

COLORADO RABIES RESOURCE GUIDE



**I  ALL MY
ANIMALS AGAINST
RABIES**



This document was prepared by:

The Colorado Rabies Task Force

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The latest version of this guidance document is available on the Colorado Department of Public Health and Environment portal Situational Awareness Tool (SaTool), the Colorado Association of Animal Control Officers (CAACO) member's only webpage, and the Colorado Veterinary Medical Association (CVMA) member's only webpage.

For access via the CDPHE SATool:

The Colorado Situational Awareness Tool (SATool) provides access to a host of information sharing capabilities, including document sharing. The **Rabies Community** on the SATool shares guidance and reference materials for rabies response in Colorado that are not necessarily available to the general public through the CDPHE website (such as the "Colorado Rabies Resource Guide"). Instructions for accessing the **Rabies Community** on the SATool can be found below.

- **Creating a New Account:**
 - Go to www.satool.org and click on "Create Account". Enter the requested information and click "Save". You now have a SATool account. Your account password will be emailed to you.
- **Logging into the SATool System:**
 - Go to www.satool.org. Enter the screen name you listed when you created your account (typically FirstnameLastname) and the password that was emailed to you. You can change your password once you access the system if you like.
 - If you have issues logging into the SATool system, please contact one of the CDPHE staff persons listed below:
 - Kristen Campos – 303-692-2763, Kristen.campos@state.co.us
 - Lyle Moore – 303-692-2669, lylemoorej@gmail.com
- **Accessing the Rabies Community:**
 - On the SATool home page, you will see a list of available communities. Follow the instructions listed next to the **Rabies Community** on how to access this community.

Point of contact for questions, comments, feedback for this document: Elisabeth Lawaczeck, D.V.M., State Public Health Veterinarian, Colorado Department of Public Health & Environment, Disease Control & Environmental Epidemiology Division, 303-692-2700, elisabeth.lawaczeck@state.co.us

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Chapter I: Introduction

Background:

Rabies is a fatal zoonotic disease caused by a lyssavirus; infection leads to acute progressive encephalitis. The primary route of transmission for rabies is through the bite of an infected animal. People may also be exposed if saliva or central nervous system tissue from an infected animal comes into contact with an open wound or the mucous membranes of the eyes, nose, or mouth. Fortunately, there is a safe, effective, post-exposure vaccination for rabies. However, left untreated, rabies is virtually always fatal. Rabies is one of the oldest recorded diseases; yet today it remains a significant management challenge for public health officials. Addressing this significant public health and animal health problem requires expertise from a variety of sources, including public health, wildlife, and agriculture agencies.

Although the United States has been declared free of canine rabies virus variant transmission, multiple variants of rabies virus are maintained in wild mammal populations and there is always a risk of reintroduction of canine rabies. Since the 1980's, more than 90 percent of laboratory confirmed rabies cases in the U.S. are reported in wild animals. Several different strains/variants of the rabies virus are in the United States. Each strain is spread predominantly by one wildlife species, but all strains are capable of infecting other mammals, including humans. Currently, raccoons and skunks spread most reported animal rabies cases in the United States, but bats, foxes, and coyotes also have a significant impact as wildlife carriers of rabies.

During the period of 2007 through 2010, skunk rabies appeared to spread from eastern Colorado towards the Front Range, placing both humans and animals at risk for this deadly disease. This document was developed to address that increased risk.

Purpose & Scope:

The purpose of this document is to provide a resource for the surveillance, prevention and control of rabies in Colorado. The target audience is "first responders" to rabies, which includes local public health, animal control, and wildlife officials, as well as veterinarians, wildlife control operators, and wildlife rehabilitators. This document was drafted by the Colorado Rabies (CORAB) Task Force, a self appointed group which first met on June 21, 2010. The mission of CORAB is to coordinate state, local, and federal resources for protection of public health, wildlife health, and domestic animal health from rabies in Colorado. CORAB Task Force Members include:

- Colorado Department of Public Health & Environment (CDPHE)
- Colorado Division of Wildlife (DOW)
- Local public health leaders
- Colorado Department of Agriculture (CDA)
- Colorado Veterinary Medical Association (CVMA)
- USDA, Animal Plant Health Inspection Service, (APHIS), Animal Care (AC)
- USDA, APHIS, Wildlife Services (WS)
- USDA, APHIS, Veterinary Services (VS)
- Colorado Association of Animal Control Officers (CAACO)
- Colorado Wildlife Control Operators Association (CWCOA)
- Colorado Council for Wildlife Rehabilitation (CCWR)
- Jefferson County Sheriff's Office – Animal Control Section

Chapter II: Colorado Rabies Response Field Guide

Section A. Communication & Notification Protocol; “Who do I call?”

Contact information for both local and state agencies, can be found in Appendix C.

Reports of pet animal bites or attacks to humans OR wild mammal bites or exposures to a domestic animal should be made to the local animal control agency. Local animal control agencies should have protocols for employees to determine when animal issues need to be referred to local public health or CDPHE for additional evaluation. Local public health has decision making authority for enforcement of quarantines of domestic animals exposed to a suspect or confirmed rabid animal, but assistance is necessary from local animal control for such enforcement. Pet-to-pet animal bites are not a priority unless rabies is highly suspected; however, per C.R.S. 18-9-204.5. Unlawful ownership of dangerous dog, as defined in the “Dangerous Dog Act”, requires that severe dog-to-dog bites be reported to local animal control.

*Possible human exposure to a bat***, skunk, wild carnivore, or other potentially rabid animal, should be reported to local public health or CDPHE. Local animal control should be contacted if the wild animal is available for testing (as the animal needs to be captured and submitted for rabies testing). If local animal control is not capable of responding to the call (e.g. due to lack of training of handling large wildlife species OR there is no animal control services in the jurisdiction), local public health or CDPHE should immediately contact DOW or private wildlife control operator (i.e. private wildlife trapper) for assistance. For urgent large carnivore calls, local public health or CDPHE can contact DOW through Colorado State Patrol Dispatch to reach officer 24hr/7days per week.

**If a bat is found in the same room as a sleeping person, incapacitated adult, unattended child OR in the proximity of an unattended pet, contact your local public health agency for consultation.

For *reports of a sick or injured wild mammal*, contact DOW through Colorado State Patrol Dispatch, to reach an on-call officer 24hr/7 days per week.

For a dead *skunk when there is a strong possibility of contact with an owned dog or cat*:

Call local public health and local animal control. If no animal control agency is established in the area, contact local law enforcement. Local animal control or local law enforcement should make arrangements to either pick up the animal or have the animal safely brought to their facility. Local public health will review the call and make a final determination on rabies testing (in consultation with CDPHE if necessary).

For a *dead skunk found dead when contact with humans and pets has been ruled out* after preliminary investigation (e.g., asking whether pets were unattended around skunk), the property owner should be instructed on how to properly dispose of the animal. The property owner should be advised to wear rubber/latex gloves (or use indirect handling method such as use of shovel), double bag and dispose of in trash or preferably at local landfill. Incineration of the carcass is preferred in areas where this service is available. See Appendix E for more details on proper animal carcass disposal. Property owner should be instructed to not leave out or throw onto other property to avoid the spread of rabies through scavenging by other mammals. If property owner does not wish to dispose of skunk, the property owner can be directed to call a private wildlife control operator.

If there is possible *contact of livestock with a confirmed or highly suspect rabid animal*, OR if a *livestock animal is exhibiting signs or symptoms of rabies*, then local public health or CDPHE should be notified. Local public health or CDPHE will then refer the call to the Colorado Department of Agriculture for

further evaluation. When CDA is notified first by owners or the attending veterinarian, CDA will coordinate and communicate with CDPHE and/or the local public health agency.

Approval for submission of animals by local animal control for rabies testing *that will be paid for by public health* is provided by local public health (or by CDPHE if local public health is not available for rapid consult). Please view CDPHE's criteria for use of state general funds for zoonotic disease testing on the CDPHE Laboratory webpage: www.cdphe.state.co.us/lr

Results of a positive rabies test are reported by CDPHE or CSU Laboratory to the submitter and local public health. If the submitter had another entity decapitate the animal prior to submission (e.g. decapitation performed by animal shelter staff for local law enforcement, veterinarian performed for local public health), it is the responsibility of the submitter to include such information on the submission form and to report the results to the other entity. Local public health or CDPHE are available for assessment on possible exposures to lab confirmed rabid animals during decapitation process; see the submission guidelines for proper use of personal protective equipment.

Reports of a negative rabies test are reported by CDPHE or CSU Laboratory to the submitter only. It is the responsibility of the submitter to notify all other involved parties.

Chapter II: Colorado Rabies Response Field Guide

Section A. Introduction on Dispatch & Euthanasia

The terms of dispatch and euthanasia are often used interchangeably in settings where mechanical/physical forms of ending the life of animal are used. The authors of this resource guide used the following definitions for dispatch and euthanasia within the context of this document:

Definition of euthanasia: (*from Greek, good death, from euthanatos, from eu- + thanatos death*); *the practice of killing an animal, in a painless or minimally painful way*

Definition of dispatch: *The act of putting to death; killing an animal without delay or in a fast and effective way.*

Exclusions of methods of dispatch or euthanasia from this document do not preclude these methods as being acceptable. However, it is highly recommended to review the references provided in Sections B & C to ensure that the best practices are followed when feasible.

Some general considerations:

- *Do NOT shoot the animal in the head if it suspected of infection with rabies virus; the brain is needed for laboratory diagnosis.*
- There are different perspectives on the appropriate methods for euthanasia of wildlife. Resolution between conflicting perspectives is outside of the scope of this guidance document. For those in the field, such as wildlife workers and wildlife control operators, tasked with containing and eventually submitting wildlife suspected of rabies infection or with potential exposures to humans or domestic animals, it is highly recommended to review the following references to ensure that the best practices are followed when feasible.
- If a wild animal suspected of rabies infection or with exposure to humans or domestic animals can be safely trapped, methods of euthanasia instead of dispatch by gunshot should be considered.
- Personal safety considerations must be a part of the decision process in selection of the appropriate euthanasia method, **including avoidance of bites** from the animal, or exposure to toxic, highly flammable, or carcinogenic substances (e.g. chloroform, ether, engine starter fluid). It is preferable for euthanasia of wild animals suspected of rabies infection to be performed by those who have been previously vaccinated for rabies. Appropriate personal protective equipment should always be worn during all stages of euthanasia/dispatch, sample collection, and disposal.
- Implications on proper disposal of the carcass after euthanasia must also be considered, such as potential secondary barbiturate exposure to other wildlife that may scavenge on a carcass.

Section B. Humane Euthanasia of Mammals

The 2007 American Veterinary Medical Association (AVMA) Guidelines on Euthanasia is available at www.avma.org/issues/animal_welfare/euthanasia.pdf. An update to the AVMA guidelines is expected by 2011 or 2012, and will incorporate the AAZV guidelines. Euthanasia techniques are discussed within the report and tabulated in appendices. Appendices provide tables on agents and methods by species and lists of acceptable, conditionally acceptable, and unacceptable agents and methods of euthanasia. Proper interpretation of the tables is only possible when used in context with the text of the report. Injection of any solution into the heart without prior sedation is not considered to be a humane method of euthanasia (AVMA guidelines), due to pain experienced by the animal.

An additional reference on appropriate euthanasia is the American Association of Zoo Veterinarians (AAZV) "Guidelines for Euthanasia of Nondomestic Animals." These guidelines have been endorsed by

the American Association of Wildlife Veterinarians, the American College of Zoological Medicine, the American Board of Veterinary Toxicologists, the Association of Avian Veterinarians, the Association of Reptilian and Amphibian Veterinarians, the Canadian Association of Zoo and Wildlife Veterinarians, and the Wildlife Disease Association. More information on this reference is available on the AAZV webpage: <http://www.aazv.org/displaycommon.cfm?an=1&subarticlenbr=441>

Consultation with a local veterinarian who has experience with wildlife is recommended to ensure euthanasia is being provided appropriately and humanely.

A commentary paper titled “Euthanasia methods in field settings for wildlife damage management,” in the fall 2010 edition (Vol 4, Num 2) of *Human-Wildlife Interactions*, is another reference on this topic. *Human-Wildlife Interactions* is produced by the Berryman Institute, a national organization based in the Department of Wildland Resources at Utah State University and the Department of Wildlife & Fisheries at Mississippi State University. The Berryman Institute is “dedicated to improving human-wildlife relationships and resolving human-wildlife conflicts through teaching, research, and extension”. This commentary is available on the Berryman Institute webpage: http://www.berrymaninstitute.org/journal/fall2010/fall2010_julien_etal.pdf

USDA, Animal and Plant Health Inspection Service (APHIS), Wildlife Services (WS) has a policy directive (titled ‘Euthanizing Wildlife’) that direct staff to conform to AVMA guidelines, whenever possible. This Directive underscores the fact that “euthanasia” is sometimes not the best option, or possible, when dealing with free-ranging wild animals, as discussed below.

Other methods of euthanasia have not been completely evaluated that may be considered as acceptable in the field. An example of other methods of euthanasia not covered by the listed references include oral application of sedative and/or euthanasia pharmaceuticals (e.g. sodium pentobarbital, acepromazine) produced for intramuscular or IV injection. Such use of these injectable pharmaceuticals orally is considered off-label use, and thus cannot be described in detail within this resource guide. Consult with a local veterinarian who has wildlife experience for more information.

Special Considerations for Bats

Bats submitted to the state laboratories for rabies testing must be submitted dead. Freezing is not considered humane or reliable form of euthanasia. Please refer to Section A for examples of safety considerations with methods of euthanasia.

Methods of humane euthanasia of bats include the following:

- Carbon dioxide, usually administered within an enclosed chamber (through compressed CO₂ gas cylinders; see AVMA guidelines). [Allow for a very small amount of carbon dioxide gas to escape from container through tiny holes (e.g. 1mm/needle size) to prevent a large pressure increase on the inside of the container.]
- Inhalant anesthetics (e.g. Isoflurane, Sevoflurane, or enflurane), usually administered within an enclosed chamber. Isoflurane is not a Drug Enforcement Agency (DEA) controlled substance; however these inhalant anesthetics are prescription drugs and if used for sedation, anesthesia or euthanasia of animals, must be obtained through a veterinarian. The prescribing veterinarian must be responsible for any such prescription drug when used by other entities.
- Euthanasia solution or pentobarbital, administered intraperitoneally. Pentobarbital can also be administered intracardiac (directly into heart) if animal is anesthetized;

intracardiac injection of any substance should be preceded by general anesthesia or heavy sedation to provide loss of consciousness or analgesia to be considered humane.

- If performed under general anesthesia, cervical dislocation or decapitation

Whatever method is chosen, personnel should avoid physical contact with materials that may contain brain, spinal cord or saliva to avoid possible exposure to rabies.

Death should be confirmed before shipping of a bat to any laboratory to avoid exposure to laboratory personnel.

Limited License with Colorado State Board of Pharmacy

Humane societies and animal control agencies that wish to obtain certain control substances or prescription drugs directly from manufacturer or distributor (instead of through a veterinarian) to capture, sedate, or euthanize animals can obtain a limited license with the Colorado State Board of Pharmacy. Authority of the Department of Regulatory Agencies is provided in C.R.S. Title 12, Article 22, Part 3. The regulation related to limited licenses is 3 CCR 719-1:

<http://www.dora.state.co.us/pharmacy/Rules.pdf>

Training for Euthanasia

All persons conducting euthanasia or dispatch of wild animals should be properly trained. Animal control officers and animal shelter operators who have not received such training through a local veterinarian are encouraged to obtain such training. Training on intravenous injection of euthanasia solution is available through the American Humane Association, based in Englewood, and the National Animal Control Association.

American Humane Association
63 Inverness Drive East
Englewood, CO 80112
Call: (800) 227-4645 or (303) 792-9900
Fax: (303) 792-5333
Email: info@americanhumane.org
Web: www.americanhumane.org

More information on the American Humane Association's humane euthanasia training programs is available at:

<http://www.americanhumane.org/protecting-animals/training/animal-welfare-trainings/euthanasia-by-injection.html>

More information on the training from the National Animal Control Association is available at:

<http://www.nacenet.org/euthanasia.html>

Section C. Dispatch of Wildlife

The authors of this guidance document acknowledge the difficulty in applying the American Veterinary Medical Association (AVMA) or the American Association of Zoo Veterinarians (AAZV) guidelines to all wildlife situations that may be encountered within the scope of this document (e.g. wildlife removal in the field). The authors of this guide recommend striving to use of the most humane method of

euthanasia/dispatch for the situation. In some field situations, dispatch methods may be necessary for safety reasons and/or more humane (e.g. less stress to wild animal than capture and restraint). Some of the recommended methods of euthanasia for captive animals may not be feasible for wild or feral animals. Special considerations are needed to address euthanasia in free-ranging wildlife. As discussed within the American Association of Zoo Veterinarians (AAZV) *Guidelines for Euthanasia of Nondomestic Animals*: “A particular concern is the lack of control or confinement over free-ranging wildlife under field conditions. Under such field conditions, firearms may be the most means of quickly and efficiently killing large free-ranging mammals . . .” “. . . such methods may not always meet the definition of euthanasia. Therefore, humane killing of wildlife species may be a more accurate term than euthanasia . . .”

