emergency Calls Only)
 (800) 830-3118 (general inquiries)
Fax: (613) 998-9589
E-mail: communications@psepc-sppcc.gc.ca
Website: www.ocipep.gc.ca

This Office will develop and implement a comprehensive approach to protecting Canada's critical infrastructure. It will provide national leadership to help ensure the protection of this infrastructure, in both its physical and cyber dimensions regardless of the source of threats and vulnerabilities. It will also be the government's primary agency for ensuring national civil emergency preparedness.

Resources

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Federal Emergency Management Agency (FEMA)

500 C Street, SW

Washington, DC 20472

Ph: (202) 566-1600

Website: www.fema.gov

Advising on building codes and flood plain management...teaching people how to get through a disaster...helping equip local and state emergency preparedness...coordinating the federal response to a disaster...making disaster assistance available to states, communities, businesses and individuals...training emergency managers...supporting the nation's fire service...administering the national flood and crime insurance programs...the range of FEMA's activities is broad indeed.

Humane Society International (HSI)

2100 L Street, NW

Washington, DC 20037

Ph: (301) 258-3010

Fax: (301) 258-3082

E-mail: hsi@hsihsus.org

Website: www.hsus.org/international

Humane Society International (HSI) is a global presence. It has worked for nearly a decade with governments, humane organizations, and individual animal protectionists to find practical, long-term solutions to common animal humane-related problems.

Humane Society of the United States (HSUS)

National Headquarters

2100 L St., NW

Washington, DC 20037

Ph: (202) 452-1100

Fax: (202) 778-6132

Email: webmaster@hsus.org

Website: www.hsus.org

It is the mission of the Humane Society of the United States, an official disaster-relief agency for animals, to promote the safety and well-being of all animals adversely affected during a disaster.

International Committee of the Red Cross (ICRC)

Public Information Centre

19 Avenue de la Paix

CH 1202 Genève

Ph: ++41 (22) 734 60 01

Fax: ++41 (22) 733 20 57 (ICRC general)

++41 (22) 730 20 82 (Public Information Centre)

E-mail: webmaster.gva@icrc.org

Website: www.icrc.org

The International Committee of the Red Cross (ICRC) is an impartial, neutral and independent organization whose exclusively humanitarian mission is to protect the lives and dignity of victims of war and international violence and to provide them with assistance. Established in 1863, the ICRC is at the origin of the International Red Cross and Red Crescent Movement

International Fund for Animal Welfare (IFAW)

IFAW US

290 Summer Street

Yarmouth Port, MA 02675

Ph: (508) 744-2000; (800) 932-4329

Fax: (508) 744-2009

Resources

E-mail: info@ifaw.org

Website: www.ifaw.org

The International Fund for Animal Welfare (IFAW) works to improve the welfare of wild and domestic animals throughout the world by reducing commercial exploitation of animals, protecting wildlife habitats, and assisting animals in distress. IFAW seeks to motivate the public to prevent cruelty to animals and to promote animal welfare and conservation policies that advance the well being of both animals and people.

Coalition of Organizations for Disaster Education

Director, Public Health and Emergency Preparedness

American Red Cross

8111 Gatehouse Rd, Falls Church, VA 22032

Ph: (703) 206-6707

Fax: (703) 206-7754

Website: www.redcross.org/disaster/disasterguide/orgs.html

The Coalition of Organizations for Disaster Education is the new name for the National Disaster Education Coalition (NDEC). It is composed of federal government agencies and national not-for-profit organizations that work together to develop and disseminate consistent educational information for the public about disaster preparedness. The goal of the organization is to formulate information for the public about how to prepare and respond appropriately to natural and human-caused disasters. The member agencies ensure that disaster safety messages are appropriate, accurate, research-based, and crafted appropriately for the audience by using understandable language.

Pan American Health Organization (PAHO)

Pan American Sanitary Bureau

Regional Office of the World Health Organization

525 Twenty-third Street, N.W.

Washington, DC 20037

Ph: (202) 974-3000

Fax: (202) 974-3663

Website: www.paho.org

The Pan American Health Organization (PAHO) is an international public health agency with more than 90 years of experience in working to improve health and living standards of the countries of the Americas.

United Animal Nations (UAN)

PO Box 188890

Sacramento, CA 95818

Ph: (916) 429-2457

Fax: (916) 429-2456

E-mail: info@uan.org

Website: www.uan.org

Founded in 1987, United Animal Nations (UAN) is recognized as North America's leading provider of emergency animal sheltering and disaster relief services and a key advocate for the critical needs of companion animals. UAN assists animals by helping to prevent, mitigate and resolve crises. We accomplish this by sharing expertise, resources and information to empower others to help more animals.

U. S. Department of Agriculture (USDA)

Animal and Plant Health Inspection Service (APHIS)

Washington, DC 20250

Resources

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Website: www.aphis.usda.gov

The mission of the APHIS is to provide leadership in ensuring the health and care of animals and plants, improving agricultural productivity and competitiveness, and contributing to the national economy and the public health.

Veterinary Emergency & Critical Care Society

6335 Camp Bullis Rd., Suite 12

San Antonio, TX 78257

Ph: (210) 698-5575

Fax: (210) 698-7138

E-mail: veccsadmin@veccs.org

Website: www.veccs.org

The objective of the Veterinary Emergency & Critical Care Society is to raise the level of patient care for seriously ill or injured animals through quality education and communication programs.

The World Health Organization

Regional Office for the Americas/Pan American Health Organization (AMRO/PAHO)

525, 23rd Street, NW

Washington, DC 20037

Ph: (202) 974-3000

Fax: (202) 974-3663

E-mail: postmaster@paho.org

Website: www.paho.org

The objective of WHO is the attainment by all peoples of the highest possible level of health.

World Society for the Protection of Animals (WSPA)

Headquarters:

89 Albert Embankment

London, England, SE1 7TP

Ph: 44 (0) 20 7587 5000

Fax: 44 (0) 20 7793 0208

E-mail: wspa@wspa.org.uk

Website: www.wspa.org.uk

USA:

89 South Street, Suite 201

Boston, MA 02111

Ph: 800-883-WSPA

Fax: (617) 737-4404

E-mail: wspa@wspausa.com

Website: www.wspa-usa.org

WSPA's origins go back more than forty five years. The society's present structure was created in 1981 through the merger of the World Federation for the Protection of Animals (WFPA), founded in 1953, and the International Society for the Protection of Animals (ISPA), founded in 1959. WFPA and ISPA were the first organizations to campaign internationally on animal welfare issues.

Last Updated: 08/08

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STATE	Address	Phone	Fax	Website
Alabama	Alabama Emergency Management Agency 5898 County Road 41 PO Box 2160 Clanton, AL 35046-2160	205-280-2200	205-280-2495	info@ema.alabama.gov www.ema.alabama.gov
Alaska	Alaska Div. Of Homeland Security & Emergency Management PO Box 5750 Fort Richardson, AK 99505-5750	907-428-7000	907-428-7009	dhs&em_emergency_mgmt@ak-prepared.com www.ak-prepared.com
American Samoa	Territorial Emergency Management Coordinator American Samoa Government, PO Box 1086 Pago Pago, AS 96799	011-684-699-6415	011-684-699-6414	
Arizona	Arizona Div. of Emergency Management 5636 East McDowell Road Phoenix, AZ 85008	602-244-0504 800-411-2336	602-392-7519	azserc@azdema.gov www.dem.azdema.gov/
Arkansas	Arkansas Dept. of Emergency Mgmt. Building 9501 Camp Joseph T. Robinson North Little Rock, AR 72199	501-683-6700 800-322-4012	501-683-7890	www.adem.arkansas.gov/
California	Governor's Office of Emergency	916-845-8510	916-845-8511	www.oes.ca.gov

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STATE	Address	Phone	Fax	Website
	Services 3650 Schriever Avenue Mather, CA 95655			www.oes.ca.gov
Colorado	Division of Emergency Management Dept of Local Affairs 9195 East Mineral Avenue, #200 Centennial, CO 80112	720-852-6600	720-852-6750	dola.helpdesk@state.co.us www.dola.state.co.us/oem/oemindex.htm
Connecticut	Department of Emergency Management & Homeland Security 25 Sigourney Street, 6th Floor Hartford, CT 06106	860-256-0800 800-397-8876	860-256-0815	www.ct.gov/demhs/site/default.asp
Delaware	Delaware Emergency Management Agency 165 Brick Store Landing Road Smyrna, DE 19977	302-659-3362	302-659-6855	www.dema.delaware.gov
District of Columbia	Homeland Security & Emergency Mgmt. Agency 2720 Martin Luther King, Jr. Ave, SE Washington, DC 20032	202-727-6161	202-673-2290	http://dcema.dc.gov
Florida	Division of Emergency Management 2555 Shumard Oak Blvd. Tallahassee, FL 32399-2100	850-413-9969	850-488-1016	www.floridadisaster.org

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STATE	Address	Phone	Fax	Website
Georgia	Georgia Emergency Management Agency 935 East Confederate Ave, SE Atlanta, GA 30316	404-635-7000	404-635-7005	www.state.ga.us/gema
Guam	Guam Emergency Management Office of Civil Defense, 221 B Chalan Palasyo Agana Heights, Guam 96910	011-671-475-9600	011-671-477-3727	www.guamhs.org/main/
Hawaii	Dept. of Civil Defense 3949 Diamond Head Road Honolulu, HI 96816-4495	808-733-4300	808-733-4287	www.scd.state.hi.us
***Idaho	Bur. Homeland Security 4040 Guard St., Bldg. 600 Boise, ID 83705-5004	208-422-3040	208-422-3044	www.bhs.idaho.gov
Illinois	Illinois Emergency Mgmt. Agency 2200 S. Dirksen Pkwy Springfield, IL 62703	217-782-2700	217-557-1978	www.state.il.us/iema
Indiana	Indiana State Emergency Mgmt Agency Indiana Government Center Center South, Suite E-208 A 302 West Washington Street Indianapolis, IN 46204	317-232-3986	317-232-3895	www.ai.org/sema/index.html
Iowa	Iowa Homeland Security & Emergency Mgmt. Div. 7105 NW 70th Ave, Camp Dodge Johnston, IA 50131	515-725-3231	515-281-3260	www.iowahomelandsecurity.org
Kansas	Kansas Div. of Emergency Preparedness	785-274-1409	785-274-1426	www.kansas.gov/kdem

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	2800 S. W. Topeka Blvd. Topeka, KS 66611-1287			
Kentucky	Kentucky Emergency Management EOC Building 100 Minuteman Parkway Bldg. 100 Frankfort, KY 40601-6168	502-607-1682 800-255-2587	502-607-1614	www.kyem.ky.gov/
Louisiana	Louisiana Military Office of Emergency Preparedness 7667 Independence Blvd Baton Rouge, LA 70806	225-925-7500	225-925-7501	www.ohsep.louisiana.gov

STATE	Address	Phone	Fax	Website
Maine	Maine Emergency Management Agency 72 State House Station/ 45 Commerce Drive #2 August, ME 04333-0072	207-624-4400	207-287-3180	www.maine.gov/mema
Mariana Islands	CNMI Emergency Management Agency Office of the Governor Commonwealth of the Northern Mariana Islands PO Box 10007 Saipan, Mariana Islands 96950	011-670-322- 9529	011-670-322- 7743	www.cnmiemo.org
Marshall Islands, Republic of	National Disaster Management Office Office of the Chief Secretary PO Box 15 Majuro, Republic of the Marshall Isl 96960-0015	011-692-625- 5181	011-692-625- 6896	
Maryland	Maryland Emergency Management	410-517-3600	410-517-3610	www.mema.state.md.us

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	Agency Camp Fretterd Military Reservation 5401 Rue Saint Lo Drive Reistertown, MD 21136	877-636-2872		
Massachusetts	Massachusetts Emergency Management Agency 400 Worcester Road Framingham, MA 01702	508-820-2000	508-820-2030	www.state.ma.us/mema
Michigan	Michigan Dept. of State Police Emergency Management and Homeland Security Division 4000 Collins Road PO Box 30636 Lansing, MI 48909-8136	517-333-5042	517-333-4987	www.michigan.gov/emd
Micronesia, Federated States of	National Disaster Control Officer PO Box PS-53 Kolonias, Pohnpei, Micronesia 96941	011-691-320-8815	011-691-320-2785	
Minnesota	Homeland Security and Emergency Management Division MN Department of Public Safety 444 Cedar Street, Suite 223 St. Paul, MN 55101-6223	651-296-0466	651-296-0459	www.hsem.state.mn.us/
Mississippi	Mississippi Emergency Management Agency PO Box 5644 Pearl, MS 39288-5644	601-933-6362 800-442-6362	601-933-6800	www.msema.org
STATE	Address	Phone	Fax	Website
Missouri	State Emergency Management Agency	573-526-9100	573-634-7966	www.sema.dps.mo.gov

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	2302 Militia Drive PO Box 116 Jefferson City, MO 65102			
Montana	JFHQ-MT Division of Disaster & Emergency Services PO Box 4789, 1956 Mt. Mojo St. Ft Harrison, MT 59636-4789	406-841-3911	406-841-3965	www.dma.mt.gov/des/
Nebraska	Nebraska Emergency Mgmt. Agency 1300 Military Road Lincoln, NE 68508-1090	402-471-7421	402-471-7433	www.nema.ne.gov
Nevada	Division of Emergency Management 2478 Fairview Dr. Carson City, NV 89701	775-687-0300	775-687-0322	www.dem.state.nv.us
New Hampshire	Governor’s Office of Emergency Mgmt. State Office Park South 33 Hazen Drive Concord, NH 03305	603-271-2231	603-271-3609	www.nh.gov/safety/divisions/bem
New Jersey	Office of Emergency Management New Jersey State Police, PO Box 7068 West Trenton, NJ 08628-0068	609-538-6050 609-584-5000	609-584-1528	www.ready.nj.gov
New Mexico	Dept. of Homeland Security and Emergency Management (DHSEM) 13 Bataan Blvd., PO Box 27111 Santa Fe, NM 87502	505-476-9600 505-476-9635 (Emergency)	505-476-9695	www.nmdhsem.org
New York	New York State Emergency Mgmt. Office State Campus, Building 22, Suite 101 1220 Washington Avenue	518-292-2275	518-322-4978	www.semo.state.ny.us

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	Albany, NY 12226			
North Carolina	Division of Emergency Management 4713 Mail Service Center Raleigh, NC 27699	919-733-3867	919-733-5406	www.ncem.org
North Dakota	North Dakota Dept. of Emergency Services PO Box 5511 Bismarck, ND 58506-5511	701-328-8100	701-328-8181	www.nd.gov/des

STATE	Address	Phone	Fax	Website
Ohio	Ohio Emergency Mgmt. Agency 2855 W. Dublin Granville Road Columbus, OH 43235-2206	614-889-7150	614-889-7183	www.ema.ohio.gov/ema.asp
Oklahoma	Oklahoma Department of Emergency Management 2401 N. Lincoln Blvd. Suite C51 Oklahoma City, OK 73105	405-521-2481	405-521-4053	www.odcem.state.ok.us/
Oregon	Oregon Emergency Management Division Department of State Police PO Box 14370 3225 State St. Salem, OR 97309-5062	503-378-2911	503-373-7833	www.oregon.gov/OMD/OEM/index.shtml
Palau, Republic of	Palau NEMO Coordinator Office of the President PO Box 100 Koror, Republic of Palau 96940	011-680-488- 2422	011-680-488- 3312	
Pennsylvania	Pennsylvania Emergency Mgmt. Agency	717-651-2001	717-651-2040	www.pema.state.pa.us

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	2605 Interstate Drive Harrisburg, PA 17110-9463			
Puerto Rico	P.R. Emergency Management Agency PO Box 966597 San Juan, PR 00906-6597	787-724-0124	787-725-4244	www.gobierno.pr/AEMEAD/Inicio
Rhode Island	Rhode Island Emergency Mgmt. Agency 645 New London Avenue Cranston, RI 02920-3003	401-946-9996	401-944-1891	www.riema.ri.gov
South Carolina	South Carolina Emergency Management Div. 1100 Fish Hatchery Road West Columbia, SC 29172	803-737-8500	803-737-8570	www.scemd.org/
South Dakota	Division of Emergency Management 118 West Capitol Pierre, SD 57501	605-773-3231	605-773-3580	www.oem.sd.gov
Tennessee	Tennessee Emergency Mgmt. Agency 3041 Sidco Drive Nashville, TN 37204-1502	615-741-0001	615-242-9635	www.tnema.org

STATE	Address	Phone	Fax	Website
Texas	Div. of Emergency Management PO Box 4087, 5805 N. Lamar Austin, TX 78773	512-424-2138	512-424-2444 or 7160	www.txdps.state.tx.us/dem
Utah	Utah Division of Emergency Services & Homeland Security 1110 State Office Building, PO Box 141710 Salt Lake City, UT 84114-1710	801-538-3400 800-347-0488	801-538-3770	www.des.utah.gov

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Vermont	Vermont Emergency Management Agency Department of Public Safety Waterbury State Complex 103 S. Main Street Waterbury, VT 05671-2101	802-244-8721	802-244-8655	www.dps.state.vt.us
Virginia	State Coordinator Virginia Dept. of Emergency Services 10501 Trade Court Richmond, VA 23236-3713	804-897-6502	804-897-6506	www.vdem.state.va.us
Virgin Islands	Virgin Islands Territorial Emergency Management 2-C Contant, A-Q Building St. Croix, Virgin Islands 00820	340-774-2244	340-774-1491	
Washington	Emergency Management Division Building 20, M/S: TA-20 Camp Murray, WA 98430-5122	253-512-7000 800-562-6108	253-512-7200	www.emd.wa.gov
West Virginia	West Virginia Office of Emerg. Services State Capitol Complex, Bldg. 1, RM EB-80 1900 Kanawha Blvd. East Charleston, WV 25305-0360	304-558-5380	304-344-4538	www.wvdhsem.gov
Wisconsin	Wisconsin Emergency Management 2400 Wright Street, PO Box 7865 Madison, WI 53707-7865	608-242-3232	608-242-3247	http://emergencymanagement.wi.gov
Wyoming	Wyoming Office of Homeland Security	307-777-4663	307-635-6017	http://wyohomelandsecurity.state.wy.us

TAB H – Resources
Section 3
Emergency Management Agencies Data

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	122 W 25th Street Herschler Bldg 1st Floor East Cheyenne, WY 82002			
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Updated 08/08

Resources

TAB H Resources Section 4: State VMA's

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Website: www.alvma.com

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ARIZONA VMA
100 W Coolidge St
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Website: www.azvma.org/

ARKANSAS VMA
PO Box 17687
Little Rock, AR 72222-7687
Phone: 501-868-3036
Fax: 501-868-3034
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Web site: www.arkvetmed.org

CALIFORNIA VMA
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Sacramento, CA 95815-4505
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Website: www.cvma.net

COLORADO VMA and DENVER AREA VETERINARY MEDICAL SOCIETY
191 Yuma Street
Denver, CO 80223
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E-mail: ralphjohnson@colovma.com or info@colovma.com
Web site: www.colovma.org

Resources

CONNECTICUT VMA
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Fax: 860-859-8772
E-mail: info@ctvet.org
Web site: www.ctvet.org

DELAWARE VMA
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DISTRICT OF COLUMBIA VMA
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Web site: www.yi-pe.com/DCVMA/index.html

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GEORGIA VMA
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Web Site: www.cmvpr.org

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Fax: 803-254-3773
E-mail: scav@queencommunicationsllc.com
Web site: www.scav.org

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Website: www.vtvets.org

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Web site: www.wsvma.org

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WISCONSIN VMA

Resources

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Web site: www.wvma.org

WYOMING VMA
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Last Updated: December 15, 2008

Resources

TAB H Resources Section 5: State Veterinarians

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ARKANSAS

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Little Rock, AR 72215
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501-907-2425(Fax)
Website: www.arlpc.org

CALIFORNIA

Dr. Richard E. Breitmeyer, State Veterinarian
Dr. Annette Whiteford, Director
California Department of Food and Agriculture
1220 N Street, Suite 409
Sacramento, CA 95814
Phone: 916-654-0881 – Dr. Whiteford

Resources

916-651-6870 – Dr. Breitmeyer
916-651-6278 – PERMIT LINE
916-651-0713 (Fax) Dr. Breitmeyer
916-653-4249 (Fax) Dr. Whitford
E-mail: CaVet@cdfa.ca.gov
Website: www.cdfa.ca.gov (“under programs and services”)

COLORADO

Dr. John Maulsby
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700 Kipling St., Suite 4000
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303-239-4164(Fax)
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CONNECTICUT

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860-713-2515(Fax)
E-mail: mary.lis@po.state.ct.us
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302-697-4451(Fax)
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Florida Department of Agriculture and Consumer Services
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Phone: 850-410-0900 or 850-410-0959(Permits)
850-410-0915(Fax)
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Website: <http://doacs.state.fl.us/ai/>

Resources

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Resources

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Resources

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Resources

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Resources

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401-222-6047(Fax)
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Website: www.dem.ri.gov

SOUTH CAROLINA

Dr. John A. Caver

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605-773-5459(Fax)
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Texas Animal Health Commission
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Website: www.ag.utah.gov

Resources

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Department of Agriculture
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340-778-7977 or 340-779-3100(Fax)

WASHINGTON

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State Veterinarian
Animal Services Division
Washington State Department of Agriculture
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Olympia, WA 98504-2577
Phone: 360-902-1878
360-902-2087(Fax)
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Website: www.agr.wa.gov/FoodAnimal/AnimalHealth/default.htm

WEST VIRGINIA

Dr. L. Joe Starcher
State Veterinarian
West Virginia Department of Agriculture
State Capitol
1900 Kanawha Blvd. E.
Charleston, WV 25305-0172
Phone: 304-558-2214

Resources

304-558-2231(Fax)
E-mail: jstarcher@ag.state.wv.us
Website: www.wvagriculture.org

WISCONSIN

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Division of Animal Health
Department of Agriculture
Trade and Consumer Protection
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Madison, WI 53708-8911
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Walter Cook, DVM, Assistant State Veterinarian
Wyoming Livestock Board
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Cheyenne, WY 82002-0051
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307-777-6561(Fax)
E-mail: doldham@state.wy.us or wcook2@state.wy.us
Website: www.wlsb.state.wy.us

Resources

TAB H Resources

Section 6: State Public Health Veterinarians

ALABAMA

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State Public Health Veterinarian
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334-206-3842(Fax)
E-mail: melstephens@adph.state.al.us

ALASKA

Robert Gerlach, VMD
State Veterinarian
Alaska Department of Environmental Conservation
525 Hinkle Rd.
Anchorage, AK 99507
Phone: 907-375-8214
907-929-7335(Fax)
E-mail: bob_gerlach@dec.state.ak.us
Website: www.state.ak.us/dec/deh/

ARIZONA

Dr. Elisabeth Lawaczek
State Public Health Veterinarian
Arizona Department of Health Services
Office of Infections Disease Services
150 N. 18th Ave
Suite 140
Phoenix, AZ 85007
Phone: 602-364-4562
602-364-3198(Fax)
Website: www.azdhs.gov

ARKANSAS

Susan Weinstein, DVM
State Public Health Veterinarian
Arkansas State Department of Health and Human Services
4815 W. Markham
Slot H-32
Little Rock, AR 72205
Phone: 501-280-4136
501-661-2428(Fax)
E-mail: susan.weinstein@arkansas.gov

