

Rabies Prevention and Control in Colorado

Introduction

- Viral infection that attacks the brain and spinal cord
- Transmitted in saliva through animal bites
- All mammals are susceptible to rabies
- Nearly always fatal once symptoms begin
- Effective preventive treatment is available

Rabies in humans

- Incubation period is typically 3-8 weeks
- Initial symptoms
 - Fever, headache, malaise, altered sensation at bite site
- Altered mental status
 - Excitability, agitation, confusion, anxiety
- Other signs and symptoms
 - Aversion to water, muscle spasms, delirium, convulsions, hallucinations, paralysis, coma
- Death occurs within days to weeks
- **No effective treatment once symptoms begin**

Rabies in animals



Photo: Centers for Disease Control and Prevention.

- Initial symptoms
 - Fever
 - Acting tired
 - Loss of appetite
- Behavior changes
 - Change in temperament
 - Aggression or lack of fear
- Other signs and symptoms
 - Drooling
 - Confusion
 - ‘Acting drunk’
 - Paralysis
 - Seizures
 - Coma
- Death occurs within 10 days

Rabies virus variants

- Different variants (types) associated with different animal species
- Variants are usually transmitted between members of the same species
- Variants are sometimes transmitted to other species ('spillover' infections)



Photo: F.A. Murphy
Centers for Disease Control and Prevention

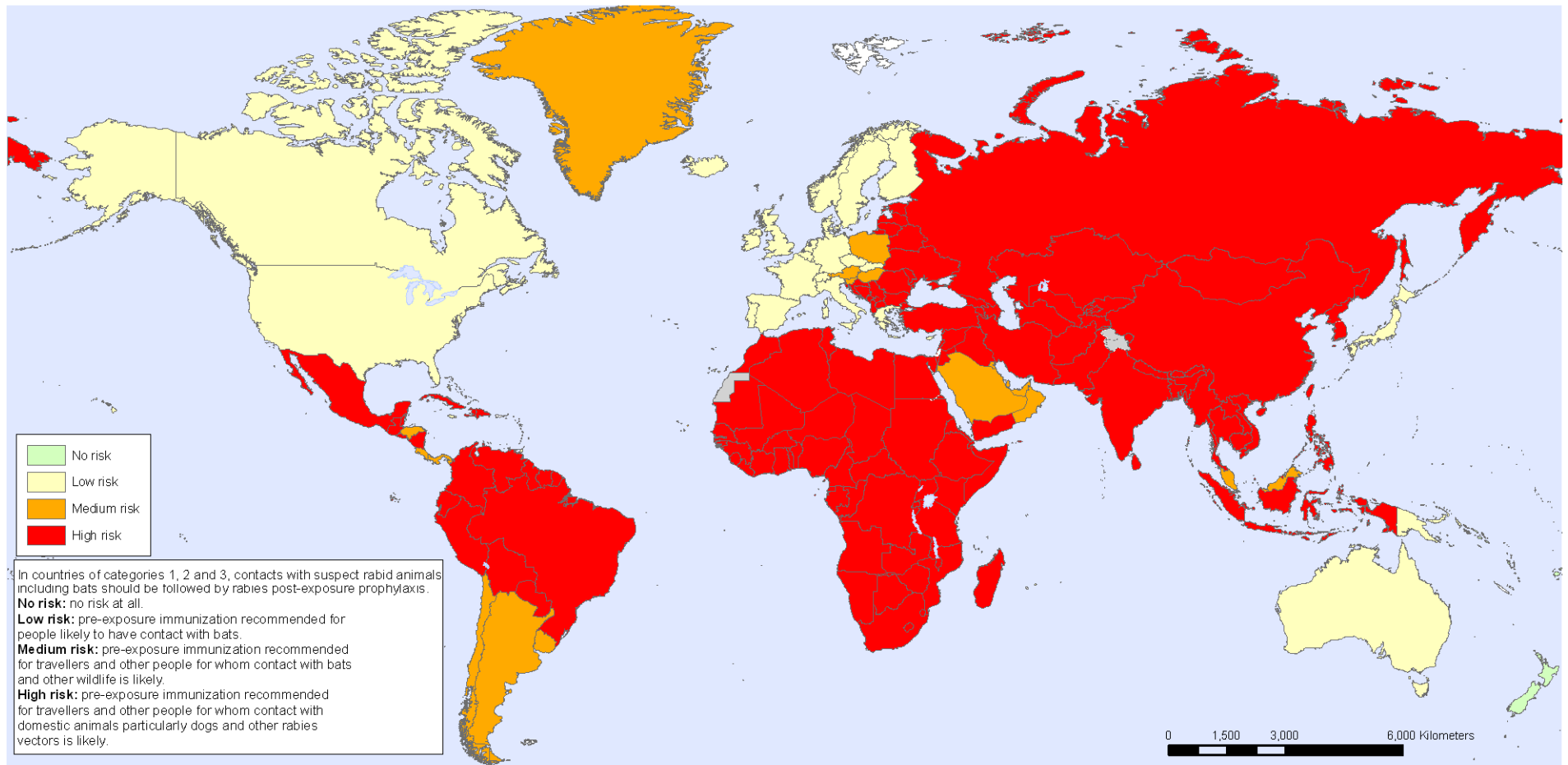
Global occurrence

- Worldwide distribution
 - Absent from Antarctica
 - Absent from some island nations
 - High risk in Africa, Asia, Central and South America
- Approximately 55,000 human deaths per year
- 95% occur in Africa and Asia
- Most are canine variant rabies
- Most are associated with dog bites



Photo: Gerald and Buff Corsi
© California Academy of Sciences

Rabies, countries or areas at risk



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: WHO Rabnet/CDC
Map Production: Public Health Information and Geographic Information Systems (GIS)
World Health Organization



© WHO 2008. All rights reserved

Occurrence in U.S.

- U.S. distribution
 - Contiguous U.S.
 - Alaska
 - Puerto Rico
 - Absent from Hawaii
- Dramatic decrease in humans and domestic animals over the last 50 years
- Approximately 2-3 human deaths per year
- Most are associated with wildlife exposure

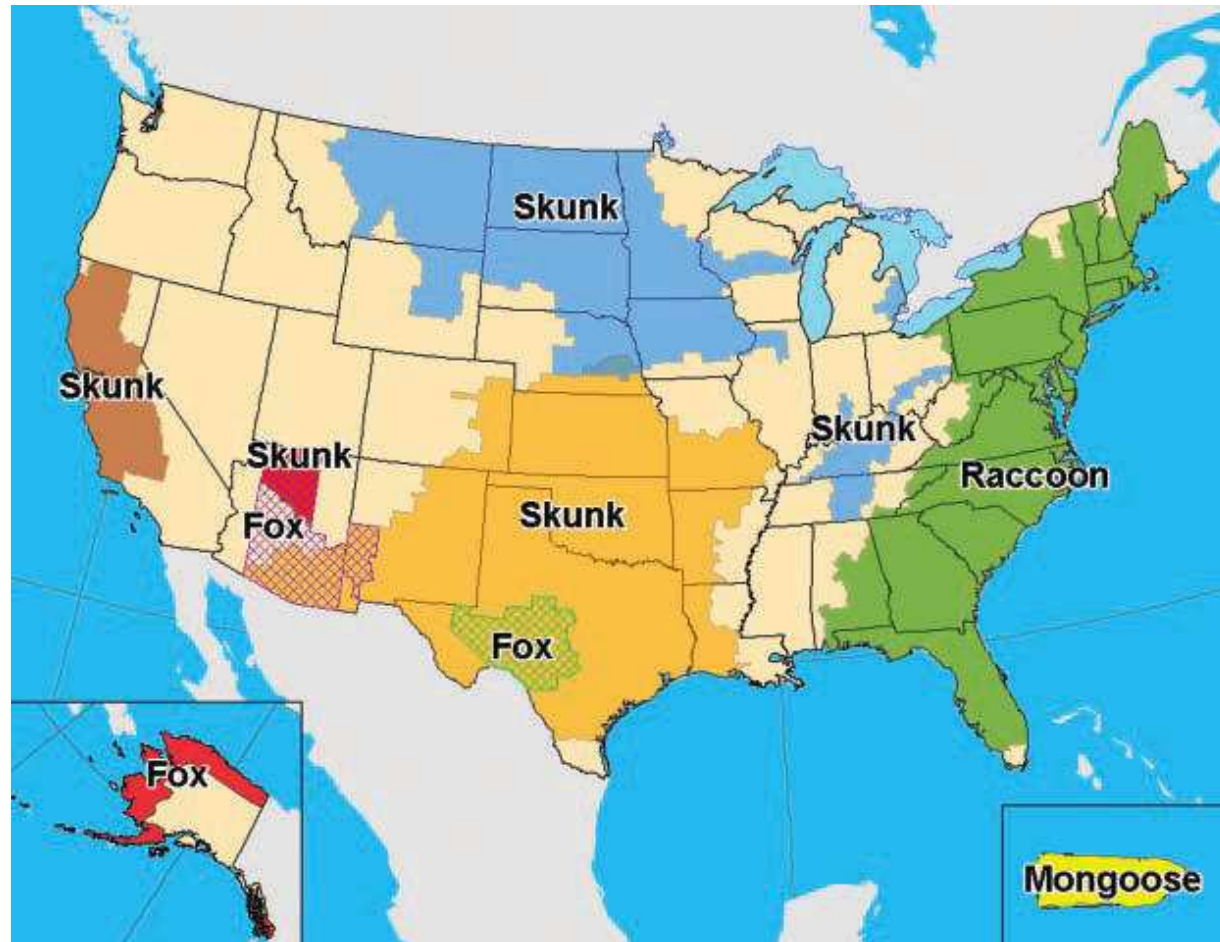
Wildlife reservoirs in U.S.