Dispatching of wildlife through gunshot may be necessary due to the difficulty of or hazards associated with immobilizing wildlife and it may be more humane to decrease handling time for at-large wildlife due to stress on wild animal. Also, per the AAZV *Guidelines for Euthanasia of Nondomestic Animals*: “From the perspective of human safety, the best location for shooting **free-ranging** animal is the lung/heart region, rather than the head. Few people or sufficiently accurate shoot an animal in the head at greater than 25 meters, therefore aiming for the larger heart/lung area is more likely to be successful. Aiming for the head can result in completely missing the animal and accidentally shooting a human or animal that is located behind the target. In addition, the possibility of hitting the animal in the jaw, neck, or other non-lethal areas is increased.” The AAZV guidelines continue: “**Captive** wild animals should be shot in the brain, either from the front or side.” **Since the brain is needed for rabies testing, the preceding statement does not apply to dispatch of wildlife intended for rabies testing. Do not shoot the animal in the head if the animal needs to be tested for rabies.** AAZV Guidelines recommend shooting captive animals through the vertebral column: “If the brain needs to be preserved for diagnostic reasons, shoot the **[captive]** animal in the neck through the vertebral column. It is best to shoot for dorsal to ventral, compared to shooting from a lateral position...” “The barrel of the gun can be placed against the neck vertebrae to ensure accurate shot placement. Do not target the trachea or major blood vessels, as this can result in asphyxiation without unconsciousness.” AAZV Guidelines provide recommendations on bullet and caliber selection: “When shooting an immobilized animal at close range, large, slow-moving bullets and slugs are preferable to high-powered, high velocity projectiles.”

Other physical methods of dispatch are described within the AAZV guidelines. Other methods of dispatch, such as non-physical methods of dispatch, have not been completely evaluated.

Chapter II: **Colorado Rabies Response Field Guide**
Section D. Decapitation of Animals, Packaging & Shipping

1. Removal of Animal Heads:

Local animal control agencies, local public health/environmental health agencies, and wildlife control operators are encouraged to develop relationships with local veterinarians and local animal shelters for assistance with decapitation of animals. CVMA may be contacted to assist communication with local veterinarians: www.colovma.org or 303-318-0447. Only veterinarians, animal control officers, wildlife officials, and others who have been appropriately trained (e.g. through a veterinarian or fellow animal shelter worker who was trained by a veterinarian) and have pre-exposure prophylaxis should remove animal heads. Bats should be submitted intact. Other animals should be decapitated and only the head submitted. The rest of body should be properly disposed of (see “carcass disposal” section below).

a. Supplies for decapitation:

1. Sharp knife and sharpener (optional-sharp hacksaw, dehorner, shears, or brush cutters)
2. Protective clothing:
 - Waterproof gloves (disposable or disinfect after use)
 - Face mask
 - Safety glasses or goggles
 - Optional coverall, waterproof apron (a large plastic garbage bag with holes for arms and head)
3. Cleaning supplies: Water, detergent, a disinfectant with virucidal activity (bleach), paper towels and plastic trash bags.

b. Procedure:

- CAUTION: The brain, spinal cord, salivary glands, and saliva of the animal may contain rabies virus. If an exposure occurs during the process of removal of the head, it should be noted on the laboratory submission form for the animal.
- Do not use an axe or power saw because infected material may become aerosolized.
- Always wear protective gear (waterproof gloves, a facemask and eye protection) from start of procedure through cleaning of equipment and surfaces and exercise caution with the use of knives and other sharp objects during the procedure.

2. Carcass Disposal: In order to reduce the spread of rabies in the wild, the remaining carcass of an animal that tests positive for rabies (or a suspect rabid wild animal) should be properly disposed. Therefore, it is recommended to retain the body of rabies reservoir species (skunks, raccoons, foxes) until results are available—so that rabies positive animals can be disposed of in the gold standard method if possible (see below). Animal carcasses disposal is subject to the applicable requirements of the solid waste statute C.R.S. 30-20-100 *et seq.* and solid waste regulations 6 CCR 1007-2. Rabies infected animals would be considered infectious waste under C.R.S. 25-15-401 *et seq.* Infectious waste is regulated as a solid waste in Colorado. The following methods are acceptable, in order of preference to reduce the risk of spread of rabies, as well as other wildlife diseases:

- a. Incineration is the gold standard. Some medical centers and universities have incinerators for proper medical waste disposal, but at this time no medical centers have a permit for animal carcass incineration. Costs are usually based on weight, which should be very

affordable for small wildlife. A list of incinerators/crematoriums in Colorado can be obtained from the CDPHE Air Quality Division or refer to the phone book under animal cremation or carcass removal. Some animal shelters have incinerator/crematoriums.

- b. Pick up by a medical waste contractor. Such contractors autoclave the tissues prior to disposal at a landfill.
- c. Disposal at local landfill: double bag and declare as animal tissues at entrance of landfill, to ensure the animal carcass is covered quickly. While disposal of animal carcasses at a landfill is an acceptable method for managing carcasses, the landfill has the right of refusal for any waste stream. CDPHE recommends generators and/or transporters of animal carcasses contact the landfill to determine if they will accept this waste stream prior to showing up at the facility's front gate.
- d. Burial by private property owner, if outside of city limits; most cities have ordinances prohibiting burial of animal carcasses on private land. This option is many times the most viable option in rural area where skunk rabies is prevalent, and may be used to bury entire carcasses of suspect rabid wildlife when exposure to humans and pets has been ruled out-- if deep burial (sufficient to prevent scavenging by wild carnivores) is possible.

The Colorado Department of Public Health and Environment (CDPHE) and local public health agencies hold the statutory authority regarding disposal of individual animal carcasses. Individual animal carcasses are considered "solid waste" and must be managed under the local solid waste statutes and regulations. Contact the local or regional public health department concerning local ordinances for burial or disposal; for small local public health agencies with no environmental health staff, contact the county commissioner's office to get their input as to the proper agency to contact.

See Appendix E for more guidance on carcass disposal from CDPHE.

3. Storage of Sample; Refrigeration versus freezing head:

Refrigeration and immediate shipment is preferred. The head of a freshly euthanized/killed animal will store well in a refrigerator for 3 or 4 days. If shipment will be delayed due to weekend or holidays, refrigeration of the head and shipment with ample ice on Monday for receipt by Tuesday is recommended. If the animal is starting to decompose or has been dead for > 1 day and not refrigerated and shipping will be delayed, then freezing the head is recommended. Freezing of the head will only delay the results due to allowance for thawing at the lab. Freezing should not affect the performance of the DFA test, as long as the head has not been repeatedly frozen and thawed.

4. Packaging and Shipping Samples

- a. The head of the animal (except bats which should be submitted whole) should be removed from the body and placed in a plastic bag. Seal the bag. NOTE: The specimen should be refrigerated until time of shipment.
- b. Place the bag containing the animal head inside a larger plastic bag with enough absorbent material for leakage of all liquids in the container.
- c. Place at least two FROZEN gel packs on top of the specimen and seal this bag.
- d. Place the double-bagged head in a sturdy, LEAKPROOF container (preferably metal or Styrofoam).
- e. Fill out the submission form (available from the lab). Place it in an envelope, and tape onto the outside of the container/box (NOT on the inside of box). Address the box & affix proper labeling to meet federal requirements for shipping tissue specimens.

- f. Specimens should be shipped or delivered to the lab as quickly as possible (overnight mail or same day bus service are commonly used transport methods).
- g. Notify the lab when high priority (human or pet exposure) specimens are being shipped.

The U.S. Department of Transportation (DOT) Hazardous Materials (HazMat) Regulations, 49 CFR Parts 171 - 180, require all persons who offer or transport diagnostic or infectious specimens to comply with applicable regulations. More detailed guidance on proper packaging and shipping is provided in Appendix F.

The following links provide some tips on how to meet federal regulatory requirements packaging diagnostic specimens:

- Centers for Disease Control & Prevention, Division of Scientific Resources:
<http://www.cdc.gov/laboratory/specimenmanagement/shipping-packing.html>
- Fed Ex: http://fedex.com/us/services/pdf/PKG_Pointers_Specimens.pdf
- American Veterinary Medical Association:
http://www.avma.org/issues/pack_ship_lab_specimens.asp
- Submission Guidelines for Rabies Testing of Animals from CDPHE (available also on CDPHE webpage: <http://www.cdphe.state.co.us/dc/zoonosis/rabies>)

Chapter II: **Colorado Rabies Response Field Guide**
Section D. **Submission Guidelines for Rabies Testing of Animals**

1. CDPHE: Procedures for the Submission of Laboratory Specimens for Rabies Analysis
(posted on CDPHE webpage: <http://www.cdphe.state.co.us/dc/zoonosis/rabies>)

BACKGROUND:

Two laboratories perform rabies confirmation testing on a fee for service basis in Colorado: the Colorado Department of Public Health & Environment (CDPHE) and the Colorado State University Veterinary Diagnostic Laboratory (CSU). CDPHE charges \$65 per specimen for rabies testing. Contact CSU (970-297-1281) for their submission protocol and pricing.

SPECIMENS TO SUBMIT: Due to the low incidence of rabies in Colorado, testing of domestic animals (dogs, cats, ferrets, livestock, etc.) is usually indicated only for animals involved in human exposure. Appropriate wildlife specimens are carnivorous, terrestrial mammal and bats involved in human or domestic pet exposure. Bats, skunks or wildlife exhibiting neurological symptoms may be submitted for surveillance purposes. Rabies testing is rarely ever indicated for rodents and rabbits.

SPECIMEN PREPARATION: For bats the entire animal should be sent. For dogs, cats, skunks, raccoons and similarly sized animals, only the head must be sent. For livestock, the brain should be removed and submitted. Persons should use adequate procedures and protective equipment to protect them from exposure to rabies virus while removing heads or brains. Specimens must be refrigerated immediately and held at 35-40°F until shipped. **DO NOT FREEZE OR PLACE THE SPECIMEN IN A PRESERVATIVE SUCH AS FORMALIN.**

SHIPMENT: Local health departments and animal control agencies can be contacted for lab forms and assistance in specimen submission. Specimens should be double-bagged in plastic, sealed in an inner waterproof container with cold packs (no dry or wet ice) to insure no leakage occurs during shipment, then placed in an outer shipping container. A Lab Requisition Form #272 must accompany each specimen. Each specimen requires a separate form and must be clearly labeled with the specimen number. Packages should be shipped by overnight delivery to: Colorado Department of Public Health; Attn: Virology Lab; 8100 Lowry Blvd; Denver, CO 80230-6928.

TEST RESULTS AND CONSULTATION: Rabies testing is conducted on every regular business day; specimens received before 11 a.m. are processed that day. Specimens received after 11 a.m. are run the following workday except in incidents with high-risk human exposure. Positive rabies tests are telephoned immediately; negative results are reported by mail or can be obtained by calling the lab.

- Laboratory & Test Results: 303-692-3485 (regular business hours)
- Rabies & Bite Consultation: 303-692-2700 (regular business hours), 303-370-9395 (after-hour, weekend and holiday emergencies)

Document created by: CDPHE, Communicable Disease Epidemiology Program 4/05

Setting Up Accounts/Submission Forms/Courier at CDPHE:

For guidance on setting up an account with the CDPHE Laboratory, requesting animal submission forms (Requisition Form 272) from CDPHE, and courier use instructions, please visit the CDPHE Laboratory webpage: <http://www.cdphe.state.co.us/lr>

Criteria for use of state general funds for testing of animals for rabies and other vector-borne and zoonotic diseases (plague, tularemia, West Nile virus) at CDPHE Laboratory is also available on this CDPHE Laboratory webpage.

2. Colorado State University Veterinary Diagnostic Laboratory

Submission guidelines and submission forms for CSU Veterinary Diagnostic Laboratory area available at: <http://www.dlab.colostate.edu>. Call CSU with questions: (970) 297-1281

Veterinarians from the Western Slope that need to submit the head of a livestock animal for rabies testing may contact the branch in Grand Junction for assistance with brain extraction: Western Slope Veterinary Diagnostic Laboratory at (970) 243-0673.

Veterinarians in southern Colorado that need to submit the head of a livestock animal for rabies testing may contact the laboratory at Rocky Ford for assistance with brain extraction: Rocky Ford Branch Laboratory (719)-254-6382.

Chapter II: Colorado Rabies Response Field Guide

Section E. CDPHE Rabies Prevention and Control Policies and Guidance Documents

These policies and guidance documents are available on the CDPHE webpage on rabies at: www.cdphe.state.co.us/dc/zoonosis/rabies (unless otherwise noted below). Please visit this webpage to ensure you are referring to the latest version.

1. Human Exposure

All local public health officials involved in communicable disease control should read and be able to implement the latest version of the Advisory Committee on Immunization Practices (ACIP) on Human Rabies Prevention, which is the national standard. The CDC maintains a rabies “publication” page (<http://www.cdc.gov/rabies/resources/publications>), which always includes the latest version of these ACIP guidelines, which is published via MMWR upon update. At the time of creation of this document, the latest version is from 2008 and available at: http://www.cdc.gov/rabies/resources/acip_recommendations.html. Local public health officials that need help interpreting these guidelines are encouraged to consult with the Communicable Disease Epidemiology Program at CDPHE.

- a. Domestic dogs, cats and ferrets involved in human bites
(www.cdphe.state.co.us/dc/zoonosis/rabies/Dogbite%20policy%202009.pdf)

MANAGEMENT OF DOMESTIC DOGS, CATS AND FERRETS INVOLVED IN HUMAN BITES

Animal bites, especially dog and cat bites, are a common and serious public health problem. Bites can result in psychological trauma, transmission of disease including rabies, localized infection of the bite wound, permanent physical disfigurement and death. This document outlines the required management of a dog (*Canis familiaris*), cat (*Felis domesticus*) or domestic ferret (*Mustela putorius*) that has bitten a human. These requirements are based on the Compendium of Animal Rabies Control and Prevention, prepared annually by the National Association of State Public Health Veterinarians and in Human Rabies Prevention--United States, 2008, published by the Centers for Disease Control and Prevention.

Statutory Authority / Reporting Requirements

Authority for the enforcement of this policy is provided under the Colorado Rabies Control Statutes, 25-4-601 et. seq. C.R.S. 1973, as amended. This law includes provisions for the confinement of biting or suspected rabid animals, enactment of local vaccination and running-at-large ordinances, emergency powers of the department, duty of law enforcement agencies to assist and penalties for violations.

In addition, the Colorado Department of Public Health and Environment (CDPHE) statute, 25-1-122 C.R.S. outlines reporting requirements and provides access to medical records for certain diseases and medical conditions including rabies and mammal bites. The associated Rules and Regulations Pertaining to Epidemic and Communicable Disease Control (6 CCR-1009-1) specifically define the manner in which such reports are to be made. Specifically, these laws require anyone having knowledge of a person bitten by a dog, cat, or other mammal to report that fact to the local health department or county health officer. The health department or their representative, usually the local animal control agency, can then conduct the necessary investigation. For dogs, cats, bats, skunks and other wild carnivores such report must be made within 24 hours. This report should include the name, age, sex and location of the person bitten and, if known, the location of the biting animal.

Mandatory Post-Bite Quarantine

Domestic dogs, cats or ferrets involved in a human bite must be quarantined for a 10 day observation period to eliminate the risk of rabies virus transmission. This period was determined from studies that demonstrated rabies virus begins to appear in the animal's saliva as symptoms of rabies start to appear. Animals that remain alive and healthy 10 days post-bite would not have been shedding rabies virus in their saliva, and therefore not have been infectious, when they bit.

The 10-day observation period applies ONLY to domestic dogs, cats and that ferrets have bitten a human.

Rabies vaccination status should be verified, either by a valid vaccination certificate or contacting the animal's veterinarian. This information can be provided to the bite victim and their physician to reduce concerns that the animal could be rabid. Due to the theoretical risk of rabies vaccine inhibiting the clinical onset of rabies, rabies vaccination should be deferred until completion of the observation period. The 10-day quarantine is required regardless of the animal's vaccination status.

Depending on the bite circumstances and local animal control policies, a biting animal may be confined at the local animal shelter, a private kennel, veterinary clinic or the owner's home. For home quarantine the animal should remain confined to the owner's property during the observation period. A veterinary examination must be arranged immediately if the animal becomes ill. If a veterinarian believes the animal is suffering from neurological symptoms consistent with rabies or the animal dies for any reason during the observation period rabies testing is required. The animal owner is responsible for all costs related to quarantine and testing.

Exceptions to Quarantine Period

In some situations the 10-day quarantine may not be feasible. In these cases, euthanasia and rabies testing of a biting dog, cat or ferret would be required. This could include 1) the owner requests the animal be immediately euthanized and tested; 2) the animal is exhibiting signs and symptoms of a neurological illness consistent with rabies; 3) the animal is injured or terminally ill and would not survive or it would be inhumane to keep it alive for 10 days; 4) the animal is feral, unmanageable and cannot be safely confined. The animal owner is responsible for all costs related to testing, including euthanasia, head removal, shipping and laboratory charges.

Bites from Other Animal Species

The 10-day observation period applies ONLY to domestic dogs, cats and that ferrets have bitten a human. It does not apply to any animal exposed to rabies such as pets attacked by a wild animal or found with a bat. Pet animals or livestock potentially exposed to known or suspected rabid animal must be immediately reported to CDPHE.

Bites of rodents, lagomorphs (rabbits and hares), birds and reptiles are not a rabies risk and do not require quarantine or rabies testing. Human bites involving other domestic or wild mammals are evaluated on a case-by-case basis with subsequent recommendations based on the species, circumstances of the bite, incidence of rabies in the area and availability of the biting animal. A separate CDPHE policy exists for the management of bites involving wolf/dog hybrids.

Consultation

The CDPHE is available for consultation on animal bites, rabies exposures, testing and post-exposure rabies prophylaxis on a 24-hour basis by calling 303-692-2700 (regular business hours) or 303-370-9395 (after-hours, weekend or holiday emergencies).

- b. Determining the need for rabies post-exposure prophylaxis following a dog or cat bite (www.cdphe.state.co.us/dc/zoonosis/rabies/dog%20or%20cat%20bite%20exposure.pdf). *See following pages.*
- c. CDPHE Algorithm for determining the need for rabies post-exposure prophylaxis following a dog or cat bite (not posted on CDPHE webpage). *See following pages.*
- d. CDPHE Algorithm for Rabies Risk Assessment for Human Exposure to Animals (not posted on CDPHE webpage). *See following pages.*

**Determining the Need for Rabies Post-Exposure Prophylaxis
Following a Dog or Cat Bite in Colorado
Updated November 18, 2009**

The necessity to administer rabies post-exposure prophylaxis (PEP) to a patient that has sustained a dog or cat bite can be a complex decision based on numerous variables that often can not be objectively assessed. National recommendations on rabies PEP are provided by the Advisory Committee on Immunization Practices and are published in the Centers for Disease Control & Prevention Morbidity and Mortality Weekly Report *Human Rabies Prevention – United States, 2008*. This document is the primary reference for national rabies PEP recommendations and can be viewed at: <<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr57e507a1.htm>>.