CALIFORNIA

Benjamin Sun, DVM, MPVM
Acting Chief/State Public Health Veterinarian

Resources

California Department of Health Services
Veterinary Public Health Section
M/S 7308
PO Box 997413
Sacramento, CA 95899-7413
Phone: 916-552-9740
916-552-9725(Fax)
E-mail: bsun@dhs.ca.gov
Website: www.dhs.ca.gov

CONNECTICUT

Randall S. Nelson, DVM, MPH
Epidemiologist/Public Health Veterinarian
Connecticut Department of Public Health
410 Capitol Ave., MS#11 EPI
PO Box 340308
Hartford, CT 06134
Phone: 860-509-7994
860-509-7910(Fax)
E-mail: randall.nelson@po.state.ct.us

FLORIDA

Lisa Conti, DVM, MPH
DACVPM, CEHP
Florida Department of Health
4052 Bald Cypress Way, Bin A08
Tallahassee, FL 32399
Phone: 850-245-4250
850-410-1375(Fax)
E-mail: lisa_conti@doh.state.fl.us
Website: www.myfloridaeh.com

GEORGIA

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State Public Health Veterinarian
Georgia Division of Public Health/EPI
2 Peachtree St. NW
Suite 14-232
Atlanta, GA 30303
Phone: 404-657-2593
404-657-7517(Fax)
E-mail: dacole@dhr.state.ga.us
Website: www.health.state.ga.us

HAWAII

State Public Health Veterinarian
Hawaii Department of Health
Disease Outbreak Control Division
1132 Bishop St., Suite 1900
Honolulu, HI 96813
Phone: 808-586-4586
808-586-4595(Fax)
E-mail: arlene.buchholz@doh.hawaii.gov
Website: www.hawaii.gov/health

Resources

IDAHO

Leslie Tengelsen, PhD, DVM
Deputy State Epidemiologist
Idaho Department of Health & Welfare
Office of Epidemiology and Food Protection
450 W. State St., 4th Floor
Boise, ID 83720-0036
Phone: 208-334-5939
208-332-7307(Fax)
E-mail: tengelse@idhw.state.id.us

ILLINOIS

Connie C. Austin, DVM, MPH, PhD
State Public Health Veterinarian
Illinois Department of Public Health
Division of Infectious Disease
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217-557-4049(Fax)
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IOWA

State Public Health Veterinarian
Iowa Department of Public Health
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Des Moines, IA 50319-0075
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515-281-5698(Fax)
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Website: www.idph.state.ia.us

KANSAS

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State Epidemiologist
Bureau of Epidemiology and Disease Prevention
Kansas Department of Health and Environment/EPI
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Topeka, KS 66612-1290
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785-296-1562(Fax)
E-mail: ghansen@kdhe.state.ks.us

Resources

Website: www.kdhe.state.ks.us/epi

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MAINE

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Maine Bureau of Health/ Division of Disease Control
286 Water St., Station 11
Key Plaza 8th Floor
Augusta, ME 04333-0028
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207-287-6865(Fax)
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Website: www.maine.gov/dhhs/boh/ddc/

MARYLAND

Guy Hohenhaus, DVM, MPH
State Public Health Veterinarian
Maryland Department of Health & Mental Hygiene
Epidemiology and Disease Control Program
Center for Veterinary Public Health
201 W. Preston St., Room 321A
Baltimore, MD 21201
Phone: 410-767-5649
410-728-4825(Fax)
Website: www.edcp.org/html/vet_med.html

MASSACHUSETTS

Fredric L. Cantor, DVM, MPH
State Public Health Veterinarian
Massachusetts Department of Public Health
Division of Epidemiology and Immunization
305 South St.

Resources

Jamaica Plain, MA 02130
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617-983-6840(Fax)
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MICHIGAN

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Michigan Department of Community Health
Communicable Disease Division
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201 Townsend St., 5th Floor
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Phone: 517-335-8165
517-335-8263(Fax)
E-mail: stobierskim@michigan.gov
Website: www.michigan.gov/mdch

MINNESOTA

Joni Scheftel, DVM, MPH, DACVPM
Minnesota Department of Health/Acute
Disease Investigation and Control Section
625 North Robert St.
St. Paul, MN 55155-2538
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Mississippi

Dr. Brigid Elchos
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Mississippi Board of Animal Health
121 N. Jefferson St., Jackson, MS 39201
Mail: PO Box 3889, Jackson, MS 39207
Jackson, MS 39215-1700
Phone: 601-359-1170
601-359-1177(Fax)
Website: www.mbah.state.ms.us

MISSOURI

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State Public Health Veterinarian
Nebraska Health and Human Services System

Resources

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Lincoln, NE 68509
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402-471-3601(Fax)
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NEVADA
Public Health Veterinarian Epidemiology Office
Nevada Health Division
505 E. King St., Room 203
Carson City, NV 89701
Phone: 775-684-5911
775-684-5999(Fax)

NEW JERSEY
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New Jersey Department of Health & Senior Services
Infectious & Zoonotic Disease Program
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Trenton, NJ 08625-0369
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609-588-7433(Fax)
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Website: www.health.state.ny.us

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State Public Health Veterinarian

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North Carolina Dept. of Health and Human Services
Division of Public Health
1912 Mail Service Center
Raleigh, NC 27699-1912
Phone: 919-707-5900
919-870-4801
carl.williams@ncmail.net
Website: www.epi.state.nc.us/epi/vet.html

NORTH DAKOTA
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Board of Animal Health
600 E. Boulevard Ave., Dept. 602
Bismarck, ND 58505-0020
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701-328-4567(Fax)
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804-864-8139(Fax)
Website: www.vdh.virginia.gov

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Resources

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WEST VIRGINIA

State Public Health Veterinarian
Department of Health/Human Resources
Division of Surveillance & Disease Control
350 Capitol St., Room 125
Charleston, WV 25301-3715
Phone: 304-558-5358
304-558-6335(Fax)
Website: www.wvdhhr.org/idep/

WISCONSIN

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WYOMING

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Website: <http://wdh.state.wy.us/main/index.asp>

Resources

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TAB H Resources Section 7: Government Agencies

Department of Health and Human Services
National Disaster Medical System Section
200 Independence Avenue, S.W.
Washington, D.C. 20201
(202) 619-0257
Tollfree: 877-696-6775
E-mail: hhsmail@os.dhhs.gov
Website: www.os.dhhs.gov/
Website: <http://ndms.dhhs.gov>

Department of Homeland Security
Federal Emergency Management Agency
FEMA 500 C Street SW,
Washington, D.C. 20472
Disaster Assistance: (800) 621-FEMA,
TTY (800) 462-7585
Website: www.dhs.gov/index.shtm
www.fema.gov/

Centers for Disease Control and Prevention
1600 Clifton Road, N.E.
Atlanta, GA 30333
404-639-3311 or 800-311-3435
Website: [/www.cdc.gov/](http://www.cdc.gov/)

CDC Emergency Response (24-hr.
assistance during emergencies)
404-639-2888

U.S. DEPARTMENT OF AGRICULTURE
Jamie L. Whitten Building
14th & Independence Ave., S.W.,
Washington, DC 20250
202-720-7025
202-690-4437 (Fax)
Website: www.usda.gov/

Animal and Plant Health Inspection Service - Website: www.aphis.usda.gov/
Administrator 202-720-3668
Associate Administrator 202-720-3861

Veterinary Services - Website: www.aphis.usda.gov/vs/
Deputy Administrator 202-720-5193
Emergency Programs 301-734-8073
National Veterinary Services Laboratory 515-663-7202
Eastern Region 919-856-4504
Central Region 817-885-6910
Western Region 916-857-6205

Resources

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Food Safety and Inspection Service -Website: www.fsis.usda.gov/
Administrator 202-720-7025
Office of Public Health and Science 202-720-2644
Food Safety Education 301-504-9605
Food Security and Emergency Preparedness 202-720-5643
Hotline (USDA Meat & Poultry) 800-535-4555
Office of Field Operations 202-720-8803

Agriculture Research Service – Website: www.ars.usda.gov
Administrator 202-720-3656
Associate Administrator 202-720-3658
Plum Island Animal Disease Center 631-323-3207
National Animal Disease Center 515-663-7201

U.S. DEPARTMENT OF DEFENSE

Department of The Army
United States Army Veterinary Corps
Chief, U.S. Army Veterinary Corps
Director, DOD Veterinary Service Activity NQDA (DODVSA)
5109 Leesburg Pike
Falls Church, VA 22041-3258
Phone: 703-681-3056
Fax: 703-681-3059

Assistant Chief, U.S. Army Veterinary Corp/Corps Specific Branch Proponent Officer
AMEDDC&S, Attn: MCCS-CV Ste 287, 2250 Stanley Rd., Fort Sam Houston, TX 78234-6100;
210-221-6564 (Office);
210-221-8360 (Fax)

US Army Veterinary Command,
Fort Sam Houston, TX 78234-6000

Department of the Air Force
HQ U.S. Air Force/SGW
110 Luke Avenue Suite 360
Bolling AFB, DC 20032-7050
Director, Medical Force Management and Chief, Biomedical Sciences Corps
(202) 767-4563 (Office); (202) 404-7366 (Fax)

HQ Air Force Medical Operations Agency/SGOP
110 Luke Avenue Suite 405
Bolling AFB DC 20032-7050
Consultant to the Air Force Surgeon General for Public Health-
202-767-4331 (Office) 202-404-8089 (Fax)

Resources

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TAB H Resources

Section 8: Occupational Safety & Health Administration (OSHA)

U. S. Department of Labor
Office of Public Affairs
200 Constitution Avenue
Washington, DC 20210
(202) 693-1999
Website: www.osha.gov
In case of emergency call: 1-800-321-OSHA

REGION 1

Regional Office
JFK Federal Building, Room E-340
Boston, MA 02203
Phone: (617) 565-9860
Fax: (617) 565-9827

AREA OFFICES

Connecticut	Bridgeport	(203) 579-5581
	Hartford	(860) 240-3152
Maine	Agusta	(207) 626-9160
	Bangor	(207) 941-8177
Massachusetts	Methuen	(617) 565-8110
	Braintree	(617) 565-6924
	Springfield	(413) 785-0123
New Hampshire	Concord	(603) 225-1629
Rhode Island	Providence	(401) 528-4669
Vermont (Operates its own OSHA program under plan approved by the U.S. Dept. of Labor)	Montpelier	(802) 828-2765

Resources

REGION 2

Regional Office
201 Varick Street, Room 670
New York, NY 10014
Phone: (212) 337-2378
Fax: (212) 337-2371

AREA OFFICES

New Jersey	Avenel	(732) 750-3270
	Hasbrouck Heights	(201) 288-1700
	Marlton	(856) 757-5181
	Parsippany	(973) 263-1003
New York	Albany	(518) 464-4338
	Bayside	(718) 279-9060
	Bowmansville	(716) 684-3891
	Westbury	(516) 334-3344
	New York	(212) 620-3200
	North Syracuse	(315) 451-0808
Puerto Rico	Tarrytown	(914) 524-7510
	Guaynabo	(787) 277-1560
Virgin Islands (Operates its own OSHA and health program under a plan approved by the U.S. Department of Labor)	St. Croix	(340) 772-1315

REGION 3

Regional Office
U. S. Department of Labor/OSHA
The Curtis Center-Suite 740 West
170 S. Independence Mall West
Philadelphia, PA 19106-3309
Phone: (215) 861-4900
Fax: (215) 861-4904

AREA OFFICES

District of Columbia	Linthicum	(410) 865-2055/2056
Delaware	Wilmington	(302) 573-6518
Maryland	Linthicum	(410) 865-2055/2056
Pennsylvania	Allentown	(610) 776-0592
	Erie	(814) 833-5758
	Harrisburg	(717) 782-3902
	Philadelphia	(215) 597-4955
	Pittsburgh	(412) 395-4903
	Wilkes-Barre	(570) 826-6538

Resources

Virginia	Norfolk	(757) 441-3820
West Virginia	Charleston	(304) 347-5937

REGION 4

Regional Office
61 Forsyth Street, SW
Atlanta, GA 30303
Phone: (404) 562-2300
Fax: (404) 562-2295

AREA OFFICES

Alabama	Birmingham	(205) 731-1534
	Mobile	(334) 441-6131
Florida	Fort Lauderdale	(954) 424-0242
	Jacksonville	(904) 232-2895
	Tampa	(813) 626-1177
Georgia	Tucker	(770) 493-6644
	Smyrna	(770) 984-8700
	Savannah	(912) 652-4393
Kentucky	Frankfort	(502) 227-7024
Mississippi	Jackson	(601) 965-4606
North Carolina	Raleigh	(919) 790-8096
South Carolina	Columbia	(803) 765-5904
Tennessee	Nashville	(615) 781-5423

REGION 5

Regional Office
230 South Dearborn Street, Room 3244
Chicago, IL 60604
Phone: (312) 353-2220
Fax: (312) 353-7774

AREA OFFICES

Illinois	Calumet City	(708) 891-3800
	Des Plaines	(847) 803-4800
	Fairview Heights	(618) 632-8612
	North Aurora	(630) 896-8700
	Peoria	(309) 671-7033

Resources

Indiana	Indianapolis	(317) 226-7290
Michigan	Lansing	(517) 487-4996
Minnesota	Minneapolis	(612) 664-5460
Ohio	Cincinnati	(513) 841-4132
	Cleveland	(216) 522-3818
	Columbus	(614) 469-5582
	Toledo	(419) 259-7542
Wisconsin	Appleton	(920) 734-4521
	Eau Claire	(715) 832-9019
	Madison	(608) 441-5388
	Milwaukee	(414) 297-3315

REGION 6

Regional Office
525 Griffin Street, Room 602
Dallas, TX 75202
Phone: (214) 767-4731
Fax: (214) 767-4137

AREA OFFICES

Arkansas	Little Rock	(501) 324-6291
Louisiana	Baton Rouge	(225) 298-5458
New Mexico	Lubbock, TX	(806) 472-7681 (7685)
Oklahoma	Oklahoma City	(405) 278-9560
Texas	Austin	(512) 374-0271
	Corpus Christi	(361) 888-3420
	Dallas	(214) 320-2400
	El Paso	(915) 534-6251 (6252)
	Fort Worth	(817) 428-2470
	Houston (North)	(281) 591-2438
	Houston (South)	(281) 286-0583 (0584)
	Lubbock	(806) 472-7681 (7685)
	San Antonio	(210) 472-5040

Resources

REGION 7

Regional Office
City Center Square
1100 Main Street, Suite 800
Kansas City, MO 64105
Phone: (816) 426-5861
Fax: (816) 426-2750

AREA OFFICES

Iowa	Des Moines	(515) 284-4794
Kansas	Wichita	(316) 269-6644
Missouri	Kansas City	(816) 483-9531
	St. Louis	(314) 425-4249
Nebraska	Omaha	(402) 221-3182

REGION 8

Regional Office
1999 Broadway, Suite 1690
PO Box 46550
Denver, CO 80201-6550
Phone: (720) 264-6550
Fax: (720) 264-6585

AREA OFFICES

Colorado	Denver	(303) 844-5285
	Englewood	(303) 843-4500
Montana	Billings	(406) 247-7494
North Dakota	Bismarck	(701) 250-4521

South Dakota

There are no Area Offices located in South Dakota. Contact the Region 8 Regional Office for assistance.

Utah	Salt Lake City	(801) 233-4900
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Wyoming

There are no Area Offices located in Wyoming. Contact the Region 8 Regional Office for assistance.

REGION 9

Region IX Federal Contact Numbers
71 Stevenson Street, Room 420
San Francisco, CA 94105

Resources

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Phone: (414) 975-4310 (Main Public 8:00 a.m – 4:30 p.m. Pacific)

Phone: (800) 475-4019 (for technical assistance)

Phone: (800) 475-4020 (for complaints – accidents/fatalities)

Phone: (800) 475-4022 (for publication requests)

Fax: (415) 975-4319

For issues involving federal agencies or private companies working for federal agencies in Arizona, California, Guam, Hawaii, and Nevada, call the numbers listed above. For issues involving private or state government employers in these states, refer to the appropriate state office in Arizona, California, Hawaii, and Nevada.

State Office

Arizona	Phoenix	(602) 542-4411
California	San Francisco	(415) 703-5050
Hawaii	Honolulu	(808) 586-8844
Nevada	Carson City	(775) 687-7260

REGION 10

Regional Office

1111 Third Avenue, Suite 715

Seattle, WA 98101-3212

Phone: (206) 553-5930

Fax: (206) 553-6499

AREA OFFICES

Alaska	Anchorage	(907) 271-5152
Idaho	Boise	(208) 321-2960
Oregon	Portland	(503) 326-2251
Washington	Bellevue	(425) 450-5480

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Resources

TAB H Resources

Section 9: State Emergency Medical Services Offices

Alabama

EMS Division
Alabama Department of Health, EMS Division
The RSA Tower, 201 Monroe Street, Ste 750
PO Box 303017
Montgomery, AL 36130-3017
Phone: 334-206-5383 Fax: 334-206-5260
www.adph.org/

Alaska

Community Health & EMS Section
DHSS/Public Health
PO Box 110616
410 Willoughby, Rm 109
Juneau, AK 99811-0616
Phone: 907-465-3027 Fax: 907-465-4101
www.chems.alaska.gov

American Samoa

EMS Coordinator
Dept. Health American Samoa Gov't
LBJ Tropical Medical Center
Pago Pago, American Samoa 96799
Phone: 011-684-633-5003 Fax: 011-684-633-5112

Arizona

Bureau of EMS
Arizona Department of Health Services
150 N 18th Avenue, Ste 540
Phoenix, AZ 85007-3248
Phone: 602-364-3150 Fax: 602-364-3566
www.azdhs.gov/bems

Arkansas

Director
Div. of EMS & Trauma Systems
Arkansas Department of Health
4815 W. Markham Street, Slot 38
Little Rock, AR 72205-3867
Phone: 501-661-2262 Fax: 501-280-4901
www.healthyarkansas.com/ems/

California

Emergency Medical Svcs. Authority
1930 9th Street, Suite 100
Sacramento, CA 95814
Phone: 916-322-4336 Fax: 916-324-2875
www.emsa.ca.gov/

Resources

Colorado

Colorado Dept. of Health
EMS Division, EMSD-ADM-A2
4300 Cherry Creek Drive South
Denver, CO 80246-1530
Phone: 303-692-2980 Fax: 303-691-7720
www.cdphe.state.co.us/em/emhom.html

Connecticut

Office of EMS; Department of Public Health
410 Capital Avenue, MS#12EMS
PO Box 340308
Hartford, CT 06134-0308
Phone: 860-509-7975 Fax: 860-509-7987
www.dph.state.ct.us

Delaware

Office of Emergency Medical Services
Blue Hen Corporate Center
655 Bay Road, Suite 4H
Dover, DE 19901
Phone: 302-739-6637 Fax: 302-739-6659
www.dhss.delaware.gov/dhss/dph/ems/ems.html

District of Columbia

Emergency Health & Medical Services
864 New York NE, Ste 5000
Washington, DC 20001
Phone: 202-671-4222
fems.dc.gov/fems/site/default.asp

Florida

Florida Department of Health
Emergency Medical Services
4052 Bald Cypress Way, Bin #C18
Tallahassee, FL 32399-1738
Phone: 850-245-4073 Fax: 850-245-4385
www.fl-ems.com/

Georgia

Georgia Office of Emergency Medical Services
Division of Public Health
Two Peachtree St, NW
Atlanta, GA 30303
Phone: 404-657-2594 Fax: 404-651-8036
<http://health.state.ga.us/programs/ems/index.asp>

Guam

Administrator, EMS
Guam Dept. of Public Health and Social Services
PO Box 2816
Agana, GU 96932
Phone: 011-671-735-7303 Fax: 011-671-734-2066

Resources

www.dphss.govguam.net

Hawaii

State of Hawaii
Department of Health
Emergency Medical Services & Injury Prevention
3627 Kilauea Avenue, Room 102
Honolulu, HI 96816
Phone: 808-733-9210 Fax: 808-733-8332
<http://hawaii.gov/doh/resource/ems/index.html>

Idaho

EMS Bureau Chief
ID Emergency Medical Services
590 W. Washington Street (83702)
PO Box 83720
Boise, ID 83720-0036
Phone: 208-334-4000 Fax: 208-334-4015
E-mail: gainord@idhw.state.id.us
www.idahoems.org

Illinois

Division of Emergency Medical Services
IL Department of Public Health
525 W. Jefferson
Springfield, IL 62761
Phone: 217-785-2080 Fax: 271-524-0966
E-mail: lstein@idph.state.il.us
www.idph.state.il.us

Indiana

State EMS Medical Director
Indiana EMS Commission
302 W. Washington, Room E208 IGCS
Indianapolis, IN 46204-2258
Phone: 317-232-3980 Fax: 317-232-3895
E-mail: pralston@sema.state.in.us
www.in.gov/sema/ems

Iowa

Bureau Chief of EMS
Iowa Department of Public Health
401 SW 7th Street, Suite D
Des Moines, IA 50309
Phone: 515-725-0319 Fax: 515-725-0318
E-mail: rjones@health.state.ia.us
www.idph.state.ia.us/ems

Kansas

State EMS Medical Director
Board of Emergency Medical Services
900 SW Jackson, Rm 1031
Topeka, KS 66612

Resources

Phone: 785-296-7296 Fax: 785-296-6212
E-mail: emslake@aol.com
www.ksbems.org/

Kentucky

State EMS Medical Director
Kentucky Board of EMS
2545 Lawrenceburg Road
Frankfort, KY 40601
Phone: 502-564-8963 Fax: 502-564-4687
E-mail: brian.bishop@mail.state.ky.us
www.kbems.org

Louisiana

State EMS Medical Directors
Bureau of Emergency Medical Services
PO Box 94215
Baton Rouge, LA 70804
Phone: 225-763-5700 Fax: 225-763-5702
E-mail: nbourgeo@dhh.state.la.us
<http://oph.dhh.state.la.us/emergencymedical/>

Maine

State EMS Medical Director
Maine Emergency Medical Services
16 Edison Drive
Augusta, ME 04330
Phone: 207-287-3953 Fax: 207-287-6251
E-mail: jay.bradshaw@maine.gov
www.state.me.us/dps/ems

Maryland

State EMS Medical Director
The Maryland Institute for Emergency Medical Services Systems
653 W. Pratt Street
Baltimore, MD 21201-1536
Phone: 410-706-5074 Fax: 410-706-4768
E-mail: rbass@miemss.org
<http://miemss.umaryland.edu>

Massachusetts

State EMS Medical Director
MDPH/OEMS
2 Boylston St., 3rd Floor
Boston, MA 02116
Phone: 617-753-7300 Fax: 617-753-7320
E-mail: louise.goyette@state.ma.us
www.state.ma.us/dph/oems

Michigan

Director of Emergency Medical Services
Dept. of Consumer & Industry Svcs.
PO Box 30664

Resources

Lansing, MI 48909
Phone: 517-241-3020 Fax: 517-241-3423
E-mail: jfhubin@michigan.gov
www.michigan.gov/cis

Minnesota

State EMS Medical Director
MN EMS Regulatory Board
2829 University Avenue SE, Suite 310
Minneapolis, MN 55414-3222
Phone: 612-627-5424; 800-747-2011
Fax: 612-627-5442
E-mail: mary.hedges@state.mn.us
www.emsrb.state.mn.us

