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*Recommendations  
and  
Reports*

MORBIDITY AND MORTALITY WEEKLY REPORT

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**Compendium of  
Animal Rabies Control  
1996**

**National Association of  
State Public Health Veterinarians, Inc.**

**U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES**  
**Public Health Service**  
Centers for Disease Control  
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# **Compendium of Animal Rabies Control, 1996 National Association of State Public Health Veterinarians, Inc.\***

The purpose of this Compendium is to provide information on rabies to veterinarians, public health officials, and others concerned with rabies control. These recommendations serve as the basis for animal rabies-control programs throughout the United States and facilitate standardization of procedures among jurisdictions, thereby contributing to an effective national rabies-control program. This document is reviewed annually and revised as necessary. Recommendations on immunization procedures are contained in Part I; all animal rabies vaccines licensed by the United States Department of Agriculture (USDA) and marketed in the United States are listed in Part II; Part III details the principles of rabies control.

## **Part I: Recommendations for Immunization Procedures**

### **A. Vaccine Administration**

All animal rabies vaccines should be restricted to use by, or under the direct supervision of, a veterinarian.

### **B. Vaccine Selection**

In comprehensive rabies-control programs, only vaccines with a 3-year duration of immunity should be used. This procedure constitutes the most effective method of increasing the proportion of immunized dogs and cats in any population. (See Part II.)

### **C. Route of Inoculation**

All vaccines must be administered in accordance with the specifications of the product label or package insert. If administered intramuscularly, it must be at one site in the thigh.

### **D. Wildlife Vaccination**

Parenteral vaccination of captive wildlife is not recommended because the efficacy of rabies vaccines in such animals has not been established and no vaccine is licensed

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for wildlife. For this reason and because virus-shedding periods are unknown, wild or exotic carnivores and bats should not be kept as pets. Zoos or research institutions may establish vaccination programs that attempt to protect valuable animals, but these programs should not be in lieu of appropriate public health activities that protect humans. The use of licensed oral vaccines for the mass immunization of wildlife should be considered in selected situations, with the approval of the state agency responsible for animal rabies control.

### E. Accidental Human Exposure to Vaccine

Accidental inoculation can occur during administration of animal rabies vaccine. Such exposure to inactivated vaccines constitutes no risk for acquiring rabies.

### F. Identification of Vaccinated Animals

All agencies and veterinarians should adopt the standard tag system. This practice will aid the administration of local, state, national, and international rabies-control procedures. Animal license tags should be distinguishable in shape and color from rabies tags. Anodized aluminum rabies tags should be no less than 0.064 inches in thickness.

#### 1. Rabies Tags

Calendar year	Color	Shape
1996	Red	Heart
1997	Blue	Rosette
1998	Orange	Oval
1999	Green	Bell

2. **Rabies Certificate.** All agencies and veterinarians should use the National Association of State Public Health Veterinarians, Inc. (NASPHV) form #51, Rabies Vaccination Certificate, which can be obtained from vaccine manufacturers. Computer-generated forms containing the same information are acceptable.