However, as national guidelines they are generalized for the entire country and refer to local and state public health officials for PEP recommendations for dog and cat bites based on the local epidemiology of rabies. With the reemergence of rabies in a terrestrial species (non bat mammals such as skunks) on the eastern plains of Colorado, the risk of spillover infections in other animals, including domestic pets, increases. The need for administering rabies PEP in persons bitten by a dog or cat may vary considerably within the state depending on the presence of skunk rabies in an area. This document provides Colorado-specific perspectives to assist public health officials in determining whether PEP is indicated in situations involving exposure to domestic dogs or cats.

Executive Summary

- The risk of rabies exposure from a domestic dog or cat bite remains extremely low in Colorado and rarely requires rabies PEP even if the biting animal is not located.
- The presence or absence of endemic skunk rabies in an area does not change the investigative process for determining whether or not to recommend PEP following an exposure to a dog or cat.
- In skunk rabies endemic areas, the risk of a dog or cat being infected with rabies does increase and under some circumstances, this potential risk might result in a recommendation for PEP in incidents in which the biting animal is unavailable for observation or testing.
- Recommendations for PEP are based on the assessment of rabies exposure risk. If a properly conducted assessment indicates very low risk, then PEP should not be recommended.
- The need for rabies PEP remains a medical urgency, not an emergency.

Epidemiologic Considerations

- Over the past decade, <100 dogs and approximately 200-300 cats have been reported with rabies annually in the United States
 - The overwhelming majority of rabid dogs and cats are reported from areas in which rabies is endemic in a terrestrial species.
- Over the past 30 years, Colorado has reported only 4 indigenously acquired cases of rabies in domestic animals
 - A cat in 1985 (Grand County) infected with a bat variant virus
 - A cat in 2008 (Cheyenne County) infected with a skunk variant virus
 - A horse and cow in 2009 (El Paso County) infected with a skunk variant
- Over the past 30 years, Colorado has reported 4 cases of imported rabies in domestic animals.
 - An infected dog traveling through the state in 1981
 - An infected dog imported from a skunk rabies endemic area in 2003.
 - A steer (2005) and a bull (1991) from states with endemic terrestrial rabies

- The last case of indigenously acquired rabies in a dog occurred in 1974 (El Paso County) in an area where skunk rabies was circulating.
- Over the past 30 years, there have been documented spillover infections from bats to other wildlife species including fox, skunks and a bobcat.
 - Most of these rabid animals were reported from rural counties that had submitted few, if any, specimens for rabies testing over the years.
 - For most of these animals, the infected animal's bizarre behavior prompted it to be tested

In summary, rabies in domestic animals is a rare event in the U.S. and that even in areas with limited surveillance, rabid animals tend to stand out. Most dog and cat bites in Colorado will not require PEP.

Skunk Rabies

- Skunk rabies has probably circulated at low levels on the eastern border of Colorado undetected for many years.
 - The recent western movement of skunk rabies is likely a true expansion
 - From 1988-91 an outbreak of skunk rabies occurred around Wray, Yuma County. No human exposures or spillover to other species were detected.
- Due to resource limitations and the rural nature of eastern Colorado, surveillance will be insufficient to accurately determine where skunk rabies is currently circulating on the eastern plains.
- Based on available surveillance data, a determination should be made if rabies is likely to be circulating in the local skunk population. Local public health can consult with CDPHE to estimate the likelihood that rabies is circulating in a local skunk population. Local public health officials should become familiar with Division of Wildlife and their local animal control agency, staff, and resources, to help assess the level of surveillance present within their jurisdiction.
 - Political boundaries (county line, city limit) may not work well.
 - Example: several rabid skunks have been reported from Lincoln and eastern Arapahoe counties, thus in this area the disease should be considered endemic. However, labeling all of Arapahoe County as an endemic county would not be accurate since no skunk rabies has been reported in the urbanized western half of the county where a reasonable number of specimens have been tested. A PEP recommendation for a dog bite with similar circumstances may be different for the two ends of this county.

Based on distribution of rabid skunks over the past 3 years, skunk rabies should be considered endemic in all eastern plains counties (see map on CDPHE rabies webpage for current distribution of skunk rabies): www.cdphe.state.co.us/dc/zoonosis/rabies, even if no specimens have tested positive from a particular county. Insufficient numbers of skunks have been tested in most counties to be able to exclude the presence of rabies. This would include rural, eastern sections of Front Range counties.

Skunk rabies should NOT be considered to be circulating in Front Range cities along the I-25 corridor from where a reasonable number of samples have been submitted and are negative. In communities where the human and domestic pet population is concentrated (suburban or urban) where veterinary and animal control services are present, if no skunks have tested positive for rabies, it can be assumed that no skunk rabies is present. Additionally, there is no evidence that skunk rabies is present in any areas west of I-25 at this time. These recommendations may be updated as the distribution of skunk rabies changes in Colorado.

PEP Recommendations

- A dog or cat bite in a skunk endemic area is not an automatic indication for PEP. It does, however, increase the probability that a recommendation to initiate PEP will be made when the biting dog or cat is not located.
- For dog and cat bites in areas where skunk rabies is not present, PEP would usually NOT be indicated even if the biting animal is not located unless there were very unusual circumstances surrounding the bite.
- The process for determining whether or not to recommend PEP following an exposure to a dog or cat, as outlined in Human Rabies Prevention – United States, 2008, does not change.
 - Consider circumstances of the bite, animal behavior, penetration of skin, incidence of rabies in the area and availability of the biting animal for testing or observation.
 - Avoid the “What if” game, focus on the known facts.
- The dog or cat bite should be reported to local animal control to attempt to locate the animal for a 10-day observation/quarantine. Dogs or cats that are alive and well following a 10-day quarantine did not have rabies virus in their saliva at the time of the bite. Alternatively, if a biting animal is euthanized and tests negative for rabies, there is also no chance of rabies virus being present in the saliva at the time of the bite.
- In areas where skunk rabies is considered endemic, and a dog or cat is not available for quarantine or testing, a thorough assessment of the circumstances surrounding the dog or cat bite is essential in assessing the risk for rabies exposure. Examples of key information on circumstances include:
 - health status of biting animal
 - whether biting animal was likely to be owned versus stray, and
 - clues on whether the bite was provoked such as whether there was an attempt by bite victim to handle an unfamiliar dog or cat, startling of animal, or in a dog’s territory.These and other clues that the bite was provoked and from a healthy appearing animal decreases the risk of behavioral changes in the animal were due to illness with rabies and decreases the risk of rabies being shed in the saliva at the time of the bite. **A rabies risk assessment algorithm on dog and cat bites is available for local public health agencies.**
- Rabies PEP is a medical urgency: initiation of PEP can be safely delayed for 24-72 hours in low risk bite incidents to facilitate locating the biting animal or get test results
- For low risk bites (see dog and cat bite algorithm), victims should be advised to actively look for the biting animal prior to initiating PEP. This is critical in skunk endemic areas where treatment might be recommended if the animal is not found. The bite victim or family members should not attempt to capture the dog or cat that bit them, to avoid further bites. An exception to this would be when humane traps (e.g. Have a Heart trap) can be rented from local animal control for capturing a stray/feral cat.
 - Report the bite to local animal control
 - Drive or walk in the neighborhood where the bite occurred.
 - Ask the patient if they have ever seen the animal before. If yes, there is a good chance the biting animal can be located.
 - Most bites will be from owned animals that live in the vicinity and were running at large
 - Stray dogs and feral or barn cats often establish a territory and will be seen again, especially if they’ve had access to food.
 - Visual observation that a biting animal is alive and not exhibiting overt neurological illness several days after a bite incident, even if the animal can not be captured, would argue against the need for PEP (“observation on the run”).

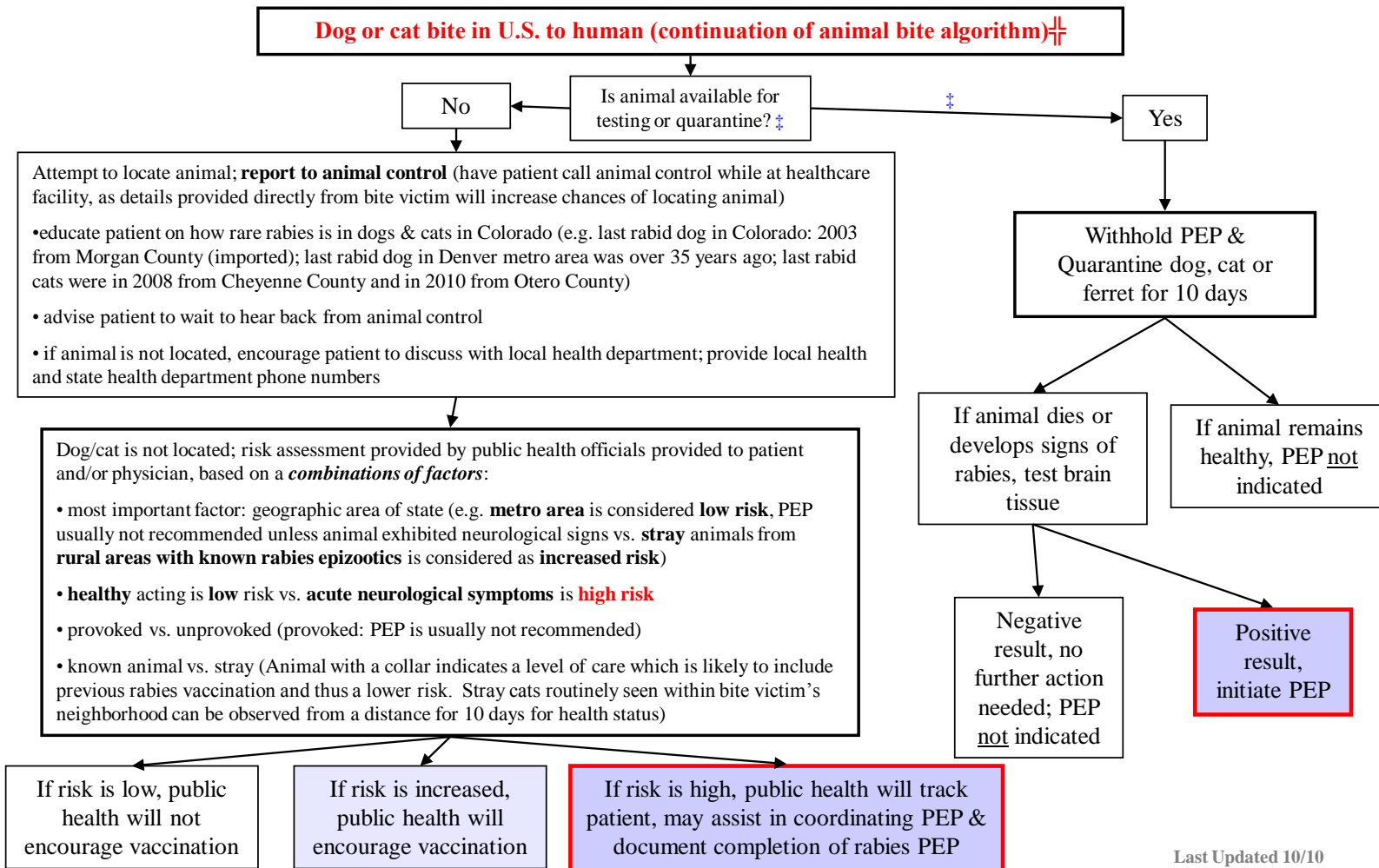
- For high risk bites, PEP should be initiated immediately. Treatment can be discontinued following a negative rabies test or locating the biting animal for observation. Circumstances that indicate a high risk for rabies exposure from a dog or cat bite in an area with skunk rabies may include:
 - Abnormal or bizarre behavior (biting at air, attacking inanimate objects)
 - Clinically ill with neurological signs, motor control deficits or overt aggression
 - Unprovoked, sustained attack
 - Owner reports sudden, unexplained behavior changes
 - Owner reports recent contact (within previous 6 months) of pet dog or cat with skunks or bats
- **For dog and cat bites in areas where skunk rabies is endemic, PEP will usually be indicated when the biting animal is not located unless the circumstances suggest a low risk of rabies exposure (see dog and cat bite algorithm for examples).**

Communicating with Bite Victims and Healthcare Providers

- The only zero risk options for a dog or cat bite are: test the biting animal, place the biting animal under 10-day observation or initiate PEP. Locating the biting animal is the best resolution.
- Most dog and cat bites in Colorado will not require PEP.
- Recommendations for PEP are based on the risk assessment of rabies exposure. If a properly conducted assessment indicates very low risk then PEP should not be recommended.

Public health makes PEP recommendations based on the investigation of a bite incident; the physician and patient will ultimately make the final decision. Many healthcare providers are not aware of rabies epidemiology in their area and are not familiar with ACIP recommendations. Therefore, both the victim and their provider should be provided with a clear explanation from public health officials including such information.

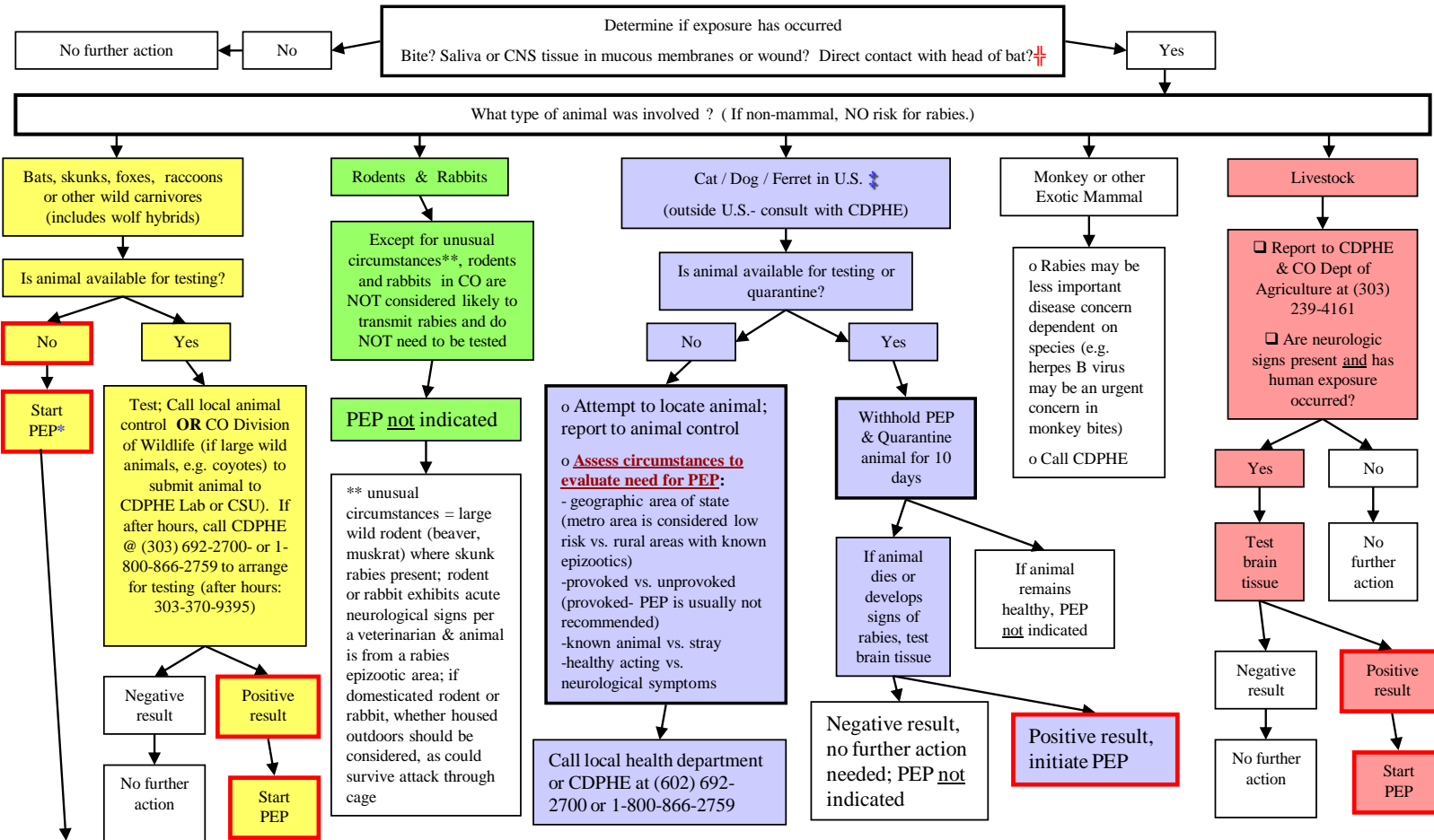
Colorado Department of Public Health & Environment Rabies Risk Assessment For Human Exposure To Animals



Last Updated 10/10

‡ This algorithm is to assist local health departments and physicians with assessing risk of rabies exposure when a dog or cat is not available for 10 day quarantine or testing. Bites from dogs or cats outside of U.S.– consult CDPHE. ‡ CDPHE Rabies Prevention & Control Policy; Management of Domestic Dogs, Cats and Ferrets Involved in Human Bites and associated Algorithm are available on CDPHE webpage: www.cdph.state.co.us/dc/zoonosis/rabies. Examples of factors considered within risk assessment by public health officials are provided within the text above. Patients are advised to combine risk assessment with discussion with a physician. For assistance with risk assessment, contact your local health department or Colorado Department of Public Health & Environment, Communicable Disease Epidemiology Section at (303) 692-2700.