Mississippi

State EMS Medical Director
EMS/Trauma Care System
MS State Department of Health
570 E. Woodrow Wilson, Annex, 3rd Floor
Jackson, MS 39215
Phone: 601-576-7366 Fax: 601-576-7373
E-mail: james.craig@ohr.doh.ms.gov
www.msdh.state.ms.us/ems/index.htm

Missouri

Director
Bureau of Emergency Medical Services
MO Department of Health
PO Box 570
Jefferson City, MO 65102-6348
Phone: 573-751-6356 Fax: 573-751-6348
E-mail: kempfp@dhss.state.mo.us
www.health.state.mo.us

Montana

Emergency Medical Services & Injury Prevention Section
Mt. Dept. of Public Health & Human Svcs
PO Box 202951
1400 Broadway, Cogswell Bldg, Rm C204
Helena, MT 59620-2951
Phone: 406-444-2724 Fax: 406-444-1814
E-mail: kleighton-boster@state.mt.us
www.emsip.state.mt.us

Nebraska

Division of Emergency Medical Services
NE Dept. of HHS Regulations & Licensure
Box 95007
301 Centennial Mall South, 3rd Floor
Lincoln, NE 68509-5007
Phone: 402-471-0124 Fax: 402-471-0169
E-mail: dean.cole@hhss.state.ne.us

Resources

www.hhs.state.ne.us/ems/emsindex.htm

Nevada

Emergency Medical Services
Nevada State Health Division
Bureau of Licensure & Certification
1550 E. College Parkway, #158
Carson City, NV 89706
Phone: 775-687-3065 Fax: 775-684-5313
E-mail: flaughridge@ems.state.nv.us
<http://health2k.state.nv.us/ems/index.htm>

New Hampshire

State EMS Medical Director
NH Department of Safety
Division of Emergency Medical Services
33 Hazen Drive
Concord, NH 03305
Phone: 603-271-4568 Fax: 603-271-4567
E-mail: sprentiss@safety.state.nh.us
www.state.nh.us/safety/ems/index.html

New Jersey

State EMS Medical Director
NJ Dept. of Health & Senior Svcs
Office of EMS
CN-360; 50 E State St., 6th Floor
Trenton, NJ 08625-0360
Phone: 609-633-7777 Fax: 609-633-7954
E-mail: karen.halupke@doh.state.nj.us
www.state.nj.us/health/ems

New Mexico

State EMS Medical Director
Injury Prevention & EMS Bureau
2500 Cerrillos Road
Santa Fe, NM 87505
Phone: 505-476-7810 Fax: 505-476-7810
E-mail: jimd@doh.state.nm.us

New York

State EMS Medical Director
Bureau of EMS
New York State Health Department
Hedley Park Place
433 River Street, Ste 303
Troy, NY 12180-2299
Phone: 518-402-0996 Fax: 518-402-0985
E-mail: egw02@health.state.ny.us
www.health.state.ny.us/nysdoh/ems/main.htm

Resources

North Carolina

State EMS Medical Director
NC Office of EMS
2707 Mail Service Center
Raleigh, NC 27699-2707
Phone: 919-855-3935 Fax: 919-733-7021
E-mail: drexdal.pratt@ncmail.net
www.ncems.org

North Dakota

Division of Emergency Health Services
ND Department of Health
600 E. Boulevard Avenue; Dept. 301
Bismarck, ND 58505-0200
Phone: 701-328-2388 Fax: 701-328-1890
E-mail: tmmeyer@state.nd.us
www.health.state.nd.us/ndhd/resource/dehs/

Northern Mariana Islands

EMS Manger
Department of Public Safety
Office of EMS/Rescue Section
PMB 915, PO Box 10001
Saipan, MP 96950
Phone: 011-670-664-9135 Fax: 011-670-664-9015
Email: tmanglona@hotmail.com

Ohio

State EMS Medical Director
Ohio Department of Public Safety
Emergency Medical Services Division
PO Box 182073
Columbus, OH 43218-2073
Phone: 614-466-9447
800-233-0785
Fax: 614-466-9461
E-mail: mrucker@dps.state.oh.us
www.ohiopublicsafety.com

Oklahoma

EMS Division
OK State Department of Health
1000 NE 10th Street, Room 1104
Oklahoma City, OK 73117
Phone: 405-271-4027 Fax: 405-271-4240
E-mail: shawnr@health.state.ok.us
www.health.state.ok.us/program/ems/index.html

Oregon

Director
Emergency Medical Services & Trauma Systems
Health Services
800 NE Oregon, Suite 607

Resources

Portland, OR 97232
Phone: 503-731-4011 Fax: 503-872-5400
E-mail: j.chin@state.or.us
www.dhs.state.or.us/publichealth/ems

Pennsylvania

State EMS Medical Director
Pennsylvania Department of Health
PO Box 90
Harrisburg, PA 17108
Phone: 717-787-8740 Fax: 717-772-0910
E-mail: mtrimble@state.pa.us
www.health.state.pa.us/ems

Puerto Rico

EMS Medical Director
Department of Health
Bo. Monacillos
Carr. 21 – Km. 1 Hm. 6
Centro Medico frente al Dept. de Salud
Rio Piedras, PR 00922
Phone: 787-766-1733 Fax: 787-765-5085
E-mail: wvelazquez@cem.gobierno.pr
gmorales@cem.gobierno.pr

Rhode Island

State EMS Medical Director
EMS Division
Department of Health, Room 105
3 Capitol Hill, Room 105
Providence, RI 02908-5097
Phone: 401-222-2401 Fax: 401-222-3352
E-mail: petrel@doh.state.ri.us
www.health.state.ri.us

South Carolina

State EMS Medical Director
SC DHEC, Division of EMS
2600 Bull St.
Columbia, SC 29201
Phone: 803-545-4204 Fax: 803-545-4989
E-mail: smithaw2@dhec.sc.us
www.scdhec.net/hr/ems

South Dakota

Emergency Medical Services
SD Department of Public Safety
118 W Capitol Avenue
Pierre, SD 57501-2036
Phone: 605-773-4031 Fax: 605-773-2680
E-mail: bob.graff@state.sd.us
www.state.sd.us/dps/ems

Resources

Tennessee

State EMS Medical Director
Division of EMS
TN Department of Health
Cordell Hull Bldg., First Floor
424 Fifth Avenue, North
Nashville, TN 37247-0701
Phone: 615-741-2584 Fax: 615-741-4217
E-mail: joe.phillips@state.tn.us
www2.state.tn.us/health/ems

Texas

Chief
Bureau of Emergency Management
Texas Department of Health
1100 49th Street
Austin, TX 78756-3199
Phone: 512-834-6740 Fax: 512-834-6736
E-mail: jim.arnold@tdh.state.tx.us
www.tdh.state.tx.us/hcqs/ems

Utah

Director
Bureau of EMS
UT Department of Health
288 N 1460 West
Salt Lake City, UT 84114-2004
Phone: 801-538-6435 Fax: 801-538-6808
E-mail: jbuttrey@utah.gov
www.health.state.ut.us/ems

Vermont

State EMS Medical Director
VT Department of Health
108 Cherry Street, Room 201
Burlington, VT 05402
Phone: 802-863-7310 Fax: 802-863-7754
E-mail: dmanz@vdh.state.vt.us
www.healthvermonters.info/hp/ems/emshome.shtml

Virgin Islands

Emergency Medical Services
DOH
3012 Vitraco Est. Goldenrock
Christiansted, St. Croix, VI 00820
Phone: 340-713-9924
E-mail: vimchstx@viaaccess.net

Virginia

State EMS Medical Director
Virginia Department of Health
1538 E. Parham Road
Richmond, VA 23228

Resources

Phone: 804-371-3500 Fax: 804-371-3543
E-mail: gbrown@vdh.state.va.us
www.vdh.state.va.us/oems/

Washington

Director
Office of Emergency Medical & Trauma Prevention
WA State Department of Health
PO Box 47853
Olympia, WA 98504-7853
Phone: 360-236-2828 Fax: 360-236-2829
E-mail: janet.griffith@doh.wa.gov
www.doh.wa.gov/hsqa/emtp/

West Virginia

State EMS Medical Director
WV Office of EMS
WV Department of Health & Human Resources
350 Capitol Street, Rm 515
Charleston, WV 25301
Phone: 304-558-3956 Fax: 304-558-1437
E-mail: markking@wvdhhr.org
www.wvoems.org

Wisconsin

State EMS Medical Director
Bureau of EMS & Injury Prevention
DHFS/P.H.
PO Box 2659
Madison, WI 53701-2659
Phone: 608-261-6870 Fax: 608-261-6392
E-mail: turnena@dhfs.state.wi.us
<http://dhfs.wisconsin.gov/ems/>

Wyoming

State EMS Medical Director
WY Department of Health
Hathaway Building, Room 446
Cheyenne, WY 82002
Phone: 307-777-7955 Fax: 307-777-5639
E-mail: jmaybe@state.wy.us
<http://wdhfs.state.wy.us/ems>

Last Updated: December 17, 2008

Resources

TAB H Resources

Section 10: Environmental Protection Agency (EPA)

Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, NW.
Washington, Dc 20460
Phone: (202) 272-0167
TTY (speech-and hearing-impaired) (202) 272-0165
Website: www.epa.gov/epahome

REGION 1 (CONNECTICUT, MAINE, MASSACHUSETTS, NEW HAMPSHIRE, RHODE ISLAND, AND VERMONT)

Environmental Protection Agency
1 Congress St., Suite 1100
Boston, MA 02114-2023
Website: www.epa.gov/region01/
Phone: (617) 918-1111
Fax: (617) 565-3660
Toll free within Region 1: (888) 372-7341

REGION 2 (NEW JERSEY, NEW YORK, PUERTO RICO AND THE U. S. VIRGIN ISLANDS)

Environmental Protection Agency
290 Broadway
New York, NY 10007-1866
Website: www.epa.gov/region02/
Phone: (212) 637-3000
Fax: (212) 637-3526

REGION 3 (DELAWARE, DISTRICT OF COLUMBIA, MARYLAND, PENNSYLVANIA, VIRGINIA, AND WEST VIRGINIA)

Environmental Protection Agency
1650 Arch Street
Philadelphia, PA 19103-2029
Website: www.epa.gov/region03/
Phone: (215) 814-5000
Fax: (215) 814-5103
Toll free: (800) 438-2474
E-mail: r3public@epa.gov

Resources

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REGION 4 (ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, SOUTH CAROLINA, AND TENNESSEE)

Environmental Protection Agency
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303-3104
Website: www.epa.gov/region04/
Phone: (404) 562-9900
Fax: (404) 562-8174
Toll free: (800) 241-1754

REGION 5 (ILLINOIS, INDIANA, MICHIGAN, MINNESOTA, OHIO, AND WISCONSIN)

Environmental Protection Agency
77 West Jackson Boulevard
Chicago, IL 60604-3507
Website: www.epa.gov/region05/
Phone: (312) 353-2000
Fax: (312) 353-4135
Toll free within Region 5: (800) 621-8431

REGION 6 (ARKANSAS, LOUISIANA, NEW MEXICO, OKLAHOMA, AND TEXAS)

Environmental Protection Agency
Fountain Place 12th Floor, Suite 1200
1445 Rose Avenue
Dallas, TX 75202-2733
Website: www.epa.gov/region06/
Phone: (214) 665-2200
Fax: (214) 665-7113
Toll free within Region 6: (800) 887-6063

REGION 7 (IOWA, KANSAS, MISSOURI, AND NEBRASKA)

Environmental Protection Agency
901 North 5th Street
Kansas City, KS 66101
Website: www.epa.gov/region07/
Phone: (913) 551-7003
Toll free: (800) 223-0425
Fax: (913) 551-7066

REGION 8 (COLORADO, MONTANA, NORTH DAKOTA, SOUTH DAKOTA, UTAH, AND WYOMING)

Environmental Protection Agency
999 18th Street Suite 500
Denver, CO 80202-2466
Website: www.epa.gov/region08/

Resources

Phone: (303) 312-6312
Fax: (303) 312-6339
Toll free: (800) 227-8917
E-mail: r8eisc@epa.gov

REGION 9 (ARIZONA, CALIFORNIA, HAWAII, NEVADA, AND THE TERRITORIES OF GUAM AND AMERICAN SAMOA)

Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105
Website: www.epa.gov/region09/
Phone: (415) 947-8000
Toll Free in Region 9: (866) EPA-WEST (372-9378)
Fax: (415) 947-3553
E-mail: r9.info@epa.gov

REGION 10 (ALASKA, IDAHO, OREGON, AND WASHINGTON)

Environmental Protection Agency
1200 Sixth Avenue
Seattle, WA 98101
Website: www.epa.gov/region10/
Phone: (206) 553-1200
Fax: (206) 553-0149
Toll fee: (800) 424-4372

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Resources

TAB H Resources

Section 11: Other Organizations & Associations

Alliance of Veterinarians for the Environment

AVE President
836 W. Hillwood Dr.
Nashville, TN 37205
Phone: 615-353-0272
Fax: 615-353-8904
E-mail: avegwen@aol.com
Website: www.AVEweb.org

American Academy of Veterinary and Comparative Toxicology

Attn: Dr. Ramesh Gupta
Murray State University
Breathitt Veterinary Ctr.
Hopkinsville, KY 42240-2620
Phone: 270-886-3959
Fax: 270-886-4295
E-mail: ramesh.gupta@murraystate.edu

American Academy of Veterinary Pharmacology and Therapeutics

AAVPT Secretary/Treasurer
410 Evergreen Ct West
Urbana, IL 61801
Phone: 217-384-2860
Fax: 217-384-4636
E-mail: cdavis2@insightbb.com
Website: www.aavpt.org

American Animal Hospital Association

(Street Address) 12575 West Bayaud Avenue
Lakewood, CO 80228
(Mail Address) PO Box 150899
Denver, CO 80215-0899
Phone: 303-986-2800
Fax: 303-986-1700
E-Mail: john.albers@aahanet.org
Website: www.aahanet.org

American Association of Avian Pathologists

Secretary/Treasurer
University of Georgia
953 College Station Road
Athens, GA 30602-4875
Phone: 706-542-5645
Fax: 706-542-0249
E-mail: aaap@aaap.info
Website: www.aaap.info

Resources

American Association of Bovine Practitioners

Executive Vice President
PO Box 3610
Auburn, AL 36831-3610
Phone: 334-821-0442
Fax: 334-821-9532
E-mail: aabphq@aabp.org
Website: www.aabp.org

American Association of Equine Practitioners

Executive Director
4075 Iron Works Pike
Lexington, KY 40511
Phone: 859-233-0147
Fax: 859-233-1968
E-mail: dfoley@aaep.org or aaepoffice@aaep.org
Website: www.aaep.org

American Association of Extension Veterinarians

AAEV President
North Dakota State University
Department of Animal and Range Sciences
Hultz Hall, Rm 165
Fargo, ND 58105
Phone: 701-231-7522
Fax: 701-231-7590
E-mail: cstolten@ndsuxext.nodak.edu

American Association of Feline Practitioners

Executive Director
203 Towne Centre Drive
Hillsborough, NJ 08844-4693
Phone: 800-874-0498
Fax: 908-292-1188
E-mail: info@catvets.com
Website: www.catvets.com

American Association of Food Hygiene Veterinarians

Executive Vice President
4910 Magdalene Court
Annandale, VA 22003-4363
Phone: 703-323-0003
Fax: 703-323-9327
E-mail: joeblair@erols.com
Website: www.avma.org/aafhv/

American Association of Human-Animal Bond Veterinarians

Dr. Tom Krall
St. Petersburg College
P.O. Box 13489
St. Petersburg, FL 33733
Phone:
Fax:

Resources

E-mail:

Website: <http://aahabv.org>

American Association of Industrial Veterinarians

CAE, CMP

Bobrow & Associates

6060 Sunrise Vista Drive, Suite 1300

Citrus Heights, CA 95610

Phone: 916-722-8168

Fax: 916-722-8149

E-mail: maryann@bobrowassociates.com

Website: www.bobrowassociates.com

American Association of Laboratory Animal Science

Executive Director

9190 Crestwyn Hills Drive

Memphis, TN 38125

Phone: 901-754-8620

Fax: 901-753-0046

E-mail: ann.turner@aalas.org

Website: www.aalas.org

American Association of Public Health Veterinarians

President, Hugh Mainzer

CDC-NCEHS

Division of EEHS

4770 Buford Hwy NE, Mailstop: F-28

Atlanta, GA 30341

Phone: 770-488-3138

Fax: 770-488-7310

E-mail: hmainzer@cdc.gov

Website:

American Association of Small Ruminant Practitioners

P.O. Box 611

10220 Dixie Beeline Highway

Guthrie, KY 42234

Phone: 270-483-2090

Fax: 270-483-9833

Email: aasrp@aasrp.org

Website: www.aasrp.org

American Association of Swine Veterinarians

Executive Director

902 1st Street

Perry, IA 50220

Phone: 515-465-5255

Fax: 515-465-3832

E-mail: aasv@aasv.org

Website: www.aasv.org

American Association of Veterinary Clinicians

37 W. Broad St., Ste 480

Columbus, OH 43215

Resources

Phone: 614-358-0417
Fax: 614-241-2215
E-mail: mmckee@craiggroup.com
Website: www.craiggroup.com/aavc.htm

American Association of Veterinary Laboratory Diagnosticians

Secretary/Treasurer
P.O. Box 1770
Davis, CA 95617-1770
Phone: 530-754-9719
Fax: 530-752-5680
E-mail: secretary-treasurer@aavld.org
Website: www.aavld.org

American Association of Veterinary Parasitologists

Address, phone and email change yearly with elections
Phone: 317-277-4439
Fax: 317-277-4288
E-mail: snyder_daniel_e@lilly.com
Website: www.aavp.org

American Association of Wildlife Veterinarians

Address, phone and email change yearly with elections
Phone: 831-469-1726
Fax: 831-469-1723
E-mail: djessup@ospr.dfg.ca.gov
Website: www.aawv.net

American Association of Zoo Veterinarians

581705 White Oak Road
Yulee, FL 32097
Phone: 904-225-3275
Fax: 904-225-3289
E-mail: aazv@aol.com
Website: www.aazv.org

American Board of Veterinary Toxicology

This website does not provide any contact information. There is a email form, but that is it.
Website: www.abvt.org

Pet Care Services Association

Executive Director
1702 E. Pikes Peak Avenue
Colorado Springs, CO 80909
Phone: 719-667-1600
877-570-7788 (Toll Free)
Fax: 719-667-0116
E-mail: ???
Website: www.petcareservices.org

American College of Veterinary Emergency and Critical Care

Executive Secretary
Tufts Cummings School of Veterinary Medicine
200 Westboro Road

Resources

North Grafton, MA 01536
Phone: 508-839-5395
Fax: 508-839-7922
E-mail: james.ross@tufts.edu
Website: www.acvecc.org

American Heartworm Society

Administrator
PO Box 667
Batavia, IL 60510-0667
Phone: 630-262-1997
Fax: 630-208-8398
E-mail: heartwormsociety@earthlink.net
Website: www.heartwormsociety.org

American Horse Council

President
1616 H Street NW, 7th Floor
Washington, DC 20006
Phone: 202-296-4031
Fax: 202-296-1970
E-mail: ahc@horsecouncil.org
Website: www.horsecouncil.org

American Humane Association

Animal Protection Services
63 Inverness Drive East
Englewood, CO 80112-5117
Phone: 303-792-9900
Fax: 303-792-5333
E-mail: animal@americanhumane.org
Website: www.americanhumane.org

American Kennel Club

President & CEO
260 Madison Avenue
New York, NY 10016
Phone: 212-696-8200
Fax: 212-696-8329
E-mail: dbs@akc.org
Website: www.akc.org

American Society of Laboratory Animal Practitioners

ASLAP Coordinator
P.O. Box 125
Adamstown, MD 21710
Phone: 301-874-4826
Fax: 301-874-6195
E-mail: aslap-info@aslap.org
Website: www.aslap.org

ASPCA National Animal Poison Control Center

1717 S. Philo Road, Suite 36
Urbana, IL 61802

Resources

Hotline: 888-426-4435
Phone: 217-337-5030 (Administrative calls only)
Fax: 217-334-3586
E-mail: dfarbman@apcc.aspc.org
Website: www.apcc.aspc.org

American Society for the Prevention of Cruelty to Animals

424 East 92nd Street
New York, NY 10128-6804
Phone: 212-876-7700
Fax: 212-876-2835
E-mail: napcc@aspc.org
Website: www.aspc.org

American Veterinary Epidemiology Society

Secretary-Treasurer, Dr. Albert Ahn
The Hartz Mountain Corporation
400 Plaza Drive
Secaucus, NJ 07094
Phone: 201-271-4800 x7270
Fax: 201-271-0134
E-mail: aahn@hartz.com

American Zoo & Aquarium Association

8403 Colesville Road, Ste 710
Silver Spring, MD 20910
Phone: 301-562-0777
Fax: 301-562-0888
E-mail: generalinquiry@aza.org
Website: www.aza.org

Animal Health Institute

1325 G Street NW, Ste 700
Washington, DC 20005
Phone: 202-637-2440
Fax: 202-393-1667
E-mail: mgilmore@ahi.org
Website: www.ahi.org

Animal Transportation Association

111 East Loop North
Houston, TX 77029
Phone: 713-532-2177
Fax: 713-432-2166
E-mail: info@aata-animaltransport.org
Website: www.aata-animaltransport.org

Association of Avian Veterinarians

PO Box 811720
Boca Raton, FL 33481
Phone: 561-393-8901
Fax: 561-393-8902
E-mail: aavctrlofc@aol.com
Website: www.aav.org

Resources

Association of Primate Veterinarians

9190 Crestyn Hills Drive
Memphis, TN 38125
Phone: 215-774-9603
Fax: 215-774-9604
E-mail: info@primatevets.org
Website: www.primatvets.org

Association of Reptilian and Amphibian Veterinarians

Executive Director
PO Box 605
Chester Heights, PA 19017
Phone: 610-358-9530
Fax: 610-892-4813
E-mail: aravets@aol.com
Website: www.arav.org

Basic Animal Rescue Training (BART)

P.O. Box 130967
St. Paul, MN 55113-0009
Phone: Janet Olson 612-282-1894
Website: <http://basicanimalrescuetraining.org/>

Cat Fanciers' Association, Inc.

