

# Navigating a Potential Rabies Exposure: Using the “Pink” and “Green” Sheets

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Michigan Department of Community Health





# Objectives

Describe:

- Michigan Laws and reference documents related to rabies
- ACIP Guidelines for Human Rabies Prevention
- Michigan Epidemiology
- Michigan Rabies Exposure Protocols for people bitten by animals, and mammals which have bitten people or pets
- Scenarios

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# Public Health Importance of Rabies

- Rabies is the infectious disease with the **highest known case fatality rate**
- Rabies remains an important public health problem in developing countries, with **50,000 cases** estimated annually around the world (99% due to dog-strain rabies)
- Developed countries see indigenous or imported cases sporadically
- The annual costs of preventing rabies in the U.S. are estimated to be over **\$300 million** and rising

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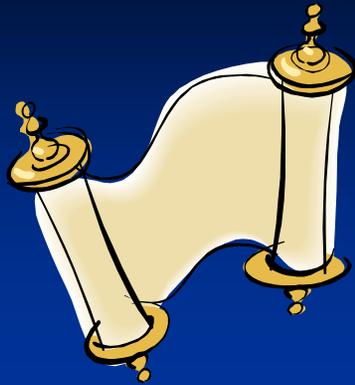
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# Human Rabies in the U.S.

- Cases have decreased dramatically since the early 20<sup>th</sup> century
- Of the 47 cases of human rabies reported in the U.S. between 1990-2004, 37 (78.7%) were due to rabies virus variants indigenous to the U. S., and 92% of these were due to bat variants
- 2003 - The first reported human case of rabies in the U.S. due to the **raccoon strain** (method of exposure remains unknown)
- 2004 – The 1<sup>st</sup> documented survivor of clinical rabies who did not receive either pre- or post-exposure prophylaxis for rabies

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# Important Reference Documents

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# State Laws

- Public Health Code, Communicable Disease Rules
- Michigan's Dog Law
- Other pertinent laws:
  - Ferrets
  - Dangerous Animals Act
  - Large Carnivore Act
  - Wolf-dog Cross Act
  - BODA (Bodies of Dead Animals Act)

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# Communicable Disease Rules

(Promulgated under the Authority of  
Michigan's Public Health Code)

- “Animal bites, where rabies is considered, should be reported to the local health jurisdiction where the bite occurred, and if different, the local health jurisdiction where the patient lives or where the service facility is located. The report must be made within 24 hours of the biting incident. The report shall include all of the following information:

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# Communicable Disease Rules (con't)

- Animal species inflicting the bite
- Animal owner's name, address, and telephone number
- Vaccination status of animal
- Date and location of biting incident
- Name, address, and telephone number of the person bitten
- Site of the bite on the body
- Name of the reporter of bite”

**Updated annually**



# **MMWR™**

**Morbidity and Mortality Weekly Report**

Recommendations and Reports

April 14, 2006 / Vol. 55 / No. RR-5

## **Compendium of Animal Rabies Prevention and Control, 2006**

**National Association of State Public Health  
Veterinarians, Inc. (NASPHV)**

**DEPARTMENT OF HEALTH AND HUMAN SERVICES  
CENTERS FOR DISEASE CONTROL AND PREVENTION**



# Rabies Compendium



- Guidelines for prevention and control of rabies in animals.
  - Domestic animals
  - Wildlife
  - Zoos and exhibits
  - Import and interstate movement
  - Post-exposure management
- Animal vaccination recommendations
- List of licensed rabies biologics for animals



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January 8, 1999 / Vol. 48 / No. RR-1

**MMWR**<sup>™</sup>

*Recommendations  
and  
Reports*

MORBIDITY AND MORTALITY WEEKLY REPORT

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**Inside: Continuing Education Examination**

## Human Rabies Prevention — United States, 1999

Recommendations of the Advisory  
Committee on Immunization Practices (ACIP)

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Centers for Disease Control and Prevention (CDC)  
Atlanta, Georgia 30333



# ACIP Guidelines

- Biologics
- Pre-exposure vaccination
- Post-exposure prophylaxis
  - Types of exposure: bite, non-bite
  - Epidemiology and evaluation of involved species
  - Treatment of wounds
  - Immunization
- Treatment outside the U.S.
- Serologic testing
- Adverse reactions
- Precautions and contraindications



