

Overview

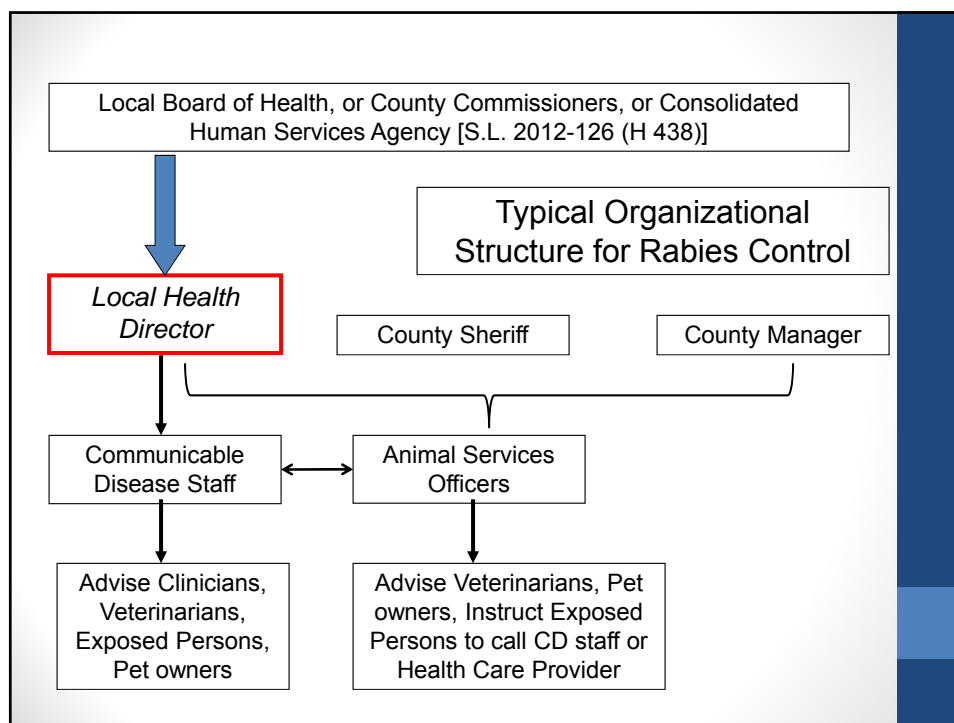
- Public Health authority in NC
- Your state resources
- General Rabies Surveillance
- Human risk assessment overview
- Animal Risk assessment
- NCGS 130A-197

NCGS 130A-41 Powers and duties of local health director

- A local health director shall have the following powers and duties:
 - To investigate the causes of infectious, communicable and other diseases;
 - To exercise quarantine authority and isolation authority pursuant to G.S. 130A-145;
 - To examine, investigate and control rabies pursuant to Part 6 of Article 6 of this Chapter;

Coordination is Essential

- NCGS places authority for CD control with the Local Health Director
- The LHD may delegate (some) responsibility to Animal Control (AC) agencies
 - There must be written agreements (MOA) between agencies specifically delineating responsibility
 - AC officers **must** defer human rabies risk assessments to local CD nurses



10 NCAC 13C .4106 POLICIES AND PROCEDURES

- Each emergency department shall establish written policies and procedures which specify the scope and conduct of patient care to be provided in the emergency areas. They shall include the following:
 - tetanus and rabies prevention or prophylaxis;

NC Communicable Disease Resources



North Carolina Division of Public Health Communicable Disease Manual

Public Health Management of Reportable Diseases and Conditions

NC Division of Public Health • Epidemiology Section
 Communicable Disease Branch
 1902 Mail Service Center
 Raleigh NC 27699-1902
 919 - 733 - 3419 (main number – 24 hours)
 919 - 715 - 4699 (secure fax)

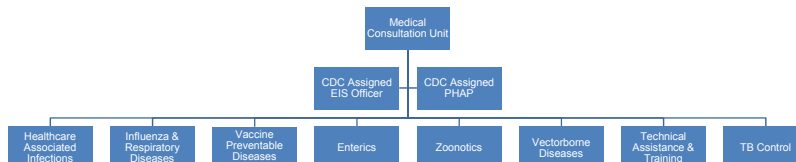
TABLE OF CONTENTS	
Diseases & Conditions Reportable in North Carolina	Other Diseases of Public Health Significance (CA-MRSA, Influenza, Norovirus)
Reporting Forms	NC Laws & Rules
Investigation Steps	Agreement Addenda
Case Definitions	Conferences & Training Opportunities
Provider Memos and Program Alerts	Communicable Disease Course
Outbreak Investigations	Technical Assistance & Training Program
Appendices	Sample Policies/Procedures & Standing Order Templates
NC Electronic Disease Surveillance System (NC EDSS)	Additional Communicable Disease Manuals (HBV, Rabies, STD, TB, Vaccine-Preventable)