1805 Atlantic Avenue, PO Box 1005
Manasquan, NJ 08736-0805
Phone: 732-528-9797
Fax: 732-528-7391
E-mail: cfa@cfa.org
Website: www.cfa.org

Christian Veterinary Mission

19303 Fremont Avenue N.
Seattle, WA 98133
Phone: 206-546-7569
Fax: 206-546-7458
E-mail: rkf@cvmusa.org
Website: www.christianvetmission.org

Doris Day Animal League

2100 L Street NW
Washington, DC 20037
Phone: 202-452-1100
E-mail: info@ddal.org
Website: www.ddal.org

Hooved Animal Humane Society, The

10804 McConnell Road
Woodstock, IL 60098
Phone: 815-337-5563
Fax: 815-337-5569
E-mail: info@hahs.org
Website: www.hahs.org

Resources

Humane Society of the United States, The

2100 L Street, NW
Washington, DC 20037
Phone: 202-452-1100
Fax: 202-778-6132
Website: www.hsus.org

National Animal Control Association

PO Box 480851
Kansas City, MO 64148-0851
Phone: 913-768-1319
Fax: 913-768-1378
E-mail: naca@interserv.com
Website: www.nacanet.org

National Assembly of State Animal Health Officials

Secretary-Treasurer
8249 Mossy Oak Drive
Montgomery, AL 36117
Phone: 334-277-7788
Fax: 334-277-7788 (call first)
E-mail: jalleyealley@knology.net
Website: www.usaha.org

National Association of Federal Veterinarians

1910 Sunderland Place NW
Washington, DC 20036-1608
Phone: 202-223-4878
Fax: 202-223-4877
E-mail: mgiltsdorf@nafv.org
Website: www.nafv.org

National Association of State Departments of Agriculture

Executive Vice President/CEO
1156 15th Street NW, Ste 1020
Washington, DC 20005
Phone: 202-296-9680
Fax: 202-296-9686
E-mail: nasda@nasda.org
Website: www.nasda.org

National Association of State Public Health Veterinarians

President
Kansas Department of Health & Environment
1000 SW Jackson, Suite 210
Topeka, KS 66612
Phone: 785-296-1127
Fax: 785-291-3775
E-mail: ghansen@kdhe.state.ks.us
Website: www.nasphv.org

Resources

National Association of Veterinary Technicians in America

50 S. Pickett Street, Suite 110
Alexandria, VA 22304
Phone: 703-740-8737
Fax: 703-823-7237
E-mail: info@navta.org
Website: www.navta.net

National Environment Health Association

720 South Colorado Blvd., Suite 1000-N
Denver, CO 80246
Phone: 303-756-9090
Fax: 303-691-9490
E-mail: staff@neha.org
Website: www.neha.org

National Institute for Animal Agriculture

President and CEO
1910 Lyda Avenue
Bowling Green, KY 42104-5809
Phone: 270-782-9798
Fax: 270-782-0188
E-mail: niaa@animalagriculture.org
Website: www.animalagriculture.org

National Wildlife Rehabilitators Association

2625 Clearwater Road, Suite 110
St. Cloud, MN 56301
Phone: 320-230-9920
E-mail: nwra@nwrwildlife.org
Website: www.nwrwildlife.org

People for the Ethical Treatment of Animals

501 Front Street
Norfolk, VA 23510
Phone: 757-622-7382
Fax: 757-622-0457
E-mail: info@peta.org
Website: www.peta.org/

Society of Aquatic Veterinary Medicine

Secretary
Society of Aquatic Veterinary Medicine
2430 N. Maple Grove Road
Orange, CA 92867
Phone: 714-921-2677
Fax: 714-921-2687
E-mail: savm@pacbell.net
Website: www.savm.org

Society for Theriogenology

Executive Director
PO Box 3007
Montgomery, AL 36109-3007

Resources

Phone: 334-395-4666
Fax: 334-270-3399
E-mail: charles@franzmgt.com
Website: www.therio.org

United Animal Nations

1722 J Street, Suite 11
PO Box 188890
Sacramento, CA 95818
Phone: 916-429-2457
Fax: 916-429-2456
E-mail: info@uan.org
Website: www.uan.org

United States Animal Health Association

P.O. Box 8805
St. Joseph, MO 64508
Phone: 817-671-1144
Fax: 817-671-1201
E-mail: usaha@usaha.org
Website: www.usaha.org

United States Army Veterinary Corps

Brigadier General Michael B. Cates
Chief, U. S. Army
Veterinary Corps
Commander, USACHPPM
5158 Blackhawk Rd
Aberdeen Proving Ground, MD 21010-5403
Phone: 410-436-4311
Fax: 410-436-8513

United States Public Health Service Chief Veterinarian

Capt. William S. Stokes, DVM, DACLAM
National Institute of Environmental Health Svcs
National Institutes of Health
Dept of Health & Human Services
PO Box 12233, Mail Code EC-17
Research Triangle Park, NC 27709
Phone: 919-541-7997
Fax: 919-541-0947
E-mail: stokes@niehs.nih.gov

Veterinary Amateur Radio Operators

Dr. Richard J. Rossman
330 Waukegan Road
Glenview, IL 60025
Phone: 847-729-5200
Fax: 847-729-5214
E-mail: richige@aol.com

Veterinary Emergency & Critical Care Society

Executive Director
6335 Camp Bullis Road, Ste 12

Resources

San Antonio, TX 78257
Phone: 210-698-5575
Fax: 210-698-7138
E-mail: info@veccs.org
Website: www.veccs.org

World Health Organization

Team Coordinator
Animal and Food Related Public Health Risks (APH)
Dept. of Communicable Disease Surveillance and Response (CSR)
Avenue Appia 20
1211 Geneva 27
Switzerland
Phone: 41-22-791-21 11
Fax: 41-22-791-31 11
E-mail: infor@who.int
Website: www.who.int

World Society for the Protection of Animals

Chief Executive
89 Albert Embankment
London, England SE1 7TP
Phone: 44-20-7587-5000
Fax: 44-20-7793-0208
E-mail: wspa@wspa.org.uk
Website: www.wspa-international.org

World Veterinary Association

Executive Secretary
Rosenlunds Alle 8
DK-2720 Vanløse, Denmark
Phone: 45-387-10156
Fax: 45-387-10322
E-mail: wva@ddd.dk
Website: www.worldvet.org

(Rev 07/06)

Resources

TAB H Resources Section 12: Other Important Contacts

Registry of Veterinary Pathology – Armed Forces Institute of Pathology

VC, USA, Registrar
Registry of Veterinary Pathology
Armed Forces Institute of Pathology
6825 16th Street, NW
Washington, DC 20306-6000
Phone: 202-782-2600
Fax: 202-782-9150
E-mail: afipvet@afip.osd.mil
Website: www.afip.org/vetpath/index.html

ASPCA National Animal Poison Control Center

1717 S. Philo Road, Suite 36
Urbana, IL 61802
Hotline: 888-426-4435
Phone: 217-337-5030 (Administrative calls only)
Fax: 217-334-3586
E-mail: dfarbman@apcc.aspca.org
Website: www.apcc.aspca.org

National Association for Search and Rescue (NASAR)

PO Box 232020
Chantilly, VA 20120-2020
Phone: 703-222-6277; Toll Free: 877-893-0702
Fax: 703-222-6277
E-mail: info@nasar.org (information)
Website: www.nasar.org

National Renderers Association, Inc.

HRA Headquarters Office
801 North Fairfax Street, Ste. 207
Alexandria, VA 22314
Phone: 703-683-0155
Fax: 703-683-2626
E-mail: renderers@nationalrenderers.com
Website: www.renderers.org

Pet loss support hotlines (grief counseling):

530-752-4200 or 800-565-1526 – Staffed by University of California Davis veterinary students
630-325-1600 – Staffed by Chicago VMA veterinarians and staffs
607-253-3932 – Staffed by Cornell University veterinary students
217-244-2273(CARE) or 877-394-2273(CARE) – Staffed by University of Illinois veterinary students
888-ISU-PLSH (888-478-7574) – Staffed by Iowa State University veterinary students and community volunteers
517-432-2696 – Staffed by Michigan State University veterinary students
614-292-1823; e-mail, petloss@osu.edu - Staffed by The Ohio State University veterinary students
508-839-7966 – Staffed by Tufts University veterinary students

Resources

540-231-8038 – Staffed by Virginia-Maryland Regional College of Veterinary Medicine
509-335-5704 – Staffed by Washington State University veterinary students

Southeastern Cooperative of Wildlife Disease Study (SCWDS)

Wildlife Health Building
College of Veterinary Medicine, The University of Georgia
Athens, GA 30602
Phone: 706-542-1741
Fax: 706-542-5865
Website: www.uga.edu/scwds/index.htm

Small Business Administration – Disaster Area Offices

Website: www.sba.gov/disaster_recov/index.html

Disaster Area 1 Office

360 Rainbow Blvd. S., 3rd Floor
Niagara Falls, NY 14303
Phone: 800-659-2955
www.sba.gov/disasterarea1/
Serves: Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Puerto Rico, Rhode Island, Vermont, Virgin Islands, Virginia, and West Virginia

Disaster Area 2 Office

One Baltimore Place, Ste. 300
Atlanta, GA 30308
Phone: 800-359-2227
www.sba.gov/disasterarea2/
Serves: Alabama, Florida, Georgia, Illinois, Indiana, Kentucky, Michigan, Minnesota, Mississippi, North Carolina, Ohio, South Carolina, Tennessee, and Wisconsin

Disaster Area 3 Office

14925 Kingsport Road
Fort Worth, TX 76155-2243
Phone: 800-366-6303
www.sba.gov/disasterarea3/
Serves: Arkansas, Colorado, Iowa, Kansas, Louisiana, Missouri, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Utah, and Wyoming

Disaster Area 4 Office

PO Box 419004
Sacramento, CA 95841-9004
Phone: 800-488-5323
www.sba.gov/disasterarea4/
Serves: Alaska, American Samoa, Arizona, California, Guam, Hawaii, Idaho, Nevada, Oregon, Washington, the Federated States of Micronesia, the Republic of the Marshall Islands, and the Commonwealth of the Northern Mariana Islands

USDA Missing Pet Network: Website: www.missingpet.net/
(Rev 05/05)

Resources

TAB H Resources Section 13: Veterinary Medicine

ALLERGY

Academy of Veterinary Allergy and Clinical Immunology (AVACI)

Dr. Michael Groh
612 SW 3rd Street, Suite F
Lee's Summit, MO 64063
Ph: 816-525-6262
Fax: 816-246-9554
Website: www.avaci.org

The Academy of Veterinary Allergy and Clinical Immunology (AVACI) is an association of veterinarians with a special interest in clinical allergy and applied immunology in small and large animals. The purpose of the Academy is to promote research of allergic diseases and other related diseases of animals and to disseminate information concerning this research.

ANATOMY

American Association of Veterinary Anatomists (AAVA)

c/o Dr. Dennis Duffield, Associate Professor
Veterinary Anatomy & Cell Biology
Louisiana State University
School of Veterinary Medicine
Baton Rouge, LA 70803
Ph: 225-578-9900
E-mail: dduffield@mail.vetmed.lsu.edu
Website: www.civic.bev.net/aava

The American Association of Veterinary Anatomists (AAVA) is a membership organization with the stated goal of the advancement of veterinary anatomical science. The AAVA was founded in 1949 and has several hundred members.

AQUATIC

Aquaculture Association of Canada

16 Lobster Lane
St. Andrews, NB
Canada E5B 3T6
Ph: 506-529-4766
Fax: 506-529-4609
E-mail: aac@mar.dfo-mpo.gc.ca
Website: www.aquacultureassociation.ca/

The Aquaculture Association of Canada (AAC) fosters an aquaculture industry in Canada, to promote the study of aquaculture and related science in Canada, to gather and disseminate information relating to aquaculture, and to create public awareness and understanding of aquaculture.

European Aquaculture Society (EAS)

Slijkensesteenweg 4
B-8400 Oostende

Resources

Belgium

Ph: +32 59 32 38 59

Fax: +32 59 32 10 05

E-mail: eas@aquaculture.cc

Website: www.easonline.org

The European Aquaculture Society (EAS) was established on April 30, 1976 as an international, non-profit association, with the principal objective of being the European forum for contacts and information exchange between all within the aquaculture industry. EAS currently has members in 59 countries worldwide, working in all fields related to aquaculture.

International Association for Aquatic Animal Medicine (IAAAM)

Lisa Mazzaro, PhD, Secretary

55 Cogan Blvd

Mystic, CT 06355

Ph: 860-572-5955 ext. 109

Fax: 860-572-5969

E-mail: lmazzaro@mysticaquarium.org

Website: www.iaaam.org

The International Association for Aquatic Animal Medicine (IAAAM) is an organization of individuals who are professionally interested in and devote a significant amount of time to the practice of aquatic animal medicine, teaching and research in aquatic animal medicine, or the husbandry and management of aquatic animals.

International Center for Aquaculture and Aquatic Environments (ICAAE)

Swing Hall

Auburn University

Auburn, AL 36849

Ph: 334-844-4786

Fax: 334-844-9208

E-mail: bduncan@acesag.auburn.edu

Website: www.ag.auburn.edu/icaae/

The mission of the International Center for Aquaculture and Aquatic Environments is to protect and conserve water and related environmental resources, to advance knowledge of water and environmental resources through education and research, and to enhance economic opportunities for people who depend upon water and environmental resources for their livelihoods and well being.

Society of Aquatic Veterinary Medicine, The (SAVM)

Dr. James Flaser, Secretary

14161 Oliver St

Chesterfield, MO 63017

Ph: 314-469-1700

Fax: 314-469-1701

E-mail: jjflaser@aol.com

Website: www.savm.org

The Society of Aquatic Veterinary Medicine (SAVM) is a non-profit organization dedicated to Veterinary Continuing Education in Small Animal Medicine and Aquatic Medicine.

World Aquaculture Society (WAS)

E-mail: wasmass@aol.com

Website: www.was.org/main/Default.asp

The World Aquaculture Society (WAS) is an international non-profit society with over 4,000 members in 94 countries. Founded in 1970, the primary focus of WAS is to improve communication and information exchange within the diverse global aquaculture community.

Resources

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AVIAN

American Association of Avian Pathologists (AAAP)

Secretary/Treasurer
University of Georgia
953 College Station Road
Athens, GA 30602-4875
Phone: 706-542-5645
Fax: 706-542-0249
E-mail: aaap@uga.edu
Website: www.aaap.info

The AAAP was launched as a national organization for veterinary practitioners, diagnosticians, researchers, and students interested in poultry health and performance. With annual meetings involving both national and international members, interested individuals come together to discuss poultry diseases and further the knowledge base of poultry medicine.

Association of Avian Veterinarians (AAV)

PO Box 811720
Boca Raton, FL 33481
Phone: 561-393-8901
Fax: 561-393-8902
E-mail: aavctrlofc@aol.com
Website: www.aav.org

The AAV began with 175 veterinarians from the United States and Canada. Today, the AAV boasts an international membership of more than 3,300 members from 43 countries. One of the purposes of the AAV, as stated in its Articles of Organization, is to educate its members and the general public as to all aspects of avian medicine and surgery. Through conferences, practical labs, avicultural programs, client education brochures and a veterinary journal devoted to all aspects of avian medicine.

CARDIOVASCULAR

American College of Veterinary Internal Medicine (ACVIM)

1997 Wadsworth Blvd., Suite A
Lakewood, CO 80215-3327
Ph: 303-231-9933 or 800-245-9081
Fax: 303-231-0880
E-mail: acvim@acvim.org
Website: www.acvim.org

Established in 1972, this 25+ years old organization is the recognized specialty college responsible for establishing training requirements, evaluating and accrediting training programs, and examining and certifying veterinarians in the veterinary specialties of Internal Medicine, Cardiology, Neurology, and Oncology.

European Society of Veterinary Cardiology (ESVC)

c/o Michelle Borgarelli, Secretary
Via Conte Rosso 3
Turin, I-10121, Italy
E-mail: mboresvc@tin.it
Website: www.esvc.net

Resources

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An objective of the European Society of Veterinary Cardiology (ESVC) is to promote the exchange of information and further scientific progress in Veterinary Cardiology and to develop and to spread the cardiology of domestic and exotic animals.

Veterinary Heart Institute (VHI)

Institute of Veterinary Specialists
7520 W University Avenue
Gainesville, FL 32607
Ph: 352-331-4233
Fax: 352-3331-5211
E-mail: jbayles@vetheart.com
Website: www.vetheart.com

The Veterinary Heart Institute is a cardiology referral and national consulting center for veterinarians. The VHI is committed to the care of animals with heart disease, clinical and basic cardiologic research, continuing education and the advancement of veterinary cardiology.

DENTISTRY

Academy of Veterinary Dentistry (AVD)

Dr. Gregg Dupont
16037 Aurora North
Seattle, WA 98933
Phone: 206-542-2101
Fax: 206-542-4290
E-mail: GatorGregg@aol.com

In 1987 the Academy was formed in response to the need for recognition of those veterinarians who had advanced training and competency in animal dentistry. The Academy of Veterinary Dentistry is an international organization of veterinarians with a special interest in the dentistry of animals. Most of the members are practitioners, serving the oral health needs of the patients presented to them.

American Society of Veterinary Dental Technicians (ASVDT)

PO Box 1636
Venice, FL 34284
Phone: 800-613-3647
Fax: 941-488-6937
Website: www.asvdt.org

The American Society of Veterinary Dental Technicians (ASVDT) was created in 1994 by a group of veterinary technicians who have dedicated the major part of their careers to veterinary dentistry.

American Veterinary Dental College (AVDC)

Secretary/Treasurer, Colin E. Harvey
VHUP 3113, 3900 Delancey Street, Philadelphia, PA 19104-6010
Phone: 215-898-5903
Fax: 215-898-9937
E-mail: ce@vet.upenn.edu
Website: www.avdc.org

The AVDC promotes the advancement of high standards in the art of science of veterinary dentistry through the encouragement of all veterinary colleges to establish in-depth instruction and a high standard for training in veterinary dentistry. In addition the AVDC has established alternate training programs for veterinarians in practice.

Resources

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American Veterinary Dental Society (AVDS)

618 Church Street, Ste 220

Nashville, TN 37219

Ph: 800-332-2837

Fax: 615-254-7047

E-mail: avds@walkermgt.com

Website: www.avds-online.org

The American Veterinary Dental Society (AVDS) was formed to educate and raise awareness about veterinary dentistry among veterinarians, veterinary students and the public.

Australian Veterinary Dental Society

2 Christies Rd

Leopold, VIC 324 Australia

Ph: 03 5250 3300

Fax: 03 5250 3525

E-mail: webmaster@petdental.com.au

Website: <http://petdental.com.au/>

The mission statement of the Australian Veterinary Dental Society is to provide the best possible dental and oral health care by promoting the awareness of veterinary dentistry to the veterinary profession.

DERMATOLOGY

American Academy of Veterinary Dermatology

Dr. James O. Noxon, DVM, ACVIM, President

ISU Veterinary Teaching Hospital

Dept. of Veterinary Clinical Hospital

Ames, IA 50011-1250

Phone: 515-294-4900

Fax: 515-294-9281

E-mail: noxon@iastate.edu

American College of Veterinary Dermatology, The (ACVD)

Executive Secretary

5610 Kearny Mesa Rd, Suite 1B

San Diego, CA 92111

Ph: 858-560-9393

Fax: 858-560-0926

E-mail: itchypet@aol.com

Website: www.acvd.org

The American College of Veterinary Dermatology is an official specialty board organization, accredited by the American Veterinary Medical Association and charges with maintenance of high standards of postgraduate training in veterinary dermatology.

GASTROENTEROLOGY

The Comparative Gastroenterology Society (CGS)

Website: www.vetmed.wsu.edu/org_cgs/

The purpose of the Comparative Gastroenterology Society is to encourage professional improvement and the interchange of knowledge and ideas among those persons interested in comparative gastroenterology.

Resources

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GENERAL

Advisory Board of Veterinary Specialties (ABVS)

c/o American Veterinary Medical Association

1931 N. Meacham Road, Suite 100

Ph: 847-925-8070

Fax: 847-925-1329

E-mail: avmainfo@avma.org

A board of the AVMA. Organization of veterinarians with advanced training in one or more specialty areas of veterinary practice, research, or study whose purpose is to recognize and supervise organizations that provide certification to qualified specialists. Acts as mediator upon request in appeals submitted to the AVMA. Seeks to provide advanced veterinary services to the public.

American Animal Hospital Association (AAHA)

Dr. John W. Albers, Executive Director

(Street Address) 12575 West Bayaud Avenue

Lakewood, CO 80228

(Mail Address) PO Box 150899

Denver, CO 80215-0899

Phone: 303-986-2800

Fax: 303-986-1700

E-Mail: john.albers@aahanet.org

Website: www.aahanet.org

The American Animal Hospital Association (AAHA) is an international association of more than 17,000 veterinary care providers who treat companion animals. Established in 1933, the AAHA is well known among veterinarians and pet owners for its standards for hospitals and pet health care. Over 2,800 veterinary hospitals voluntarily participate in the AAHA hospital evaluation program.

American Association of Veterinary Laboratory Diagnosticians (AAVLD)

Secretary/Treasurer

California Animal Health & Food Safety Laboratory System

UC Davis, PO Box 1770

Davis, CA 95617-1770

Phone: 530-754-9719

Fax: 530-752-5680

E-mail: aavld@email.com

Website: www.aavld.org

The American Association of Veterinary Laboratory Diagnosticians (AAVLD) disseminates information relating to the diagnosis of animal diseases. It also coordinates diagnostic activities of regulatory, research, and service laboratories.

American Pre-Veterinary Medical Association (APVMA)

Website: www.stuorg.iastate.edu/pvc/apvma

The American Pre-Veterinary Medical Association (APVMA) is a college-level national chapter organization dedicated to promote and stimulate interest in the field of veterinary medicine and provide its member clubs with sources of information regarding sister clubs and the field of veterinary medicine.

ASPCA National Animal Poison Control Center

1717 S. Philo Road, Suite 36

Urbana, IL 61802

Resources

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Hotline: 888-426-4435
Phone: 217-337-5030 (Administrative calls only)
Fax: 217-334-3586
E-mail: dfarbman@apcc.aspc.org
Website: www.apcc.aspc.org

The ASPCA National Poison Control Center is dedicated to helping animals exposed to potentially hazardous substances by providing 24-hour veterinary diagnostic and treatment recommendations. The Center is committed to protecting and improving the lives of animals through toxicology educational programs and non-traditional research.

American Veterinary Medical Association (AVMA)

1931 N. Meacham Road, Suite 100
Schaumburg, IL 60173-4360
Ph: 847-925-8070
Fax: 847-925-1329
E-mail: avmainfo@avma.org
Website: www.avma.org

The objective of the Association is to advance the science and art of veterinary medicine, including its relationship to public health, biological science, and agriculture. The Association provides a forum for the discussion of issues of importance to the veterinary profession, and for the development of official positions. The Association is the authorized voice for the profession in presenting its views to government, academia, agriculture, pet owners, the media, and other concerned publics. Conducts educational and research programs. Provides placement service, maintains library, and compiles statistics. Compiled and distributes the AVMA Emergency Preparedness and Response Guide and Saving the Whole Family Booklet. Annual directory.

Animal Health Institute (AHI)

1325 G Street, NW, Suite 700
Washington, DC 20005-3104
Ph: 202-637-2440
Fax: 202-393-1667
Website: www.ahi.org

The Animal Health Institute is the U.S. trade association that represents manufacturers of animal health care products -- the pharmaceuticals, vaccines and feed additives used to produce a safe supply of meat, milk, poultry and eggs, and the veterinary medicines that help pets live longer, healthier lives.

Canadian Veterinary Medical Association (CVMA)

339 Booth Street
Ottawa, Ontario
Canada K1R 7K1
Ph: 613-236-1162
E-mail: infor@canadianveterinarians.net
Website: <http://canadianveterinarians.net/Index.aspx>

The Canadian Veterinary Medical Association (CVMA) is the national body serving the interests of over 8,000 Canadian veterinarians.