Colorado Department of Public Health & Environment (CDPHE) Rabies Risk Assessment For Human Exposure To Animals



*There is no quarantine period established for wild animals, therefore **post exposure prophylaxis (PEP)** or testing brain of involved animal are the only appropriate measures if an exposure occurs.

‡ CDPHE Rabies Prevention & Control Policy; Management of Domestic Dogs, Cats and Ferrets Involved in Human Bites and associated Algorithm are available on CDPHE webpage: www.cdph.state.co.us/dc/zoonosis/rabies

‡ Bites by high rabies incidence wildlife species such as bats, skunks, foxes, and to a lesser extent – bobcats and coyotes, warrant emergency testing after hours. PEP should be considered when direct contact between a human and a bat has occurred, unless exposed person is an adult and can be certain that a bite, scratch, or mucous membrane exposure did not occur. Persons who have been sleeping in a room with a bat, and persons with mental impairment or children who are found playing unsupervised with a rabid bat, should be considered for prophylaxis.

If additional questions, call your local health department or **Colorado Department of Public Health & Environment (CDPHE)**, at (303) 692-2700 or 1-800-866-2759

Last updated 10/10

Subsections “e” through “g” are not official CDPHE Policies and serve as a summary of sections of the ACIP guidelines at the last update of this document; please also review the most current ACIP guidelines.

e. Human Rabies Vaccines & Immunoglobulin:

Two cell culture rabies vaccines are currently (November 2010) available in the U.S. for rabies prophylaxis in humans. They are all equally safe and effective. Some, but not all, of the county health departments in Colorado can obtain rabies vaccines (but not human rabies immunoglobulin) and are prepared to administer it for high-risk patients for the cost of administration and vaccine. Many hospital pharmacies stock it, as do the military bases.

- Human Diploid Cell Vaccine (Imovax® Rabies) and Human Rabies Immunoglobulin (Imogam® Rabies HT) is available from Sanofi-Pasteur Labs [1-800-VACCINE (822-2463)]. The intradermal vaccine is no longer produced by Aventis-Pasteur.
- Purified Chick Embryo Cell Vaccine (RabAvert) is available from Chiron Corporation (1-800-244-7668) or (www.rabavert.com).
- Human Rabies Immunoglobulin (HyperRab™SD) is also available from Talecris Biotherapeutics (1-800-243-4153) or (www.talecris.com).

f. **Human Pre-Exposure Immunization**

Rabies pre-exposure vaccinations are administered to individuals such as veterinarians and their staff, wildlife biologists, rehabilitators, and animal control officers who routinely have contact with stray domestic, exotic, and/or wild animals. Pre-exposure immunization consists of three cell culture rabies vaccinations given on days 0, 7, and 21-28.

Pre-exposure immunization produces an immune response that is measurable by serum neutralizing antibody titers. Pre-exposure immunization may not provide optimal protection in the face of a rabies exposure. In the event of an exposure to a rabid or suspect rabid animal, vaccinated individuals should always receive 2 post-exposure vaccine doses on days 0 and 3. Immunoglobulin should not be administered.

For those working in an occupation which places them with a “frequent exposure” category, such as rabies diagnostic laboratory workers; veterinarians and staff, animal control officers, wildlife workers, and cavers where areas where rabies is enzootic; and anyone who frequently handle bats: two years after a person receives the initial series of pre-exposure rabies vaccinations, a serum sample should be drawn to measure serum-neutralizing antibodies. If the titer is below a 1:5 serum dilution, and the person has continuing potential rabies exposures, a single dose of rabies vaccination should be administered. Neutralizing antibody titers should be checked every 2 years. For humans, the rapid fluorescent focus inhibition test (RFFIT) is recommended by the Advisory Committee on Immunization Practices (ACIP). Serology via enzyme linked immunosorbent assay (ELISA) is not recommended. The RFFIT is the only valid method at this time to verify rabies virus neutralizing antibodies. A list of laboratories that perform RFFIT can be obtained from CDPHE.

Travelers to foreign countries that have endemic dog rabies:

Rabies pre-exposure vaccination is recommended for certain travelers to dog rabies enzootic areas.

Travelers should consult with a travel medical clinic at least one month prior to leaving. If a traveler is bitten or exposed to a mammal in a rabies endemic area, they should wash the wound with soap and water and seek immediate medical attention. Post exposure rabies

prophylaxis should be started immediately after an exposure in a high-risk area, and can be discontinued if the quarantine period (10 days for dogs and cats) is completed and the animal remains healthy, or if testing of the animal concludes that it was not infected with rabies. If the animal is not available for quarantine or testing, post-exposure rabies prophylaxis should be considered.

g. Human Post-Exposure Management:

Rabies vaccination should be administered according to the most current ACIP recommendations. Physicians and providers who administer rabies post-exposure prophylaxis in Arizona are required to report each case to the Arizona Department of Health Services on a Communicable Disease report form.

1. Local Treatment of Wounds:

Individuals who are bitten by an animal should be encouraged to wash the wound thoroughly for 10-15 minutes with soap and water, and seek medical care.

2. Post-Exposure Immunization: The appropriate protocol for post-exposure prophylaxis depends on the exposed patient's previous rabies vaccination history.

3. Post-exposure protocol for people who have never been vaccinated against rabies:

1. One dose (20 IU/kg) of human rabies immune globulin (HRIG) is administered on day 0. Infiltrate as much of the HRIG into the wound site as possible, and administer any remaining HRIG intramuscularly. HRIG should never be administered in the same syringe as the rabies vaccine, or at the same site of injection. If HRIG is not readily available, it may be given up to 7 days after the post-exposure vaccine series is initiated. After 7 days (3 vaccines), vaccine induced immunity should be initiated and administration of RIG is contraindicated. HRIG is sold in 300 IU/2ml pediatric vials or 1500 IU/10ml vials. For doses of cell culture rabies vaccine at 1 ml/dose administered intramuscularly in the deltoid muscle on days 0, 3, 7, and 14. A fifth dose on day 28 should be given to patients who are considered immunocompromised. The anterolateral aspect of the upper thigh can be used in infants/children. Administration of the vaccine in the gluteal region should be avoided.

4. Post-exposure protocol for previously immunized individuals cell culture rabies vaccinations:

- Two doses of cell culture rabies vaccine (1 ml) administered intramuscularly in the deltoid on days 0 and 3 after a rabies exposure.
- HRIG is not indicated if the pre-exposure vaccination was done with cell culture vaccines (available in the U.S. after 1980). If the exposed patient was previously immunized with an older vaccine (e.g. Duck Embryo, Suckling Mouse Brain, and Inactivated Nerve Tissue) that was not produced on cell culture and seroconversion was not checked or demonstrated, then complete post-exposure prophylaxis treatment, including HRIG, should be administered.

5. Adverse reactions associated with post-exposure immunization:

- RIG: local pain and low-grade fever.
- Rabies cell culture vaccine: mild, transient, local reactions (erythema, pain, itching, and swelling) have been reported.
- Occasional systemic reactions include headache, nausea, abdominal pain, muscle aches, and dizziness (see ACIP guidelines for more on reactions).

Prophylaxis should not be discontinued due to reactions without considering the patient's risk of acquiring rabies. Any unusual or severe adverse reactions attributed to vaccines or RIG should be reported to CDPHE at (303) 692-2700 and to the vaccine manufacturer.

- h. CDPHE Algorithm for Rabies Post Exposure Management (not posted on CDPHE webpage)

Rabies Post-Exposure Management

Rabies vaccine & human rabies immune globulin (HRIG) should be administered according to the most current recommendations from the Advisory Committee on Immunization Practices; *Human Rabies Prevention –United States, 2008, MMWR, May 23, 2008 / 57(RR03);1-26,28 & Use of a Reduced 4-Dose Vaccine Schedule for PEP to Prevent Human Rabies, Centers for Disease Control and Prevention, MMWR March 19, 2010 / 59(RR02);1-9*

Local Treatment of Wounds: Immediate & thorough washing of all bite wounds with soap & water for 10-15 minutes, AND irrigate with a virucidal agent such as povidone iodine solution. Tetanus prophylaxis and measures to control bacterial infections as indicated.

Immunization: The appropriate protocol for rabies post-exposure prophylaxis (PEP) depends on the exposed patient's previous rabies vaccination history

- Rabies vaccine: 1ml IM (not in gluteal region)
- HRIG: 20 IU/kg body weight
- If anatomically feasible, the full dose of HRIG should be infiltrated around the wound(s). Any remaining HRIG should be administered IM at an anatomical site distant from a muscle used for rabies vaccine administration.

| Treatment Regimen for Patient <u>Not</u> previously vaccinated against rabies | | | | | |
|---|---|---|---|----|----------------------------|
| Day 0 = date of initiation of treatment | | | | | |
| Day | 0 | 3 | 7 | 14 | 28 |
| HRIG | x | | | | |
| Rabies Vaccine | x | x | x | x | Only if immuno-compromised |

If HRIG is not given on day 0, HRIG may be administered within 7 days after rabies vaccine is first administered

| Treatment Regimen for Patient <u>previously</u> vaccinated* against rabies | | | | | |
|--|----------------------|---|----|----|----|
| Day 0 = date of initiation of treatment | | | | | |
| Day | 0 | 3 | 7 | 14 | 28 |
| HRIG | NOT INDICATED | | | | |
| Rabies Vaccine | x | x | no | no | no |

* **Previously vaccinated** = person with history of a complete pre-vaccination (3 doses) with Human Diploid Cell Vaccine (Imovax), Purified Chick Embryo Cell Vaccine (RabAvert), or rabies vaccine adsorbed (RVA);
OR
person with prior vaccination with any other type of rabies vaccine (usually prior to c.1980) **with a prior** documented history of antibody response to rabies vaccination

Chapter II: Colorado Rabies Response Field Guide (continued)
Section E. CDPHE Policies and Guidance Documents (continued)

2. Domestic Animal Rabies Exposure

- a. Management of domestic pets exposed to wildlife:

www.cdphe.state.co.us/dc/zoonosis/rabies/exposed%20pets%20policy.pdf

Background

The prevention of rabies in domestic animals is a major component of human rabies prevention. Worldwide most human rabies cases result from exposure to domestic animals, primarily dogs. The introduction of mandatory rabies vaccination laws, enforcement of leash laws, and stray animal control in the U.S. have eliminated canine-to-canine transmission of rabies and reduced the occurrence of rabies in domestic pets. However, rabies persists in several independent enzootic cycles involving various wildlife species, and spillover infections from these wildlife reservoirs to domestic animals occur. Human exposures to terrestrial rabies reservoir species (RRS) such as bats, skunks, raccoons, and foxes are usually recognized and limited to one individual. In contrast, rabid domestic animals have often resulted in large numbers of people being exposed. Domestic animals that have been exposed to RRS must be assessed for risk of rabies infection and managed to prevent human exposures. Based on the current epidemiology of rabies in Colorado, the primary rabies exposure risk for pets in this state is to bats and skunks. Skunk rabies has reemerged in Colorado with a few sporadic cases in eastern Colorado spreading to widespread epizootics, currently all occurring east of the Rocky Mountains. While the variants of rabies virus adapted to raccoons and foxes are not present in Colorado at this time, raccoons and foxes are RRS in other parts of the United States, and thus are considered increased risk for carrying rabies. Contact with other wild animal species should still be evaluated on a case-by-case basis.

Basis of Recommendations/Statutory Authority

National recommendations for the management of domestic animals exposed to rabies are outlined in the Compendium of Animal Rabies Prevention and Control (available at www.nasphv.org), produced annually by the National Association of State Public Health Veterinarians (NASPHV). This policy varies from the Compendium by recommending additional rabies immunization and a modified 6-month quarantine for the management of exposed, unvaccinated animals. Statutory authority is provided under Title 25, Article 4, Part 601, Colorado Revised Statutes, 1973 as amended. The statute mandates the reporting of pet animals potentially exposed to rabies, provides authority for exposed pets to be treated and confined per health department protocol, and requires the animal owner be notified in writing of the conditions being imposed.

Definitions -- For the purpose of this policy the following definitions will be used:

1. **domestic animals** – pets or livestock mammals

2. **pet** - Any of the following mammals: dog (*Canis familiaris*), cat (*Felis domesticus*), or ferret (*Mustela putorius*). Other domestic animals that are not livestock mammals will be considered as meeting this definition, as determined on a case-by-case basis, by the State Public Health Veterinarian or designee at the Colorado Department of Public Health & Environment.

3. **livestock mammal** - Other non-wildlife mammal for which there is a U.S. Department of Agriculture approved injectable vaccine labeled for use in that species as listed in the current version of the NASPHV Compendium of Animal Rabies Prevention and Control (e.g. horses, cattle, sheep). Other livestock mammals will be considered as meeting this definition, as determined on a case-by-case basis, by the State Veterinarian or designee at the Colorado Department of Agriculture.
4. **currently vaccinated** – A pet with one documented rabies vaccine, if the vaccine was given >28 days but ≤12 months prior to the exposure, OR a pet with two or more documented rabies vaccines, if the most recent is current (i.e., administered within the time frame specified by the vaccine manufacturer—e.g. either one, three or four years). For the purposes of this policy an animal’s vaccination status is based on the vaccine used and date administered, not on whether the animal is current under the local rabies vaccination ordinances. See Table 1.
5. **expired vaccination** - A pet with two or more documented rabies vaccines, if the most recent is not current. See Table 1.
6. **high risk pets** – A pet with no documented rabies vaccines, OR a pet with one documented rabies vaccine given <28 days or >12 months prior to the exposure. See Table 1.
7. **home observation** – Pets placed under home observation are to be monitored by the owner for signs or symptoms consistent with rabies infection. During the observation period, the animal can leave the home property while under physical control of the owner.
8. **home quarantine** – Pets placed under home quarantine must be physically confined to the owner’s property for the duration of the quarantine period by a fence, chain, cage, other physical restraint, or confined indoors. Contact with people and other animals should be minimized. **An animal under home quarantine cannot leave the owner's property for any reason** except when being transported for veterinary medical care. Any bites to humans or any symptoms consistent with rabies must be reported to the health department. If the owner is unable or fails to confine the animal to their property, the pet should be impounded for the remainder of the quarantine period.
9. **strict quarantine** - The animal must be isolated at a secured facility agreeable to the health department and local agency responsible for animal control
10. **Rabies reservoir species (RSS)** - The primary reservoir species responsible for maintaining rabies are bats, skunks, foxes, and raccoons (as well as mongooses in Puerto Rico).

Table 1. Classification of rabies susceptibility for dogs, cats, and ferrets exposed to rabies reservoir species (RRS).

| Number of previous rabies vaccinations* | Timing of most recent rabies vaccination | Status |
|--|---|----------------------|
| 0 | -- | High risk |
| 1 | Less than 28 days prior to exposure | High risk |
| | 12 or more months prior to exposure | High risk |
| | Between 28 days and 12 months prior to exposure | Currently vaccinated |
| 2 or more | Up-to-date** at time of exposure | Currently vaccinated |
| | Not up-to-date** at time of exposure | Expired vaccination |

* Vaccination history must be verified by review of a valid rabies vaccination certificate or consultation with the pet’s veterinarian.

** “Up to date” means that the most recent vaccination was given within the time frame specified by the vaccine manufacturer (typically one, three, or four years). A summary of these specifications is outlined in the current edition of the “Compendium of Animal Rabies Prevention and Control,” which is regularly updated by the National Association of State Public Health Veterinarians.

Risk Assessment

The risk of a domestic animal contracting rabies after contact with a RRS can be assessed with three questions:

1. Was the RRS rabid?
2. Is the exposed pet susceptible to rabies?
3. Did sufficient contact occur between the two animals to allow the transmission of rabies virus?

An affirmative answer to all three questions suggests a high risk of rabies virus transmission and subsequent development of rabies in the exposed animal. Conversely, a negative answer to any one question would suggest no rabies risk to the exposed animal.

Determination of Rabies Status

In all situations the RRS involved should be captured safely, to avoid human exposure, and submitted for rabies testing as per written Department policy. A negative direct fluorescent antibody (DFA) test for rabies excludes the risk of rabies exposure. Any animal that is DFA positive for rabies will be considered rabid. A bat, skunk, raccoon, or fox that was unable to be tested (escaped, discarded, was eaten or the skull was damaged, and no brain tissue was available for testing) will be considered as high risk of being infected with rabies. Other wild animal species that are unable to be tested should be evaluated on a case-by-case basis.

Determination of Susceptibility

A pet's susceptibility to rabies infection depends on its rabies vaccination status. For the purposes of this policy, a pet will fall into one of three vaccination categories: currently vaccinated, expired vaccination, or high risk pet as defined above. Vaccination history must be verified by review of a valid rabies vaccination certificate or consultation with the pet's veterinarian. Verbal vaccination history from the owner is not sufficient evidence. Additionally, Colorado law, 25-4-607, C.R.S., requires rabies vaccinations be performed by a licensed veterinarian. Thus owner-administered rabies vaccine is not recognized.

Serology – Serologic testing **cannot** determine whether an animal is adequately protected or if booster vaccinations are needed.

Rabies virus antibody titers are indicative of a response to vaccination or infection with rabies. Although a rabies virus neutralizing antibody titer of 0.5 IU/ml may indicate an adequate immune response to vaccination, the presence of neutralizing antibodies has NOT been correlated with protection from rabies virus infection. Animals with antibody levels in excess of 0.5 IU/ml have succumbed to rabies following exposure to rabies virus, while previously vaccinated animals with antibody titers below this level have survived viral challenge. Therefore, serologic evidence of circulating rabies virus antibodies does not constitute proof of current vaccination when managing rabies exposures or determining the need for rabies booster vaccinations in domestic animals.