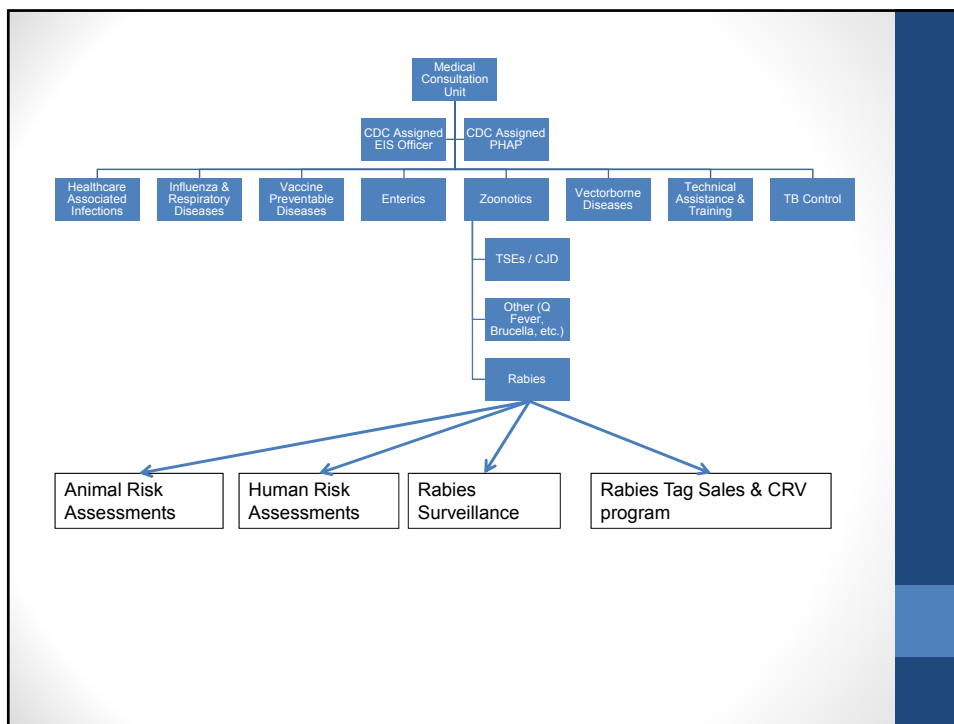
Page Last Updated December 01, 2017

Who Answers Your Calls?

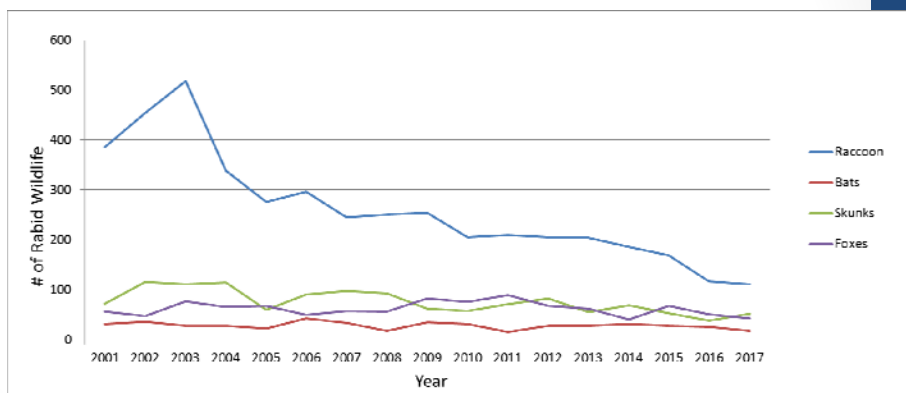
Two people are on call each day during business hours

- One for rabies
- One for general communicable disease (everything else)
- All staff are cross trained on rabies and GCDC, SMEs available

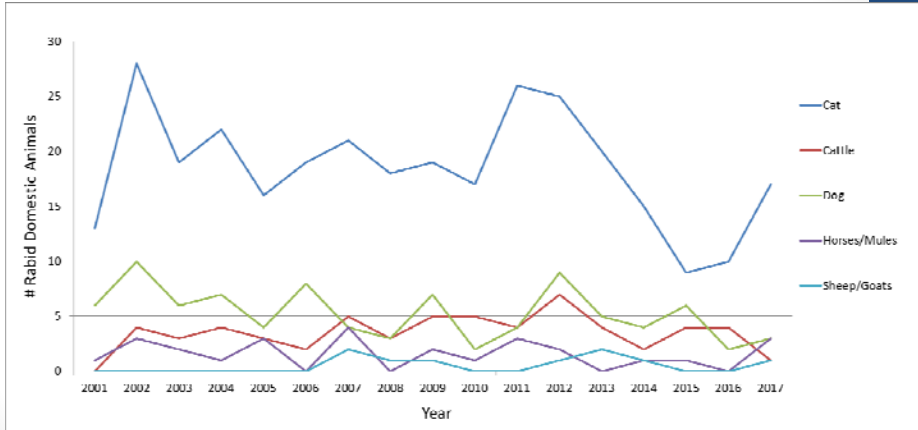




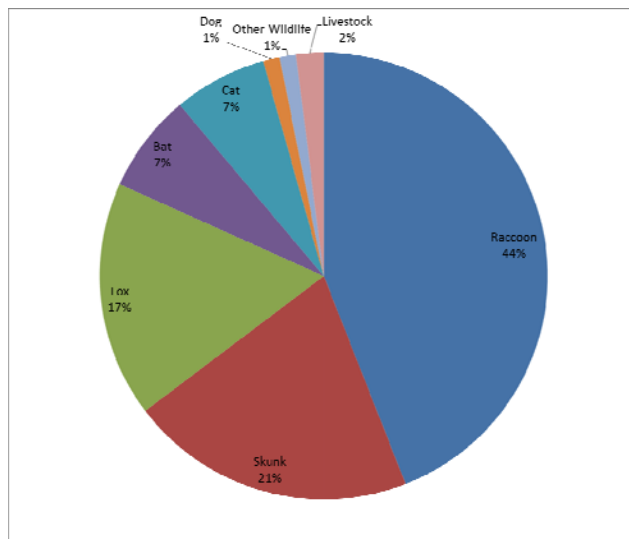
Reported Rabies Positive Wildlife by Species and Year, NC