# Pre-exposure Vaccination

- High risk groups
  - Veterinarians
  - Animal handlers
  - Certain laboratory workers
  - Persons whose activities might bring them into contact with rabies virus or vector species
  - International travelers
    - Travel to areas where dog rabies is endemic
    - Areas where access to biologics might be limited



# Pre-exposure Schedules

- Series of three vaccinations
  - Day 0, 7, and 21/28
- Booster doses:
  - **Continuous risk** (rabies research or vaccine production facilities), titer check every 6 mos
  - **Frequent risk** (rabies diagnostic testing, veterinarians and staff, animal control and wildlife officers in areas where rabies is endemic), titer check every 2 years
- Where can I get rabies pre-exposure vaccinations?
  - Clinics offering travelers immunizations, the cost is approximately \$200/dose.

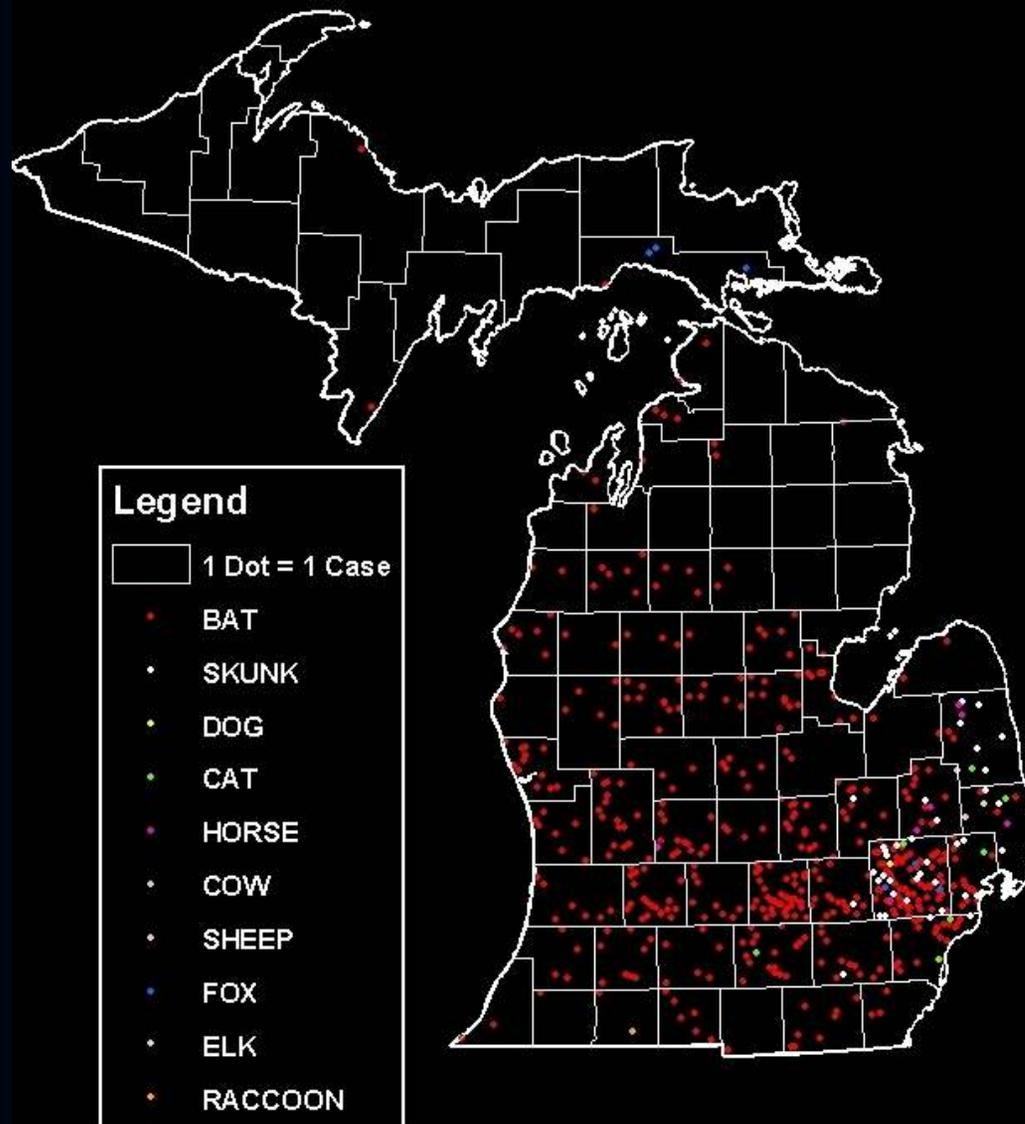
# Epidemiology of Rabies in Michigan



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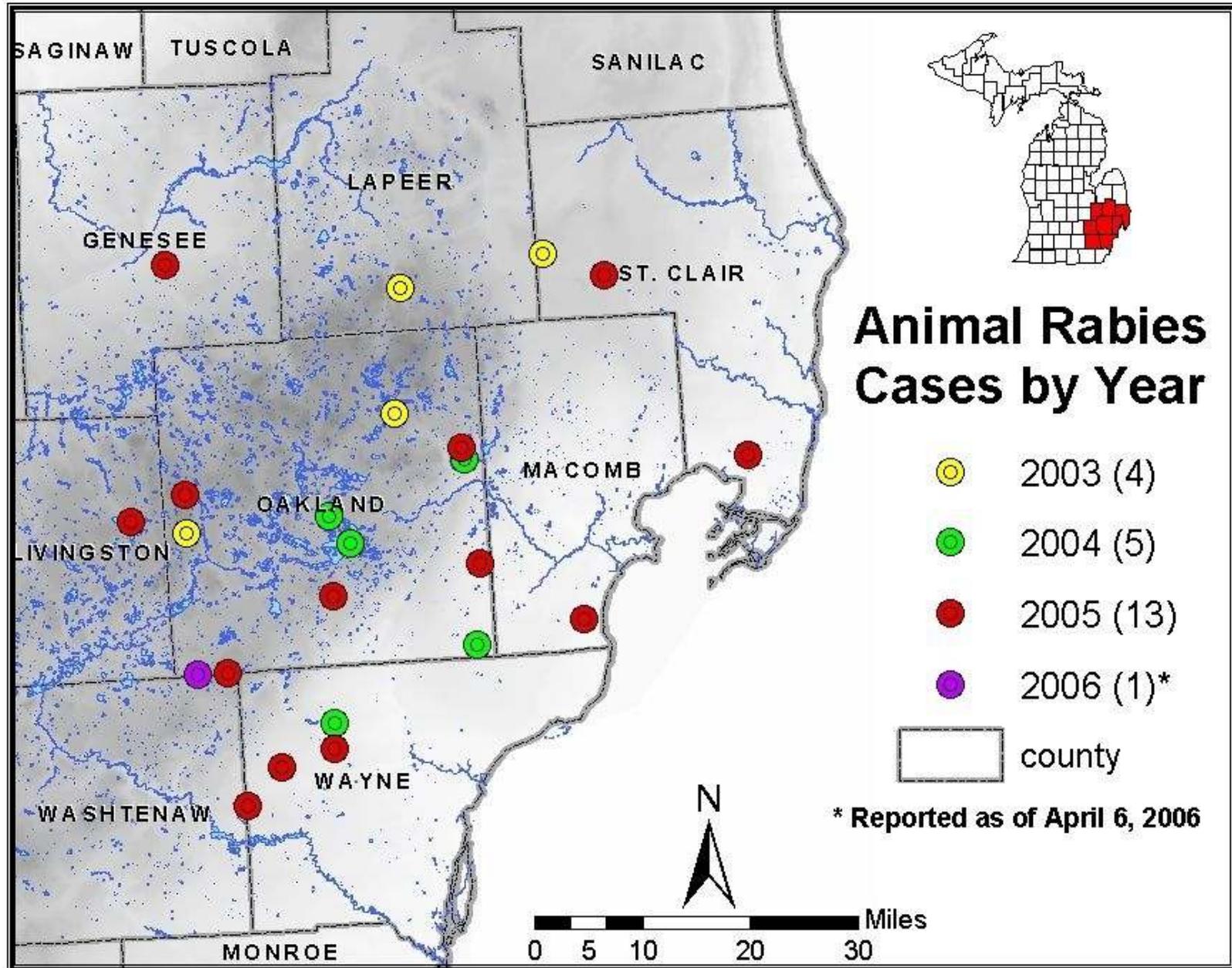
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## Animal Rabies Cases in Michigan: 1995 - 2005