Determination of Exposure

Rabies virus is present in the saliva and nervous system tissue (brain, spinal cord) of infected animals. The primary method of rabies virus transmission is a bite from a rabid animal. Transmission can also occur through the contact of saliva or nervous system tissue of a rabid animal with mucous membranes (eyes, mouth or nose), a fresh cut or wound. The absence of a visible bite wound following contact with a wild animal does not exclude the possibility that the pet was exposed to rabies. Due to the minute puncture wounds inflicted by bat teeth, bat bites can be difficult to visualize, even on persons or animals known to have been bitten. This can also be a concern in ruling out bites to domestic animals, as puncture wounds are difficult to see on haired skin and some bites inflict very limited injury. In addition, dogs could become exposed by biting into a rabid animal's spinal cord. Contact with urine, feces (guano), blood, or with a carcass that is dry and mummified or has no remaining brain tissue due to decomposition or maggot infestation does not constitute a rabies exposure.

Determining whether a RRS and pet had sufficient contact for rabies virus transmission to occur can be difficult. To ensure an accurate exposure assessment is made, a thorough interview must be conducted with the pet owner and other witnesses at the time the incident is reported. Information to be obtained should include: date, time and location of the interaction, whether direct physical contact was observed or how close the animals were (estimate distance), presence of puncture wounds or blood on the RRS or pet, and the presence of saliva or injuries on the RRS. It is not uncommon for an owner, when they become aware of possible ramifications such as quarantine of their pet, to minimize the potential risk by altering details of the interaction during subsequent interviews.

For the purposes of this policy, a pet is considered exposed if there was direct physical contact with a RRS (bat was attached to the pet, bat was in the pet's mouth, pet ate all or part of the bat) OR the circumstances strongly indicate physical contact occurred (dog standing next to bat barking at it, cat stalking or playing with the bat, finding a dead bat where a cat usually deposits its prey, saliva or bite wounds on the RRS, finding a partially consumed bat or other RRS, finding a dead skunk in the yard with a dog).

For situations in which physical or observed evidence of contact between the RRS and pet is lacking, but contact cannot be ruled out, determining whether exposure is likely to have occurred is at the discretion of public health authority. Examples of when a pet is NOT considered exposed include: a pet in the vicinity of a bat but unaware of its presence; a bat found on the property but the pet was in another area; a dead RRS found in a place the pet couldn't access; a live, roosting bat on the property exhibiting normal behavior or other evidence that suggests contact was unlikely (elderly or debilitated pet).

Management of Exposed Pets

Post-Exposure Prophylaxis (PEP) in Pets -- Human rabies PEP, consisting of protective antibodies from rabies immune globulin (RIG) and a series of inactivated rabies virus vaccine injections, is highly protective when administered to humans after exposure. **An effective PEP regimen in domestic animals has not been established.** In challenge studies, immunization of pets with only vaccine after exposure has generally provided poor protection to large viral challenges, though regimens that include RIG have shown more promise. Unfortunately, no RIG products for animals are licensed and human RIG is expensive, supplies are limited, and the risk of a severe reaction exists. PEP in an unvaccinated, exposed pet therefore, cannot be relied on solely to protect the owners and community.

Exposure to RRS -- If the determination is made by the local health department or animal control agency that a pet had adequate exposure to a RRS, the disposition of that pet will depend on its vaccination status as outlined below. If the pet exhibits any signs or symptoms suggestive of rabies during the required observation/quarantine period, the owner must notify the health department and arrange for an immediate veterinary examination. All incurred costs, including vaccinations, boarding and veterinary charges, are the owner's responsibility.

Currently Vaccinated Pets – The exposed pet shall be immediately re-vaccinated and placed under home observation for 45 days.

Pets with Expired Vaccinations -- Animals that have 2 or more documented rabies vaccinations shall be vaccinated immediately after exposure, placed under a 90 day home quarantine, and re-vaccinated in 30 days after the initial dose.

High Risk Pets -- The owner should be counseled on the risk of the animal developing rabies and euthanasia of the exposed animal should be recommended as the preferred course of action. If the owner is unwilling to do this, a mandatory 180-day quarantine will be required. The first 90 days of the quarantine is a strict quarantine (the animal must be isolated at a secured facility agreeable to the health department and local agency responsible for animal control). The home property is NOT acceptable for this phase of the quarantine. Rabies vaccine should be administered to the animal immediately after exposure and again 21 and 60 days later. If the animal remains healthy and exhibits no signs or symptoms consistent with rabies at 90 days, it is released to the owner to complete the second half of the 180-day confinement period under home quarantine.

Exposure to Non-RRS Wild Mammal – If a pet is exposed to a wild mammal that is not a rabies reservoir species, but in which spill over infections has been documented (e.g. bobcat, coyote), consultation with CDPHE by local animal control or local public health officials should occur to determine quarantine conditions, on a case-by-case basis.

Livestock Mammal – Cases of rabies in livestock occur in states with endemic terrestrial mammal rabies, primarily skunks. In 2009, a cow and horse tested positive for rabies in El Paso County during skunk rabies epizootics in the immediate area. In the U.S., the likelihood of recognized contact between an insectivorous bat and livestock would be remote. In the event of a suspected or confirmed exposure to livestock mammal(s) in Colorado, the recommendations outlined in the Compendium should be applied, in consultation with and the Colorado Department of Agriculture.

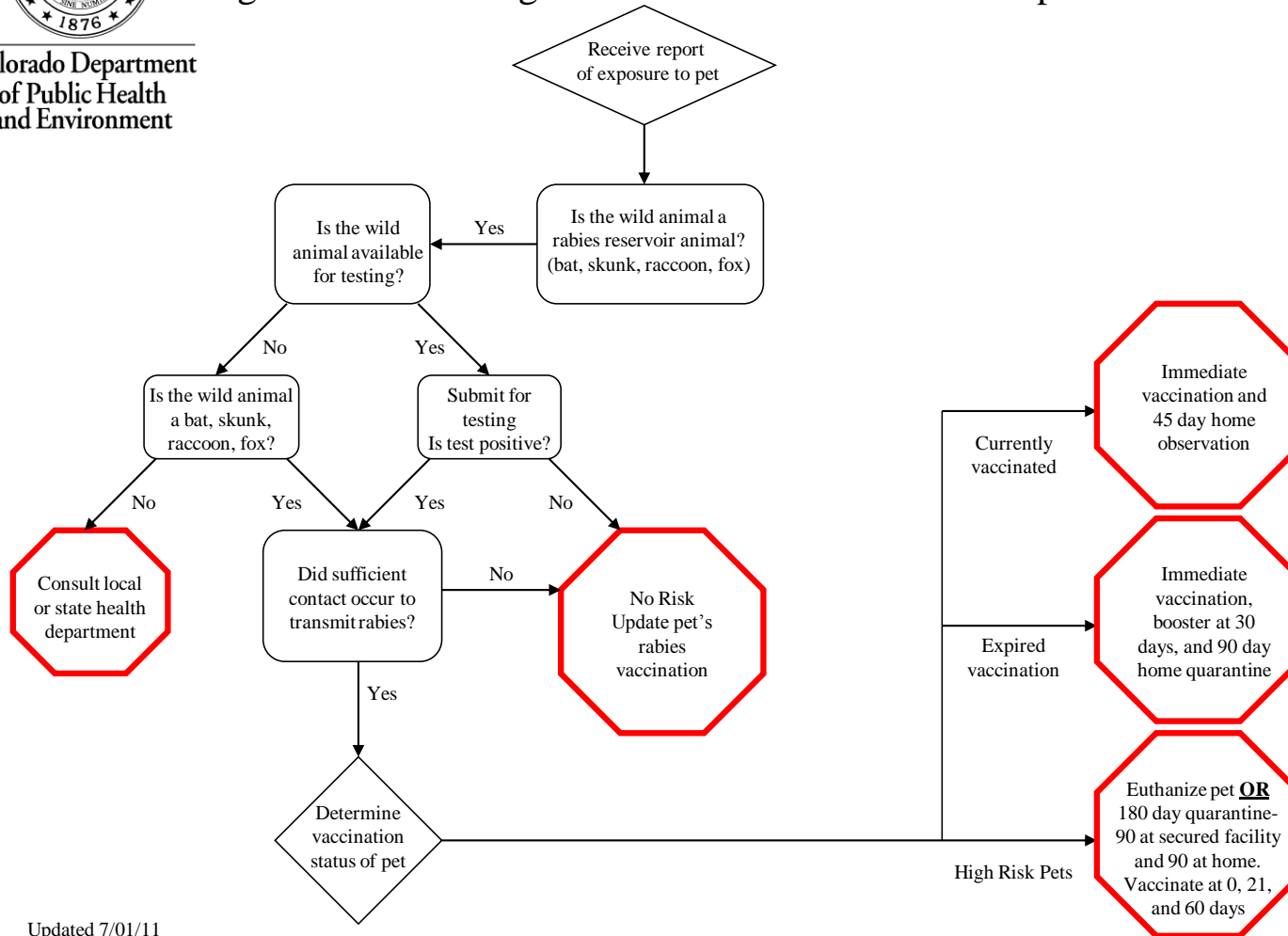
Algorithm for policy (please refer to full text of policy for definitions for vaccination status of domestic animal):
(www.cdphe.state.co.us/dc/zoonosis/rabies/pet%20exposure%20algorithm.pdf)



Colorado Department
of Public Health
and Environment

CDPHE Rabies Prevention and Control Policy

Algorithm for Management of Domestic Animals Exposed to Wildlife



Updated 7/01/11

Chapter II: Colorado Rabies Response Field Guide
Section E. CDPHE Rabies Prevention and Control Policies and Guidance Documents
Subsection 2. Domestic Animal Exposures (continued)

- b. Applying CDPHE Policies to Enforcement of Quarantines of Animals; *guidance for local public health agencies for risk assessment for animal rabies exposures.* Collection of the following information is needed for such assessment.
1. Did sufficient contact occur to allow the transmission of rabies virus?
 - a. Was there direct physical contact?

Examples: bat attached to pet, bat found in pet's mouth, bat eaten by pet, fight observed between pet and skunk
 - b. Do circumstances strongly suggest that physical contact occurred?

Examples: dog barking at bat, cat stalking or playing with bat, bat found at site where cat deposits prey, saliva or bite wounds on bat, partially consumed carcass found, dead animal found in yard with dog
 - c. If there is no physical or observed evidence of contact (e.g., pet unaware of its proximity to animal, dead animal found in area inaccessible to pet), then it is unlikely that sufficient contact occurred.
 2. Was the wild animal rabid or possibly rabid? The following information should be considered when the wild animal is not available for testing or is untestable.
 - a. Animals susceptible to rabies
 - i. Contact with rabies reservoir species (bats or skunks) poses the greatest risk.
 - ii. Contact with other wild carnivorous mammals (e.g., foxes, coyotes, bobcats, mountain lions) poses high risk.
 - iii. Contact with wild noncarnivorous mammals poses low risk; consult with CDPHE to discuss level of risk.
 3. Determination of rabies status of wild animal
 - a. If possible, all bats or skunks associated with pet exposures should be tested for rabies.

4. Determination of vaccination status of domestic animal; please review the definitions in CDPHE policy “Management of domestic pets exposed to wildlife”

c. Recommendations for Hybrid Wolves Regarding Vaccination, Bite Follow Up and Exposure to Rabies

1. Policy in text:
<http://www.cdphe.state.co.us/dc/zoonosis/rabies/wolf%20policy%202009.pdf>
2. Algorithm for policy (please refer to full text for context and proper interpretation):
<http://www.cdphe.state.co.us/dc/zoonosis/rabies/wolfflow.pdf>

Chapter II. Colorado Rabies Response Field Guide

Section F. CDPHE Recommendations for Local Health Departments and Local Animal Control Agencies on Response to Terrestrial (non-bat) Rabies Epizootics

When an epizootic (outbreak in animals) of skunk rabies is reported in a community, the Colorado Department of Public Health and Environment (CDPHE) may recommend certain actions to local health departments and local animal control agencies to protect public and animal health, dependent on the circumstances, level of risk, and available resources, including the following:

1. Public education such as these examples
 - a. Door-to-door fliers (for high risk areas to elicit reports of exposures)
 - b. posting signs at parks, trail heads, post offices and/or feed stores
 - c. inserts in utility bills
 - d. public service announcements- available on CDPHE webpage
2. Notification of surrounding facilities (e.g. schools, day care centers, recreation areas—dog parks, trail systems, golf courses)
3. Mass vaccination clinics for dogs & cats, which requires coordination between local animal control, animal shelter/humane society, and local veterinarians
4. Outreach to the first responders to rabies:
 - a. ER's, to ensure stock of human vaccine
 - b. Veterinarians
 - c. Wildlife trappers & wildlife rehabilitators
 - d. DOW staff in the region (in addition to ongoing communication)
5. Review local ordinances, for requirements for rabies vaccination of dogs & cats, as well as whether leash laws are in place (requiring confinement to property).
6. Relationship Building/Strengthening; Strengthen communication between first responders to rabies: local health department, animal control, Division of Wildlife, wildlife trappers, veterinarians. Organize training sessions bringing all groups together, working through scenarios with an emphasis of when to call whom.
7. Capacity Assessment; Touch base with local animal control and/or local law enforcement sheriff to assess capacity such as response to suspect rabid animals, to assist with quarantine of exposed pets, and to round up strays in high risk areas. Without the assistance of local animal control and/or local law enforcement, public health agencies cannot adequately protect public health from rabies.

Limitations:

For Section III. A. "Roles, Responsibilities and Resources of Agencies and Statewide Associations", language provided by the CORAB Task Force beyond the statutory authority and regulations for state agencies was written only as a descriptive summary of possibly available resources. Associations and local agencies are limited by available resources, which may vary over time and jurisdictions. Knowledge of such available resources can only be established through development of a working relationship and strong communication between local animal control, local public health, veterinarians, humane societies and/or animal shelters, and wildlife professionals in each community.

Chapter III: Rabies Related Resources & Information in Colorado

Section A: Roles, Responsibilities & Resources of Agencies & Statewide Associations

A. Colorado Department of Public Health and the Environment (CDPHE)

1. Role: to protect public health. CDPHE conducts statewide surveillance for rabies & certain other zoonotic diseases in both humans and animals (e.g. plague, tularemia, West Nile virus, hantavirus, enteric zoonotic pathogens).
2. Responsibility: Provide guidance on prevention, preparedness, surveillance, control & response to rabies to local level
3. Resources:
 - a. CDPHE Laboratory provides rabies testing of animals, both domestic and wild
 - b. Public health professionals trained in communicable disease prevention and control
 - c. Public information officers with statewide outreach
 - d. Health Alert Network for rapid notification of healthcare providers and laboratories
 - e. Contract with Rocky Mountain Poison & Drug Center for COHELP, a staffed hotline to answer questions on urgent public health issues
 - f. CDPHE Emergency Operations Center
 - g. Secure portal and database for zoonotic disease data management

B. Colorado Division of Wildlife (CDOW) of the Department of Natural Resources

1. The CDOW is responsible for managing wildlife in the state of Colorado.
2. District Wildlife Managers (DWM) responds to calls on sick and injured wildlife.

C. Colorado Department of Agriculture (CDA)

1. Role: The Animal Industry Division provides livestock disease prevention and control; rodent and predator control services; pet animal facility inspection and licensing through the Pet Animal Care Facilities Act Program; and animal cruelty investigations through the Bureau of Animal Protection.
2. Responsibility: The CDA's protocol for response to possible exposure of livestock to suspect or confirmed rabid wildlife animals.
 - a. Confirmed rabid wild mammals: Where direct contact between the wild terrestrial mammal and livestock is highly likely, CDA will handle the situation on a case-by-case basis but will visit the site for an assessment within a timely manner. Vaccination, quarantine, and/or euthanasia may be implemented based on the most recent NASPHV Rabies Compendium. CDA will notify CDPHE and/or local public health on action taken. (Public health officials will notify local animal control when necessary).
 - b. Suspect wild mammal (unavailable for testing): Where direct contact is highly likely, CDA or local public health will handle the situation on a case-by-case basis and may request the owner to have a veterinarian examine and vaccinate livestock mammals, at the expense of the owner, within a timely manner. A home quarantine or euthanasia may be required, based on most recent NASPHV

Rabies Compendium. CDA will notify CDPHE and/or local public health. (Public health officials will notify local animal control when necessary).

- c. Suspect or confirmed rabid wild mammal with low risk for direct contact with livestock: CDA will coordinate with state or local public health officials to make recommendations to the owner for the management of the situation in a timely fashion.

3. Resources: a reference list consisting most licensed veterinarians in the state of Colorado (contains over 1800 licensed vets in the state). This dispatch system for sending alerts, warnings, and notifications (DAWN) is capable of using emails, voice messages, and text messages.