National Assembly of State Animal Health Officials

Dr. J. Lee Alley, Secretary-Treasurer
8249 Mossy Oak Drive
Montgomery, AL 36117
Ph: 334-277-7788
Fax: 334-277-7788 (call first)
E-mail: jalleyalley@knology.net

Resources

Website: www.usaha.org

National Association of Federal Veterinarians (NAFV)

Dr. Dale Boyle, Executive Vice President

1100 Vermont Street NW, Ste 710

Washington, DC 20005-6308

Phone: 202-289-6334

Fax: 202-842-4360

E-mail: dboyle@nafv.org

Website: <http://users.erols.com/nafv/>

The NAFV has served federally employed veterinarians for more than 80 years. Formed in 1918 during a meeting of the American Veterinary Medical Association in Boston by a small group of veterinarians with USDA's Bureau of Animal Industry (BAI), it has grown to almost 1,300 active members. As an association of supervisors and managers, the NAFV has an official consultative relationship with both the Department of Agriculture and the Food and Drug Administration. It is recognized as the representative organization for veterinarians employed by the federal government.

National Cattlemen's Beef Association (NCBA)

Gary L. Cowman, PhD, Executive Director

Technical Services

9110 East Nichols Avenue

Centennial, CO 80112

Ph: 303-850-3375

Fax: 303-683-7448

E-mail: glcowman@beefchat.com

Website: www.beef.org

Initiated in 1898, the National Cattlemen's Beef Association is the marketing organization and trade association for America's one million cattle farmers and ranchers. NCBA is a consumer-focused, producer-directed organization representing the largest segment of the nation's food and fiber industry.

National Chicken Council (NCC)

1015 15th Street, NW, Suite 930

Washington, DC 20005

Ph: 202-296-2622

Fax: 202-293-4005

E-mail: gwatts@chickenusa.org

Website: www.nationalchickencouncil.com

Tri-State Bird Rescue & Research, Inc.

Executive Director

110 Possum Hollow Road

Newark, DE 19711

Ph: 302-737-9543

Fax: 302-737-9562

Website: www.tristatebird.org

The mission of the Tri-State Bird Rescue & Research, Inc. is to promote healthy populations of native wildlife.

United States Animal Health Association

8100 Three Chopt Road, Suite 203

PO Box K227

Richmond, VA 23288

Resources

Ph: 804-285-3210
Fax: 804-285-3367
E-mail: usaha@usaha.org
Website: www.usaha.org

The United States Animal Health Association (USAHA), a national non-profit organization, has about 1,400 members and works with state and federal animal health officials, veterinarians, livestock producers, national livestock and poultry organizations, research scientists, the extension service and seven foreign countries to control livestock diseases in the United States. The Association serves as an advisor to the U.S. Department of Agriculture. USAHA represents all 50 states, 7 foreign countries and 18 allied groups serving health, technical and consumer markets. The Association has 33 working committees concerned about all diseases affecting major domestic livestock.

United States Army Veterinary Corps

Brigadier General Michael B. Cates
Chief, U. S. Army
Veterinary Corps
Commander, USACHPPM
5158 Blackhawk Rd
Aberdeen Proving Ground, MD 21010-5403
Phone: 410-436-4311
Fax: 410-436-8513

World Veterinary Association

Lars Holsaae, Executive Director
Rosenlunds Allé 8,
DK-2720 Vanlose Denmark
Ph: 45-387-10156
Fax: 45-387-10322
E-mail: wva@ddd.dk
Website: www.worldvet.org

The World Veterinary Association is a global non political, non religious and non profit-making association guarding veterinary interests in the world society. The Association is committed to unifying the veterinary profession world-wide.

INTERNAL MEDICINE

American College of Veterinary Internal Medicine (ACVIM)

Executive Director
1997 Wadsworth Blvd., Suite A
Lakewood, CO 80214
Ph: 303-231-9933 or 800-245-9081
Fax: 303-231-0880
E-mail: acvim@acvim.org
Website: www.acvim.org

Established in 1972, this 25+ years old organization is the recognized specialty college responsible for establishing training requirements, evaluating and accrediting training programs, and examining and certifying veterinarians in the veterinary specialties of Internal Medicine, Cardiology, Neurology, and Oncology.

Resources

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NUTRITION

American Academy of Veterinary Nutrition (AAVN)

Dr. Wilbur B. Amand, Executive Director

6 North Pennell Rd

Media, PA 19063-5520

Ph: 610-892-4812

Fax: 610-892-4813

E-mail: wbamand@aol.com

Website: www.aavn.org

The American Academy of Veterinary Nutrition is an international association of veterinarians and animal scientists with a common interest in animal nutrition as it relates to animal health.

American College of Veterinary Nutrition (ACVN)

Dr. Wilbur B. Amand, Executive Director

6 North Pennell Rd

Media, PA 19063-5520

Ph: 610-892-4812

Fax: 610-892-4813

E-mail: wbamand@aol.com

Website: www.acvn.org

The primary objective of the American College of Veterinary Nutrition is to advance the specialty area of veterinary nutrition and increase the competence of those who practice in this field by establishing requirements for certification in veterinary nutrition, encouraging continuing professional education, promoting research, and enhancing the dissemination of new knowledge of veterinary nutrition through didactic teaching and postgraduate programs.

FDA Center for Food Safety & Applied Nutrition

Website: <http://vm.cfsan.fda.gov>

The Center for Food Safety and Applied Nutrition is one of six centers within FDA. With a work force of about 800, the center promotes and protects the public health and economic interest by ensuring that: Food is safe, nutritious and wholesome, and cosmetics are safe. Food and cosmetics are honestly, accurately and informatively labeled.

OPHTHALMOLOGY

American College of Veterinary Ophthalmologists (ACVO)

Ms. Stacey Daniel, Executive Director

PO Box 1311

Meridian, ID 83680

Ph: 208-466-7624

Fax: 208-466-7693

E-mail: acvo@mtgs-etc.com

Website: www.acvo.com

The American College of Veterinary Ophthalmologists is an association, not an actual physical location, that has established certifying criteria for ophthalmologists.

American Society of Veterinary Ophthalmology

c/o Dr. Virginia Schultz, Secretary Treasurer

2001 Whispering Creek Dr

Edmond, OK 73013

Ph: 405-616-3937

Fax: 405-631-3937

Website: www.asvo.org

Resources

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The principal aim of the American Society of Veterinary Ophthalmology (ASVO) is to promote scientific progress in veterinary ophthalmology. This involves efforts to facilitate the presentation of new information, to improve diagnostic and treatment procedures, and to encourage expanded training in ophthalmology at veterinary colleges.

PARASITOLOGY

American Association of Veterinary Parasitologists (AAVP)

Dr. Alan A. Marchiondo
c/o Phoenix Scientific, Inc.
3915 S. 48th St. Terrace
St. Joseph, MO 64503-4711
(816) 364-3777, ext. 1375
Fax: (816) 364-6021
email: amarchiondo@psiqv.com
Website: www.aavp.org

The objectives of the organization shall be to provide for the association of persons interested in the advancement of veterinary parasitology, for the presentation and discussion of items of common interest, and to further scientific progress by education and research in veterinary parasitology.

PATHOLOGY

American College of Veterinary Pathologists (ACVP)

ACVP Executive Offices
7600 Terrace Avenue, Ste 203
Middleton, WI 53562
Ph: 608-833-8725 ext 149
Fax: 608-831-5122
E-mail: info@acvp.org
Website: www.acvp.org

The objectives of the American College of Veterinary Pathologists are: to further scientific progress in veterinary pathology; to establish standards of training, experience, and examination for qualification as specialists in veterinary pathology; and to further the recognition of such qualified specialists by suitable certification and other means.

Charles Louis Davis Foundation for the Advancement of Veterinary & Comparative Pathology

6245 Formoor Lane
Gurnee, IL 60031-4757
Ph: 847-367-4359
Fax: 847-247-1869
E-mail: cldavisdvm@ameritech.net
Website: www.afip.org/CLDavis/index.html

The mission of The Foundation is to further the Advancement of Veterinary and Comparative Pathology. Through a variety of outreach educational programs The Foundation strives to advance the study of the diseases of animals (veterinary) and the comparison of diseases manifested by diverse species of animals. In the pursuit and dissemination of such knowledge, The Foundation, hopes to improve the health and well being of all animals in the world, including man.

Resources

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European College of Veterinary Pathologists

Dr Christopher J. Clarke, Secretary

Pathology Department, Safety Assessment, Glaxo Smith Kline, Park Road

Ware Herts

SG 12 0DP

United Kingdom

Fax: +44 (0)192 088 2446

E-mail: christopher.j.clarke@gsk.com

Website: www.bris.ac.uk/Depts/PathAndMicro/EuroVet/ecvpmain.html

The European College of Veterinary Pathologists was established in 1995 to advance veterinary pathology and promote high standards within the specialty in Europe.

European Society of Veterinary Pathology

Honorary Secretary

Prof. Cinzia Benazzi

Dept. of Veterinary Public Health and Animal Pathology

Via Tolara di Sopra, 50, 40064 Ozzano Emilia (BO), Italy.

Tel: +39 051 2097955

Fax: +39 051 2097967

E-mail: benazzi@vet.unibo.it

Website: www.bris.ac.uk/pathandmicro/eurovet/esvpmain.htm

Registry of Veterinary Pathology

VC, USA, Registrar

Department of Veterinary Pathology

Armed Forces Institute of Pathology

Washington, DC 20306-600

E-mail: afipvet@afip.osd.mil

Website: www.afip.org/vetpath

Offers expertise and diagnostic assistance for domestic, exotic, and marine mammal cases.

Promotes the field of veterinary pathology by hosting numerous training courses, compiles study sets of domestic and exotic material and organizes the internationally recognized Wednesday Slide Conference.

Society of Toxicologic Pathologists

1821 Michael Faraday Dr, Ste 300

Reston, VA 20190

Ph: 703-438-7508

Fax: 703-438-3116

E-mail: stp@toxpath.org

Website: www.toxpath.org

The Society of Toxicologic Pathologists is a non-profit association of pathologists, whose principal aim is the advancement of pathology as it pertains to changes elicited by pharmacological, chemical and environmental agents and factors that modify these responses.

PHARMACOLOGY

American Academy of Veterinary Pharmacology and Therapeutics (AAVPT)

c/o Secretary-Treasurer

Carol A. Davis, MS, PhD

410 Evergreen Ct West

Urbana, IL 61801

Ph: 217-384-2860

Resources

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Fax: 217-384-4636

Email: c.davis2@insightbb.com

Website: www.aavpt.org

The purpose of the Academy is the promotion of the science of veterinary pharmacology and therapeutics.

Association for Veterinary Clinical Pharmacology and Therapeutics (AVCPT)

E-mail: secretary@avcpt.org

Website: www.avcpt.org

The Association for Veterinary Clinical Pharmacology and Therapeutics was founded in 1976. The aims of the Association broadly are to foster interest in and to disseminate knowledge of veterinary pharmacology and therapeutics.

RADIOLOGY

American College of Veterinary Radiology (ACVR)

Executive Director, Dr. M. Bernstein

777 E Park Drive

Harrisburg, PA 17105-8820

Ph: 717-558-7865

Fax: 717-558-7841

E-mail: administration@acvr.info

Website: www.acvr.org

The American College of Veterinary Radiology (ACVR) was founded in 1961 to determine competence of voluntary candidates in veterinary radiology and to encourage the development of teaching personnel and training facilities in veterinary radiology.

SPECIALTY VETERINARY ORGANIZATIONS

American Association of Bovine Practitioners (AABP)

PO Box 3610

Auburn, AL 36831-3610

Phone: 334-821-0442

Fax: 334-821-9532

E-mail: aabphq@aabp.org

Website: www.aabp.org

The American Association of Bovine Practitioners is an international association of veterinarians organized to enhance the professional lives of its members through relevant continuing education that will improve the well-being of cattle and the economic success of their owners, increase awareness and promote leadership for issues critical to cattle industries, and improve opportunities for careers in bovine medicine.

American Association of Equine Practitioners (AAEP)

4075 Iron Works Parkway

Lexington, KY 40511

Ph: 859-233-0147

Fax: 859-233-1968

E-mail: aaepoffice@aol.com

Website: www.aaep.org

The American Association of Equine Practitioners (AAEP) began in 1954 as a group of 12 charter members who saw that together they could direct the focus of equine veterinary

Resources

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medicine. The mission of the AAEP is to improve the health and welfare of the horse, to further the leadership for the benefit of the equine industry.

American Association of Extension Veterinarians (AAEV)

c/o Dr. Charles L. Stoltenow, President
North Dakota State University
Dept. of Animal and Range Sciences
Hultz Hall, RM 165
Fargo, ND 58105
Ph: 701-231-7522
Fax: 701-231-7590
E-mail: cstolten@ndsuxext.nodak.edu

American Association of Feline Practitioners (AAFP)

Executive Director
66 Morris Avenue, Ste 2A
Springfield, NJ 07081
Ph: 973-379-1100
Fax: 973-379-6507
E-mail: rickaaamc@earthlink.net
Website: www.aafponline.org

The American Association of Feline Practitioners (AAFP) is a professional organization of veterinarians who share an interest in providing excellence in the care and treatment of cats.

American Association of Food Hygiene Veterinarians (AAFHV)

Executive Vice President
Dr. Joseph L. Blair
4910 Magdalene Court
Annandale, VA 22003-4363
Ph: 703-323-0003
Fax: 703-323-9327
E-mail: joeblair@erols.com
Website: www.avma.org/aafhv/default.htm

The American Association of Food Hygiene Veterinarians (AAFHV) is an organization of veterinarians whose professional activities and interests encompass the many contributions of veterinary medicine to a hygienic food supply.

American Association of Human-Animal Bond Veterinarians (AAHABV)

Dr. Sally Walshaw, Secretary-Treasurer
Atlantic Veterinary College
University of Prince Edward Island
550 University Avenue
Charlottetown, PE, Canada, C1A 4P3
Ph: 902-566-0831
Fax: 902-566-0832
E-mail: swalshaw@upei.ca
Website: http://aahabv.org

The mission of the American Association of Human-Animal Bond Veterinarians is to further veterinary awareness, scientific progress, and educational opportunities in the area of the human-animal bond; to encourage veterinary participation in human-animal bond activities with related organizations and disciplines; and to explore the potential for establishing a veterinary specialty in the area of the human-animal bond.

Resources

American Association for Laboratory Animal Sciences (AALAS)

9190 Crestwyn Hills Drive
Memphis, TN 38125
Ph: 901-754-8620
Fax: 901-753-0046
E-mail: info@aalas.org
Website: www.aalas.org

The mission of the American Association for Laboratory Animal Science (AALAS) is to advance responsible care and use of laboratory animals to benefit people and animals.

American Association of Public Health Veterinarians (AAPHV)

Dr. Hugh Mainzer, President
CDC-National Center in Environmental Health
Division of Emergency & Environmental Health Services
4770 Bufford Hwy NE; Mailstop F-28
Atlanta, Ga 30341
Ph: 770-488-3138
Fax: 770-488-7310
E-mail: hmainzer@cdc.gov

The mission of the American Association of Public Health Veterinarians is to promote the science and art of public health, Epidemiology, and preventive medicine by providing an expert forum for the discussion of public health issues of importance to the veterinary profession and the development of professional recommendations and public health resolutions. The Association consistently supports programs to promote and improve the professional education, communication and collaboration of public health veterinarians in order to reduce human illness, animal illness, and promote public health.

American Association of Small Ruminant Practitioners (AASRP)

NIAA/AASRP
1910 Lyda Drive, Suite 200
Bowling Green, KY 42104
Ph: 270-793-0781
Fax: 270-792-0188
E-mail: aasrp@aasrp.org
Website: www.aasrp.org

The American Association of Small Ruminant Practitioners was organized in 1968 to further education and scientific programs for veterinarians working with small ruminants. AASRP encouraged education, training and research in veterinary medicine to promote good health and productivity in small ruminants.

American Association of Swine Veterinarians (AASV)

902 1st Avenue
Perry, IA 50220-1703
Ph: 515-465-5255
Fax: 515-465-3832
E-mail: aasv@aasv.org
Website: www.aasv.org

The American Association of Swine Veterinarians is a nonprofit educational professional society organized to: increase the knowledge of veterinarians in the field of swine medicine; elevate the standards of swine practice; promote the relationship between swine practice, the swine industry, and the public interest; promote the interests of swine veterinarians; improve the public stature of swine veterinarians; cooperate with veterinary and agricultural organizations and regulatory agencies; and promote goodwill among AASV members.

Resources

American Association of Wildlife Veterinarians (AAWV)

Dr. Dave Jessup, President

1451 Shaffer Rd

Santa Cruz, Ca 95060

Ph: 831-469-1726

Fax: 831-469-1723

E-mail: djessup@ospr.dfg.ca.gov

Website: www.aawv.net

Founded in 1979, the American Association of Wildlife Veterinarians is a national organization of veterinarians interested in all aspects of wildlife health.

American Association of Zoo Veterinarians (AAZV)

Dr. Wilbur B. Amand, Executive Director

6 North Pennell Road

Media, PA 19063

Ph: 610-892-4812

Fax: 610-892-4813

E-mail: aazv@aol.com

Website: www.aazv.org

As an advocate for the profession, the mission of the Association is to improve the health care and promote conservation of captive and free-ranging wildlife.

American College of Laboratory Animal Medicine (ACLAM)

Dr. Melvin W. Balk

Executive Director

96 Chester Street

Chester, NH 03036

Ph: 603-887-2467

Fax: 603-887-0096

E-mail: mwbaclam@gsinet.net

Website: www.aclam.org

The American College of Laboratory Animal Medicine (ACLAM) is an organization of board certified veterinary medical specialists who are experts in the humane, proper and safe care and use of laboratory animals.

American College of Poultry Veterinarians (ACPV)

c/o Dr. Sherrill Davison

University of Pennsylvania

382 W Street Road

Kennett Square, PA 19348

Ph: 610-444-4282

Fax: 610-925-8106

E-mail: acpv@vet.upenn.edu

Website: www.acpv.info

The objectives of the American College of Poultry Veterinarians are: To further educational and scientific progress in the field of poultry veterinary medicine. To promote the development of poultry veterinary medicine as a science; To improve and strengthen the instruction in poultry veterinary medicine; To establish publication, testing and continuing education requirements for the certification of poultry veterinarians to enhance the quality of poultry veterinary medicine and to provide an incentive for research, publication, improvement of residency and other educational programs, and continuing education in the field of poultry veterinary medicine; and To provide guidance on the quality of and desirable levels of pre- and post-professional training, experience and continuing education for potential and current students and specialists in poultry veterinary medicine.

Resources

American College of Veterinary Emergency and Critical Care (ACVECC)

Dr. James N. Ross, Jr.
Executive Secretary
Department of Clinical Sciences
School of Veterinary Medicine
Tufts University
200 Westboro Road
North Grafton, MA 01536
Ph: 508-887-4633
Fax: 508-839-7922
E-mail: james.ross@tufts.edu
Website: www.acvecc.org

The American College of Veterinary Emergency and Critical Care promotes advancement and high standards of practice for those individuals involved in veterinary emergency and critical care medicine.

American Veterinary Epidemiology Society

Dr. Albert Ahn, Secretary/Treasurer
The Hartz Mountain Corporation
400 Plaza Drive
Secaucus, NJ 07094
Ph: 201-271-4800 x7270
Fax: 201-271-0134
E-mail: aahn@hartz.com

American Veterinary Medical Law Association (AVMLA)

Dr. Karen M. Wernette, Executive Director
511 N County Ridge Ct
Lake Zurich, IL 60047-2824
Ph and Fax: 847-719-1810
E-mail: info@avmla.org
Website: www.avmla.org

The American Veterinary Medical Law Association (AVMLA) is a national association of attorneys, veterinarians, and other individuals and organizations with an interest in veterinary medical law and how it pertains to the veterinary profession and allied fields.

Association of Primate Veterinarians

Dr. Marion S. Ratterree, Head
Unit of Research Resources
Tulane National Primate Research Center
18703 Three Rivers Rd
Covington, LA 70433
Ph: 985-871-6278
Fax: 985-871-6231
E-mail: ratt@tulane.edu
Website: www.primatetvets.org

The Association of Primate Veterinarians (APV) is an international organization consisting of over 400 veterinarians concerned with the health, care, and welfare of nonhuman primates.

Association of Reptilian and Amphibian Veterinarians (ARAV)

Dr. Wilbur Amand
Executive Director
PO Box 605

Resources

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Chester Heights, PA 19017

Ph: 610-358-9530

Fax: 610-892-4813

E-mail: aravets@aol.com

Website: www.arav.org

The Association of Reptilian and Amphibian Veterinarians (ARAV) is a non-profit international organization of veterinarians and herpetologists founded in 1991. The goal of the ARAV is to improve reptilian and amphibian veterinary care and husbandry through education, exchange of ideas and research. The ARAV promotes conservation and humane treatment of all reptilian and amphibian species through education, captive breeding and reptilian and amphibian habitat preservation.

Association of Veterinarians for Animal Rights (AVAR)

PO Box 208

Davis, CA 95617-0208

Ph: 530-759-8106

Fax: 530-759-8116

E-mail: avar@igc.org

Website: www.avar.org

The AVAR actively works toward the acquisition of rights for all nonhuman animals by educating the public and the veterinary profession about a variety of issues concerning nonhuman animal use. The AVAR is actively seeking reformation of the way society treats all nonhumans and an increase in environmental awareness, as well.

National Association of State Public Health Veterinarians (NASPHV)

Dr. Gail Hansen, President

Kansas Dept of Health and Environment

1000 SW Jackson, Suite 210

Topeka, KS 66612

Ph: 785-296-1127

Fax: 785-291-3775

E-mail: ghansen@kdhe.state.ks.us

Website: www.nasphv.org

United States Public Health Service Chief Veterinarian

Capt. William S. Stokes, DVM, DACLAM

National Institute of Environmental Health Services

National Institutes of Health

Dept of Health and Human Services

PO Box 12233, Mail Code EC-17

Research Triangle Park, NC 27709

Ph: 919-541-7997

Fax: 919-541-0947

E-mail: stokes@niehs.nih.gov

Website: www.usphs.gov/html/vet_cpo.html

SURGERY

The American College of Veterinary Surgeons (ACVS)

Ann T. Loew, EdM, Executive Director

11 N Washington St, Suite 720

Rockville, MD 20850

Ph: 301-610-2000

Resources

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Fax: 301-610-0371

E-mail: acvs@acvs.org

Website: www.acvs.org

Founded in 1965, the American College of Veterinary Surgeons is the American Veterinary Medical Association specialty board, which sets the standards for advanced professionalism in veterinary surgery.

THERIOGENOLOGY

American College of Theriogenologists (ACT)

Charles F. Franz, Administrator

PO Box 3065

Montgomery, AL 36109-3065

Ph: 334-395-4666

Fax: 334-270-3399

E-mail: charles@franzmgt.com

Website: www.theriogenology.org

The purposes of the College shall be the advancement of knowledge; undergraduate, graduate and postgraduate education; research; and service in theriogenology by: 1) the establishment of a certifying agency to recognize veterinarians as specialists in theriogenology, 2) the encouragement of scientific investigation and research and the reporting of these, 3) the development of continuing education methods and programs for disseminating information to and increasing knowledge of all veterinarians, especially practitioners, 4) the development of graduate study and residency programs, and 5) the establishment of high standards and guidelines for professional attainment and specialization.