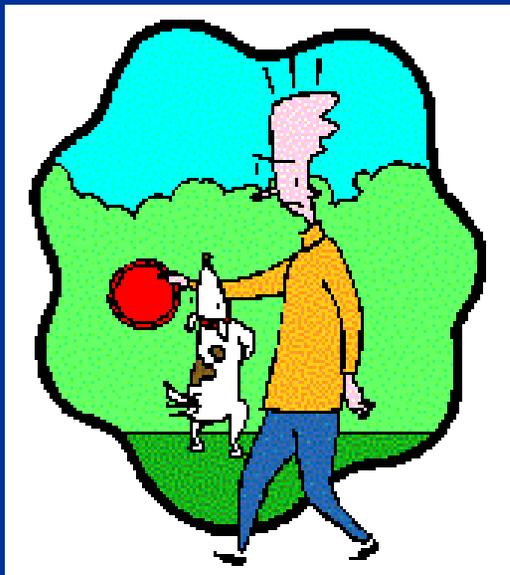
# All Terrestrial Animal Rabies Cases in Michigan: 2003 - 2006



# Michigan Rabies Cases, 2006



# Evaluation of Potential Exposures

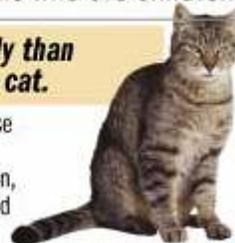


## Cat bites BY THE NUMBERS

<b>3-5 million</b>	Americans bitten by animals annually
<b>5-15%</b>	Percentage of animal bites attributed to cats
<b>675,000</b>	Cat bite victims who seek medical assistance
<b>50% (APPROX.)</b>	Percentage of bites that become infected
<b>50%</b>	Percentage of bite victims who are children

**Women are more likely than men to be bitten by a cat.**

SOURCES: Centers for Disease Control, Journal of the American Medical Association, Humane Society of the United States, eMedicine.com



*Deseret Morning News graphic*

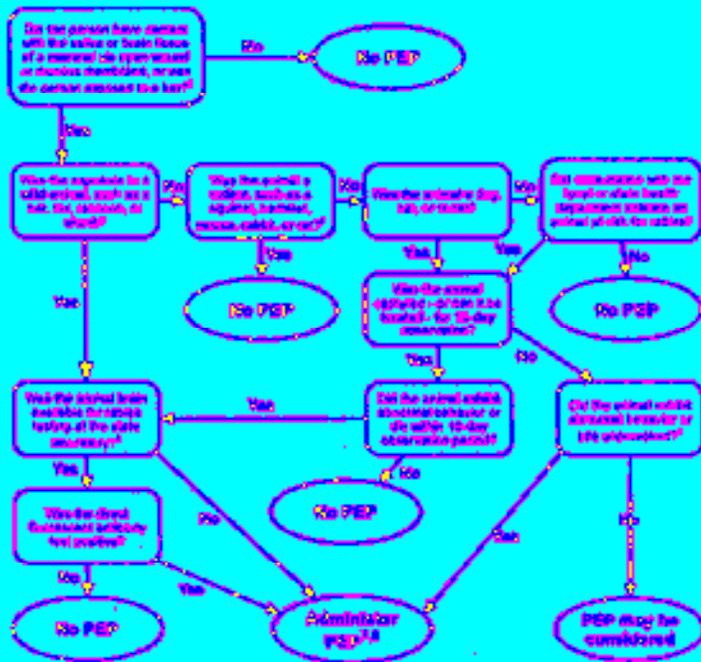


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# “Pink Sheet”

## Rabies Post-Exposure Prophylaxis (PEP) Protocol for People Exposed to Bats<sup>1,2</sup>



BEE NOTES ON REVERSE SIDE

LOCAL ANALYSIS RECOMMENDED PICTURE:

Changes Required by:  
 1. **California Health Services - Department of Community Health**  
 2. **California Health Services - Division of Field and Public Health and Immunization**  
 3. **California Health Services - Department of Community Health**  
 4. **California Health Services - Division of Communicable Disease and Immunization**  
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## NOTES