Photo: Dr. Lloyd Glenn Ingles
© California Academy of Sciences

- Multiple bat variants
- Wild terrestrial animals
 - Skunks
 - Raccoons
 - Foxes
- Not a concern in small rodents, rabbits, or hares
- Spillover infections in other wild or domestic animals

Distribution of rabies variants in land animals*—U.S., 2008



* Bats are not shown because rabies is found in bats throughout the U.S.

Blanton et al. Rabies surveillance in the United States during 2008. JAVMA 2009;235(6):677.

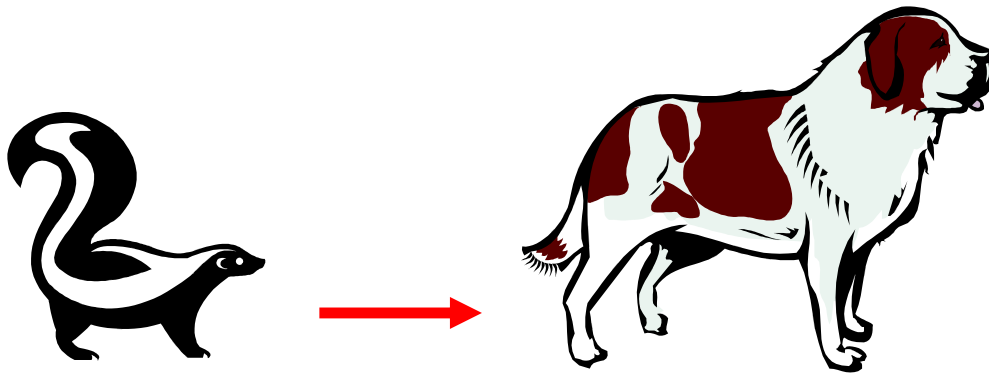
Occurrence in Colorado

- Last human case: El Paso County, 1931
- Bats are a major source of rabies in CO
- Skunks have become a major source of rabies in CO since 2007
- Jun 2007-May 2010
 - CO: 101 rabid skunks
 - Tri-County: 17 rabid skunks
- Spillover skunk variant infections
 - Domestic: cat, horse
 - Wild: coyote, fox, raccoon, mountain lion, mule deer, muskrat



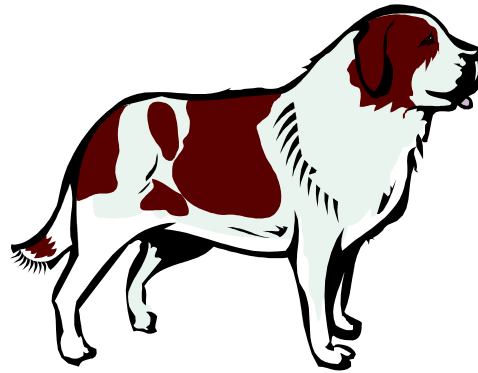
Photo: Dr. Lloyd Glenn Ingles
© California Academy of Sciences