Society for Theriogenology

Charles F. Franz, Executive Director

PO Box 3065

Montgomery, AL 36109-3065

Ph: 334-395-4666

Fax: 334-270-3399

E-mail: charles@franzmgt.com

Website: www.therio.org

The Society for Theriogenology is dedicated to furthering advances in the science and practice of animal reproduction. The Society members are veterinarians and veterinary students with a special interest in the reproduction of all domestic species.

TOXICOLOGY

American Academy of Veterinary and Comparative Toxicology (AAVCT)

Dr. Michelle S. Mostrom, Secretary-Treasurer

North Dakota State University

Veterinary Diagnostic Laboratory

PO Box 5406

Fargo, ND 58105-5406

Ph: 701-231-7529

Fax: 701-231-7514

E-mail: michelle.mostrom@ndsu.nodak.edu

Veterinarians specializing in toxicology and others interested in veterinary comparative toxicology. Sponsors and encourages scientific and technical meetings and promotes discussion and interchange of information in veterinary toxicology, teaching, research and development, diagnosis, nomenclature, public health, and other areas.

Resources

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American Board of Veterinary Toxicology (ABVT)

Dr. Patricia Talcott, Secretary/Treasurer
University of Idaho
Department of Food Science & Toxicology
Holm Research Center
2222 Sixth Street
University of Idaho
Moscow, ID 83844-2201
Ph: 208-885-6109
Fax: 208-885-8937
E-mail: ptalcott@uidaho.edu
Website: www.abvt.org

The American Board of Veterinary Toxicology is a group of specially trained veterinarians that strive to inform and educate the public, private practice veterinarians and veterinary medical students about toxicologic hazards to pets, livestock and wildlife.

Society of Toxicology

1821 Michael Faraday Drive, Ste 300
Reston, VA 20190
Ph: 703-438-3115
Fax: 703-438-3113
E-mail: sothq@toxicology.org
Website: www.toxicology.org

The Society of Toxicology is a professional and scholarly organization of scientists from academic institutions, government, and industry representing the great variety of scientists who practice toxicology in the U.S. and abroad. The Society promotes the acquisition and utilization of knowledge in toxicology, aids in the protection of public health, and facilitates disciplines.

TROPICAL

Centre for Tropical Veterinary Medicine (CTVM)

Ian Maudlin, Director of CTVM
Royal (Dick) School of Veterinary Studies
The University of Edinburgh
Easter Bush
Roslin
Midlothian
Scotland EH 25 9RG
Ph: 44 (0) 131 650 4347
Fax: 44 (0) 131 650 7348
E-mail: imaudlin@vet.ed.ac.uk
Website: www.vet.ed.ac.uk/ctvm

The Centre for Tropical Veterinary Medicine (CTVM) was established in 1970 as an integral Department of Tropical Animal Health in the Faculty of Veterinary Medicine of the University of Edinburgh. The mission statement of the CTVM is "promotion of animal health, welfare and production through research and training, to foster sustainable development, alleviate poverty and improve the quality of human life."

Society for Tropical Veterinary Medicine (STVM)

c/o Edmour F. Blouin, President
Dept. of Veterinary Pathobiology
CVM, Oklahoma State University, McElroy Hall
Stillwater, OK 74078

Resources

Ph: 405-744-6726

Fax: 405-744-5275

E-mail: blouin@okstate.edu

Website: www.soctropvetmed.org

The Society for Tropical Veterinary Medicine was first founded as the American Society for Tropical Veterinary Medicine in 1973. The aim of the STVM is to promote the international advancement of tropical veterinary medicine, hygiene and related disciplines.

UROLOGY

Society of Veterinary Nephrology/Urology

c/o Dr. David Polzin, Secretary-Treasurer

College of Veterinary Medicine

University of Minnesota

1352 Boyd Avenue

St. Paul, MN 55108

Ph: 612-625-4254

Fax: 612-624-0751

E-mail: polzi001@tc.umn.edu

Website: www.umn.edu

WILDLIFE, EXOTIC AND ENDANGERED ANIMALS

American Association of Wildlife Veterinarians (AAWV)

Dr. David Jessup, President

1451 Shaffer Rd

Santa Cruz, CA 95060

Ph: 831-469-1726

Fax: 831-469-1723

E-mail: djessup@ospr.dfg.ca.gov

Website: www.aawv.net

Founded in 1979, the American Association of Wildlife Veterinarians is a national organization of veterinarians interested in all aspects of wildlife health.

American Association of Zoo Veterinarians (AAZV)

Dr. Wilbur B. Amand

Executive Director

6 North Pennell Road

Media, PA 19063

Ph: 610-892-4812

Fax: 610-892-4813

E-mail: aazv@aol.com

Website: www.aazv.org

As an advocate for the profession, the mission of the Association is to improve the health care and promote conservation of captive and free-ranging wildlife.

American Ornithologists' Union

1313 Dolley Madison Blvd, Suite 402

McLean, VA 22101

Ph: 703-790-1745

Fax: 703-790-2672

E-mail: aou@aou.org

Website: www.aou.org

Resources

Founded in 1883, the American Ornithologists' Union is the oldest and largest organization in the New World devoted to the scientific study of birds.

American Society of Mammalogists (ASM)

Website: www.mammalsociety.org

The American Society of Mammalogists was established in 1919 for the purpose of promoting the study of mammals. Most members of ASM are professional scientists with a strong interest in the public good, which is reflected in their involvement in providing information for public policy, resources management, conservation, and education.

American Society of Ichthyologists and Herpetologists (ASIH)

Maureen Donnelly, Secretary
Dept. of Biological Sciences
Florida International University
Miami, FL 33199
Ph: 305-348-1235
Fax: 305-348-1986
E-mail: asih@fiu.edu
Website: www.asih.org

The American Society of Ichthyologists and Herpetologists is dedicated to the scientific study of fishes, amphibians and reptiles.

Association of Primate Veterinarians

Dr. Marion S. Ratterree, Head
Unit of Research Resources
Tulane National Primate Research Center
18703 Three Rivers Rd
Covington, LA 70433
Ph: 985-871-6278
Fax: 985-871-6231
E-mail: ratt@tulane.edu
Website: www.primatevets.org

The Association of Primate Veterinarians (APV) is an international organization consisting of over 400 veterinarians concerned with the health, care, and welfare of nonhuman primates.

Association of Reptilian and Amphibian Veterinarians (ARAV)

Dr. Wilbur Amand, Executive Director
PO Box 605
Chester Heights, PA 19017
Ph: 610-358-9530
Fax: 610-892-4813
E-mail: aravets@aol.com
Website: www.arav.org

The Association of Reptilian and Amphibian Veterinarians (ARAV) is a non-profit international organization of veterinarians and herpetologists founded in 1991. The goal of the ARAV is to improve reptilian and amphibian veterinary care and husbandry through education, exchange of ideas and research. The ARAV promotes conservation and humane treatment of all reptilian and amphibian species through education, captive breeding and reptilian and amphibian habitat preservation.

Bat Conservation International

PO Box 162603
Austin, TX 78716
Ph: 512-327-9721

Resources

Fax: 512-327-9724

E-mail: batinfo@batcon.org

Website: www.batcon.org

The mission of Bat Conservation International is to protect and restore bats and their habitats worldwide.

Conservation Breeding Specialist Group (CBSG)

Species Survival Commission, IUCN

The World Conservation Union

U.S. Seal

CBSG Chairman

12101 Johnny Cake Ridge Road

Apple Valley, MN 55124-8151

Ph: 952-997-9800

Fax: 952-997-9803

E-mail: office@cbsg.org

Website: www.cbsg.org

The Conservation Breeding Specialist Group (CBSG) is an international conservation organization whose mission is "to assist conservation of threatened animal and plant species through scientific management of small populations in wild habitats, with linkage to captive populations where needed."

International Association of Fish and Wildlife Agencies (IAFWA)

444 North Capitol Street, NW, Suite 725

Washington, DC 20001

Ph: 202-624-7890

Fax: 202-624-7891

E-mail: info@iafwa.org

Website: www.iafwa.org

The International Association of Fish and Wildlife Agencies was founded in 1902 as a quasi-governmental organization of public agencies charged with the protection and management of North America's fish and wildlife resources.

International Society for Endangered Cats, Inc. (ISEC)

3070 Riverside Drive, Ste 160

Columbus, OH 43221

Ph: 614-487-8760 (voice)

Fax: 614-487-8769

E-mail: felineinfo@isec.org

Website: www.isec.org

The International Society for Endangered Cats, Inc. (ISEC) is a non-for-profit organization dedicated to the conservation of wild cats throughout the world.

International Wild Waterfowl Association (IWWA)

c/o Paul & Lynn Dye

Northwest Wildfowl Farm

10114 54th Place N.E.

Everett, WA 98205

E-mail: dye@greatnorthern.net

Website: www.wildwaterfowl.org

Working to protect and conserve wild waterfowl and wetlands.

National Wildlife Health Center

Leslie A. Dierauf, V.M.D.

Resources

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Center Director

USGS: National Wildlife Health Center

6006 Schroeder Road

Madison, WI 53711-6223

Ph: 608-270-2400

Fax: 608-270-2415

Website: www.nwhc.usgs.gov

The National Wildlife Health Center (NWHC) was established in 1975 as a biomedical laboratory dedicated to assessing the impact of disease on wildlife and to identifying the role of various pathogens in contributing to wildlife losses.

National Wildlife Rehabilitators Association (NWRA)

14 North 7th Avenue

St. Cloud, MN 56303-4766

Ph: 320-259-4086

E-mail: nwra@nwrwildlife.org

Website: www.nwrwildlife.org

The National Wildlife Rehabilitators Association (NWRA) is a nonprofit international membership organization committed to promoting and improving the integrity and professionalism of wildlife rehabilitation and contributing to the preservation of natural ecosystems.

The Ocean Conservancy

2029 K Street

Washington, DC 20006

Ph: 202-429-5609

E-mail: info@oceanconservancy.org

Website: www.oceanconservancy.org/site/PageServer?pagename=home

The Center for Marine Conservation (CMC) is committed to protecting ocean environments and conserving the global abundance of diversity of marine life.

Simian Society of American

E-mail: info@simiansociety.org

Website: <http://simiansociety.org>

The Simian Society of America is a non-profit organization founded in 1957 to improve the welfare of primates in captivity.

Society for Integrative and Comparative Biology (SICB)

1313 Dolley Madison Blvd, Suite 402

McLean, VA 22101

Ph: 703-790-1745 or 800-955-1236

Fax: 703-790-2672

E-mail: SICB@BurkInc.com

Website: www.sicb.org

The Society for Integrative and Comparative Biology (SICB) is one of the largest and most prestigious professional associations of its kind. Formed through a 1902 merger of two societies, the Central Naturalists and the American Morphological Society, its focus has remained to integrate the many fields of specialization which occur in the broad field of biology. The SICB is organized around eleven divisions, each relevant to a major segment of biology. The Society is dedicated to promoting the pursuit and public dissemination of important information relating to biology.

Resources

Wildlife Conservation Society (WCS)

2300 Southern Blvd.

Bronx, NY 10460

Ph: 718-220-5100

E-mail: pr@wcs.org

Website: www.wcs.org

The Wildlife Conservation Society (WCS) works to wave wildlife and wild lands throughout the world.

Wildlife Disease Association (WDA)

Tracy Jones

PO Box 1897

Lawrence, KS 66044-8897

Ph: 785-843-1221

Members and potential members may call: 800-627-0629

Fax: 785-843-1274

Website: www.wildlivedisease.org

The Wildlife Disease Association (WDA) is dedicated to wildlife conservation through the study and understanding of diseases in wildlife.

World Association of Wildlife Veterinarians (WAWV)

c/o Dr. A. W. English

University of Sydney

Department of Animal Health

Private Mailbag 3

Camden NSW 270

Australia

Ph: 61-29-351-1675

Fax: 61-29-351-1618

E-mail: anthonye@camden.usyd.edu.au

The World Association of Wildlife Veterinarians (WAWV) was established to meet the needs of veterinarians involved in, or keenly interested in, non-domesticated species throughout the world. WAWV is an Associate of the World Veterinary Association (WVA).

(Rev 05/05)

Resources

TAB H Resources Section 14: Epidemiology

American College of Epidemiology (ACE)

1500 Sunday Drive, Suite 102
Raleigh, NC 27607
Ph: (919) 861-5573; Fax: (919) 787-4916
E-mail: fkenan@olsonmgt.com
Website: www.acepidemiology2.org

The professional organization dedicated to continued education and advocacy for epidemiologists in their efforts to promote the public health.

Association for Professionals in Infection Control and Epidemiology, Inc. (APIC)

1275 K Street, NW, Suite 1000
Washington, DC 20005-4006
Ph: (202) 789-1890; Fax: (202) 789-1899
E-mail: APICinfo@apic.org
Website: www.apic.org

The Association for Professionals in Infection Control and Epidemiology, Inc. (APIC) is a multi-disciplinary, voluntary, international organization. APIC promotes wellness and prevents illness and infection worldwide by advancing health care epidemiology through education, collaboration, research, practice, and credentialing.

Canadian Society for Epidemiology and Biostatistics (CSEB)

Dr. Kenneth C. Johnson, Secretary
Senior Epidemiologist
Surveillance and Risk Assessment Division
Centre for Chronic Disease Prevention and Control,
Public Health Agency of Canada
120 Colonnade Rd, PL 6702A
Ottawa, Ontario, K1A 0K9
Ph: 613-957-0339; Fax: 613-941-2057
E-mail: Ken_LCDC_Johnson@phac-aspc.gc.ca
Website: www.cseb.ca/en/

The Canadian Society for Epidemiology and Biostatistics (CSEB) is a Canadian organization founded in 1990 for the purpose of fostering epidemiology and biostatistics research in Canada.

The Council of State and Territorial Epidemiologists (CSTE)

National Headquarters
2872 Woodcock Blvd, Suite 303
Atlanta, GA 30341
Ph: 770-458-3811; Fax: 770-458-8516
Website: www.cste.org

The Council of State and Territorial Epidemiologists (CSTE) is a professional association of public health epidemiologists in states and territories working together to detect, prevent, and control conditions of public health significance.

International Clinical Epidemiology Network (INCLLEN)

Executive Office
1420 Walnut St, Ste 411
Philadelphia, PA 19102-4003
Ph: 215-222-7700; Fax: 215-222-7741

Resources

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E-mail: inclen@inclen.org

Website: www.inclen.org

The International Clinical Epidemiology Network (INCLEN) is dedicated to improving the health of the people by promoting clinical practice based on the best evidence of effectiveness and the efficient use of resources. INCLEN achieves this through a network of physicians, statisticians and social scientists throughout the world who work together to build and sustain institutional capacity for excellence and relevance in research and medical education.

The International Epidemiological Association (IEA)

Website: www.IEAWeb.org

Website: www.dundee.ac.uk/iea

The aims of the International Epidemiological Association (IEA) are to facilitate communication among those engaged in research and teaching in epidemiology throughout the world, and to engage in the development and use of epidemiological methods in all fields of health including social, community and preventive medicine and health services administration.

International Society for Environmental Epidemiology (ISEE)

c/o JSI Research & Training Institute

44 Farnsworth Street

Boston, MA 02210-1211

Ph: 617-482-9485; Fax: 617-482-0617

E-mail: iseepi@jsi.org

Website: www.iseepi.org

The International Society for Environmental Epidemiology (ISEE) provides a forum for the discussion of problems unique to the study of health and the environment. Topics addressed by ISEE members include environmental exposures (e.g. air pollution, hazardous waste, metals, pesticides, radiation), health effects (e.g. cancer, cardiovascular disease, neurologic effects, reproductive effects), methodology (e.g. biomarkers, ecologic investigations, experimental design, exposure/dose assessment, meta-analysis, risk assessment, statistics), environment-gene interactions, and ethics and law.

Society for Epidemiologic Research (SER)

PO Box 990

Clearfield, UT 84098

Ph: 801-525-0231; Fax: 801-774-9211

E-mail: membership@epiresearch.org

Website: www.epiresearch.org/

The Society for Epidemiologic Research (SER) was established in 1968 as a forum for sharing the latest in epidemiologic research.

(Rev 05/05)

Resources

TAB H Resources Section 15: Forensic Medicine

American Academy of Forensic Sciences (AAFS)

(mailing address) PO Box 669, Colorado Springs, CO 80901-0669
(street address) 410 North 21st Street, Suite 203, Colorado Springs, CO 80904-2798
Ph: (719) 636-1100; Fax: (719) 636-1993
Website: www.aafs.org

The American Academy of Forensic Sciences (AAFS) is a professional society dedicated to the application of science to the law.

American College of Forensic Examiners International (ACFEI)

2750 East Sunshine; Springfield, MO 65804
Ph: (417) 881-3818 or (800) 423-9737; Fax: (417) 881-4702
Website: www.acfei.com/main.php

The American College of Forensic Examiners (ACFE) is an independent, scientific and professional society. Multi-disciplinary in its scope, the society actively promotes the dissemination of forensic information.

Canadian Society of Forensic Science (CSFS)

PO Box 37040; 3332 McCarthy Rd
Ottawa, Ontario, Canada K1V 0W
Ph: (613) 738-0001; Fax: (613) 738-1987
E-mail: csfs@bellnet.ca
Website: www.csfs.ca

The Canadian Society for Forensic Science (CSFS) is a non-profit professional organization incorporated to maintain professional standards, and to promote the study and enhance the stature of forensic science.

The Forensic Science Society

Clarke House; 18A Mount Parade
Harrogate, North Yorkshire HG1 1BX, United Kingdom
Ph: +44(0)1423-506068; Fax: +44(0)1423-566391
E-mail: Michele@forensic-science-society.org.uk
Website: www.forensic-science-society.org.uk

The Forensic Science Society was founded in 1959 with the aim, to advance the study, application and standing of forensic science and to facilitate cooperation among persons interested in forensic science and the administration of justice throughout the world.

The National Association of Medical Examiners (NAME)

430 Pryor St SW; Atlanta, GA 30312
Ph: (404) 730-4781; Fax: (404) 730-4420
E-mail: name@co.fulton.ga.us
Website: www.thename.org/

The National Association of Medical Examiners (NAME) is the national professional organization of physician medical examiners, medical death investigators and death investigation system administrators who perform the official duties of the medicolegal investigation of deaths of public interest in the United States.

(Rev 05/05)

Resources

TAB H Resources

Section 16: Human Health & Environment

American College of Occupational and Environmental Medicine (ACOEM)
1114 N. Arlington Heights Road
Arlington Heights, IL 60004-4770
Ph: (847) 818-1800; Fax: (847) 818-9266
E-mail: acoeminfo@acoem.org
Website: www.acoem.org

The American College of Occupational & Environmental Medicine (ACOEM), established in 1916, is made up of physicians in industry, government, academia, private practice and the military, who promote the health of workers through preventive medicine, clinical care, research, and education.

Centers for Disease Control and Prevention
Agency for Toxic Substances and Disease Registry (ATSDR)
"Group Name"^{***}
1600 Clifton Road ("Mail Stop")^{**}
Atlanta, GA 30333
Ph: (888) 422-8737 (toll-free)
E-mail: atscric@cdc.gov
Website: www.atsdr.cdc.gov

(** - listing of group names and mail stops can be found at website:
www.atsdr.cdc.gov/contacts)

The mission of the Agency for Toxic Substances and Disease Registry (ATSDR), as an agency of the U.S. Department of Health and Human Services, is to prevent exposure and adverse human health effects and diminished quality of life associated with exposure to hazardous substances from waste sites, unplanned releases, and other sources of pollution present in the environment.

Centers for Disease Control and Prevention
Division of Laboratory Sciences (DLS)
4770 Buford Hwy, NE
Mailstop F-20
Atlanta, GA 30341-3724
Ph: (866) 670-6052 (toll free)
E-mail: ncehdls@cdc.gov
Website: www.cdc.gov/nceh/dls/

The Division of Laboratory Sciences (DLS) develops and applies laboratory science to:

- prevent disease and death causes by exposure to toxic substances,
- assist disease-prevention programs requiring special laboratory expertise.

Resources

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Centers for Disease Control and Prevention
National Center for Environmental Health (NCEH)
Mail Stop F-29
4770 Buford Highway, NE
Atlanta, GA 30341-3724
Ph: (888) 232-6789 (toll free); Ph: (770) 488-7100

(for state and local health department assistance: CDC Emergency Response [24-hr. assistance during emergencies])

Website: www.cdc.gov/nceh/default.htm

The mission of the National Center for Environmental Health (NCEH) is to provide national leadership, through science and service, that promotes health and quality of life by preventing or controlling those diseases, birth defects, disabilities, or deaths that result from interactions between people and their environment.

The Disaster Research Center
87 East Main Street
Newark, DE 19716-2581
Ph: (302) 831-6618; Fax: (302) 831-2091
E-mail: drc-mail@udel.edu
Website: www.udel.edu/DRC

The Disaster Research Center, the first social science research center in the world devoted to the study of disasters, was established at Ohio State University in 1963 and moved to the University of Delaware in 1985. The Center conducts field and survey research on group, organizational and community preparation for, response to, and recovery from natural and technological disasters and other community-wide crises.

Environmental Protection Agency
Center For Hazardous Materials Research (CHMR) Documents
320 William Pitt Way
Pittsburgh, PA 15238
Ph: (800) 334-CHMR; (412) 826-5320
Website: <http://es.epa.gov/techinfo/facts/chmr/chmr.html>

Environmental Protection Agency
Office of Research and Development (ORD)
National Center for Environmental Assessment (NCEA)
Research Triangle Park, NC 27709
Website: www.epa.gov/ncea

The ORD's National Center for Environmental Assessment serves as the national resource center for the overall process of human health and ecological risk assessments; the integration of hazard, dose-response, and exposure data and models to produce risk characterizations.

Environmental Protection Agency
Office of Research and Development (ORD)
National Exposure Research Laboratory (NERL)
Research Triangle Park, NC 27709
Website: www.epa.gov/nerl

The ORD's National Exposure Research Laboratory (NERL) conducts research and development that leads to improved methods, measurements and models to assess and predict

Resources

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exposures of humans and ecosystems to harmful pollutants and other conditions in air, water, soil, and food.

Environmental Protection Agency

Office of Research and Development (ORD)

The National Health and Environmental Effects Research Laboratory (NHEERL)

Research Triangle Park, NC 27709

Website: www.epa.gov/nheerl

The ORD's National Health and Environmental Effects Research Laboratory (NHEERL) is the agency's focal point for scientific research on the effects of contaminants and environmental stressors on human health and ecosystem integrity.

Environmental Protection Agency

Office of Research and Development (ORD)

National Risk Management Research Laboratory

26 W Martin Luther King Drive

Cincinnati, OH 45268

Ph: (513) 569-7966

Website: www.epa.gov/ORD/NRMRL

The National Risk Management Laboratory (NRMRL) conducts research into ways to prevent and reduce risks from pollution that threaten human health and the environment.

International Programme on Chemical Safety (IPCS)

Division of Environmental Health

WHO Headquarters

20, avenue Appia

1211 GENEVA 27

Switzerland

Ph: 00 41 22 791 2111; Fax: 00 41 22 791 3111

E-mail: info@who.int

Website: www.who.int/home-page/

The International Programme on Chemical Safety (IPCS) established in 1980, is a joint programme of three Cooperation Organizations, ILO, UNEP, and WHO, implementing activities related to chemical safety. IPCS is an intersectoral coordinated and scientifically based programme. WHO is the Executing Agency of the IPCS.