Reported Rabies Positive Domestic Animals by Species and Year, NC



Rabies Positive Animals by Species, NC, 2017, n=254

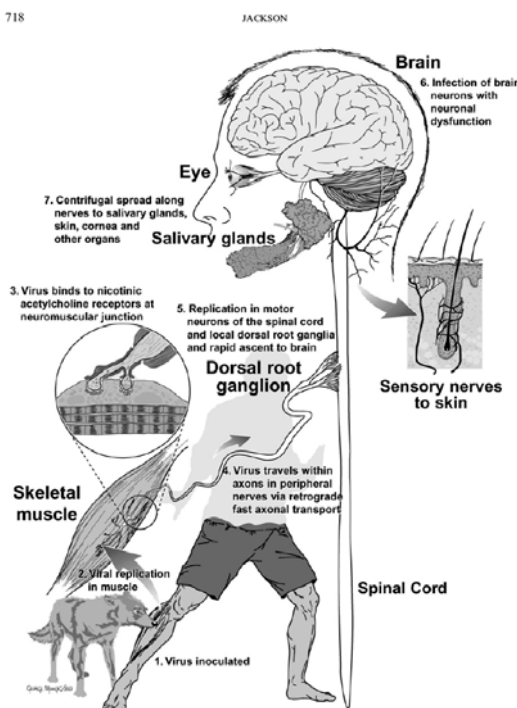


What's in a Name?

- Rabies is an acute encephalitis or meningoencephalitis due to a lyssavirus infection.
- The etiological agents of rabies encephalitis belong to the Mononegavirales order, the Rhabdoviridae family and the Lyssavirus genus
- There are 17 identified Lyssaviruses (genotypes) capable of causing the disease "Rabies"
- Only genotype 1, classic rabies virus, is present in North America

Rabies Exposure & Pathogenesis

- Bite
 - Any penetration of the skin by teeth constitutes exposure
 - It is assumed that all bite exposures result in contamination of the wound with saliva



Jackson. Rabies.
Neurol Clin 26 (2008) 717-726

Management of People Exposed to Rabies

- These protocols remain unchanged

Dogs and Cats

- It is estimated that each year in the US
 - 4.5 million people are bitten by dogs
 - Resulting in 316,000 ED visits and 9,500 hospital stays in 2008
- In the state of Victoria, Australia, 1998-2004
 - 12,982 bites occurred
 - 79.6% due to dogs
 - 8.7% due to humans!!
 - 7.2% due to cats

Holmquist. ED Visits and Inpatient Stays Involving Dog Bites, 2008. AHRQ/HCUP Statistical Brief 101. November, 2010

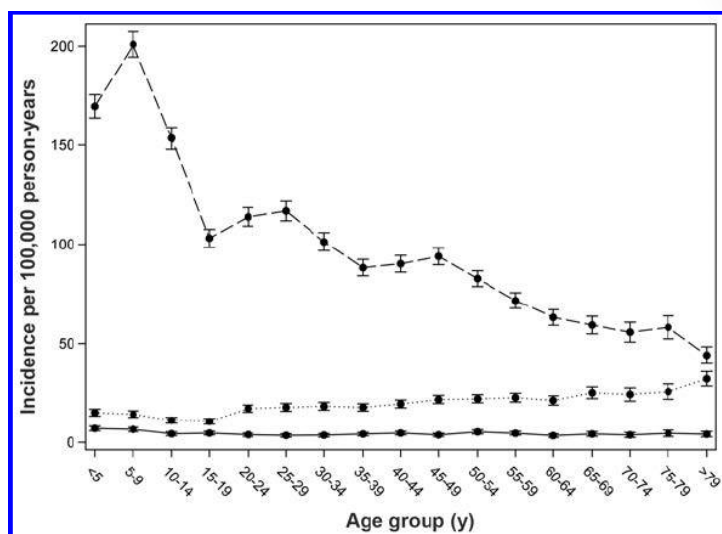
Mac Bean, et. al. Animal and human bite injuries in victoria, 1998-2004. MJA. 2007, 186(1). 38-40.