Rabies transmission



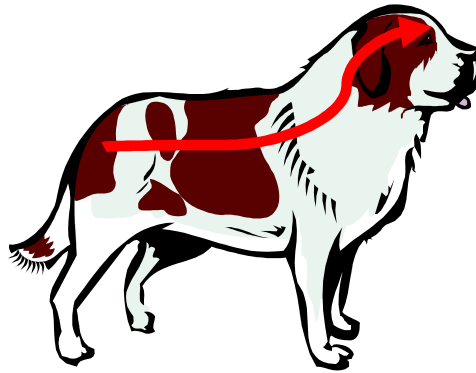
A dog is bitten by a rabid animal.
Rabies virus is transmitted in the saliva.

Rabies transmission



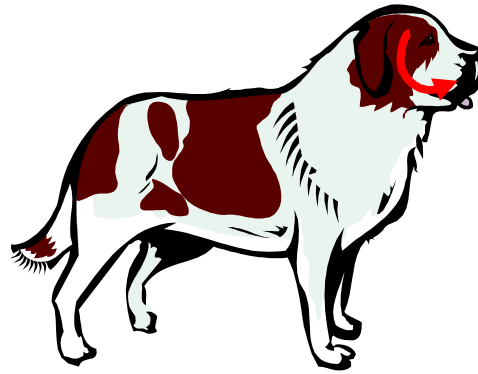
The virus incubates in the dog's body for
up to 6 months.

Rabies transmission



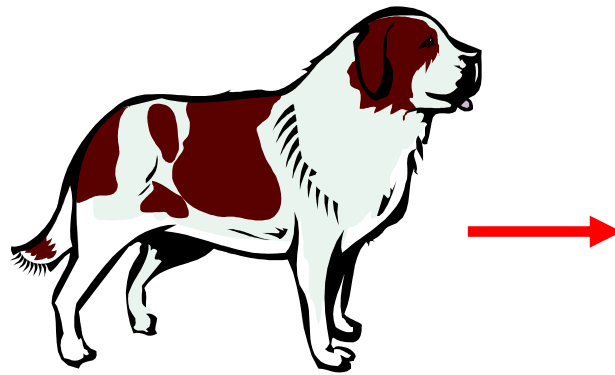
During this time, the virus travels through the nerves to the spinal cord and brain.

Rabies transmission



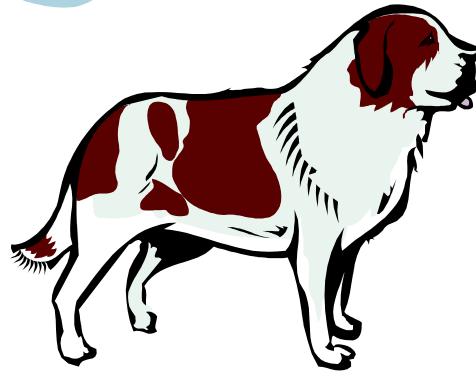
The virus migrates from the brain
to the salivary glands.

Rabies transmission



The dog begins to show symptoms, including behavior changes.

Rabies transmission



The infected animal dies within **10 days**
of becoming sick.