D. Colorado Veterinary Medical Association (CVMA)

1. Role: CVMA exists to enhance animal health and welfare, promote the human/animal bond, protect public health, and foster excellence in veterinary medicine through education, advocacy and outreach

2. Responsibility:

- a. CVMA does not have primary responsibility for rabies surveillance or management, but instead plays a collaborative and assisting role No official responsibility - support capacity only
- b. Licensed veterinarians are exclusively designated in Colorado statute as the individuals whose administration of rabies vaccines is legally recognized by authorities such as animal control and public health
- c. Licensed veterinarians are trained in the proper handling of suspect rabid animals, decapitation of suspected rabid animals when appropriate, and submission of samples to the diagnostic laboratory
- d. Licensed veterinarians are authorized in statute, and pursuant to rules promulgated by CDPHE, to issue a waiver of the rabies vaccination requirement if the animal to be exempted has a medical condition defined as 'a disease, illness, or other pathological state' for which, in the opinion of the exempting veterinarian, a rabies inoculation is contraindicated

3. Resources:

- a. Communication channels to reach an estimated 2,300 licensed veterinarians and 530 veterinary students in the state of Colorado through a quarterly publication (CVMA Voice), a website, frequent electronic communications, and animal health alerts as needed
- b. Education channels to deliver rabies-related education to veterinary healthcare teams, including convention sessions and webinars
- c. Public education and outreach efforts, including an annual initiative that provides pets of economically disadvantaged owners a complimentary physical exam and rabies vaccination (if appropriate) through participating veterinary clinics
- d. A ready link to the Colorado Veterinary Medical Foundation's Animal Emergency Management Program, which supports the Colorado Veterinary Medical Reserve

E. United States Department of Agriculture (USDA), Animal Plant Health Inspection Service (APHIS), Animal Care (AC)

1. Role: USDA-AC licenses and inspects traveling petting zoos

F. United States Department of Agriculture (USDA), Animal Plant Health Inspection Service (APHIS), Wildlife Service (WS)

1. Role: USADA-WS provides Federal leadership and assistance with the management of damage caused by wildlife. WS' Wildlife Disease Program coordinates and assists in the sampling of wildlife for the monitoring, surveillance, and management of various diseases of wildlife, including rabies.
2. Responsibility: USDA-WS does not have primary responsibility for rabies surveillance or management, but instead plays a collaborative and assisting role.
3. Resources:
 - a. Expertise in the capture of wild animals.
 - b. One Wildlife Disease Biologist in Colorado whose primary duties are to work with local, state, and other Federal agencies on wildlife disease issues, including rabies.
 - c. Nationwide, WS also has an additional 42 Wildlife Disease Biologists who may be available for emergency response.
 - d. Outside of the Wildlife Disease Program, WS' Colorado State Office also employs 35 Wildlife Biologists and Wildlife Specialists who can provide expertise and services on a fee-for-service basis, and may be available for emergency response.
 - e. Four-wheel drive trucks, ATV's, and numerous wildlife-capture devices.

G. United States Department of Agriculture (USDA), Animal Plant Health Inspection Service (APHIS), Veterinary Service (VS)

1. Roles/Responsibilities:
 - a. USDA-VS works with the state veterinarian's office and supports their efforts
 - b. USDA-VS monitors certain diseases with large livestock health impact (e.g. Foreign Animal Diseases)
2. Resources: In case of rabies there are no USDA indemnity funds for herd euthanasia if rabies documented in herd.

H. Colorado Association of Animal Control Officers (CAACO)

1. Role:
 - a. CAACO's mission is to improve the methods of animal control practice, inform the public about animal control, promote justice and equity in the enforcement of animal control laws and advance the health, welfare, professionalism and morale of all animal control officers in the state of Colorado.
 - b. For rabies response, CAACO's role is to help educate animal control officers (ACO's) about safely, correctly and consistently performing their duties as first responding health officers. CAACO's methods to educate ACO's include offering training classes, sending email alerts to members, publishing information in our newsletter, and reaching out to non-member ACO's and agencies.
2. Responsibility and/or Authority: CAACO has no particular responsibility or authority in rabies response other than to present accurate information to our members and the public when called upon to do so.
3. Resources: educational resources listed above as well as the ability to contact hundreds of animal control officers/agencies with news and information. CAACO is currently working to further expand the list of animal control entities in Colorado.

I. Colorado Wildlife Control Operators Association (CWCOA)

1. Role: Wildlife Control; The Colorado Wildlife Control Operators Association is the state trade association for individuals and small businesses that help property owners resolve nuisance wildlife conflicts.
2. Resources: There are roughly 50 WCO's in Colorado. Currently, wildlife control operators handle several thousand skunk and raccoon calls annually. Wildlife control operators are available to capture symptomatic skunks, raccoons, foxes, etc., for a fee and submit them for testing, when warranted. Some individual operators will do periodic decapitations as a free service. Volume requests may be charged a fee.

J. Colorado Council for Wildlife Rehabilitation (CCWR)

1. Role: to provide the wildlife rehabilitation community with up-to-date information with regards to rabies reservoir species. CCWR is proactive in teaching and informing the members of the communities we serve.
2. Responsibility: ensuring all wildlife rehabilitators receive timely updates of critical information, are represented as a player in the statewide process of maintaining the wildlife population and providing an informative interface between the public, wildlife, and wildlife rehabilitators.
3. Resources include CDOW, CDPHE and all other agencies involved in the transfer, collection and implementation of information pertinent to the safety and welfare of the public and those involved in the handling of wildlife.

K. Local Public Health Agencies

1. Role: to protect the health of the citizens of any given county or region of Colorado. Monitor the epidemiology of rabies in wildlife and domestic animals in the county or region. The local environmental health agency may be a part of the local public health agency or a separate agency; contact your local public health agency for clarification.
2. Responsibility: Consult and educate the county or region's residents regarding prevention, surveillance and risk of rabies. Cooperate with local animal control and state agencies (CDPHE, DOW, CDA) and local animal control agencies. **The responsibilities of local public health agencies are highly variable between jurisdictions. Contact your local public health agency to determine what role and responsibilities the agency plays in rabies prevention and control in your community. Some, but not all, local public health agencies are responsible for the following in their jurisdiction:**
 - Conduct risk assessments for human exposures to domestic or wild animals
 - Conduct risk assessments for domestic animal exposures to wild animals
 - Make recommendations to exposure victims regarding the administration of PEP
 - Consult with physicians regarding the indications for and correct administration of PEP
 - Assist exposure victims in the procurement of PEP when indicated and where resources are available
 - Determine the need for rabies testing or quarantine of an animal in conjunction with local animal control and state agencies
 - Assist in the logistics of testing animals for rabies
 - Educate the public about rabies through the media and other methods

- Consistent, regular communication with local animal control agencies, the Colorado Division of Wildlife, the Colorado Department of Public Health and Environment, and other relevant agencies

3. Resources of Local Public Health: The resources of local public health agencies are highly variable between jurisdictions. Contact your local public health agency to learn what services the agency can offer for rabies prevention and control. Some, but not all, local public health agencies have the following resources in their jurisdictions:

- a. Risk assessment for human and animal rabies exposures (agencies serving major cities may have 24/7 availability)
- b. Transportation of animals for rabies testing
- c. Rabies vaccinations for first responders to rabies on a fee basis
- d. Educational materials for the public and media
- e. Emergency preparedness resources
- f. Access to CDPHE public health professionals trained in communicable disease prevention and control

L. Animal Control Agencies (City or County)

1. Role: The role of the local animal control officer or local animal control agency in the surveillance, prevention and control of rabies is to act, under the authority of state statute, local health departments and/or local animal control ordinances, as the first responding health officer to identify, document, and verify instances of potential rabies exposure and to then initiate an appropriate response to prevent further exposure and to manage those animals deemed to have been exposed. In the event that a local jurisdiction does not have an animal control officer, the local law enforcement agency has the statutory responsibility to fill this role (police/sheriff).

2. Responsibilities:

- a. In conjunction with the local health department and/or other subject matter experts, develop written policies and procedures for the response to animal bite/wildlife exposure situations. Develop forms to capture the necessary information. Define routine and non-routine situations – including the circumstances that require direct involvement of the local and/or state health authorities.
- b. Document instances of animal bites to humans and exposures of pets and livestock to wildlife including date, time, location, circumstance and the narrative of victims and witnesses.
- c. Verify and collect documentation on pet rabies vaccination to include date administered and type of inoculation, and the administering veterinarian.
- d. Post and enforce pet quarantine orders applicable to the specific circumstance as per established protocol or as directed by the local and/or state health authorities. Document and verify periodic health checks on subject animals and verify and document booster vaccinations.
- e. Communicate with local and/or state health authorities about all situations that involve wildlife bite or scratch exposure to people and pets so that the case can

be evaluated by subject matter experts and a proper course of action determined based on the specific situation.

- f. Notify the local District Wildlife Manager of DOW if assistance with wild animal capture is necessary (e.g. large or very aggressive predator).
- g. When available, capture, euthanize and decapitate wildlife (involved in pet or human exposure) for laboratory analysis. For bats, submit the whole carcass. In instances where a pet animal has bitten a person and then subsequently died, decapitate the animal and submit for laboratory analysis.
- h. Conduct follow-up with animal owners to ensure that quarantine procedures and vaccination requirements are being followed.
- i. Initiate legal action, up to and including obtaining a seizure warrant, in circumstances where an animal owner refuses to produce a bite animal or refuses to abide by the terms of a quarantine order.
- j. Provide zoonoses and safety education to the animal control staff. Provide the proper animal capture equipment and arrange for pre-exposure rabies prophylaxis for field personnel.
- k. Strictly enforce leash laws and animal licensing requirements (or rabies vaccination requirements).
- l. To the degree possible, provide public education relating to rabies and other zoonotic diseases and what methods and strategies are available to protect people and pets. Publicize, advertise or sponsor low cost vaccination clinics.

3. Authority: CRS Title 25, CRS Title 30-15-101 through 105, local ordinances.

4. Resources: Animal control resources vary greatly depending on jurisdiction. Most urban areas have animal control departments that possess the necessary equipment and training to respond to animal bite and wildlife exposure cases. Some rural areas do not have animal control personnel or services available. In those situations, local law enforcement should consult with local health authorities to determine if contract services, mutual aid resources, or staff training resources are available to handle potential rabies exposure situations.

Chapter III: Rabies Related Resources & Information in Colorado
Section B. Laws, Regulations, & Ordinances
1. Colorado Revised Statutes

a. Title 25, Article 4, Part 6, Rabies Control

25-4-601 - Definitions. As used in this part 6, unless the context otherwise requires:(1) "County board of health" means the body acting as the board of health of a county under the provisions of section 25-1-608.(2) "Health department" means the department of public health and environment or any county or district health department organized and maintained under the provisions of part 5 of article 1 of this title.(3) "Health officer" means the person appointed as the health officer of a county, city, or town under the provisions of section 25-1-610.(4) "Inoculation against rabies" means the administration of the antirabies vaccine as approved by the department of public health and environment or the county or district department of health.(5) "Owner" means any person who has a right of property in a dog, cat, other pet animal, or other mammal, or who keeps or harbors a dog, cat, other pet animal, or other mammal, or who has it in his care or acts as its custodian.

25-4-602 - Notice to health department or officer if animal affected or suspected of being affected by rabies. Whenever a dog, cat, other pet animal, or other mammal is affected by rabies or suspected of being affected by rabies or has been bitten by an animal known or suspected to be affected by rabies, the owner of the dog, cat, other pet animal, or other mammal, or any person having knowledge thereof, shall forthwith notify the health department or health officer in the county, city, or town in which such animal is located, stating precisely where such animal may be found.

25-4-603 - Report of person bitten by animal to health department or health officer. Every physician after his first professional attendance upon a person bitten by a dog, cat, other pet animal, or other mammal, or any person having knowledge thereof, shall report to the health department or health officer in accordance with the provisions of section 25-1-122 (1).

25-4-604 - Animal attacking or biting person to be confined - examination. The health department or health officer shall serve notice upon the owner of a dog, cat, other pet animal, or other mammal which has attacked or bitten a person to confine the animal at the expense of the owner upon his premises or at a pound or other place designated in the notice for a period designated by the department of public health and environment. The health department, health officer, or his representative shall be permitted by the owner of such dog, determine whether such animal shows symptoms of rabies. No person shall obstruct or interfere with the authorized person in making such examination.

25-4-605 - Animals bitten by animals known or suspected of having rabies to be confined. The health department or health officer shall serve notice in writing upon the owner of a dog, cat, other pet animal, or other mammal known to have been bitten by an animal known or suspected of having rabies requiring the owner to immediately treat and confine such animal by procedures outlined by the department of public health and environment.

25-4-606 - Animals to be confined to prevent spread of rabies. Whenever the board of health of a health department or the county board of health has reason to believe or has been notified by the department of public health and environment that there is imminent danger that rabies may spread within that county or district, such board shall serve public notice by publication in

a newspaper of general circulation in such county or district covered by such department requiring the owners of dogs, cats, other pet animals, or other mammals specified to confine such dogs, cats, pet animals, or mammals for such period as may be necessary to prevent the spread of rabies in such county or district.

25-4-607- Order of board of health requiring inoculation of animals - veterinarian waiver of order

(1) (a) When it is deemed advisable in the interest of public health and safety, the board of health of an organized health department or a county board of health may order that all dogs, cats, other pet animals, or other mammals in the county or district be vaccinated against rabies, such vaccination to be performed by a licensed veterinarian.

(b) Notwithstanding the provisions of paragraph (a) of this subsection (1), a board of health of an organized health department or a county board of health shall not order the inoculation of dogs, cats, or ferrets against rabies any more frequently than is recommended in the "Compendium of Animal Rabies Control" as promulgated by the national association of state public health veterinarians.

(2) A veterinarian, with the written consent of an animal's owner, may issue a written waiver pursuant to the rules of the health department, exempting an animal from a rabies vaccination order if the veterinarian, in his or her professional opinion, determines that the rabies inoculation is contraindicated due to the animal's medical condition.

(3)(a) The executive director of the health department shall enact rules allowing for the exemption of an animal from a rabies vaccination due to the medical condition of the animal.

(b) The owner of an animal seeking an exemption from a rabies vaccination for his or her animal must provide the veterinarian with written consent for the exemption.

(c) A veterinarian supplying a waiver exempting an animal from a rabies vaccination, county and municipal health departments, their assistants and employees, the health department, health officers, and anyone enforcing this part 6 shall not be liable for any subsequent accident, disease, injury, or quarantine that may occur as a result of an animal exempted from a rabies vaccination pursuant to the rules of the health department.

(4) A waiver executed pursuant to this section shall be accepted and recognized by any local or regional authority issuing licenses for the ownership of animals.

25-4-608 - Notice of order requiring inoculation of animals.

The order of a board of health of a health department or a county board of health requiring inoculation of all dogs, cats, other pet animals, or other mammals shall not become effective until twenty-four hours after notice of adoption of the order requiring inoculation of all dogs, cats, other pet animals, or other mammals has been published in a newspaper of general circulation in the county or district.

25-4-609 - Effect of order requiring inoculation of animals.

Sections **25-4-610** and **25-4-611** shall be in force and effect only in those counties, districts, or portions of counties or districts where an order requiring inoculation of all dogs, cats, other pet animals, or other mammals is in effect.

25-4-610 - Uninoculated animals not to run at large - impounding and disposition of animals.

It is unlawful for any owner of any dog, cat, other pet animal, or other mammal which has not been inoculated as required by the order of the county board of health or board of health of a health department to allow it to run at large. The health department or health officer may capture and impound any such dog, cat, other pet animal, or other mammal found running at large and dispose of such animal in accordance with local program policy. Such power to

impound and dispose shall extend to any and all animals unclaimed and found or suspected to be affected by rabies, whether wild or domestic. The division of wildlife shall cooperate with and aid the health department or health officer in the enforcement of this section as it affects animals found or suspected to be affected by rabies when such animals are in its care, jurisdiction, or control.

25-4-611 - Report to state department.

Each health department or health officer shall furnish information to the department of public health and environment concerning all cases of rabies and the prevalence of rabies within the county at any time such information is requested by the department of public health and environment.

25-4-612 - Enforcement of part 6.

The health officer or health department shall enforce the provisions of this part 6, and the sheriff and his deputies and the police officers in each incorporated municipality and the division of wildlife shall be aides and are instructed to cooperate with the health department or health officer in carrying out the provisions of this part 6.

25-4-613 - Liability for accident or subsequent disease from inoculation.

The health departments, their assistants and employees, the department of public health and environment, health officers, or anyone enforcing the provisions of this part 6 shall not be held responsible for any accident or subsequent disease that may occur in connection with the administration of this part 6.

25-4-614 - Penalties.

Any person who refuses to comply with or who violates any of the provisions of this part 6 is guilty of a misdemeanor and, upon conviction thereof, shall be punished by a fine of not more than one hundred dollars or by imprisonment in the county jail for not more than thirty days for each offense.

25-4-615 - Further municipal restrictions not prohibited.

(1) Nothing in this part 6 shall be construed to limit the power of any municipality within this state to prohibit dogs from running at large, whether or not they have been inoculated as provided in this part 6; and nothing in this part 6 shall be construed to limit the power of any municipality to regulate and control and to enforce other and additional measures for the restriction and control of rabies.

(2) Notwithstanding subsection (1) of this section, no municipality shall require any animal to be inoculated against rabies any more frequently than is recommended in the "Compendium of Animal Rabies Control" as promulgated by the national association of state public health veterinarians.

b. Title 30, Article 15, Part 1;

C.R.S. 30-15-101 through 106; Government, County, [PART 1](#)
CONTROL AND LICENSING OF PET ANIMALS

30-15-101. Pet animal control and licensing.

(1) (a) The board of county commissioners of any county may adopt a resolution for the control and licensing of dogs and other pet animals as provided in this part 1. Such resolution may:

(l) Require licensing of dogs and other pet animals by owners and impose reasonable conditions and fees on the same. No registration permit or license shall be issued by any board

of county commissioners unless and until the owner of a dog shall exhibit to such board or designated official a valid rabies vaccination certificate indicating the dog has been vaccinated against rabies by a licensed veterinarian. The county dog control resolution may exempt dogs below a specified age from licensing and registration or vaccination requirements, or both; except that the recommendations of the department of public health and environment shall be followed concerning the minimum age for such vaccination.

(II) Require that dogs and other pet animals be under control at all times and define "control", which may vary from time to time, place to place, and animal to animal;

(III) Define "vicious dog" and "vicious animal";

(IV) Establish a dog pound, or other animal holding facility, and engage personnel to operate it and otherwise to enforce the county dog control resolution or any other resolution concerning the control of pet animals;

(V) Provide for the impoundment of animals which are vicious, not under control, or otherwise not in conformity with the resolutions;

(VI) Establish terms and conditions for the release or other disposition of impounded animals;

(VII) Establish such other reasonable regulations and restrictions for the control of dogs and other pet animals as the board of county commissioners may deem necessary.

(b) The control provisions of such resolution, as provided in subparagraph (II) of paragraph (a) of this subsection (1), shall not apply to dogs while actually working livestock, locating or retrieving wild game in season for a licensed hunter, or assisting law enforcement officers or while actually being trained for any of these pursuits.