- Rabies risk assessment requires balancing a number of criteria: the species of mammal, the extremity involved, the species of bat, the observed health and behavior of the animal, and the circumstances of the bite.
- This algorithm only addresses rabies post-exposure prophylaxis. Other treatment such as wound care, antibiotics, and tetanus immunization may be indicated.
- In addition to rabies bite or contact with rabies exposure, the CDC suggests that PEP be considered in cases where there is a reasonable probability that contact with a bat may have occurred (i.e. a sleeping person awakens to find a bat in the child's room, an adult awakens a bat in a room with a previously unchallenged child, readily trained person, or intruders/individuals and safety cannot be ruled out by testing of the bat). PEP would not be warranted for other household members.
- Winged animals (squirrels, bats, rodents and lagomorphs) are not considered as exposures. In questionable or unusual circumstances involving rodents, lagomorphs, and insectivores, consult the health department.
- Provoked exposure may include attempting to feed an animal, entering an animal's territory, petting or playing with an animal, handling an animal, attempting to break up a fight between animals, being in contact with an animal, attempting, hunting, handling, or playing with an animal. Unprovoked exposures include falling and possibly receiving an attempt to cross one's eyes and ears. The physician should attempt to get the patient to describe the scenario in order to establish the true nature of the circumstances surrounding the biting incident. PEP MUST always use if the bite was provoked or unprovoked.
- The severity and location of a wound (wound inside or obvious wounds near the head) and tissue should be given highest priority, and the exposed (wound) should be the focus of the bite and receipt of rabies test results should be considered when making a decision to begin PEP with rabies test results.
- Unless the person previously received rabies immunoprophylaxis (RIP) consists of two (2) doses of vaccine (1 dose each administered 14 to 28 days apart), or only 1 dose of vaccine (1 dose of human rabies immune globulin (HRIG) administered on Day 0, with 1 dose of vaccine) around the 14th and 28th days, administered by a nurse, with the remaining administered (2 or 3) doses of vaccine taken from vaccine administration. HRIG should not be administered in the same setting as the other vaccine doses. HRIG dosage is based on the weight of the patient, 20 IU/kg, and should not be given if their last recommended dose, as it may suppress active production of antibodies. A previously vaccinated person needs an additional PEP antibody. Contact the health department for the schedule of needs.
- If the PEP animal is captured and tests negative for rabies after PEP has begun, PEP may be discontinued.

Modified from: Kern County Health Department. Determining the need for rabies post-exposure prophylaxis (PEP) with human rabies immune globulin (HRIG) and rabies vaccine. Kern County Department of Health. Rabies Post-Exposure Treatment (PET) Algorithm, December 2005.

Reference: Centers for Disease Control and Prevention. Human Rabies Prevention – Updated Guidelines, 1996. Recommendations of the Advisory Committee on Immunization Practices (ACIP), MMWR 1996;45:10-11.

90 Kern Post-Exposure Prophylaxis (PEP) Algorithm (2005) 10/2005  
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 99 Kern Post-Exposure Prophylaxis (PEP) Algorithm (2005) 10/2005  
 100 Kern Post-Exposure Prophylaxis (PEP) Algorithm (2005) 10/2005

# Risk Assessment

- Species of animal?
  - Wild
  - Rodent
  - Dog, cat, ferret
- Animal available for testing/observation?
- Michigan epidemiology for that species?
  - [www.michigan.gov/rabies](http://www.michigan.gov/rabies)
- Observed health and behavior of the animal?
- Circumstances of the bite?

# Type of Exposure

- Bite?

- Site
- Severity
- Immediate cleansing



- Non-bite?

- Mucous membrane exposure
- Non-intact skin

- Bat in room with sleeping person, or witnessed in room with an unattended child, mentally disabled or intoxicated person

# Provoked on Non-provoked?

- Examples of provoked exposures:
  - Attempting to feed animal
  - Entering animals territory
  - Breaking up a fight between two animals
  - Handling an injured or wild animal
  - Walking, running, or riding a bike past an animal
- Unprovoked exposure:
  - Animal crossed neutral territory to initiate contact
- **GET DETAILS!!**

# Severity and Site of Bite

- Head and neck?
- Length of time to receive test results on animal?
- 24/7 testing available for emergencies
  - MDCH BOL can generally have results within 24-48 hours, and in most cases, PEP can wait for results
  - If testing is delayed, PEP may need to be started

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# Animal Tests Negative

- No need to initiate PEP
- PEP can be discontinued if already begun

# “Grey” areas

- Situations that do not fit into given protocols
- Require careful assessment of situation
- “Worried well”
- Must assess the risk of exposure verses the potential risk of treatment
- Some people are more risk averse than others
- Want to avoid unnecessary PEP if possible

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# What Would You Do?