Natural Hazards Center at the University of Colorado, Boulder

Campus Box 482

University of Colorado

Boulder, CO 80309-0482

Ph: (303) 492-6818; Fax: (303) 492-2151

E-mail: hazctr@colorado.edu

Website: www.colorado.edu/hazards

The Natural Hazards Center, located at the University of Colorado, Boulder, Colorado, USA, is a national and international clearinghouse for information on natural hazards and human adjustments to hazards and disasters. The Natural Hazards Center carries out its mission in four principal areas: information dissemination, an annual workshop, research, and library services. The center's prime goal is to increase communication among hazard/disaster researchers and those individuals, agencies, and organizations that are actively working to reduce disaster damage and suffering.

Resources

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The National Institute of Environmental Health Sciences (NIEHS)

PO Box 12233
111 Alexander Drive
Research Triangle Park, NC 27709
Ph: (919) 541-3345
Website: www.niehs.nih.gov

The National Institute of Environmental Health Sciences (NIEHS) is one of 25 Institutes and Centers of the National Institutes of Health (NIH), which is a component of the Department of Health and Human Services (DHHS). The mission of the NIEHS is to reduce the burden of human illness and dysfunction from environmental causes by understanding each of these elements and how they interrelate.

The National Toxicology Program (NTP) and the NTP archives

The National Institute of Environmental Health Sciences
PO Box 12233
111 Alexander Drive
Research Triangle Park, NC 27709
Ph: (919) 541-3201
Fax: (919) 541-2260
Website: <http://ntp-server.niehs.nih.gov/>

The National Toxicology Program (NTP) was established in 1978 by the Secretary of Health and Human Services to coordinate toxicology research and testing activities within the Department, to provide information about potentially toxic chemicals to regulatory and research agencies and the public, and to strengthen the science base in toxicology.

The National Registry of Emergency Medical Technicians (NREMT)

Rocco V. Morando Building
6610 Busch Blvd.
PO Box 29233
Columbus, OH 43229
Ph: (614) 888-4484; Fax: (614) 888-8920
Website: www.nremt.org

The National Registry of Emergency Medical Technicians (NREMT), registers emergency medical services providers from across the nation. The NREMT is a not-for-profit, non-governmental, free-standing agency led by a Board of Directors comprised of members from national Emergency Medical Services (EMS) organizations or with expertise in EMS systems.

Society of Environmental Toxicology and Chemistry (SETAC)

SETAC North America
1010 North 12th Avenue
Pensacola, FL 32501-3370
Ph: (850) 469-1500; Fax: (850) 469-9778
E-mail: setac@setac.org
Website: www.setac.org

The Society of Environmental Toxicology and Chemistry (SETAC) is an independent, nonprofit professional society that provides a forum for individuals and institutions engaged in: Study of environmental issues, Management and conservation of natural resources, Environmental education, and Environmental research and development.

United Nations Environment Programme (UNEP)

UNEP Regional Office for North America
1707 H Street, NW, Suite 300
Washington, D.C. 20006
Ph: (202) 785-0465; Fax: (202) 785-2096

Resources

Website: www.unep.org/

The United Nations Environment Programme (UNEP) aims to provide environmental policy leadership within the world community, and in particular the United Nations system, through: assessing environmental change, its relationship with socio-economic driving forces and its impact on human well-being and the integrity of natural systems, and identifying emerging issues of global significance; facilitating consensus-building on environmental issues and the development of policy options to support strategic decision-making to respond to these issues; catalyzing action by governments, intergovernmental bodies, scientific institutions, the private sector and community groups.

The World Association for Disaster and Emergency Medicine (WADEM)

PO Box 55158

Madison, WI 53705-8958

Ph: (608) 263-2069; Fax: (608) 265-3037

E-mail: mlb@medicine.wisc.edu

Website: wadem.medicine.wisc.edu

The World Association for Disaster and Emergency Medicine is an international, humanitarian association dedicated to the improvement of disaster and emergency medicine. Fostering international collaboration, the organization is inclusive, culturally sensitive, unbiased, ethical and dynamic in its approach.

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Resources

TAB H Resources Section 17: The Law & Medicine

American College of Legal Medicine (ACLM)

1111 N. Plaza Drive, Suite 550
Schaumburg, IL 60173-4950
Ph: (847) 969-0283; Fax: (847) 517-7229
E-mail: info@aclm.org
Website: www.aclm.org

Founded in 1960, the American College of Legal Medicine is the official organization for professionals who focus on the important issues where law and medicine converge. ACLM is a professional community of physicians, attorneys, health care professionals, administrators, scientists, and others with a sustained interest in medical legal affairs.

American Society of Law, Medicine & Ethics

765 Commonwealth Avenue, Suite 1634
Boston, MA 02215
Ph: (617) 262-4990; Fax: (617) 437-7596
E-mail: info@aslme.org
Website: www.aslme.org

The mission of the American Society of Law, Medicine & Ethics is to provide high-quality scholarship, debate, and critical thought to the community of professionals at the nexus of law, health care, and ethics.

The National Center for Complementary and Alternative Medicine Law (NCCAML)

NCCAM Clearinghouse
P.O. Box 7923
Gaithersburg, Maryland 20898
Toll Free: 1-888-644-6226
International: 301-519-3153
Ph: 1-866-464-3615 (Toll-Free)
Fax: 1-866-464-3616
Email: info@nccam.nih.gov
Website: <http://nccam.nih.gov/index.htm>

As one of its mandates from Congress, NCCAM is charged with "the dissemination of health information... with respect to identifying, investigating, and validating complementary and alternative treatment, diagnostic, and prevention modalities, disciplines, and systems." (Public Law 105-277) The NCCAM Clearinghouse serves this mission. It is the public's point of contact for scientifically based information on complementary and alternative medicine (CAM) and for information about NCCAM. The NCCAM Clearinghouse does not provide medical advice or referrals to practitioners. Decisions about medical care and treatment should be made in consultation with a health care provider, based on the condition and needs of each person. NCCAM recommends discussing information on CAM with a health care provider before making any decisions about treatment or care.

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Section 18: Logistical Assistance

The Air Care Alliance (ACA)

1515 East 71st Street. Ste 312

Tulsa, OK 74176

Ph: (888) 260-9707 (toll free); Fax: (918) 745-0879

www.aircareall.org

The Air Care Alliance is a nationwide league of humanitarian flying organizations whose volunteer pilots are dedicated to community service. This ACA site will introduce you to us and to all the groups we list whose volunteers perform public benefit flying for health care, patient transport, disaster relief, environmental support, and other missions of public service.

Angel Flight America (AFA)

National Headquarters

Gary L. McMahan, Executive Director

PO Box 17467

Memphis, TN 38187-0467

Ph: (877) 858-7788 (tollfree); (901) 685-5290; Fax: (901) 685-5299

E-mail: gmcghan@angelflightamerica.org

Website: www.angelflightamerica.org

Angel Flight America (AFA) is a not-for-profit grassroots organization with a volunteer corps of more than 5,000 private pilots—divided into six regions covering the American continent—who fly under the banner of Angel Flight America. AFA provides flights of hope and healing by transporting patients and their families in private planes, free of charge, to hospitals for medical treatment. AFA also provides flights in a national crisis or whenever there is a compelling human need

The Emergency Volunteer Air Corps (EVAC)

San Diego County Chapter Office

3829 Cazador Lane

Fallbrook, California 92028

Ph: 760 723-4593

E-mail: mail@evac.org

Website: www.evac.org

The Emergency Volunteer Air Corps promotes and coordinates effective and useful additional General Aviation volunteer participation in emergency relief efforts, especially following disasters.

International Rescue and Emergency Care Association (IRECA)

PO Box 431000

Minneapolis, MN 55443

Ph: (800) 854-7322

E-mail: rescuer@ireca.org

Website: www.ireca.org

Organized volunteers and paid industrial rescue and emergency squads, ambulance, and first aid crews, military personnel, and other units equipped with rescue equipment and emergency care supplies which can be carried in mobile units.

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TAB H Resources Section 19: Microbiology

American College of Veterinary Microbiologists

c/o Dr. Chris Hayhow, Secretary-Treasurer

30705 West 84th Circle

DeSoto, KS 66018

Ph: (913) 894-0230

Fax: (913) 894-0236

E-mail: chayhow@biomunecompany.com

Website: www.vetmed.iastate.edu/acvm/

The American College of Veterinary Microbiologists developed from the former American Association of Veterinary Bacteriologists. Increasing awareness, among members of the AAVB, of the need for board certification of veterinary microbiologists resulted in formation of an organizing committee in 1962. The objectives of the ACVM are to further educational and scientific progress in the specialty of veterinary microbiology; to strengthen and improve instruction at the pre- and postdoctoral level in veterinary microbiology; to promote the highest professional standing of veterinary microbiologists; to establish standards of postdoctoral training and experience for qualification of specialists in veterinary microbiology; and to certify qualified and competent veterinary microbiologists in subspecialty areas of bacteriology and mycology, virology, and immunology.

American Society for Microbiology (ASM)

1752 N Street N.W.

Washington, DC 20036

Ph: (202) 737-3600

E-mail: oed@asmusa.org

Website: www.asm.org

The American Society for Microbiology is the oldest and largest single life science membership organization in the world. Membership has grown from 59 scientists in 1899 to over 42,000 members today located throughout the world. ASM represents 25 disciplines of microbiological specialization plus a division for microbiology educators.

Infectious Diseases Society of America (IDSA)

66 Canal Center Plaza, Suite 600

Alexandria, VA 22314

Ph: (703) 299-0200

Fax: (703) 299-0204

E-mail: info@idsociety.org

Website: www.idsociety.org

The Infectious Disease Society of American represents physicians, scientists and other health care professionals who specialize in infectious diseases.

The International Society for Human and Animal Mycology (ISHAM)

Dr Malcolm Richardson, The General Secretary of ISHAM

Department of Bacteriology and Immunology

Haartman Institute

University of Helsinki

Haartmaninkatu 3, PO Box 21, 00014 Helsinki, Finland.

Ph: +358 9 191 26894; Fax: +358 9 26382

Mobile: +358 44 5040888

Resources

Email: malcolm.richardson@helsinki.fi

Website: www.isham.org

The International Society for Human and Animal Mycology is a worldwide organization that represents all scientists and doctors with a special interest in fungal diseases. It exists solely to encourage and facilitate the study and practice of all aspects of medical and veterinary mycology.

International Society for Infectious Diseases (ISID)

181 Longwood Avenue

Boston, MA 02115

Ph: (617) 277-0551

Fax: (617) 731-1541

E-mail: info@isid.org

Website: www.isid.org

The International Society for Infectious Diseases was created to bring together all individuals interested in infectious diseases, including infectious disease specialists, microbiologists, immunologists, epidemiologists, public health workers, parasitologists, virologists, mycologists, molecular biologists, and others with similar concerns.

International Union of Microbiological Societies (IUMS)

c/o Professor John S. Mackenzie

Secretary-General

Department of Microbiology

The University of Queensland

Brisbane, QLD 4072

Australia

Ph: +61 7 3365 4648

Fax: +61 7 3365 6265

E-mail: jmac@biosci.uq.edu.au

Website: www.iums.org

The International Union of Microbiological Societies was founded in 1927 as the International Society for Microbiology. In 1970 the Executive Committee decided to create three sections covering the fields of Bacteriology, Virology, and Mycology.

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Resources

TAB H Resources Section 20: Neuropathology

American Association of Neuropathologists, Inc.

George Perry, PhD
Office of Secretary-Treasurer
Institute of Pathology
Case Western Reserve University
2085 Adelbert Rd
Cleveland, OH 44106
Ph: (216) 368-2488
Fax: (216) 368-8964
Email: aanp@cwru.edu
Website: www.aanp-jnen.com

The American Association of Neuropathologists began around 1930 as a professional, educational organization representing American Neuropathologists. The purpose of the Association is to advance the science and practice of neuropathology.

British Neuropathological Society (BNS)

E-mail: secretary@bns.org.uk
Website: www.bns.org.uk/

The British Neuropathological Society is a professional association. The objective of the Society is to further the study of neuropathology, to promote the exchange of scientific information by means of regular meetings, lectures and demonstrations, and to provide the opportunity for discussions between neuropathologists in Britain and overseas.

Canadian Association of Neuropathologists (CANP)

Secretary/Treasurer
Dr. J. Woulfe
Department of Pathology
Ottawa Hospital, Civic Campus
1053 Carling Ave., Ottawa ON
K1Y 4E9
Ph: 613 798 5555
Fax: 613 761 4846
E-mail: jwoulfe@ottawahospital.on.ca
Website: <http://canp.medical.org>

The Canadian Association of Neuropathologists is a non-profit professional organization with an international membership. The Association exists to promote the highest professional standards among neuropathologists and to act as a source of scientific communication and education in the field of neuropathology.

The International Society of Neuropathology

Vice President
Dr Stephen DeArmond
Department of Pathology (Neuropathology)
University of California, San Francisco
HSW 430
513 Parnassus Ave
San Francisco CA 94143-0511
Fax: (415) 476-7963
E-mail: sdearm@itsa.ucsf.edu

Resources

Website: <http://brainpath.medsch.ucla.edu>

The International Committee of Neuropathology, founded in 1950, was re-formed in Copenhagen in 1967 as the International Society of Neuropathology, a non-profit making scientific organization. The aims of the Society are to further the science of neuropathology.

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Resources

TAB H Resources Section 21: Pathology

The American Society of Clinical Pathologists (ASCP)

2100 West Harrison Street

Chicago, IL 60612

Ph: (312) 738-1336

E-mail: info@ascp.org

Website: www.ascp.org/general/about/

The American Society of Clinical Pathologists is a not-for-profit medical society organized exclusively for educational, scientific, and charitable purposes. Its mission is to promote the public health and safety by the appropriate application of pathology and laboratory medicine and to serve as the national resource to enhance the quality of pathology and laboratory medicine, primarily by developing comprehensive educational programs and materials.

Armed Forces Institute of Pathology (AFIP)

6825 16th Street, NW

Building 54

Washington, DC 20306

Ph: (202) 782-2100

E-mail: draleyd@afip.osd.mil

Website: www.afip.org

The Armed Forces Institute of Pathology provides pathology expertise to the U.S. military and civilians around the world through excellence in diagnostic consultation, education, and research. With a combined staff of more than 800 military, federal civilian, and contract employees, the Institute is an international resource in the field of diagnostic pathology in medicine, dentistry, and the veterinary sciences. It is the reference center in pathology for the Departments of Defense and Veterans Affairs.

Association of Clinical Pathologists

General Administrator

189 Dyke Road

Hove, East Sussex BN3 1TL, United Kingdom

Ph: 01273 775700

Fax: 01273 773303

E-mail: info@pathologists.org.uk

Website: www.pathologists.org.uk

The Association of Clinical Pathologists was established in 1927, originally as the British Pathologists Association, and changed to its current name in 1930. The Association was established for four main reasons: (1) To improve the conditions of pathology practice and improve the status of clinical pathologists. (2) To secure clinical pathologists as being equal to other consultants. (3) To encourage and assist medical schools and postgraduate education so that suitably trained doctors could assume charge of hospital laboratories throughout the United Kingdom. (4) To establish where members could exchange views on work, research, etc.

The Canadian Association of Pathologists

774 Echo Drive

Ottawa, Ontario

Canada K1S 5N8

Ph: (613) 730-6230

(800) 668-3740 ext. 230 (toll-free)

Fax: (613) 730-1116

Resources

E-mail: cap@rcpsc.edu

Website: <http://cap.medical.org>

The Canadian Association of Pathologists is an organization of laboratory physicians with educational and scientific goals, the purpose of which is to promote the health and safety of all Canadians.

College of American Pathologists

Headquarters

325 Waukegan Road

Northfield, IL 60093

Ph: (800) 323-4040

(847) 832-7000

Fax: (847) 832-8000

Website: www.cap.org

The College of American Pathologists is a medical society serving more than 15,000 physician members and the laboratory community throughout the world. It is the world's largest association composed exclusively of pathologists and is widely considered the leader in providing laboratory quality improvement programs.

Society of Toxicology Pathologists

STP Headquarters

1821 Michael Faraday

Drive, Suite 300

Reston, VA 20190

Ph: (703) 438-7508

Fax: (703) 438-3113

Email: stp@toxpath.org

Website: <http://toxpath.org>

The Society of Toxicology Pathologists is a non-profit association of pathologists, whose principal aim is the advancement of pathology as it pertains to changes elicited by pharmacological, chemical and environmental agents and factors that modify these responses.

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Resources

TAB H Resources Section 22: Tropical Medicine

American Society of Tropical Medicine and Hygiene (ASTMH)

60 Revere Drive, Suite 500
Northbrook, IL 60062
Ph: (847) 480-9592; Fax: (847) 480-9282
E-mail: astmh@astmh.org
Website: www.astmh.org

The American Society of Tropical Medicine and Hygiene (ASTMH) is the principal organization in the United States representing scientists, clinicians and others with interests in the prevention and control of tropical diseases through research and education.

Centre for Tropical Veterinary Medicine (CTVM)

c/o Royal (Dick) School of Veterinary Studies, The University of Edinburgh
Easter Bush, Roslin, Midlothian, Scotland EH25 9RG
Ph: +44 (0) 131 650 6289; Fax: +44 (0) 131 650 6289/651 3903
E-mail: HOD-CTVM@ed.ac.uk
Website: www.vet.ed.ac.uk/ctvm

The Centre for Tropical Veterinary Medicine (CTVM) was established in 1970 as an integral Department of Tropical Animal Health in the Faculty of Veterinary Medicine of the University of Edinburgh. It has continued and expanded a tradition of research and training in tropical veterinary medicine.

Royal Society of Tropical Medicine and Hygiene

50 Bedford Square
London, WC1B 3DP, United Kingdom
Ph: +44 (0) 20 7580 2127; Fax: +44 (0) 20 7436 1389
E-mail: mail@rstmh.org
Website: www.rstmh.org

The objectives of the Society are to promote health and to advance the study, control, and prevention of disease in man and other animals in warm climates, to facilitate discussion and the exchange of information among those who are interested in tropical diseases, and generally to promote the work of those interested in these objectives.

Tropical Medicine Fellowships

c/o The Wellcome Trust
215 Euston Road
London NW1 2BE, United Kingdom
Ph: +44 (0) 20 7611 8888
E-mail: contact@wellcome.ac.uk
Website: www.wellcome.ac.uk/node2230.html

The Wellcome Trust wishes to support research into health problems and disease relevant to developing countries and to develop research capacity in both the UK and developing countries. Tropical fellowship schemes provide funding for research to combat human or animal diseases of importance to developing countries, including infectious and non-communicable diseases. See website for further details.

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Oil Spill Emergencies

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TAB I Oil Spill Emergencies Section 1: Key Contacts

National Oil Spill Response Coordinator (703) 358-2148
U.S. F&WS Div. of Environmental Quality E-mail: contaminants@fws.gov
Website: <http://contaminants.fws.gov/>

United States Coast Guard – Website: www.uscg.mil (202) 267-2229
Washington, DC Headquarters
National Response Center (800) 424-8802
Website: www.nrc.uscg.mil Fax (202-267-2165
E-mail: lst-nrcinfo@comdt.uscg.mil

NOAA
Website: www.noaa.gov
E-mail: answers@noaa.gov

Contacts Website: <http://response.restoration.noaa.gov/intro/contacts.html>

Office of Response and Restoration – Main Office (301) 713-2989
(formerly Hazardous Materials Response and Assessment Division) Fax (301) 713-4389

Office of Response and Restoration – Seattle Office (206) 526-6317
Fax (206) 526-6329

Damage Assessment Center (301) 713-3038
Fax (301) 713-4387

Tri-State Bird Rescue & Research, Inc. - Website: www.tristatebird.org/
Main Phone: (302) 737-9543
Main Fax: (302) 737-9562

For more information about response capabilities, contingency planning, or ongoing and planned research, call (302) 737-9543 or E-mail oilprograms@tristatebird.org.

To report an oil spill, contact the National Response Center at 1-800 424-8802.

International Bird Rescue Research Center – Website: www.ibrrc.org

(707) 207-0380

Fax:(707) 207-0395

E-mail: info@ibrrc.org

Other Key Contacts Involving Wildlife:

National Wildlife Rehabilitators Association (320) 230-9920

Website: www.nwrawildlife.org

E-mail: nwra@nwrawildlife.org

International Wildlife Rehabilitation Council (408) 271-2685

Oil Spill Emergencies

Website: www.iwrc-online.org/

Fax: (408) 271-9285

E-mail: office@iwrc-online.org

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TAB I Oil Spill Emergencies

Section 2: Summary of the National Contingency Plan for Response to Unusual Marine Mammal Mortality Events

(Wilkinson, Dean M., 1996, U.S. Dept. of Commerce, NOAA Tech. Memo, NMFS-OPR-9, 118p.)

The Marine Mammal Health and Stranding Response Act required the preparation of a contingency plan for response to unusual marine mammal mortality events. The contingency plan includes all coastal regions of the United States and the adjacent waters under United States jurisdiction. It addresses all species of marine mammals. With the exceptions noted below, the National Marine Fisheries Service (NMFS) is primarily responsible for response to mortality events involving cetaceans and pinnipeds (excluding walrus), and the U.S. Fish and Wildlife Service (FWS) is primarily responsible for sea otters, walrus, manatees, and polar bears. Depending on the circumstances, other units of government may have responsibilities. As an example, if a mortality event should create a serious public health problem, a variety of other local, state, and Federal agencies would have responsibilities. Because approaches for determining the cause of an event—collecting, preserving, and analyzing tissues—are likely to be similar among the range of species, the contingency plan provides a general outline, with species differences highlighted only when appropriate. The species-specific approach is most appropriate for rehabilitating live animals (Dierauf, 1990). For example, the physical facilities needed to care for pinnipeds are less complicated than those needed for cetaceans or polar bears.

Unusual Mortality Events

The Act characterizes an unusual mortality event as having the following characteristics: (1) it is unexpected; (2) it involves a significant die-off of any marine mammal population; and (3) it demands an immediate response. In addition to the obvious circumstances involving significant numbers of marine mammal deaths within a short period of time, there are two other instances when a response would be justified—when there is a mass stranding of unusual species of cetaceans and when even small numbers of a severely endangered marine mammal species appear to be affected. Although steady declines of a population over time warrant investigation, such occurrences are part of each agency's more general charge.

Factors that can cause an unusual mortality event include, but are not limited to:

1. Impacts including toxicity and fouling caused by oil discharges or chemical releases or toxic runoff of anthropogenic chemicals or other impacts, such as immunological dysfunction, caused by chronic exposure to pollutants that may become apparent in an acute mortality event;
2. Naturally occurring biotoxins;
3. Changes in environmental conditions such as El Niño or a sudden change in water temperature;
4. Parasitic or infectious disease agents; or
5. Mortalities caused by direct human interactions such as bycatch in fisheries or deliberate taking.

The contingency plan includes provisions for detecting and responding to each of these conditions. The response priorities will vary depending on whether or not the cause of the event is known, the number and species of animals involved, or if the event poses a threat to public health and safety.