(2) In order to implement the provisions of this section, any county or municipality may enter into an intergovernmental agreement pursuant to the provisions of part 2 of article [1](#) of title [29](#), C.R.S., to provide for the control, licensing, impounding, or disposition of dogs or other pet animals or to provide for the accomplishment of any other aspect of a county or municipal dog control or pet animal control licensing resolution or ordinance.

(3) For purposes of this part 1, "pet animal" means and includes any animal owned or kept by a person for companionship or protection or for sale to others for such purposes. Except as otherwise provided in this subsection (3), "pet animal" does not include wildlife, livestock used for any purpose or which is stray as defined in section [35-44-101](#), C.R.S., or animals which are owned or bought and sold through the efforts of those that are licensed, inspected, or both, by the United States Department of Agriculture, the Colorado department of agriculture, or both; however, nothing in this subsection (3) shall be construed to exempt such animals from county control regulations.

30-15-102. Violations - penalties.

(1) Any violation of any provision of a county resolution adopted pursuant to this part 1 not involving bodily injury to any person shall be a class 2 petty offense, and, notwithstanding the provisions of section [18-1.3-503](#), C.R.S., punishable, upon conviction, by a fine of not more than one thousand dollars pursuant to section [30-15-402](#) (1), or by imprisonment in the county jail for not more than ninety days, or by both such fine and imprisonment for each separate offense. If authorized by the county resolution, the penalty assessment procedure provided in section [16-2-201](#), C.R.S., may be followed by an animal control officer or any arresting law enforcement officer for any such violation. As part of said county resolution authorizing the penalty assessment procedure, the board of county commissioners may adopt a graduated fine schedule for violations of said resolution not involving bodily injury to any person. Such graduated fine schedule may provide for increased penalty assessments for repeat offenses by the same individual.

30-15-103. Disposition of fines and forfeitures.

All fines and forfeitures for the violation of county resolutions adopted pursuant to this part 1 and all moneys collected by the county for licenses or otherwise shall be paid into the treasury of the county at

such times and in such manner as may be prescribed by resolution; or, if there is no resolution providing for the payment, it shall be paid to the county treasurer at once.

30-15-104. Liability for accident or subsequent disease from impoundment.

The board of county commissioners, city council, board of trustees, or other governing body of a municipality, any of their assistants or employees, or any other person authorized to enforce the provisions of any dog control resolution or ordinance or any resolution concerning the control of pet animals shall not be held responsible for any accident or subsequent disease that may occur to the animal in connection with the administration of the resolution or ordinance.

30-15-105. Animal control officers - peace officer designation.

Personnel engaged in animal control, however titled or administratively assigned, may issue citations or summonses and complaints enforcing the county dog control resolution or any other county resolution concerning the control of pet animals or municipal ordinance without regard to the certification requirements of part 3 of article 31 of title 24, C.R.S. Personnel so engaged shall be included within the definition of "peace officer or firefighter engaged in the performance of his or her duties" in section 18-3-201 (2), C.R.S. Nothing in this part 1 is intended to vest authority in any person so engaged to enforce any resolution, ordinance, or statute other than the county dog control resolution or any other county resolution concerning the control of pet animals or municipal ordinance.

c. Colorado Department of Agriculture (CDA) Authority According to Colorado Revised Statutes

35-50-105- Powers and duties of the commissioner.

(1) The commissioner is responsible for regulation related to livestock disease or other livestock emergencies among or affecting livestock in the state.

35-50-104- State veterinarian and authorized representatives.

(1) Subject to section 13 of article XII of the state constitution, the commissioner is authorized to employ a licensed doctor of veterinary medicine as state veterinarian, who will be an authorized representative of the department.

(2) The commissioner may employ, as assistants and authorized representatives, accredited veterinarians who are licensed to practice in Colorado as may be necessary to assist the state veterinarian in carrying out the duties and functions set forth in this article.

(3) The commissioner may commission graduate veterinarians located in various portions of the state, to be known as commissioned state veterinarians. Such commissioned state veterinarians may be called upon by the state veterinarian to perform such special duties in all hazards arising from any livestock emergencies as may be assigned to them, and they shall report to the state veterinarian. Commissioned state veterinarians shall perform only such special duties as may be assigned to them. Such commissioned state veterinarians shall hold their commissions at the pleasure of the commissioner and may be removed at any time.

(4) The commissioner may appoint or employ competent persons to perform duties as assigned by the state veterinarian for disease control or livestock emergencies.

(5) The department shall administer an infectious or contagious disease surveillance, control, and eradication program and shall supervise or be responsible for the supervision of all personnel engaged in any county or area infectious or contagious disease control program. The service of personnel commissioned or appointed pursuant to subsections (3) and (4) of this section shall be paid for by the livestock owner unless specifically provided for by local, state, or federal funding.

35-50-111- Quarantine.

(1) Whenever the commissioner deems it necessary to quarantine any specific livestock, premises, county, district, or section of the state for the purpose of preventing the spread of an infectious or contagious disease among the livestock within the state, the commissioner may, through the state

veterinarian, call on all sheriffs or other peace officers of any county within the state to assist in maintaining such quarantine and to arrest anyone who may violate such quarantine or any rules made by the commissioner for the purpose of maintaining such quarantine. It is the duty of all sheriffs or other peace officers to act in such cases when so called upon, and they shall be allowed such recompense as is provided by statute for similar services.

(2) The commissioner may place a hold upon any specific livestock, premises, county, district, or section of the state for the purpose of preventing the spread of an infectious or contagious disease when clinical signs and symptoms suggest the presence of the disease and laboratory confirmation is pending.

(3) Once testing has confirmed the presence of an infectious or contagious disease, the commissioner may quarantine any specific livestock, premises, county, district, or section of the state for the purpose of preventing the spread of any infectious or contagious disease within the state, under such rules as the commissioner may adopt.

(4) Whenever the commissioner finds it necessary to quarantine any livestock, ranch, farm, premises, or portion of this state because of an infectious or contagious disease, the commissioner may hold in quarantine such ranch, farm, premises, or part of this state as the commissioner may deem necessary after all livestock have been removed there from, until such time as in the judgment of the state veterinarian there is no further risk of exposing livestock to disease by permitting them to inhabit such quarantined area.

(5) Held or quarantined livestock shall be treated, fed, and cared for at the expense of the owner. All expenses of a hold or quarantine shall be borne by the owner of the livestock so held or quarantined and shall constitute a lien on such livestock.

35-50-112- Importation of livestock - pet animal health certificates.

(1) It is unlawful for any person, firm, or corporation to ship or drive into Colorado any livestock unless such livestock are accompanied by an official health certificate, except as may be set forth in rules promulgated by the commissioner. Such health certificate shall be in the form and manner as prescribed by the commissioner. No livestock known to be affected with, or exposed to, any infectious or contagious disease may be imported into Colorado except as authorized by rule. Livestock shall also meet all federal interstate requirements.

(2) The commissioner may promulgate rules creating and requiring pet animal health certificates. For the purposes of this section, "pet animal" means dogs, cats, rabbits, guinea pigs, hamsters, mice, ferrets, birds, fish, reptiles, amphibians, and invertebrates, or any other species of wild, domestic, or hybrid animal kept as a household pet, except livestock as defined in section [35-50-103](#) (7).

d. ARTICLE 9. OFFENSES AGAINST PUBLIC PEACE, ORDER, AND DECENCY

18-9-204.5. Unlawful ownership of dangerous dog.

The general assembly hereby finds, determines, and declares that:

Dangerous dogs are a serious and widespread threat to the safety and welfare of citizens throughout the state because of the number and serious nature of attacks by such dogs; and the regulation and control of dangerous dogs is a matter of statewide concern.

As used in this section, unless the context otherwise requires:

"Bodily injury" means any physical injury that results in severe bruising, muscle tears or skin lacerations requiring professional medical treatment or any physical injury that requires corrective or cosmetic surgery.

(a.5) "Bureau" means the bureau of animal protection in the department of agriculture, division of animal industry, created pursuant to section [35-42-105](#), C.R.S.

"Dangerous dog means any dog that: Inflicts bodily or serious bodily injury upon or causes the death of a person or domestic animal; or demonstrates tendencies that would cause a reasonable person to

believe that the dog may inflict bodily or serious bodily injury upon or cause the death of any person or domestic animal; or engages in or is trained for animal fighting as described and prohibited in section [18-9-204](#).

(c) "Dog" means any domesticated animal related to the fox, wolf, coyote, or jackal.

(d) "Domestic animal" means any dog, cat, any animal kept as a household pet, or livestock.

(e) "Owner" or "owns" means any person, firm, corporation, or organization owning, possessing, harboring, keeping, having financial or property interest in, or having control or custody of a domestic animal, as the term is defined in paragraph (d) of this subsection (2), including a dangerous dog as the term is defined in paragraph (b) of this subsection (2). (f) "Serious bodily injury" has the same meaning as such term is defined in section [18-1-901](#) (3) (p).

(3) A person commits ownership of a dangerous dog if such person owns, possesses, harbors, keeps, has a financial or property interest in, or has custody or control over a dangerous dog.

Any owner who violates paragraph (a) of this subsection (3) whose dog inflicts bodily injury upon any person commits a class 3 misdemeanor. Any owner involved in a second or subsequent violation under this paragraph (b) commits a class 2 misdemeanor.

Any owner who violates paragraph (a) of this subsection (3) whose dog inflicts serious bodily injury to a person commits a class 1 misdemeanor. Any owner involved in a second or subsequent violation under this paragraph (c) commits a class 6 felony.

2. Regulations (Colorado Administrative Code)

- a. **CDOW Regulations:** the following is a summary of the CDOW regulations that are related to rabies prevention and control; for full regulatory language, please visit the CDOW webpage: <http://wildlife.state.co.us/RulesRegs/Regulations>

Restricted Wildlife Species

Ch. 0 (#008-B): Private possession of skunks and raccoons is illegal, with a few exceptions (e.g., temporary holding of carnivore species – except skunks – for rehabilitation, relocation of nuisance animals, scientific collecting for *bona fide* research).

Ch. 3 (#300-B): Small carnivore species are considered to be “furbearers” in Colorado. Take is regulated therein.

Rehabilitation of wildlife/translocation and release

Ch. 3 (#303-A-3): Nuisance skunks cannot be relocated. Nuisance raccoons can be moved up to 2 miles and immediately released without a permit; moving raccoons greater distances requires a permit. Moving other carnivore species distances requires a permit.

Chs. 13 & 14 (#1300, #1400, #1401, #1406): Possession for scientific purposes or for rehabilitation (except striped skunks) allowed with proper species- or species group-specific licensure. Rehabilitated carnivores can be taken to any licensed facility, but must be released within 10 miles of origin unless an alternative release site is approved.

There are no specific relocation permit requirements for licensed wildlife rehabilitators, and releases of raccoons remain restricted to 10 miles rather than 2 miles.

b. CDPHE regulations

i. Rabies Vaccination Exemption for Animals

On January 19, 2010, the Executive Director of Colorado Department of Public Health and Environment adopted the proposed revisions to STATE OF COLORADO RULES AND REGULATIONS PERTAINING TO EPIDEMIC AND COMMUNICABLE DISEASE CONTROL, 6 CCR 1009-1, Section 8. Reporting of Diseases Among Animals AND WAIVER PROCESS FOR RABIES INOCULATION. Please refer to the CDPHE rabies webpage for the following documents and information related to this regulation:

[Rabies Exemption/Waiver Form](#) (PDF)

[Rabies Exemption/Waiver Form](#) (Word document)

[Colorado Revised Statute 25-4-607](#)

[Revised STATE OF COLORADO RULES AND REGULATIONS PERTAINING TO EPIDEMIC AND COMMUNICABLE DISEASE CONTROL, 6 CCR 1009-1, Section 8](#)

- ii. CDPHE – schools; Due to the presence of bat colonies on some school grounds and the public health risk that may pose to children at the school, CDPHE and local health departments have authority to require a school to implement proper bat exclusion steps, under the following:
- i. C.R.S. 25-1.5-102. Epidemic and communicable disease- powers and duties of department, Section VI, subsection d: “To abate nuisances when necessary for the purpose of eliminating sources of epidemic and communicable diseases affecting the public health.”
 - ii. Colorado Administrative Code
<http://www.cdphe.state.co.us/regulations/consumer/101006schools.pdf>.
CDPHE, Environmental Health & Sustainability Division, 6 CCR 1010-6, State Board of Health, Rules and Regulations Governing Schools in the State of Colorado

1-101 Purpose: The purpose of these "Rules and Regulations" is to provide minimum sanitation requirements for the operation and maintenance of schools and minimum standards for exposure to toxic materials and environmental conditions in order to safeguard the health of the school occupants and the general public

1-105 Definitions - For the purpose of these rules and regulations:

m. School Plant - A fixed location that includes the grounds and the academic, administration, and support structures and facilities

10-103 Procedures shall be established, as may be indicated, at each school district to provide for the protection of the health of the students and other users

10-104 The school plant shall be maintained and used in a safe manner to minimize health, safety and fire hazards. Fire control methods shall conform to state and local fire prevention regulations

3. Ordinances

- a. Vaccination & licensing requirements of pets; per C.R.S. 25-4-606 - Animals to be confined to prevent spread of rabies, the board of health of a health department or the county board of health may require vaccination and licensing of mammalian pets. The existence of such ordinances and associated requirements varies across the state.
- b. Leash ordinances; per C.R.S. 25-4-610 - Uninoculated animals not to run at large - impounding and disposition of animals, the board of health of a health department or the county board of health may establish a "leash law" for pets. The existence of such ordinances and associated requirements varies across the state.
- c. Sample Ordinances on Rabies Vaccination and Licensing of Dogs and/or Cats are provided within appendices; a model ordinance is available on the American Veterinary Medical Association webpage

Chapter III: Rabies Related Resources & Information in Colorado

Section C. Rabies Surveillance in Colorado

1. CDPHE Goals

Passive surveillance; bats and wild carnivores with possible contact with humans or domestic animals should be tested. Testing of other species of wild mammals with human or domestic animal contact may be warranted, based on assessment by public health officials.

Active surveillance; Testing of terrestrial rabies reservoir mammals (e.g. skunks, foxes, raccoons) with illness consistent with rabies or found dead with no obvious other cause of death, even with no known contact with humans or domestic animals, may be indicated, depending on the availability of resources (funding for submission and testing) and level of current knowledge of rabies in the area. Surveillance for rabies can determine the distribution of rabies and whether a rabies epizootic is occurring in the wild mammal population; surveillance information is necessary to assess the level of risk to public health and domestic animal health. The information gathered through such surveillance can be used by local public health, animal control, and wildlife officials to target prevention and control efforts such as public education, mass vaccination clinics of domestic animals, or steps to reduce the epizootic intensity in the wildlife population (e.g. thinning of dense population of terrestrial rabies reservoir animals in an epizootic location through private wildlife trappers or USDA, APHIS, WS; trap, vaccinate, & release; or oral rabies vaccination through USDA, APHIS, WS, if available for the species of concern). Such surveillance information may also act as an indicator to local public health when to pass an ordinance requiring rabies vaccination, licensing, and confinement of domestic animals in their community, if such an ordinance is not already in place.

CDPHE summarizes rabies surveillance information and posts on the CDPHE rabies webpage for use by “first responders” to make decisions regarding rabies issues in Colorado:
www.cdphe.state.co.us/dc/zoonosis/rabies

2. CDOW Goals:

References:

1. Compendium of Animal Rabies Prevention and Control, 2008
National Association of State Public Health Veterinarians; (www.nasphv.org)
2. Human Rabies Prevention- United States, 2008; Recommendations of the Advisory Committee on Immunization Practices (ACIP)
US Department of Health and Human Services, Centers for Disease Control and Prevention
(www.cdc.gov/rabies/resources/publications)
3. Use of a Reduced (4-Dose) Vaccine Schedule for Post-exposure Prophylaxis to Prevent Human Rabies, Recommendations of the Advisory Committee on Immunization Practices
(www.cdc.gov/rabies/resources/acip_recommendations.html)
4. 2007 American Veterinary Medical Association (AVMA) Guidelines on Euthanasia
(www.avma.org/issues/animal_welfare/euthanasia.pdf)
5. Guidelines for Euthanasia of Nondomestic Animals, American Association of Zoo Veterinarians (AAZV)
(<http://www.aazv.org/displaycommon.cfm?an=1&subarticlenbr=441>)
6. Euthanasia methods in field settings for wildlife damage management, *Human-Wildlife Interactions*, Vol 4, Num 2, 2010. Berryman Institute: http://www.berrymaninstitute.org/journal/fall2010/fall2010_julien_etal.pdf

Appendices

Appendix A: National rabies case definition

I. Rabies, Human; updated in 2010: <http://www.cste.org/ps2010/10-ID-16.pdf>

A. Clinical Description: Rabies is an acute encephalomyelitis that almost always progresses to coma or death within 10 days after the first symptom.

B. Laboratory Criteria for Diagnosis

1. Detection of Lyssavirus antigens in a clinical specimen (preferably the brain or the nerves surrounding hair follicles in the nape of the neck) by direct fluorescent antibody test, or
2. Isolation (in cell culture or in a laboratory animal) of a Lyssavirus from saliva, or central nervous system tissue, or
3. Detection of Lyssavirus RNA (using reverse transcriptase-polymerase chain reaction [RT-PCR] in saliva, CSF, or tissue
4. Identification of Lyssavirus specific antibody (i.e. by indirect fluorescent antibody [IFA] test or complete rabies virus neutralization at 1:5 dilution) in CSF

C. Case Classification

Confirmed: a clinically compatible case that is laboratory confirmed.

Comment: Laboratory confirmation by all of the above methods is strongly recommended.

II. Rabies, Animal

A. Laboratory Criteria for Diagnosis

1. A positive direct fluorescent antibody test (preferably performed on central nervous system tissue)
2. Isolation of rabies virus (in cell culture or in a laboratory animal)

B. Case Classification

Confirmed: a case that is laboratory confirmed.