- Person bitten by a stray cat that ran away.
- Bat found in a room with a sleeping pregnant woman. Bat was gently collected and released safely out the back door.
- Neighbors unvaccinated dog bit child in the face.
- Cute orphan baby skunk was being bottle fed by a family. It became ill and died about 4 days after it was found. This happened 2 weeks ago. Family became worried after talking to neighbors.

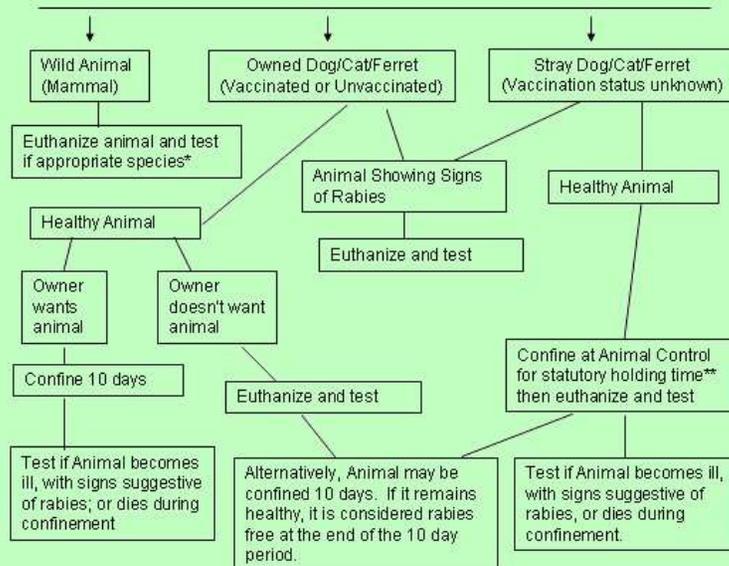
# More...

- Bat found dead in kitchen sink with soaking baby bottles. Bat tests positive for rabies.
- Child bitten by an african civet , which is part of a traveling animal exhibit that visits schools to educate children about the rainforest.
- Adult is bitten when trying to pick up a squirrel that “looked sick”.
- Family just purchased a hamster from the local pet store, which bit their child when he picked it up, then was found dead in the cage the next day.

# “Green Sheet”

## RABIES PROTOCOL FOR MAMMALS WHICH HAVE BITTEN PEOPLE

Persons bitten or scratched by: (refer person to physician or local health dept.)



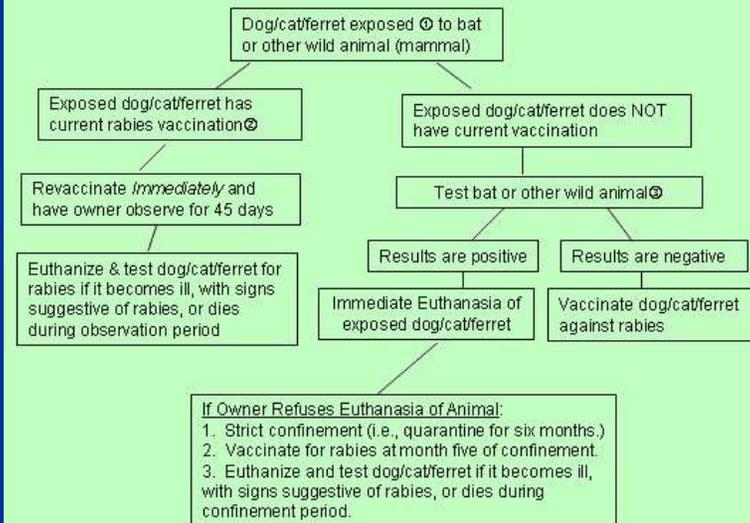
\*The following animals are NOT CONSIDERED LIKELY TO CARRY RABIES and will not be tested except by special arrangements with the Michigan Department of Community Health (517) 335-8165: (After 5:00pm and on weekends dial (517) 355-9030).