**Part II: Vaccines Marketed in the United States and NASPHV\* Recommendations**

<b>Product name</b>	<b>Produced by</b>	<b>Marketed by</b>	<b>For use in</b>	<b>Dosage (mL)</b>	<b>Age at primary vaccination<sup>†</sup></b>	<b>Booster recommended</b>	<b>Route of inoculation</b>
<b>A) INACTIVATED</b>							
TRIMUNE	Fort Dodge License No. 112	Fort Dodge	Dogs	1	3 mos & 1 yr later	Triennially	IM <sup>§</sup>
			Cats	1		Triennially	IM
ANNAMUNE	Fort Dodge License No. 112	Fort Dodge	Dogs	1	3 mos 3 mos	Annually	IM
			Cats	1		Annually	IM
DURA-RAB 1	ImmunoMed License No. 421	ImmunoMed, Vedco, Inc.	Dogs	1	3 mos 3 mos	Annually	IM
			Cats	1		Annually	IM
DURA-RAB 3	ImmunoMed License No. 421	ImmunoMed, Vedco, Inc.	Dogs	1	3 mos & 1 yr later	Triennially	IM
			Cats	1		Triennially	IM
RABCINE-3	ImmunoMed License No. 421	Pfizer, Inc.	Dogs	1	3 mos & 1 yr later	Triennially	IM
			Cats	1		Triennially	IM
ENDURALL-P or DEFENSOR 1	Pfizer, Inc. License No. 189	Pfizer, Inc.	Dogs	1	3 mos 3 mos	Annually	IM or SQ <sup>¶</sup>
			Cats	1		Annually	SQ
RABGUARD-TC	Pfizer, Inc. License No. 189	Pfizer, Inc.	Dogs	1	3 mos & 1 yr later	Triennially	IM
			Cats	1		Triennially	IM
			Sheep	1	3 mos	Annually	IM
			Cattle	1	3 mos	Annually	IM
			Horses	1	3 mos	Annually	IM
DEFENSOR or DEFENSOR 3	Pfizer, Inc. License No. 189	Pfizer, Inc.	Dogs	1	3 mos & 1 yr later	Triennially	IM or SQ
			Cats	1		Triennially	SQ
			Sheep	2	3 mos	Annually	IM
			Cattle	2	3 mos	Annually	IM
RABDOMUN	Pfizer, Inc. License No. 189	Mallinckrodt Veterinary, Inc.	Dogs	1	3 mos & 1 yr later	Triennially	IM or SQ
			Cats	1		Triennially	SQ
			Sheep	2	3 mos	Annually	IM
			Cattle	2	3 mos	Annually	IM
RABDOMUN 1	Pfizer, Inc. License No. 189	Mallinckrodt Veterinary, Inc.	Dogs	1	3 mos 3 mos	Annually	IM or SQ
			Cats	1		Annually	SQ
SENTRYRAB-1	Pfizer, Inc. License No. 225	Synbiotics Corp.	Dogs	1	3 mos 3 mos	Annually	IM
			Cats	1		Annually	IM

Part II: Vaccines Marketed in the United States and NASPHV\* Recommendations — Continued

4

Product name	Produced by	Marketed by	For use in	Dosage (mL)	Age at primary vaccination <sup>†</sup>	Booster recommended	Route of inoculation
RABVAC 1	Solvay Animal Health, Inc., License No. 195 & 195A	Solvay Animal Health, Inc.	Dogs Cats	1 1	3 mos 3 mos	Annually Annually	IM or SQ IM or SQ
RABVAC 3	Solvay Animal Health, Inc., License No. 195 & 195A	Solvay Animal Health, Inc.	Dogs Cats Horses	1 1 2	3 mos & 1 yr later 3 mos	Triennially Triennially Annually	IM or SQ IM or SQ IM
PRORAB-1	Intervet, Inc. License No. 286	Intervet, Inc.	Dogs Cats Sheep	1 1 2	3 mos 3 mos 3 mos	Annually Annually Annually	IM or SQ IM or SQ IM
RM IMRAB 1	Rhone Mérieux, Inc. License No. 298	Rhone Mérieux, Inc.	Dogs Cats	1 1	3 mos 3 mos	Annually Annually	IM or SQ IM or SQ
RM IMRAB BOVINE PLUS	Rhone Mérieux, Inc. License No. 298	Rhone Mérieux, Inc.	Cattle Horses Sheep	2 2 2	3 mos 3 mos 3 mos & 1 yr later	Annually Annually Triennially	IM or SQ IM or SQ IM or SQ
RM IMRAB 3	Rhone Mérieux, Inc. License No. 298	Rhone Mérieux, Inc.	Dogs Cats Sheep  Cattle Horses Ferrets	1 1 2  2 2 1	3 mos & 1 yr later 3 mos & 1 yr later 3 mos 3 mos 3 mos	Triennially Triennially Triennially  Annually Annually Annually	IM or SQ IM or SQ IM or SQ  IM or SQ IM or SQ SQ
PRORAB-3F	Intervet, Inc. License No. 286	Intervet, Inc.	Cats	1	3 mos & 1 yr later	Triennially	IM or SQ