NC Data, 2008-2010

- ~14 million ED visits
 - 38,971 Animal bite or scratch related
 - 29,586 dog bites, 5,314 cat bite scratch
 - Rabies PEP initiated for
 - 839 / 29,586 dog bites (2.8%)
 - 379 / 5,314 cat bites / scratches (7.1%)

Rhea, et. al. Use of statewide emergency department surveillance data to assess incidence of animal bite injuries among humans in North Carolina. JAVMA, Vol 244, No. 5, March 1, 2014

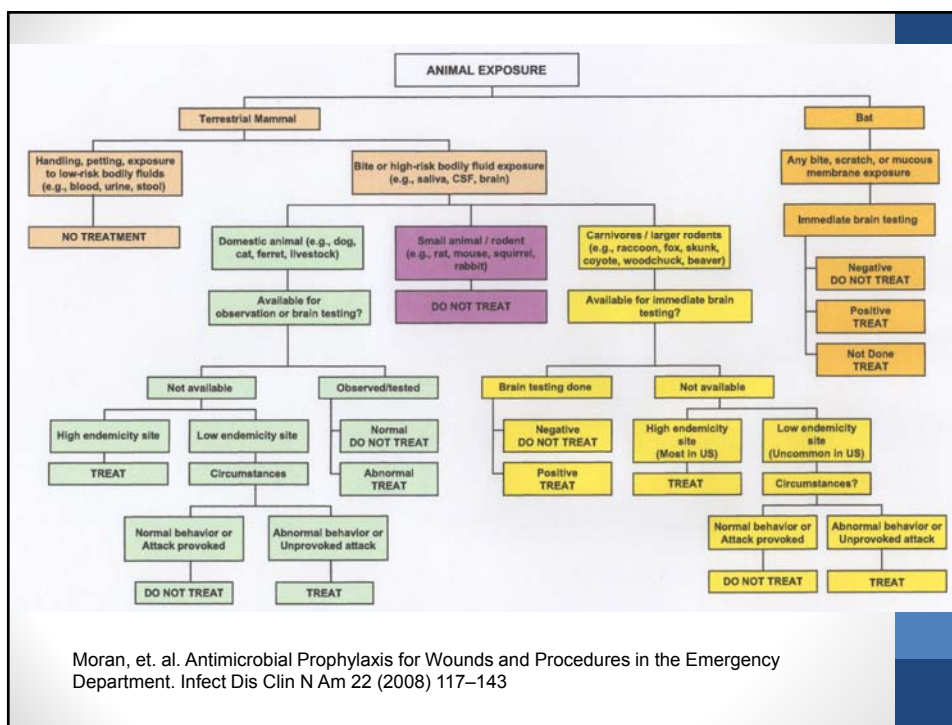
Incidence rates for animal bite-related emergency department visits among humans in North Carolina by patient age group and biting animal species



Millions of Bites, Thousands of ED Visits What do these patients really need?

- Wound care
- Antibiotic therapy
- Tetanus Booster or TIG administration¹
 - Many immigrants not adequately vaccinated against tetanus, thorough history needed
- Rabies specific risk assessment
 - Most dog/cat bites do not require rabies PEP

¹ Talan DA, Abrahamian FM, Moran GJ, et al. Tetanus immunity and physician compliance with tetanus prophylaxis practices among emergency department patients presenting with wounds. *Ann Emerg Med.* 2004;43:305-314.



Basis for 10 day Confinement

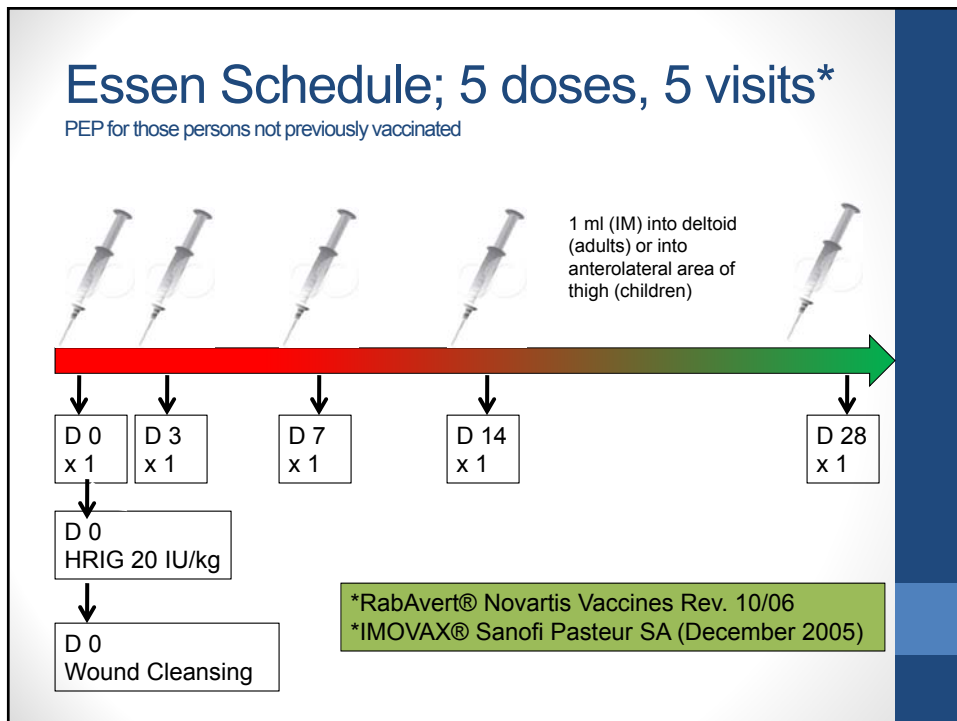
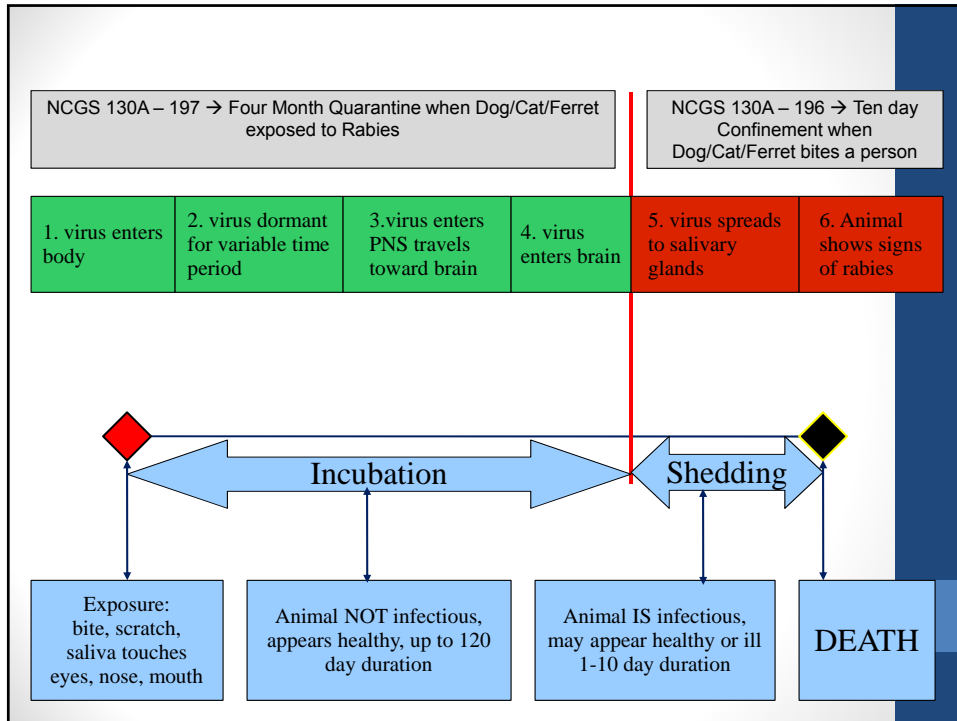
- 86 cats experimentally infected with rabies virus
- 26 died from rabies
- 23 had detectable rabies virus in saliva
- Range of viral shedding extended from 1 day prior to symptom onset to 7 days after symptom onset
- Most cats died 5 – 6 days after symptom onset