Diagnosis in animals

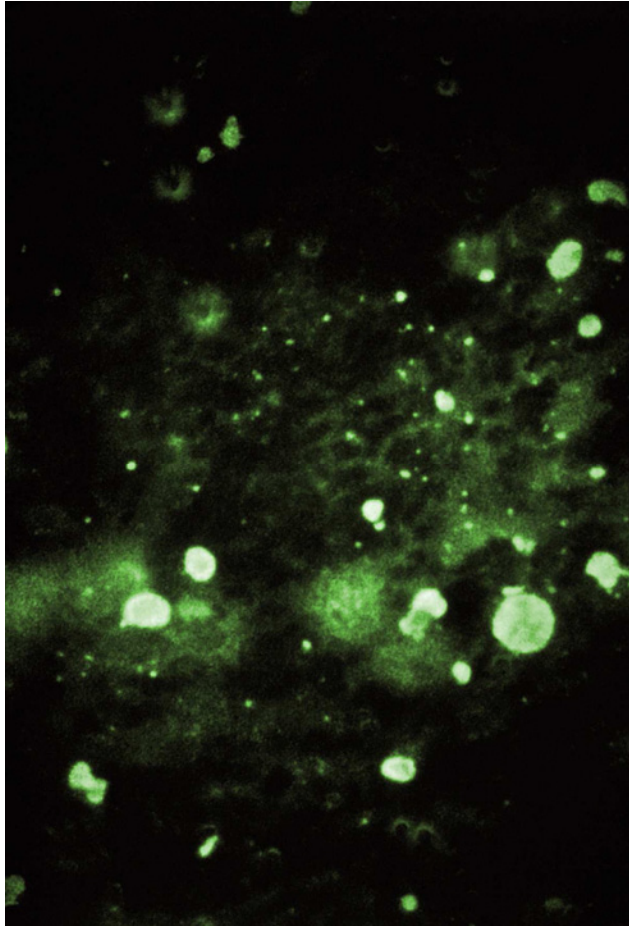


Photo: Dr. Tierkel
Centers for Disease Control and Prevention

- Only deceased animals can be tested
- CDPHE or CSU
- Specimens
 - No live animals
 - Brain must be intact
 - Bats: entire animal
 - All others: head only
 - Do not freeze
 - Do not place in formalin

Pre-exposure vaccination

- Recommended for persons at high risk
 - Veterinarians and staff
 - Animal control officers
 - Wildlife workers
- Rabies vaccine series
 - Three injections in arm muscle over 3-4 weeks
 - Blood test every 2 years



Post-exposure prophylaxis (PEP)

- Wound care
- Rabies immune globulin (RIG)
 - Immediate, short-term protection
 - One injection; previously unvaccinated persons only
- Rabies vaccine series
 - Delayed, long-term protection
 - Four to five injections over 2-4 weeks for previously unvaccinated persons
 - Two injections over 3 days for vaccinated persons
- PEP treatment is very expensive

Rabies prevention

- Have pets, horses, and livestock vaccinated by a veterinarian
- Do not touch or handle wild animals
- Do not feed or provide habitat for wild animals
- Teach children to leave wildlife alone
- Maintain control of pets
- Spay or neuter pets

Questions?

- **If you have been in contact with an animal that could have rabies:**
 - Seek medical attention immediately
 - Call a TCHD Disease Intervention Specialist at 303-220-9200
- **If your animal has been in contact with an animal that could have rabies:**
 - Seek veterinary attention immediately
 - Call a TCHD Disease Intervention Specialist at 303-220-9200
- **If you are having problems with wildlife:**
 - Call the Colorado Division of Wildlife at 303-297-1192
- **If you are having problems with stray dogs or cats:**
 - Call your local animal control agency

Questions?

- **If you work in a high-risk occupation and would like rabies vaccination:**
 - Call TCHD's immunization hotline at 303-451-0123
- **If you have general questions about rabies:**
 - Call a TCHD Disease Intervention Specialist at 303-220-9200
- **If you have a media inquiry:**
 - Call Gary Sky, TCHD's Public Information Officer, at 303-846-6245



I ALL MY ANIMALS AGAINST RABIES

Rabies is increasing in wildlife along Colorado's Front Range, placing both humans and animals at risk for this deadly disease.

Rabies is transmitted in saliva through animal bites. Skunks and bats are the most significant sources of rabies in Colorado, but other wild animals can also be infected.

Dogs, cats, horses and livestock can become infected if they are bitten by rabid animals. Contact with infected wild or domestic animals places you and your family at risk for rabies infection.

The best way to protect your family and animals against rabies is to have your animals vaccinated by a licensed veterinarian. Vaccinating your animals is simple, inexpensive and could save lives.

So don't procrastinate—vaccinate!

Rabies prevention campaign partners: Colorado Department of Agriculture • Colorado Veterinary Medical Association • Colorado Federation of Animal Welfare Agencies • Colorado Association of Animal Control Officers • Colorado Horse Council • Colorado Horse Development Authority • Westernaires • Colorado Department of Public Health and Environment • All local health departments along the Front Range, including Boulder, Denver, Elbert, El Paso, Jefferson, Larimer, Tri-County (Adams, Arapahoe, Douglas) and Weld Counties. (As of 6-1-2010)