MMWR

**B) COMBINATION (inactivated rabies)**

ECLIPSE 3 KP-R	Solvay Animal Health, Inc., License No. 195 & 195A	Solvay Animal Health, Inc.	Cats	1	3 mos	Annually	IM
ECLIPSE 4 KP-R	Solvay Animal Health, Inc., License No. 195 & 195A	Solvay Animal Health, Inc.	Cats	1	3 mos	Annually	IM

April 12, 1996

**Part II: Vaccines Marketed in the United States and NASPHV\* Recommendations — Continued**

<b>Product name</b>	<b>Produced by</b>	<b>Marketed by</b>	<b>For use in</b>	<b>Dosage (mL)</b>	<b>Age at primary vaccination<sup>†</sup></b>	<b>Booster recommended</b>	<b>Route of inoculation</b>
FEL-O-VAX PCT-R	Fort Dodge License No. 112	Fort Dodge	Cats	1	3 mos & 1 yr later	Triennially	IM
RM FELINE 4 + IMRAB	Rhone Mérieux, Inc. License No. 298	Rhone Mérieux, Inc.	Cats	1	3 mos & 1 yr later	Triennially	SQ
RM FELINE 3 + IMRAB	Rhone Mérieux, Inc. License No. 298	Rhone Mérieux, Inc.	Cats	1	3 mos & 1 yr later	Triennially	SQ
RM EQUINE POTOMAVAC+ IMRAB	Rhone Mérieux, Inc. License No. 298	Rhone Mérieux, Inc.	Horses	1	3 mos	Annually	IM
ECLIPSE 3+ FeLV/R	Solvay Animal Health, Inc., License No. 195 & 195A	Solvay Animal Health, Inc.	Cats	1	3 mos	Annually	IM or SQ
ECLIPSE 4+ FeLV/R	Solvay Animal Health, Inc., License No. 195 & 195A	Solvay Animal Health, Inc.	Cats	1	3 mos	Annually	IM or SQ
MYSTIQUE II	Bayer Corp. License No. 52	Bayer Corp.	Horses	1	3 mos & 3–4 wks later**	Annually	IM

\* National Association of State Public Health Veterinarians, Inc.

<sup>†</sup> ≥3 months of age and revaccinated 1 year later.

<sup>§</sup> Intramuscularly.

<sup>¶</sup> Subcutaneously.

\*\* ≥3 months of age and revaccinated 3–4 weeks later.

## Part III: Rabies Control

### A. Principles of Rabies Control

1. **Human Rabies Prevention.** Rabies in humans can be prevented either by eliminating exposures to rabid animals or by providing exposed persons with prompt local treatment of wounds combined with appropriate passive and active immunization. The rationale for recommending preexposure and postexposure rabies prophylaxis and details of their administration can be found in the current recommendations of the Advisory Committee on Immunization Practices (ACIP) of the Public Health Service (PHS). These recommendations, along with information concerning the current local and regional status of animal rabies and the availability of human rabies biologics, are available from state health departments.
2. **Rabies in Domestic Animals.** Local governments should initiate and maintain effective programs to ensure vaccination of all dogs and cats and to remove strays and unwanted animals. Such procedures in the United States have reduced laboratory-confirmed rabies cases in dogs from 6,949 in 1947 to 153 in 1994. Because more rabies cases are reported annually involving cats than dogs, vaccination of cats should be required. The recommended vaccination procedures and the licensed animal vaccines are specified in Parts I and II of the Compendium.
3. **Rabies in Wildlife.** The control of rabies among wildlife reservoirs is difficult. Vaccination of free-ranging wildlife or selective population reduction may be useful in some situations; however, the success of such procedures depends on the circumstances surrounding each rabies outbreak. (See C. Control Methods in Wildlife.)