Vaughn, et. al. Excretion of Street Rabies Virus in Saliva of Cats. JAMA, Vol. 184 No. 9, 1963. pp.705-708

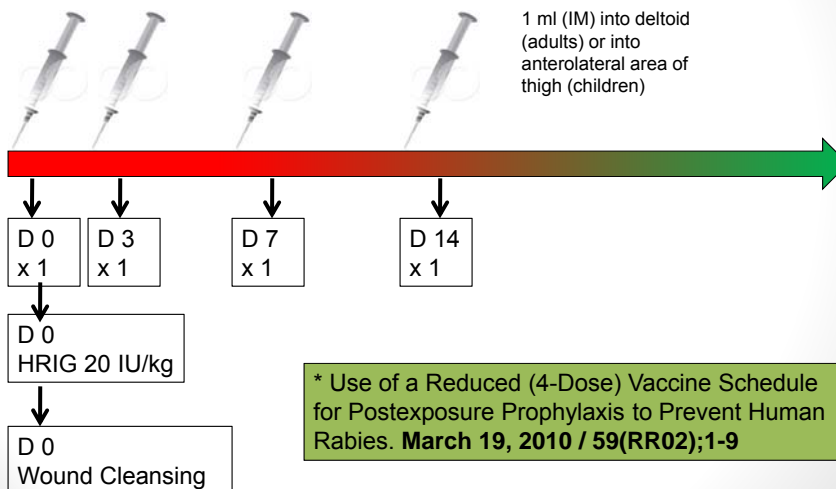
Basis for 10 day Confinement

- 117 dogs experimentally infected with rabies virus
- 54 died from rabies
- 25 had detectable rabies virus in saliva
- Range of viral shedding extended from 3 days prior to symptom onset to 7 days after symptom onset
- Most dogs died 3 – 4 days after symptom onset

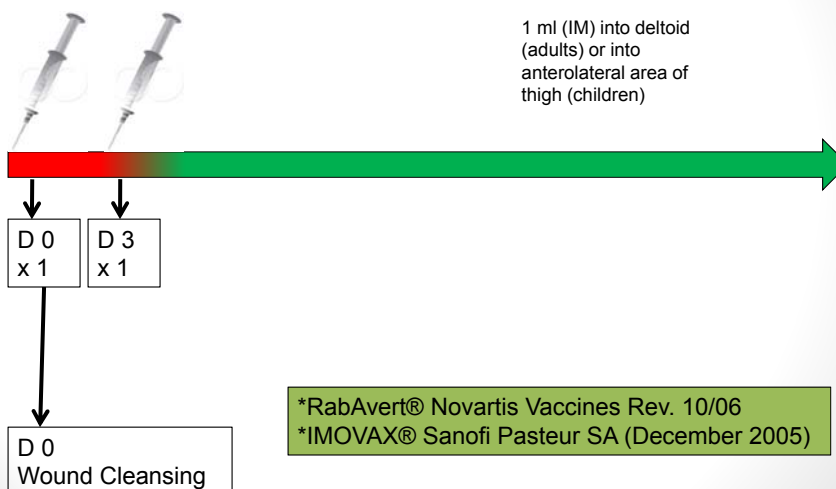
Vaughn, et. al. Excretion of Street Rabies Virus in Saliva of Dogs. JAMA, Vol. 193 No. 5, 1965. pp.113-115



ACIP Modified Essen Schedule; 4 doses, 4 visits*



Human Rabies PEP IF previously vaccinated; 2 doses, 2 visits*



The New Control Measures



Not new, but important; NCGS 130A-185

Vaccination required - The *owner* of an animal listed in this subsection over four months of age shall have the animal vaccinated against rabies.