Oil Spill Emergencies

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To respond to marine mammal strandings, networks of volunteers have been authorized by NMFS for cetaceans and pinnipeds and by FWS for manatees and sea otters. Members of the Stranding Networks are issued Letters of Authorization by the NMFS Regional Offices. NMFS Regions are listed in Addendum A. Most of the volunteers are professionals with marine mammal experience. They may be researchers affiliated with State agencies or universities, individuals associated with public display facilities, or individuals with animal rehabilitation experience. The members of the Networks rehabilitate sick and injured marine mammals, and collect basic biological data and tissues from dead marine mammals.

Network members are the first line of response to any marine mammal strandings. They have capabilities to treat animals and collect tissues for analyses. Therefore, they are likely to be heavily involved in any response to an unusual mortality event.

Objectives of Contingency Plan

The purpose of the contingency plan is to outline actions that can/should be taken to:

1. Protect the public health and welfare;
2. Investigate and identify the cause(s) of a mortality event;
3. Minimize or mitigate the effects of a mortality event on the affected population(s) and provide for the rehabilitation of individual animals; and
4. Determine the impact of a mortality event on the affected population(s).

Achieving these goals is the responsibility of the Onsite Coordinator. The Onsite Coordinator will be either a National Marine Fisheries Service (NMFS) or U.S. Fish and Wildlife Service (FWS) Regional Director or an individual designated by the Regional Director. The primary purpose of the plan is to provide a blueprint to the Onsite Coordinator for the response to mortality events. It provides guidance to Regional Directors of NMFS and FWS on: steps to be taken to protect the public health and welfare; advance planning for such events; steps to identify the cause(s) of an event; and measures to determine the biological significance of an event. The plan contains lists of contacts for response, facilities that are capable of holding live animals, tissue collection and preparation, and analyses that may be necessary to determine causes of death and the effects that physical, chemical, or biological factors may have on marine mammal populations.

The plan is divided into several sections corresponding to different activities that may be required in a response to an unusual mortality event. Because public health and welfare is of paramount concern in any mortality event, a short section on this issue precedes all other substantive sections.

The success of a response may be dependent on having necessary equipment in place, well trained personnel, and general protocols for tissue collection. In preparation for unusual marine mammal mortality events, materials and information need to be generated in advance. The plan provides guidelines for doing that. Other sections deal with procedures in responding to an unusual mortality event. It should be noted that under certain circumstances, another entity may be responsible for response. In the case of a known oil discharge or release of a hazardous substance, either the Coast Guard or the Environmental Protection Agency will assume responsibility for a response. When the reason for a mortality event is determined to be a direct human interaction, e.g., incidental mortality in fisheries or animals being deliberately killed, the appropriate actions should be taken by either the management or enforcement sections of the two agencies and are outside the context of this plan.

Another section details analyses that might be required, lists individuals with the skills necessary to conduct necropsies and collect tissues for detailed analysis, and locations where specific analyses may

Oil Spill Emergencies

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be performed. Although additional analyses may be required depending on the nature of the event, basic information is contained on the following: blood from live animals; histopathology; life history; biotoxins; heavy metals/organic contaminants; and virology/bacteriology/mycology.

There are special circumstances that may require additional actions such as the possibility of litigation; live capture to gain information not available from stranded animals; requests from independent researchers for materials; and mass strandings. Information is provided for dealing with these situations.

Discharges of Oil and Hazardous Chemicals

There is one type of unusual mortality event during which procedures laid out in the Act including responsibilities, appointment of Onsite Coordinators, and funding will not be followed. Responses to oil discharges or releases of hazardous substances are governed by either the Clean Water Act, as amended, the Oil Pollution Act of 1990, or the Comprehensive Environmental Response Compensation and Liability Act. The U.S. Coast Guard has primary responsibility for response to spills and releases within or threatening the coastal zone.

Many of the resources identified for response under the Marine Mammal Health and Stranding Response Act also will be utilized in spill emergencies. An effort has been made to help those developing regional and state oil spill contingency plans to identify those individuals and facilities that can provide treatment for impacted marine mammals and collect tissues for analyses. In the northeast, California, and Alaska, oil spill response procedures and personnel to be utilized closely parallel those set out in the contingency plan.

For a list of Coast Guard Districts and contact information visit: www.uscg.mil/USCG.shtm.

Coast Guard Headquarters
Commandant, U.S. Coast Guard,
2100 Second Street, SW,
Arlington, VA 22203
Telephone: 1-877-NOW-USCG

SOS EMERGENCIES

For Maritime Search and Rescue Emergencies please call the following numbers:

For the Great Lakes, Gulf and East Coasts:

Atlantic Area Command Center - (757) 398-6390

For the Hawaiian, Alaskan and Pacific Coasts:

Pacific Area Command Center - (510) 437-3701

RESPONSE

The basic steps in responding to an event include:

1. Based on specific criteria, the Working Group on Unusual Marine Mammal Mortality Events is responsible for determining when an unusual mortality event is occurring.
2. When notified by the Working Group that an unusual mortality event is occurring, the Assistant Administrator for Fisheries or, when species under FWS jurisdiction are involved, the Director of the U.S. Fish and Wildlife Service will appoint the appropriate Regional Director as Onsite Coordinator. The Regional Director may designate another qualified individual to serve in this capacity.

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3. To accelerate response, the Onsite Coordinator will provide notification and instruction to:
 - a. Stranding Network members;
 - b. Federal beachfront agencies;
 - c. State wildlife resource agencies;
 - d. Coast Guard District Headquarters;
 - e. Public health agencies (if necessary);
 - f. Appropriate local governmental units;
 - g. NMFS, FWS, and National Biological Service laboratories;
 - h. Native American groups (as appropriate).

4. The Onsite Coordinator shall assess basic needs for response including: adequacy of response network in terms of coverage, ability to conduct necropsies, and ability to collect tissue samples; available equipment; and, if live animals are involved in the mortality event, the capacity and capabilities of rehabilitation facilities. If any of these is less than adequate, steps shall be taken to supplement existing resources.

5. If the cause(s) of an event is known, the Onsite Coordinator will make provisions for:
 - a. Adequate care of live animals;
 - b. Collection, preparation, analysis, and archiving of tissues and voucher specimens. If litigation is possible, provisions for maintaining a proper chain or custody are necessary;
 - c. Assessing the impact of the mortality event on wild populations; and
 - d. If feasible, put mitigation measures in place.

6. If the cause(s) of an event is unknown, all of the previous steps are necessary. In addition, in consultation with the Working Group, the Onsite Coordinator will put investigative measures in place including:
 - a. Making provision for aerial surveys, if necessary, to locate fresh carcasses and/or determine the extent of a mortality event;
 - b. Defining specific tissue collection and preparation protocols. Making arrangements for specific analyses to be performed and for shipment of samples to facilities performing analyses;
 - c. Compiling and analyzing results.

PUBLIC HEALTH AND WELFARE

The first priority in responding to an Unusual Marine Mammal Mortality Event is public health and welfare. There are several ways in which a marine mammal mortality event could have an impact on public health or safety.

Safety and Hygienic Precautions

Although not common, if basic safety and hygienic precautions are not observed, stranded animals can cause physical injury or transmit disease to humans. Participants in a response to oil discharges or releases of hazardous chemicals are required to have OSHA training. Most of the individuals responding to mortality events under the Marine Mammal Health and Stranding Response Act will have previous experience in handling stranded animals. If less experienced personnel are utilized, the Onsite Coordinator will ensure that they are informed of safety measures. When the cause of an event is unknown, extra precautions will be taken.

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Carcass Disposal

Carcasses of dead animals could be a source of either pathogens or toxins that might affect wildlife and domestic animals. Steps should be taken to avoid such possibilities, including proper isolation and disposal of carcasses. In normal circumstances, carcasses sometimes are left on the beach to decompose naturally. If there is the possibility of a transmissible pathogen or serious toxin, unused portions of carcasses should be buried, taken to a sanitary landfill, or fully destroyed by incineration. If carcasses are buried, they should be in an area where fluids will not leach into groundwater and deep enough so that they will not be dug up by scavengers or uncovered by wave action.

LIVE ANIMALS

The initial decision involving live stranded animals takes place on the beach. An expert assessment of an animal's condition is necessary before making a decision to take an animal in for rehabilitation, to euthanize it, or to treat it and release it on site. With the exception of mass strandings, the third of these options will be inappropriate in most instances. Such decisions shall only be made by competent professionals.

Available Facilities and Requirements

A list of facilities with experience in treating stranded marine mammals is included in the plan. The procedures in the contingency plan are predicated on the assumption that those with previous experience in treating marine mammals are most competent to treat live animals.

Precautions should be taken to ensure that animals being treated are quarantined from healthy captive animals and that personnel take measures to avoid cross-contamination within the facility.

Although some facilities can accommodate relatively large numbers of pinnipeds and/or sea otters, the physical facility requirements for maintenance of cetaceans are such that only limited numbers of small cetaceans can be treated during a mortality event. Cetaceans and manatees require, at a minimum, pools large enough to accommodate them. Pools should be on a separate water system so that disease cannot be spread to healthy animals within the facility. In the case of an emergency, sea otters and pinnipeds are not totally dependent on pools, and in past epizootics, pinnipeds have been accommodated in dry areas with access to fresh drinking water and saltwater baths. Even in such circumstances facilities must have the ability to isolate animals from display animals and terrestrial animals that may either transmit or be exposed to pathogens. The facilities that are authorized to provide treatment for marine mammals and have veterinary services (except for those designated as short-term) are listed in the plan.

The list has been provided to the agencies responsible for developing oil spill contingency plans. The Northeast, California, Washington, Oregon, and Alaska have provisions in oil spill contingency plans for involving Stranding Network members in the recovery of carcasses and the rescue and rehabilitation of live animals. In Florida, provisions are in place for manatees, but no arrangements have been made for cetaceans in any of the southeastern states.

Each facility has resources for activities such as live animal retrieval, medical diagnostic analyses, and food and pharmaceutical provisions.

It should be recognized, however, that even under the best of circumstances, a facility's physical capacity for treatment of live animals is limited. In the case of cetaceans, few facilities can manage more than an animal or tow at a time. Even in the case of pinnipeds, facilities can be filled to capacity in a relatively short time. Therefore, attention should be given to methods by which capacity can be expanded in the event of an epizootic. In the case of cetaceans, live stranded animals have

Oil Spill Emergencies

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occasionally been accommodated in open ocean net pens. In the case of pinnipeds, manatees, and sea otters, advance procurement of materials for temporary pools and fencing will help expand capacity.

Release Conditions

To safeguard wild populations of marine mammals, no rehabilitated animals will be released that do not meet the guidelines for release of rehabilitated animals under § 402(b) of the Marine Mammal Protection Act (MMPA). In addition, the Working Group will be consulted to determine if there should be event-specific release standards. The release standards should give priority to the health of the wild population over the health of an individual animal. Provision should be made to monitor at least a representative subset animals to determine if they survive and resume being functional components of the affected population.

For Marine Mammal Stranding Network participants visit:
www.nmfs.noaa.gov/prot_res/PR2/Health_and_Stranding_Response_Program/mms_hotlines.htm

MANATEES

The toll-free number at 1-800-342-5367 has been set up in Florida to report stranded manatee.

The Manatee Coordinator for U.S. Fish and Wildlife Service is in the Jacksonville, FL, office, (904) 232-2580. Other FWS offices in the Region are:

Endangered Species Division
U.S. Fish and Wildlife Service
1875 Century Blvd, Suite 200
Atlanta, GA 30345
Phone: (404) 679-4000
Fax: (404) 679-4006
E-mail: southeast@fws.gov
Website: www.fws.gov/southeast/index.html

Chassahowitzka National Wildlife Refuge
1502 SE Kings Bay Drive
Crystal River, FL 34429
Phone: (352) 563-2088
Fax: (352) 795-7961
Website: www.fcnwr.org

SEA OTTERS IN CALIFORNIA

The Sea Otter Hotline Number is (831) 648-4829. The U.S. Fish and Wildlife Office in Ventura, CA, is responsible for administration, (805) 644-1766.

Friends of the Sea Otters – Website: www.seaotters.org
E-mail: seaotter@seaotters.org

Live Otters
Monterey Bay Aquarium Security Desk:
(831) 648-4840 — (for otters in distress/injured)
www.mbayaq.org/

Oil Spill Emergencies

Marine Mammal Center:

www.tmmc.org

(831) 633-3304 — Moss Landing

(415) 289-7325 — Sausalito

Dead Otters:

Monterey Bay Aquarium Security Desk:

(831) 648-4840

California Dept. of Fish and Game:

(831) 469-1719

Violations:

National Oceanic and Atmospheric Administration (NOAA):

1 (877) 466-9155 (Violations — 24-hour #)

Carol Teraoka * (831) 647-4203

*Special Agent handling all violations related to enforcement of the MMPA, ESA, and Monterey Bay National Marine Sanctuary regulations.

California Dept. of Fish and Game:

(888) 334-2258

For otters being subjected to reported harassment and/or harm; this number is used for enforcement issues.

National Marine Fisheries Hotline:

(800) 853-1964

(831) 647-4220 — Roy Torres (Sea Otter Harassment after the fact)

Network Members—Live Sea Otters

Marine Mammal Center (Sausalito) – Website: www.tmmc.org

Phone: (415) 289-7325

Monterey Bay Aquarium (Monterey) – Website: www.mbayaq.org

Phone: (831) 648-4829 or (831) 649-4840

Sea World of California (San Diego) (619) 226-3830 or (619) 222-6362

POLAR BEARS, SEA OTTERS, AND WALRUS IN ALASKA

Marine Mammals Management

U.S. Fish and Wildlife Service

1011 East Tudor Road

Anchorage, AK 99503-6199

(907) 786-3800

NMFS REGIONAL STRANDING COORDINATORS

www.nmfs.noaa.gov/prot_res/PR2/Health_and_Stranding_Response_Program/mmhsrp.html

Alaska (AK)

Aleria Jensen, Alaska Region

National Marine Fisheries Service, NOAA

P.O. Box 21668

Juneau, AK 99802-1668

Oil Spill Emergencies

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Phone: (907) 586-7248; Fax (907) 586-7012; E-mail: alerial.jensen@noaa.gov

Northeast (CT, DE, IL, IN, ME, MD, MA, MI, MN, NH, NJ, NY, OH, PA, RI, VT, VA, WV, WI)

Dana Hartley, Northeast Region

National Marine Fisheries Service, NOAA

166 Water Street

Woods Hole, MA 02543

Phone: (508) 495-2090; Fax (508) 495-2258; E-mail: dana.hartley@noaa.gov

Northwest (CO, ID, MT, ND, OR, SD, UT, WA, WY)

Brent Norberg, Northwest Region

National Marine Fisheries Service, NOAA

7600 Sand Point Way, NE, BIN C15700, Bldg. 1

Seattle, WA 98115-0070

Phone: (206) 526-6733; Fax (206) 526-6736; E-mail: brent.norberg@noaa.gov

Southeast (AL, AR, AZ, FL, GA, IA, KS, KY, LA, MS, MO, NC, NE, NM, OK, PR, SC TN, TX, VI)

Blair Mase-Guthrie, Southeast Region

National Marine Fisheries Service, NOAA

75 Virginia Beach Dr.

Miami, FL 33149

Phone: (305) 361-4586; Fax (305) 361-1462

Southwest (CA, NV)

Joseph Cordero, Southwest Region

National Marine Fisheries Service, NOAA

501 West Ocean Blvd., Suite 4200

Long Beach, CA 90802-4213

Phone: (562) 980-4017; Fax (562) 980-4018; E-mail: joseph.cordero@noaa.gov

Pacific Islands (HI, Guam)

Pacific Islands (HI, Guam, American Samoa, Northern Mariana Islands)

Stranding Coordinator, Pacific Islands Region

1601 Kapiolani Blvd., Rm 1110

Honolulu, HI 96814

Phone: (808) 973-2937; Fax (808) 973-2941

For more information about the National Contingency Plan for Response to Unusual Marine Mammal Mortality Events, contact the:

National Marine Fisheries Service, NOAA

Office of Protected Resources

1315 East-West Highway

Silver Spring, MD 20910

Phone: (301) 713-2322; Toll-free: (800) 494-2989

Fax: (301) 713-4060

E-mail: janet.whaley@noaa.gov

(Rev 05/05)

Pet and Livestock Food

Iams Company	Dayton, OH	Phone: (800) 675-3849 (800) 525-4267 Fax: (937) 264-7264
National Hay Association http://nationalhay.org/	St. Petersburg, FL	Phone: (800) 707-0017 Fax: (727) 367-9702 E-mail: haynha@aol.com
Natural Life Pet Products	Girard, KS	Phone: (800) 367-2391 (620) 724-8012 Fax: (620) 724-8424
Nestlé Purina www.purina.com	St. Louis, MO	Phone: (314) 982-1000 Phone: (800) 778-7462
(Dog Foods: Alpo, Beneful, Come 'N Get It, Dog Chow, Mighty Dog, Pro Plan, Puppy Chow, Purina Hi Pro, Purina Kibbles and Chunks, Purina Moist & Meaty, Purina ONE, Purina Veterinary Diets. Cat Foods: Cat Chow, Chef's Blend, Deli-Cat, Fancy Feast, Friskies, Kit 'N Kaboodle, Kitten Chow, Purina One, Pro Plan, Purina Veterinary Diets, Tender Vittles. All products ® and/or ™.		
Pedigree www.pedigree.com/home.asp		Phone: (800) 525-5273
(Division of Mars Incorporated, McLean, VA, (703) 821-4900)		

(Rev. 05/05)

Foreign Animal Diseases

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TAB K Foreign Animal Diseases Section 1: Foreign Animal Diseases

All suspected foreign animal diseases in livestock and poultry are to be reported promptly to the USDA, APHIS, Veterinary Services Veterinary Medical Officer (VMO) in the area, the Area Veterinarian in Charge (AVIC), or the State Veterinarian.

The nearest Foreign Animal Disease Diagnostician (FADD) will be immediately assigned to perform a complete and timely foreign animal disease investigation of the situation. The practitioner should be able to furnish the following information:

- Nature of the disease condition reported.
- Name and telephone number of the owner or premises manager.
- Date and time when he/she first became apprised of the condition.
- Direction to the suspect premises.
- Species, breed, or type and approximate number of animals affected.
- Known history about the disease outbreak.
- Details about the clinical signs.

The private practitioner may be contacted by the FADD to request additional information (recent specimens collected, diagnostic tests, and any laboratory results) or for possible assistance when conducting the investigation.

In the event the practitioner is unable to contact the local VMO, State Veterinarian, or AVIC, he/she should contact Emergency Programs at (800) 601-9327 or (301) 734-8073.

Selected foreign diseases of livestock and poultry

This annotated report lists the Office International des Epizooties diseases of livestock and poultry considered foreign to the United States. A brief description of each disease is included. More information can be accessed on the OIE website: www.oie.int/eng/maladies/fiches/a_A160.htm

These are transmissible diseases that have the potential for very serious and rapid spread, are of serious socio-economic or public health consequence, and are of major importance in the international trade of animals and animal products.

OIE DISEASES

African horse sickness, a highly fatal viscerotropic viral disease of equines, is caused by a virus of the genus orbivirus and transmitted by biting midges. The clinical forms of the disease are dominated by respiratory distress, colic, and pronounced swellings of the head and neck.

African swine fever is caused by a virus of the genus Iridovirus and transmitted by direct contact, fomites, and Ornithodoros ticks. The subacute and chronic forms of the disease are characterized by pulmonary consolidation, fluid in body cavities, and inapparent carriers. The acute form of this disease

Foreign Animal Diseases

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is characterized by pronounced hemorrhage of internal organs, enlarged hemorrhagic spleen, marked reddening of skin and mortality of up to 100 percent of swine in affected herds.

Highly pathogenic avian influenza (fowl plague) - To date, all highly pathogenic isolates have been influenza A viruses of subtypes H5 and H7. The disease is highly contagious and primarily affects chickens and turkeys but probably infects all avian species. Apathogenic and mildly pathogenic influenza A viruses occur worldwide. Outbreaks due to HPAI occurred in Pennsylvania area in 1983-84. More recently outbreaks occurred in Australia, Pakistan, and Mexico. There is evidence the H5 viruses of low pathogenicity may mutate and become highly pathogenic. Clinical signs include severe depression, facial edema with swollen and cyanotic combs and wattles, petechial hemorrhages on internal membrane surfaces, and sudden death. Mortality can reach 100%. Virus isolation is needed for a definitive diagnosis.

Bluetongue of sheep, cattle, and goats is caused by viruses of the genus Orbivirus and transmitted by biting midges. Serotype 1 and serotypes 3 through 9, 12, 14 through 16, and 18 through 24 are exotic. Sheep are usually affected by fever with respiratory distress and congestion of the muzzle, lips, and ears. In severe cases, signs include a swollen, cyanotic tongue. Cattle may be inapparently affected or may have signs resembling those in sheep, including erosions of the muzzle, tongue, gingivae, and dental pad.

Classical swine fever (Hog cholera) is caused by a virus of the genus Pestivirus. Highly contagious to swine of all ages, the acute form of this disease is characterized by sudden onset, high mortality and morbidity, and signs including high fever, muscular weakness, cyanosis of the skin, and occasionally, convulsions. Strains of the virus of low virulence cause subacute and chronic forms of the disease that include complications of pneumonia and diarrhea.

Contagious bovine pleuropneumonia, caused by Mycoplasma mycoides mycoides, is characterized by pneumonia, pleuritis, and classical "marbled" lung. Transmission is by discharges from the coughing of sick or recovered carriers. There is no known transmission to goats.

Foot-and-mouth disease of cloven-hoofed animals is caused by viruses of the genus Aphthovirus and characterized by fever, and vesicles in the mouth, nose, feet, and teats.

Goat pox and **sheep pox** are caused by antigenically distinct viruses of the genus Capripoxvirus, and characterized by papules, vesicles, and pustules on exposed body surfaces, often with a high mortality rate.

Lumpy skin disease, an acute, highly infectious viral disease of cattle, is characterized by the eruption of cutaneous nodules, edema of limbs, and swelling of superficial lymph nodes, is caused by Neethling virus of the genus Capripoxvirus.

Peste des petits ruminants in sheep and goats resembles rinderpest of cattle and is caused by a virus of the genus Morbillivirus closely related to the virus of rinderpest.

Rift valley fever of cattle, sheep, and humans, caused by an arthropod-borne virus of the genus Phlebovirus, is characterized by high rates of abortion in sheep and cattle, and high rates of mortality in young lambs and calves.

Foreign Animal Diseases

Rinderpest of cattle, buffalo, other ruminants, and, occasionally, swine, caused by a virus of the genus Morbillivirus, is characterized by watery, frequently bloody diarrhea, necrosis of the alimentary lining, and "punched-out" erosions of the digestive tract.

Swine vesicular disease is caused by a virus serologically identical with Coxsackievirus B5, and characterized by fever and lameness due to vesicles and erosions on the feet.

Velogenic viscerotropic Newcastle disease, a highly contagious, lethal viral disease of chickens, turkeys, and various other birds, is characterized in chickens by respiratory distress, edema of the head around the eyes, and hemorrhages in lymphoid tissues and intestinal wall, and caused by a virus of the genus Paramyxovirus.

Vesicular stomatitis is a viral disease of equine, bovine, and swine. Is considered a minor zoonosis of humans. The morbidity rate is variable affecting up to 90% in a herd but has a low mortality rate. It is limited to the Americas and occasionally occurs in the United States. The symptomatology is similar to that of foot-and-mouth disease, with which it can be confused, except that horses are resistant to FMD but susceptible to VS.