Appendix B: CDOW FAQ on Rabies for CDOW staff only; specifically designed for District Wildlife Managers

FAQ: RABIES

What is rabies?

- Rabies is a relatively rare but deadly disease that is caused by a virus that attacks the nervous system.
- Rabies is transmitted by contact with saliva of an infected animal, usually through a bite wound.

Which animals might have rabies?

- All mammals, including humans, are susceptible. In Colorado, rabies occurs **mainly in wild bats and skunks**, and less frequently in foxes, raccoons, bobcats, coyotes, etc.
- Cats, dogs and livestock can also become infected with rabies if they are bitten by rabid wild animals, and they have not been vaccinated.
- Rodents such as rats, mice, gerbils, guinea pigs and squirrels are not likely to be infected with rabies.
- Herbivores such as deer, elk, and sheep are susceptible but unlikely to be infected with rabies.
- The best way for the public to protect themselves is to avoid touching, handling, or adopting wild or stray animals, AND to keep pets currently vaccinated through their local veterinarian.

What are the signs of rabies?

- The first sign of rabies is usually a change in the animal's behavior. Nocturnal animals like skunks, raccoons, and bats may be out during the day. Rabid animals may stagger, tremble, or seem weak. Rabid animals may appear agitated and excited or paralyzed and frightened. Sometimes, rabid animals do not show any signs of illness before death from rabies.
- Bats may be found on the ground, unable to fly.

Which animals should be submitted for rabies testing?

- Any **wild animal** that has **bitten or contacted** a person or domestic animal.
- Any carnivore that is showing neurologic signs (for example: seizures, staggering or circling)
 - However, for non-exposure* skunks, if skunk rabies has already been well documented in the county of origin then testing is not necessary unless the case represents an expansion of the current distribution of rabies or you have concerns about a particular case. *(Non-exposure means cases where there has been no pet or human exposure.)

What part of the animal should be submitted for testing?

- We prefer to have the entire carcass submitted to the Wildlife Health Lab for necropsy and we will remove the brain and submit it for testing.
- If the entire carcass cannot be submitted, remove the head and submit it. The health department does not accept whole carcasses (except bats), so if the submission is going directly to the health department submit only the head. (However, be advised that no further diagnostic work may be possible.)
- Please indicate whether there was human or domestic animal exposure when the head or carcass is submitted (this is required information for rabies testing).

Appendix C: Sample Ordinances for Dog and Cat Control

- 1) American Veterinary Medical Association model ordinance:
http://www.avma.org/issues/policy/rabies_control.asp
- 2) City of Lakewood, CO, ordinance, 6.01.010 :
<http://www.lakewood.org/index.cfm?&include=/CC/CityCode/Title06/Chapter%206.01.cfm#501010>
- 3) City of Westminster, CO, ordinance, 6-7-1 through 6-7-18:
http://www.ci.westminster.co.us/code/884_1742.htm
- 4) City of Wheatridge, CO, ordinance Part II, Chapter 4, Articles 1 through 3:
<http://search.municode.com/html/11707/index.html>
- 5) Jefferson County, CO, Policy Manual, Part 3 Regulations, Chapter 5 Animals, Section 1 Animal Control Regulation: http://www.co.jefferson.co.us/cadm/cadm_T26_R30.htm

Appendix D: Animal carcass disposal; regulatory context provided by CDPHE, Hazardous Materials and Waste Management Division, Solid Waste and Materials Management Program

Animal carcasses are managed as a solid waste in Colorado. Therefore, animal carcasses disposal is subject to the applicable requirements of the solid waste statute C.R.S. 30-20-100 *et seq.* and solid waste regulations 6 CCR 1007-2. Rabies infected animals would be considered infectious waste under C.R.S. 25-15-401 *et seq.* Infectious waste is regulated as a solid waste in Colorado. Clarifications on animal carcass disposal:

- There are only two solid waste animal incinerators that have been permitted, both are operated by DOW. Incinerators used by medical centers, hospitals, and universities are used to manage waste generated by that facility. If a medical center, hospital or university wished to accept animal carcasses, not generated through their routine operations, they would need to get a certificate of designation (permit).
- Permitted solid waste facilities in Colorado that treat infectious waste typically use autoclaves. Treated infectious waste is then taken to a landfill. Properly labeled and packaged infectious waste may be disposed of in a permitted solid waste landfill without treatment. The facility must be approved by CDPHE, Hazardous Materials & Waste Management, and the local governing authority prior to accepting infectious waste.
- While disposal of animal carcasses at a landfill is an acceptable method for managing carcasses, the landfill has the right of refusal for any waste stream. CDPHE recommends generators and/or transporters of animal carcasses contact the landfill to determine if they will accept this waste stream prior to showing up at the facility's front gate. CDPHE recommends that dead animals be placed into the 'working face' and covered immediately upon arrival at the landfill. It has been CDPHE's experience that dead animal pits create nuisance conditions and are poorly managed. Therefore CDPHE discourages landfills from having a dead animal pit.
- For large livestock animals, CDPHE encourages individuals that manage occasional animal carcasses on private property to use a layer of lime or quicklime below and above a carcass to accelerate the decomposition process. Overuse of lime should be avoided. If lime or quicklime is not available, burial without it is acceptable. Avoid contacting the skin with lime or quicklime as it is caustic and can cause severe burns; this should be taken in consideration if scavenging by other animals is likely in the area.

CDPHE does have the following "best practices" to use as a guideline in disposal of livestock carcasses:

- No dead animals shall be placed in any body of water or seasonal creek or pond.
- All dead animals must be buried at least 150 feet away from any groundwater supply source – this must be down-gradient from the groundwater supply source.
- In no case should the bottom of the burial pit be closer than five feet to the groundwater table.

- Burial sites must be located more than one mile from any residence of any person.

Appendix E: Detailed Packaging and Shipping Guidance

The U.S. Department of Transportation (DOT) Hazardous Materials (HazMat) Regulations, 49 CFR Parts 171 - 180, require all persons who offer or transport diagnostic or infectious specimens to comply with applicable regulations. Training is available through:

http://www.aphl.org/courses/Documents/2010/PS_INFORMATION_CHART.pdf

The DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) has published two documents which are designed to help shippers understand their responsibilities which when followed will provide safety for all involved in the transport of these substances. The publication titled [Transporting Infectious Substances Safely](#) is the DOT / PHMSA guide for shippers regarding these [regulatory changes](#), including the establishment of a classification system for infectious substances (categories A and B). In 2009, DOT / PHMSA released [What You Should Know: a Guide to Developing a Hazardous Materials Training Program](#), which explains the training requirements. An animal specimen suspected of containing rabies virus is classified as a category B infectious substance by the proper shipping name "biological substance category B" and assigned to UN3373. **Category B: "An infectious substance that is not in a form generally capable of causing permanent disability or life-threatening or fatal disease in otherwise healthy humans or animals when exposure to it occurs. This includes Category B infectious substances transported for diagnostic or investigational purposes."** [49CFR § 173.134 Class 6, Division 6.2(a)(1)(ii)] *

PRIMARY PACKAGING:

- Primary receptacle(s) must be water tight, e.g., screw cap seal with parafilm or adhesive tape or similar.
- Multiple primary receptacles must be wrapped individually to prevent breakage.
- When determining the volume of diagnostic specimens being shipped, include the viral transport media.
- Primary receptacle(s) must not contain more than 500 ml or 500 g. the entire contents of the primary receptacle is the diagnostic specimen.

SECONDARY PACKAGING

- Use enough absorbent material in the secondary container to absorb the entire contents of all primary receptacles in case of leakage or damage.
- Secondary packaging must meet the IATA packaging requirements for diagnostic specimens including 1.2 meter (3.9 feet) drop test procedure.

Appendix F: Contact Information for Agencies and Associations

Contact information for these various agencies is also available through COHELP 1-877-462-2911. Please contact the Colorado Department of Public Health & Environment for the latest version of this list of contact information. Please do not publish this list in a format for viewing by the public; this contact list is designed for use by first responders to rabies (public health officials, animal control, veterinarians, wildlife workers).

Rabies Key Contacts

| Health Dept. by County | H.D. Phone # | Animal Control Phone # | Dept. of Wildlife Phone # |
|-------------------------------|------------------------------|---|----------------------------------|
| Adams | 303-220-9200 | 303-288-3294 | 303-291-7227 |
| Alamosa | 719-589-6639 | 719-589-5807 | 719-587-6900 |
| Arapahoe | 303-220-9200 | 720-874-6750 | 303-291-7227 |
| Archuleta | 970-247-5702 | 970-731-4771 970-264-2131 | 719-587-6900 |
| Baca | 719-523-6621 | | 719-227-5200 |
| | Sheriff 719-523-6677 | | |
| Bent | 719-456-0517 | | 719-227-5200 |
| Boulder | 303-441-1100 | 303-565-3726 303-441-3333 - Dispatch 303-545-5849 - Wildlife rescue | 303-291-7227 |
| Broomfield | 720-887-2200 | 303-438-6400 | 303-291-7227 |
| Chaffee | 719-539-2124 719-207-1399 | | 719-227-5200 |
| Cheyenne | 719-787-5616 | | 719-227-5200 |
| Clear Creek | 303-567-3147 | 303-679-2398 | 303-291-7227 |
| Conejos | 719-274-4307 | | 719-587-6900 |
| Costilla | 719-672-3332 | | 719-587-6900 |
| Crowley | 719-267-4737 | | |
| Custer | 719-783-3389 719-783-2380 | | 719-227-5200 |
| Delta | 970-874-2165 | 970-874-2000 - Sheriff 970-874-3793 - Humane Society | 970-252-6000 |
| Denver | 303-602-3700 303-602-3626 | 303-698-0076 | 303-291-7227 |
| Dolores | 970-677-2387 | | |
| Douglas | 303-220-9200 | 303-660-7529 303-660-7500 - Sheriff 970-328-3647 - Humane Society | 303-291-7227 |
| Eagle | 970-328-8840 | | 970-870-2197 |
| El Paso | 719-578-3199 | 719-578-3220 719-473-1741 ext.113 - Bite f/u ext. 152 - animal control | 719-227-5200 |
| Elbert | 719-621-3144 | 719-621-2030 303-621-2027 | 303-291-7227 |
| Fremont | 719-275-1626 | 719-275-1553 719-275-0663 - Humane society | 719-227-5200 |

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|------------|--------------|---|--------------|
| Garfield | 970-625-5200 | 970-945-0453 | 970-255-6100 |
| Gilpin | 303-582-5803 | | 303-291-7227 |
| | | 303-582-1060 - Sheriff | |
| Grand | 970-725-3288 | 970-725-3343 | 970-255-6100 |
| Gunnison | 970-641-0209 | 970-887-2988 | 970-641-7060 |
| | | 970-641-1113- Sheriff | |
| Hinsdale | 970-944-0321 | 970-944-2291 | 970-641-7060 |
| | | 970-944-2292 - Sheriff | |
| Huerfano | 719-846-2213 | 719-846-4440 | 719-227-5200 |
| | | 970-738-1600 - Sheriff | |
| Jackson | 970-723-8572 | 970-723-4242 - Sheriff | 970-255-6100 |
| Jefferson | 303-271-5700 | 303-271-5070 | 303-291-7227 |
| | | 303-278-7575 - Humane society | |
| | | 303-838-2668 - Humane society | |
| Kiowa | 719-438-5782 | | 719-227-5200 |
| Kit Carson | 719-346-7158 | | 719-227-5200 |
| La Plata | 970-247-5702 | 970-385-2900 | 970-247-0855 |
| | | 970-247-1155 - Humane society - Wkdy | |
| | | 970-259-2847 - Humane society - Wked | |
| Lake | 719-539-2124 | 719-486-8951 | 719-227-5200 |
| | | 719-486-1271 - Sheriff | |
| Larimer | 970-498-6775 | 970-226-3647 | 970-472-4300 |
| Las Animas | 719-846-2213 | 719-846-4440 | 719-227-5200 |
| | | 719-846-2211 - Sheriff | |
| Lincoln | 719-743-2526 | 719-743-2426 - Sheriff | 719-227-5200 |
| Logan | 970-522-3741 | 970-522-3513 | 970-472-4300 |
| | | 970-522-1373 - Sheriff | |
| Mesa | 970-242-4646 | 970-242-4646 | 970-225-6100 |
| | | 970-248-0162 - Dispatch | |
| | | 970-244-1892 | |
| Mineral | 719-658-2416 | | 719-587-6900 |
| Moffat | 970-879-1632 | 970-824-8111 | 970-255-6100 |
| | 970-824-8233 | | |
| Montezuma | 970-565-3056 | 970-565-8444 - Sheriff | 970-247-0855 |
| Montrose | 970-252-5000 | 970-252-4010 | 970-252-6000 |
| Morgan | 970-522-3741 | | 970-472-4300 |
| Otero | 719-383-3040 | 719-263-5101 | 719-227-5200 |
| Ouray | 970-325-4670 | 970-626-5229 | 970-252-6000 |
| | | 970-729-1140 - Cell phone | |
| Park | 719-836-4161 | 719-836-4122 - Option 5 | 303-291-7227 |
| | | 719-836-2494 - Sheriff | |
| Phillips | 970-522-3741 | 970-854-3144 - Sheriff | 970-472-4300 |
| Pitkin | 970-920-5420 | 970-920-5361 | 970-255-6100 |
| Prowers | 719-336-8721 | | 719-247-0855 |
| Pueblo | 719-583-4300 | 719-544-3005 | 719-561-5300 |
| Rio Blanca | 970-675-8866 | 970-878-5023 - Sheriff | 970-255-6100 |
| Rio Grande | 719-657-3352 | | 719-587-6900 |
| Routt | 970-879-1632 | 970-879-7247 - Humane | 970-255-6100 |

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| | | society | |
| | | 970-879-1090 - Sheriff | |
| Saguache | 719-655-2533 | 719-655-2544 - Sheriff | 719-587-6900 |
| San Juan | 970-570-9788 | 970-387-55311 - Sheriff | 970-641-7060 |
| San Miguel | 970-728-4289 | 970-728-3818 - Sheriff | 970-252-6000 |
| Sedgwick | 970-522-3741 | 970-474-3355 - Sheriff | 970-472-4300 |
| Summit | 970-668-9161 | 970-668-3230 | 970-870-2197 |
| Teller | 719-887-6416 | 719-687-0660 | 719-227-5200 |
| | | 719-687-9652 - Sheriff | |
| Washington | 970-522-3741 | 970-522-3513 | 970-472-4300 |
| Weld | 970-304-6410 | 970-356-4015 Ext. 2849 | 970-472-4300 |
| | | 970-506-9550 - Humane society | |
| Yuma | 970-867-4918 | | 970-472-4300 |

Public Health by City City Phone # City Animal Control

| | | |
|-----------------------|--------------|-------------------------------|
| Akron | 970-345-2244 | |
| Alamosa | 719-589-6608 | 719-589-5807 |
| Arvada | | 720-898-6850 |
| | | 720-898-6900 - Dispatch |
| Aspen | | 970-920-5310 |
| Aurora | | 303-326-8280 |
| | | 303-326-8288 - Dispatch |
| Brighton | | 303-655-2300 |
| Broomfield | 303-438-6400 | |
| Burlington | 719-346-8934 | 719-346-5524 |
| Carbondale | 970-963-2662 | |
| Canon | 719-276-5600 | |
| Castle Rock | | 303-663-6100 |
| Centennial | | 303-325-8070 |
| Cherry Hills Villiage | | 303-761-8711 |
| Cheyenne Wells | 719-767-5633 | |
| Clear Creek | | 719-569-3251 |
| Commerce City | | 303-288-1535 |
| | | 970-874-1078 - Humane Society |
| Delta | | 303-671-5212 - Humane Society |
| Denver | 303-641-2136 | |
| Dolores | 970-822-4656 | |
| Edgewater | | 303-235-0500 |
| Englewood | | 303-762-2335 |
| | | 303-762-2343 |
| Estes Park | | 970-586-4465 |
| Evans | 970-339-2441 | |
| Fairplay | 719-836-2494 | |
| | | 303-428-8538 |
| Federal Heights | | X2011 |
| Fountain | 719-382-8555 | |
| Fowler, Rocky Ford | 719-263-5161 | |
| Ft. Morgan | | 970-867-5678 |
| | | 970-867-2545 - Humane society |
| Frisco | 970-668-3579 | |

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|--------------------|--------------|-------------------------------|
| Glenwood Springs | 970-945-8566 | |
| Golden | | 303-384-8045 |
| Greeley | | 970-350-9600 |
| Greenwood Villiage | | 303-773-2525 |
| Gunnison | 970-641-8000 | |
| Holyoke | 970-854-2244 | |
| Ignacio | | 970-563-0133 |
| Lakewood | | 303-987-7173 |
| Las Animas | 719-456-1313 | |
| Littleton | | 303-794-1551 |
| Lone Tree | | 303-339-8150 |
| Longmont | | 303-851-8500 |
| | | 303-772-1232 - Humane Society |
| Louisville | 303-866-6531 | |
| Montrose | 970-864-7351 | 970-249-6609 |
| | | 970-240-1487 |
| Northglenn | | 303-450-8886 |
| Ordway | 719-267-4848 | |
| Pagosa Springs | | 970-731-4771 |
| Parker | | 303-841-9800 |
| Rangley | | 970-675-8466 |
| Salida | 719-539-2596 | |
| San Luis | | 719-672-3687 |
| Sheridan | 303-762-2217 | 303-762-2211 |
| Silt | 970-876-2735 | |
| Simla | 970-541-2468 | |
| Snowmass | | 970-923-5330 |
| | | 970-879-0621 - Humane society |
| Steamboat | | |
| Sterling | 970-522-3512 | |
| Thornton | | 720-977-5250 |
| Trinidad | 719-941-4344 | |
| Walden | 970-723-4616 | |
| Westminster | | 303-658-4326 |
| Wheat Ridge | 303-235-2926 | |