- (1) Cat
- (2) Dog
- (3) Ferret

Adherence to a regular rabies vaccination schedule is critical to protect animals against recognized and unrecognized exposures.

New guidance for pets exposed to rabies

Cats and dogs overdue for a vaccine can have a booster shot

By Katie Burns

Posted Feb. 10, 2016

New guidance in this issue of the *JAVMA* advises that cats and dogs that are exposed to rabies and are overdue for a vaccine can have a booster shot followed by an observation period rather than be subject to quarantine or euthanasia.

The recommendation appears in the 2016 edition of the [Compendium of Animal Rabies Prevention and Control](#) (*J Am Vet Med Assoc* 2016;248:505-517) from the National Association of State Public Health Veterinarians, along with other updates from the 2011 edition. Dr. Catherine M. Brown, co-chair of the compendium committee, described the compendium as a series of best practices that jurisdictions can choose to follow.

The update pertaining to out-of-date vaccination status follows publication in the Jan. 15, 2015, issue of *JAVMA* of a report on ["Comparison of anamnestic responses to rabies vaccination in dogs and cats with current and out-of-date vaccination status"](#) (*J Am Vet Med Assoc* 2015;248:205-211). According to the abstract, "Results indicated that dogs with out-of-date vaccination status were not inferior in their antibody response following booster rabies vaccination, compared with dogs with current vaccination status."

NCGA Amended NCGS 130A-197 2017 Session

- SB 74 ratified by NC General Assembly, signed by Governor July 12, 2017
- Amended 130A-197 by implementing the recommendations and guidelines of the Compendium of Animal Rabies Prevention and Control, specifically for management of dogs, cats, and ferrets exposed to rabies

Amended NCGS 130A-197

- Effective October 1, 2017
- Mostly less restrictive
- Potentially fewer dogs and cats euthanized.
- More *never vaccinated* dogs and cats placed under quarantine (instead of euthanized) for a shorter period of time (4 months).

1983-2017

Currently
Vaccinated

Not Currently
Vaccinated

2017 →

Currently
Vaccinated

Overdue with
Documentation

Overdue without
Documentation

Never Vaccinated

Currently Vaccinated

- Veterinary medical care for assessment, wound cleansing, and booster vaccination.
 - Immediate or within 96 hours
- The animal should be kept under the owner's control and observed for 45 days

The Rabies Certificate is not expired. If the animal's initial Rabies vaccination, it occurred at least 28 days prior to the exposure and at ≥ 3 months of age Or per Vaccine Manufacturer's label

Owner Observation 45 Days

- Under the owner's strict control and observation for 45 days until the LHD officially releases the 45 day observation period
- No contact with animals or people other than the designated owner/caretaker(s)
 - Leash walk, direct supervision secure fenced yard
 - Unless prior approval from LHD,
 - No travel in or out of state
 - No boarding
 - No outings to doggie park or other parks
 - No public venues, etc.
- Notify LHD immediately or illness or behavior change or bites to people; need for veterinary care

Overdue with Documentation

- Veterinary medical care for assessment, wound cleansing, and booster vaccination.
 - Immediate or within 96 hours
- The animal should be kept under the owner's control and observed for 45 days

Rabies Certificate is expired, but animal has received at least one rabies vaccine in its lifetime. If a single vaccine, the animal was vaccinated at ≥ 3 months of age

Overdue with Documentation

- What constitutes documentation
- Rabies Certificate
 - Model NASPHV form #51, OR
 - Official Veterinary Record (with same information as NASPHV form #51)

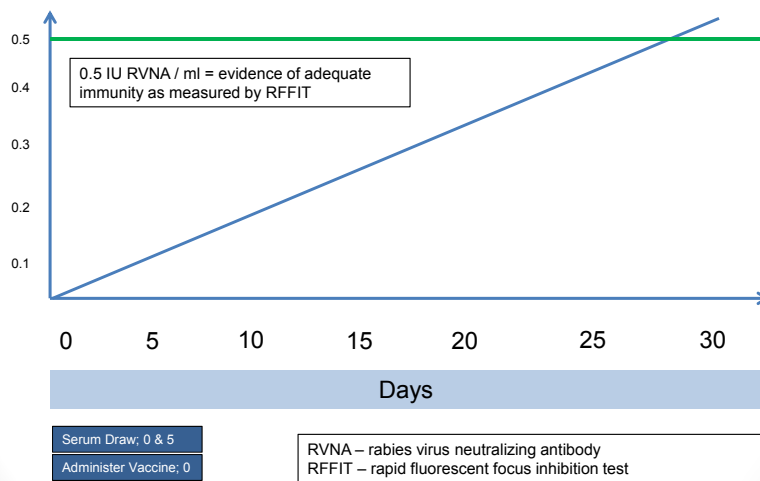
Overdue without Documentation

- Euthanize Immediately or, If owner unwilling to euthanize...
- Strict Quarantine –
 - Immediate Veterinary Care
 - Consult with LHD
 - Rabies Booster: on day of exposure but not more that four days (96 Hours) after exposure
 - Dogs and Cats – Four Months
 - Ferrets – Six Months
- Prospective Serologic Monitoring

