Texas Department of State Health Services
DSHS-Supplied Rabies Biologicals
2017 Surveillance Summary

Texas Health and Safety Code §826.025 and Texas Administrative Code Chapter 97, Subchapter E allow the Texas Department of State Health Services (DSHS) to supply rabies biologicals (vaccine and immune globulin) for people who have been exposed to rabid, or potentially rabid, animals. In an effort to make the biologicals available to Texas residents throughout the state, DSHS Public Health Region (PHR) offices may store and distribute rabies biologicals and some PHR offices partner with local health departments to serve as depots for storing and distributing biologicals. Surveillance data, including the demographic information on who received the biologicals and the reasons the biologicals were distributed, are maintained by DSHS (mandated by §97.123, Texas Administrative Code, "Provision of Anti-Rabies Biologicals").

Some private sources- such as clinics, hospitals, pharmacies, and healthcare systems- directly provide rabies biologicals to patients. These sources do not supply surveillance information to DSHS and are not included in this summary.

Postexposure Rabies Prophylaxis

During 2017, rabies biologicals were distributed for postexposure prophylaxis (PEP) to 393 people, of whom 111 (28.2%) acquired the biologicals from DSHS PHR offices and 282 (71.8%) from depots. The reported total cost of the biologicals distributed from DSHS inventory was $1,257,869 ($826,221 for 1,316 vials [2 ml] of human rabies immune globulin [HRIG] and $431,648 for 1,368 vials [1 ml] of vaccine). A full PEP series of biologicals (HRIG plus 4-5 doses of vaccine) was distributed to 236 people (60.1% of people receiving biologicals from DSHS inventory) at a total cost of $999,622 and an average cost of $4,236 per person (median: $4,093; range: $1,477-$7,959).

Rabies biologicals were distributed to 392 (99.7%) Texas residents and 1 (0.3%) resident of Oklahoma who was traveling in Texas. Distribution of postexposure biologicals based on the PHR of patient residence is summarized in Figure 1. Distribution of rabies biologicals by month is shown in Figure 2.

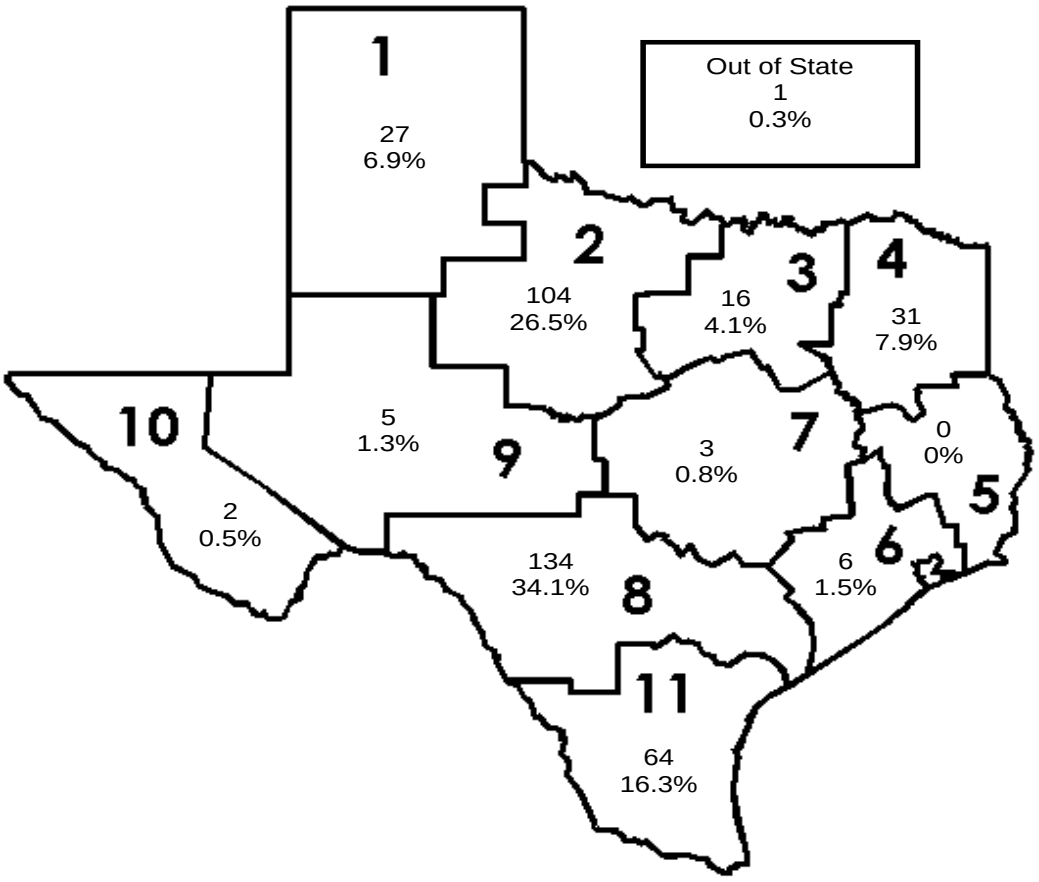


Figure 1. Number of People Receiving Rabies Biologicals by Public Health Region of Patient Residence, 2017