### B. Control Methods in Domestic and Confined Animals

1. **Preexposure Vaccination and Management.** Animal rabies vaccines should be administered only by, or under the direct supervision of, a veterinarian. This is the only way to ensure that a responsible person can be held accountable to assure the public that the animal has been properly vaccinated. Within 1 month after primary vaccination, a peak rabies antibody titer is reached and the animal can be considered immunized. An animal is currently vaccinated and is considered immunized if it was vaccinated at least 30 days previously and if all vaccinations have been administered in accordance with this Compendium. Regardless of the age at initial vaccination, a second vaccination should be given 1 year later. (See Parts I and II for recommended vaccines and procedures.)
  - a. **Dogs and Cats.** All dogs and cats should be vaccinated against rabies at 3 months of age and revaccinated in accordance with Part II of this Compendium. If a previously vaccinated animal is overdue for a booster, it should be revaccinated with a single dose of vaccine and placed on an annual or triennial schedule depending on the type of vaccine used.
  - b. **Ferrets.** Ferrets may be vaccinated against rabies at 3 months of age and revaccinated in accordance with Part II of this Compendium.

- c. Livestock.** It is neither economically feasible nor justified from a public health standpoint to vaccinate all livestock against rabies. However, consideration should be given to the vaccination of livestock, especially animals that are particularly valuable and/or might have frequent contact with humans, in areas where rabies is epizootic in terrestrial animals.
- d. Other Animals**
- 1) Wild.** No parenteral rabies vaccine is licensed for use in wild animals. Because of the risk of rabies in wild animals (especially raccoons, skunks, coyotes, foxes, and bats), the American Veterinary Medical Association (AVMA), the NASPHV, and the Council of State and Territorial Epidemiologists (CSTE) strongly recommend the enactment of state laws prohibiting the importation, distribution, relocation, or keeping of wild animals and wild animals that are crossbred to domestic dogs and cats as pets.
  - 2) Maintained in Exhibits and in Zoological Parks.** Captive animals that are not completely excluded from all contact with rabies vectors can become infected. Moreover, wild animals can be incubating rabies when initially captured; therefore, wild-caught animals susceptible to rabies should be quarantined for a minimum of 180 days before exhibition. Employees who work with animals at such facilities should receive preexposure rabies immunization. The use of preexposure or postexposure rabies immunizations of employees who work with animals at such facilities might reduce the need for euthanasia of captive animals.
- 2. Stray Animals.** Stray dogs or cats should be removed from the community, especially in areas where rabies is epizootic. Local health departments and animal-control officials can enforce the removal of strays more effectively if owners either confine their animals or keep them on a leash. Strays should be impounded for at least 3 days to determine if human exposure has occurred and to give owners sufficient time to reclaim animals.
- 3. Quarantine**
- a. International.** CDC regulates the importation of dogs and cats into the United States, but current PHS regulations (42 CFR No. 71.51) governing the importation of such animals are insufficient to prevent the introduction of rabid animals into the country. All dogs and cats imported from countries with enzootic rabies should be currently vaccinated against rabies as recommended in this Compendium. The appropriate public health official of the state of destination should be notified within 72 hours of any unvaccinated dog or cat imported into his or her jurisdiction. The conditional admission of such animals into the United States is subject to state and local laws governing rabies. Failure to comply with these requirements should be reported promptly to the Division of Quarantine, CDC, 404-639-8107.
  - b. Interstate.** Prior to interstate movement, dogs and cats should be currently vaccinated against rabies in accordance with the Compendium's recommendations. (See B.1. Preexposure Vaccination and Management.) Animals in transit should be accompanied by a currently valid NASPHV Form #51, Rabies Vaccination Certificate.