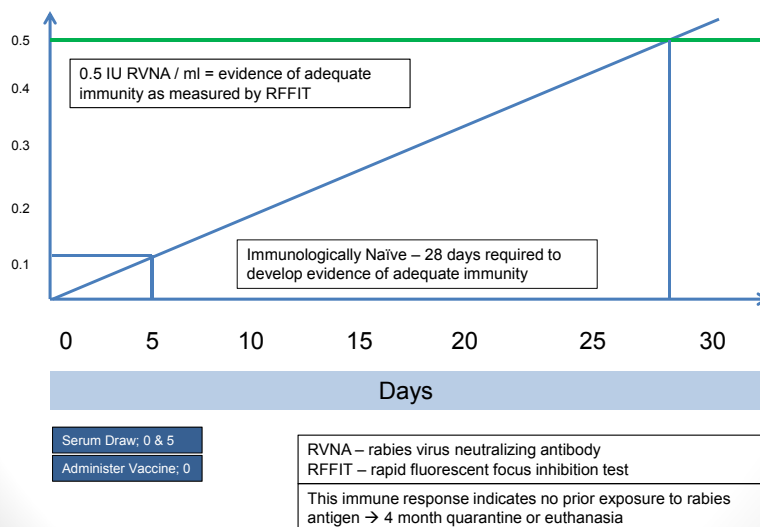
Indications for Prospective Serologic Monitoring

- Evidence the animal has...
 - Microchip
 - Tattoo
 - Rabies Tag
 - Shelter papers
 - Evidence of Spay or Neuter
 - Ear-tipped Cat
- Owner provides strong anecdotal evidence of animal's prior rabies vaccination.

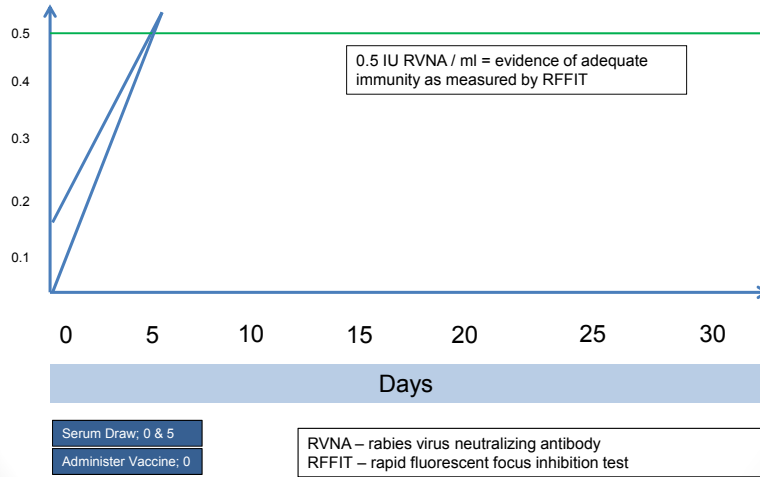
Overdue without Documentation – Prospective Serologic Monitoring



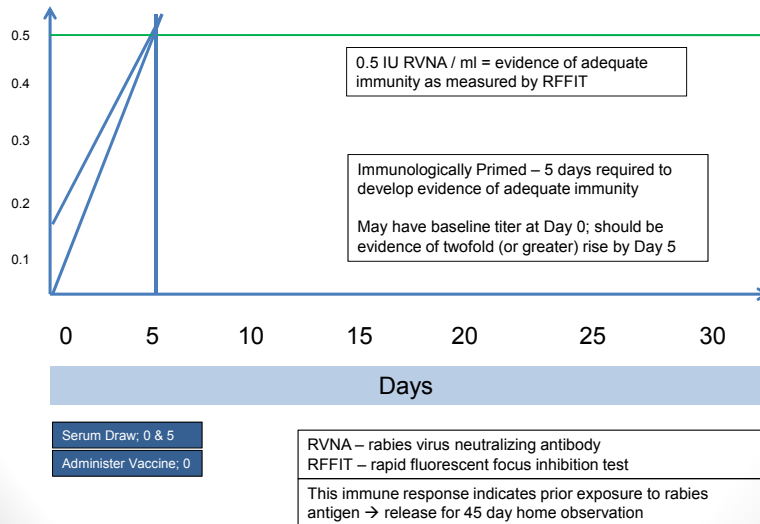
Overdue without Documentation – Prospective Serologic Monitoring