Chipmunk	Gopher	Hamster	Mouse	Prairie Dog	Rat	Squirrel
Gerbil	Guinea Pig	Mole	Muskrat	Rabbit	Shrew	Vole

Note: Woodchucks are an exception to this list and are tested.

\*\* Act 224 of 1969: Four days with no collar, license, MDA tattoo, or other evidence of ownership; or seven days with evidence of ownership.

## PROTOCOL FOR DOGS, CATS & FERRETS POSSIBLY EXPOSED TO RABIES



⊙ If questions of exposure, first call your local health department and animal control offices. If they are unavailable, call the Michigan Department of Agriculture (MDA) at (517) 373-1077 during business hours, or call the Michigan Department of Community Health (MDCH) at (517) 335-8165 during business hours. After 5:00 p.m. and on weekends call MDCH at (517) 335-9030, or MDA at (517) 373-0440.

⊙ Current rabies vaccination is vaccination by a veterinarian within 12 months if it was the animal's first vaccination. First vaccination is by four months of age for dogs, 12 weeks for ferrets. Cats are not required to be vaccinated by Michigan law, but rabies vaccination is strongly recommended due to the predatory nature of cats. For subsequent rabies vaccinations, current means administered by a veterinarian, within one or three years from the previous vaccination, depending on the vaccine used.

⊙ If bat or wild animal is NOT available for testing, must proceed as if it is positive for rabies.

SEE LIST ON OPPOSITE SIDE FOR ANIMALS NOT CONSIDERED TO BE A RABIES RISK

# Mammals Which Have Bitten People

- Wild
  - Euthanize and test
- Domestic dogs, cats, ferrets; **regardless of vaccination status**
  - Healthy animal
    - Confine 10 days
    - If animal is unwanted, euthanize and test
  - Ill animal
    - Euthanize and test
  - Stray animal
    - Hold 4 days then euthanize and test
    - Hold 10 days
- Domestic Livestock: Consult MDA, MDCH

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# For Potentially Exposed Dogs, Cats, Ferrets

- Rabies vaccine current- booster and observe 45 days
- Rabies vaccine lapsed:
  - Test bat or wild animal
    - Negative- VACCINATE
    - Positive- Euthanize, or vaccinate and confine for 6 months (or confine 6 months and vaccinate at 5 mos into confinement)
  - Wild animals unavailable-same options as for positive wild animal, depending on assessed risk

# What Would You Do?

- Cat found playing with a dead bat. Cat is UTD on vaccines.
- Unvaccinated dog in fight with another dog whose vaccines are not current .
- Cat has sudden behavior change and bites owner. Cat is indoor/outdoor and unvaccinated.

# More...

- Dog with lapsed rabies vaccine tangles with a skunk, but the skunk gets away.
- Unvaccinated cat catches bat in house, and eats it.
- Family finds several bats dead on property, has bats roosting in roof of barn that houses unvaccinated goats, horses, and cats.

# Post-Exposure Treatment for Previously Vaccinated

- Who is previously vaccinated?
  - A person who has received either recommended pre-exposure or post-exposure regimens with HDCV, RVA, or PCEC
  - A person who has received another regimen, and has a documented rabies antibody titer
- Two dose booster on day 0,3
- No immune globulin needed



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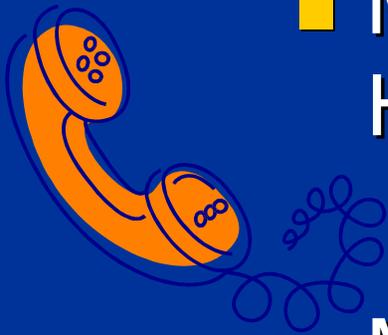
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# Post-Exposure Treatment For Non-vaccinated Persons

- Rabies Immune Globulin
- Series of five vaccinations, day 0, 3, 7, 14, and 28



# Contact Information



- Michigan Department of Community Health: 517-335-8165
- Michigan Department of Agriculture: 517-373-1077

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# Important Websites

- [www.cdc.gov](http://www.cdc.gov) Rabies site
- [www.michigan.gov/rabies](http://www.michigan.gov/rabies)
- [www.nasphv.org](http://www.nasphv.org) “Publications”

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# Questions?

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