4. **Adjunct Procedures.** Methods or procedures that enhance rabies control include the following:
  - a. **Licensure.** Registration or licensure of all dogs and cats can be used to aid in rabies control. A fee frequently is charged for such licensure, and revenues collected are used to maintain rabies or animal-control programs. Vaccination is an essential prerequisite to licensure.
  - b. **Canvassing of Area.** House-to-house canvassing by animal-control personnel facilitates enforcement of vaccination and licensure requirements.
  - c. **Citations.** Citations are legal summonses issued to owners for violations, including the failure to vaccinate or license their animals. The authority for officers to issue citations should be an integral part of each animal-control program.
  - d. **Animal Control.** All communities should incorporate stray animal control, leash laws, and training of personnel into their programs.
5. **Postexposure Management.** *Any animal bitten or scratched by a wild, carnivorous mammal (or a bat) not available for testing should be regarded as having been exposed to rabies.*
  - a. **Dogs and Cats.** Unvaccinated dogs and cats exposed to a rabid animal should be euthanized immediately. If the owner is unwilling to have this done, the animal should be placed in strict isolation for 6 months and vaccinated 1 month before being released. Animals with expired vaccinations need to be evaluated on a case-by-case basis. Dogs and cats that are currently vaccinated should be revaccinated immediately, kept under the owner's control, and observed for 45 days.
  - b. **Livestock.** All species of livestock are susceptible to rabies; cattle and horses are among the most frequently infected. Livestock exposed to a rabid animal and currently vaccinated with a vaccine approved by USDA for that species should be revaccinated immediately and observed for 45 days. Unvaccinated livestock should be slaughtered immediately. If the owner is unwilling to have this done, the animal should be kept under close observation for 6 months. The following are recommendations for owners of unvaccinated livestock exposed to rabid animals:
    - 1) If the animal is slaughtered within 7 days of being bitten, its tissues may be eaten without risk of infection, provided liberal portions of the exposed area are discarded. Federal meat inspectors must reject for slaughter any animal known to have been exposed to rabies within 8 months.
    - 2) Neither tissues nor milk from a rabid animal should be used for human or animal consumption. However, because pasteurization temperatures will inactivate rabies virus, drinking pasteurized milk or eating cooked meat does not constitute a rabies exposure.
    - 3) It is rare to have more than one rabid animal in a herd or to have herbivore-to-herbivore transmission; therefore, it may not be necessary to restrict the rest of the herd if a single animal has been exposed to or infected by rabies.
  - c. **Other Animals.** Other animals bitten by a rabid animal should be euthanized immediately. Such animals currently vaccinated with a vaccine approved by

USDA for that species may be revaccinated immediately and placed in strict isolation for at least 90 days.

6. **Management of Animals That Bite Humans.** A healthy dog or cat that bites a person should be confined and observed for 10 days; it is recommended that rabies vaccine not be administered during the observation period. Such animals should be evaluated by a veterinarian at the first sign of illness during confinement. Any illness in the animal should be reported immediately to the local health department. If signs suggestive of rabies develop, the animal should be euthanized, its head removed, and the head shipped under refrigeration for examination by a qualified laboratory designated by the local or state health department. Any stray or unwanted dog or cat that bites a person may be euthanized immediately and the head submitted as described above for rabies examination. Other biting animals that might have exposed a person to rabies should be reported immediately to the local health department. Prior vaccination of an animal may not preclude the necessity for euthanasia and testing if the period of virus shedding is unknown for that species. Management of animals other than dogs and cats depends on the species, the circumstances of the bite, and the epidemiology of rabies in the area.

### C. Control Methods in Wildlife

The public should be warned not to handle wildlife. Wild mammals (as well as the offspring of wild species crossbred with domestic dogs and cats) that bite or otherwise expose people, pets, or livestock should be considered for euthanasia and rabies examination. A person bitten by any wild mammal should immediately report the incident to a physician who can evaluate the need for antirabies treatment.\*

1. **Terrestrial Mammals.** Continuous and persistent government-funded programs for trapping or poisoning wildlife are not cost effective in reducing wildlife rabies reservoirs on a statewide basis. However, limited control in high-contact areas (e.g., picnic grounds, camps, or suburban areas) might be indicated for the removal of selected high-risk species of wildlife. The state wildlife agency and state health department should be consulted for coordination of any proposed vaccination or population-reduction programs.
2. **Bats.** Indigenous rabid bats have been reported from every state except Alaska and Hawaii and have caused rabies in at least 22 humans in the United States. However, it is neither feasible nor desirable to control rabies in bats by programs to reduce bat populations. Bats should be excluded from houses and surrounding structures to prevent direct association with humans. Such structures should then be made bat-proof by sealing entrances used by bats.

\*Centers for Disease Control and Prevention. Rabies Prevention—United States, 1991. MMWR 1991;40(No. RR-3)1–19.

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