Overdue without Documentation – Prospective Serologic Monitoring



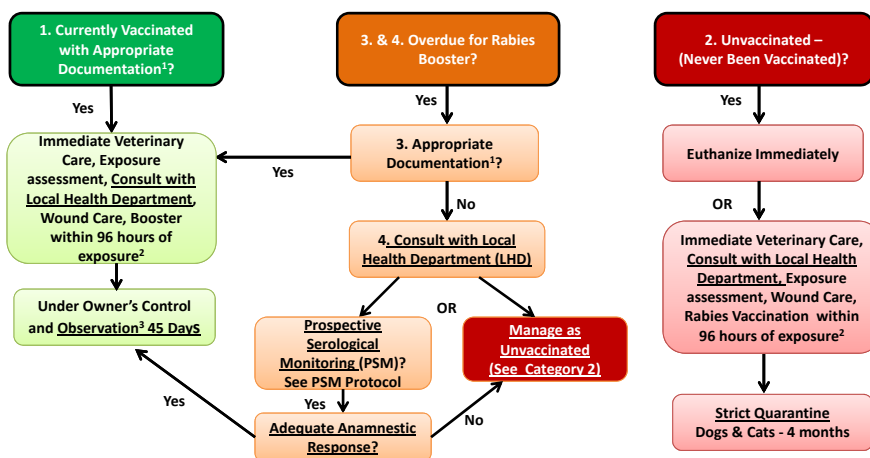
Overdue without Documentation – Prospective Serologic Monitoring



Never Vaccinated

- Euthanize Immediately or, If owner unwilling to euthanize...
- Strict Quarantine –
 - Immediate Veterinary Care
 - Consult with LHD
 - Rabies Booster: on day of exposure but not more that four days (96 Hours) after exposure
 - Dogs and Cats – Four Months
 - Ferrets – Six Months

2016 NASPHV Rabies Compendium Postexposure Management Control Measures For Dogs and Cats by Rabies Vaccination Status

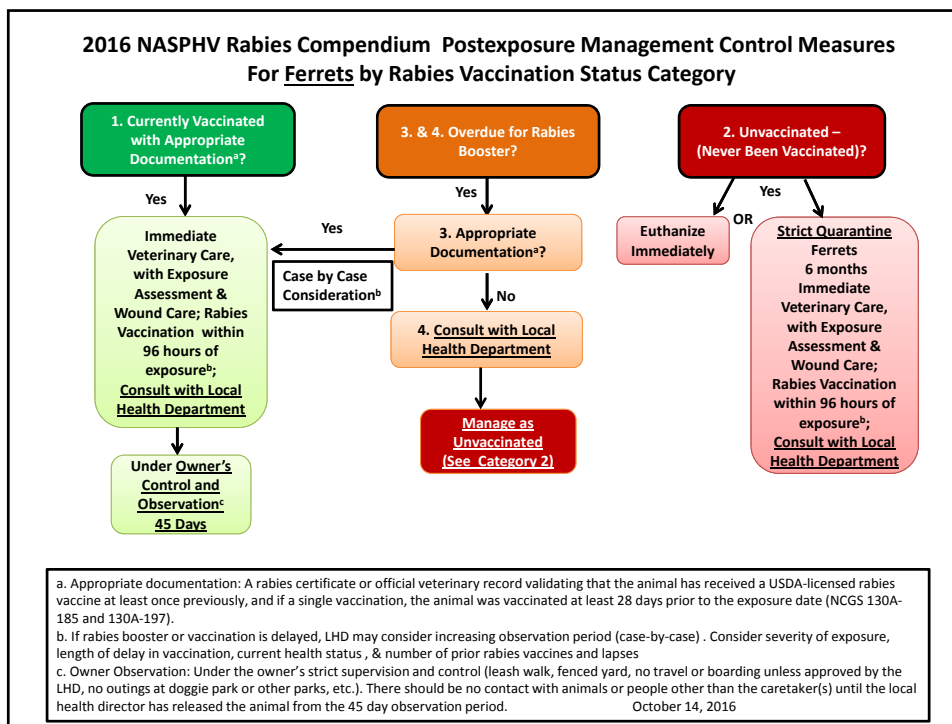


1. Appropriate documentation: A rabies certificate or official veterinary record validating that the animal has received a USDA-licensed rabies vaccine at least once previously, and if a single vaccination, the animal was vaccinated at least 28 days prior to the exposure date (NCGS 130A-185 and 130A-197).

2. If rabies booster or vaccination is delayed, LHD may consider increasing observation period (case-by-case) or quarantine period (from 4 to 6 months), considering severity of exposure, length of delay in vaccination, current health status, & number of prior rabies vaccines and lapses

3. Owner Observation: Under the owner's strict supervision and control (leash walk, fenced yard, no travel or boarding unless approved by the LHD, no outings at doggie park or other parks, etc.). There should be no contact with animals or people other than the caretaker(s) until the local health director has released the animal from the 45 day observation period.

October 11, 2016



Postexposure Management: Illness or Death in exposed animal

- Any illness or death in an exposed animal shall be reported immediately to the local health department and animal control.
- If the exposed animal dies for any reason or develops signs suggestive of rabies (the animal shall be euthanized), the head or entire brain (including brainstem) shall be submitted to NCSLPH for testing.
- § 130A-198 and § 130A-199 - Immediately notifiable

Control Measure Summary

Control Measure	Use	Authority
10 Day Confinement	When a dog/cat/ferret bites a person	130A-196
45 Day Observation	When a rabies vaccinated dog/cat/ferret has been exposed to rabies	130A-197 / NASPHV Compendium
4 Month Quarantine	When a rabies unvaccinated dog/cat has been exposed to rabies	130A-197 / NASPHV Compendium
6 Month Quarantine	When a ferret not currently vaccinated against rabies has been exposed to rabies	130A-197 / NASPHV Compendium
Test	When a dog/cat/ferret in a 10 day confinement dies	130A-199
Test	Other animals tested at the discretion of the SPHV	130A-198

Questions?