G

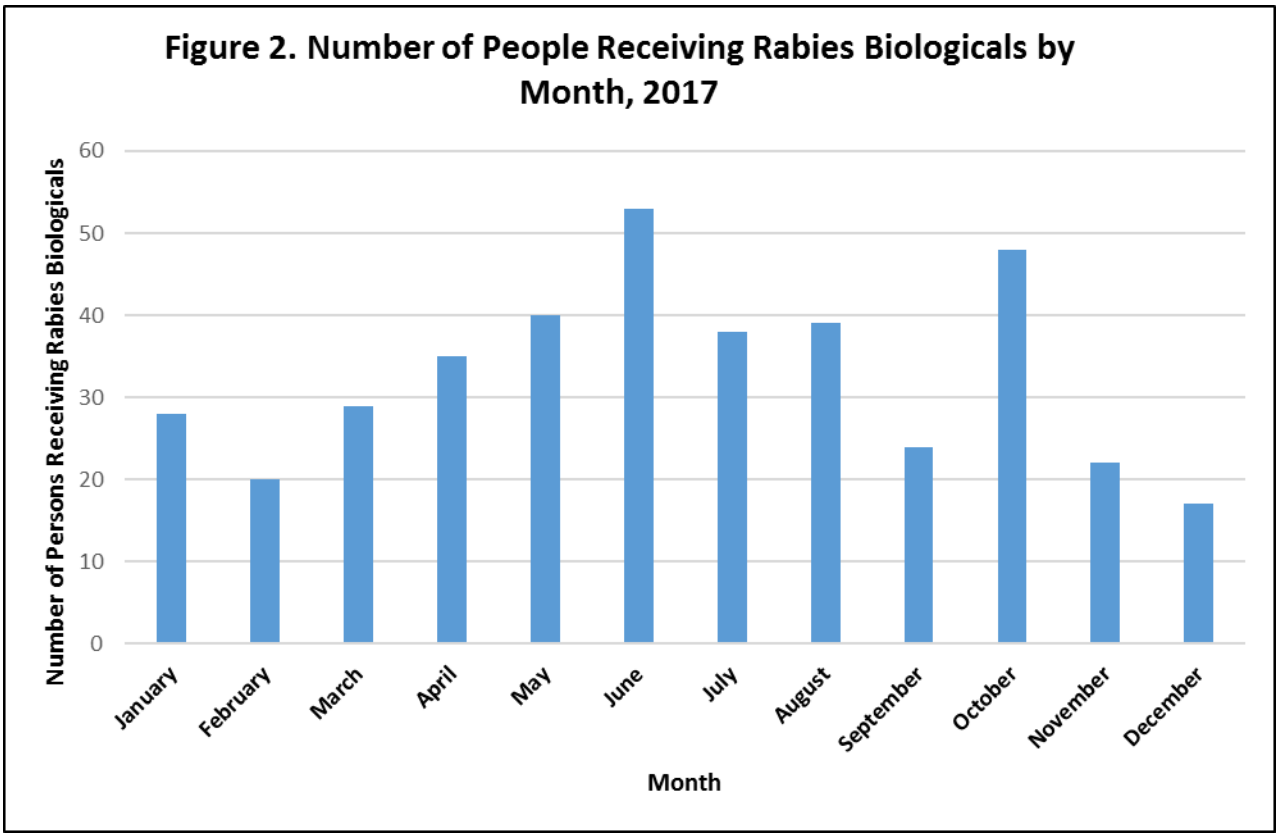


Table 1 shows the distribution of rabies biologicals by month and PHR of the patient's residence.

Month	Public Health Region										Out of State Resident	Total	%
	1	2	3	4	6	7	8	9	10	11			
January		14	1				8		1	4		**28**	**7.1%**
February		7		1			9			3		**20**	**5.1%**
March		8	2	3		1	10			5		**29**	**7.4%**
April	1	10		2			13			9		**35**	**8.9%**
May	5	9	2	9			9	1		4	1	**40**	**10.2%**
June	3	19	4	1	2	1	13	1	1	8		**53**	**13.5%**
July	4	6	2		3		12	2		9		**38**	**9.7%**
August	2	10	2	8			13			4		**39**	**9.9%**
September	5	7	1	3			6			2		**24**	**6.1%**
October	5	8		2	1		26			6		**48**	**12.2%**
November	1	5	2				7			7		**22**	**5.6%**
December	1	1		2		1	8	1		3		**17**	**4.3%**
Total	**27**	**104**	**16**	**31**	**6**	**3**	**134**	**5**	**2**	**64**	**1**	**393**	**100.0%**
%	**6.9%**	**26.5%**	**4.1%**	**7.9%**	**1.5%**	**0.8%**	**34.1%**	**1.3%**	**0.5%**	**16.3%**	**0.3%**	**100.0%**	

Table 1. Number of People Receiving Rabies Biologicals by Month and Public Health Region of Patient Residence, 2017

The species of animals associated with the potential rabies exposures are detailed in Table 2. The number of people receiving biologicals by PHR and animal causing the potential rabies exposure is detailed in Table 3.

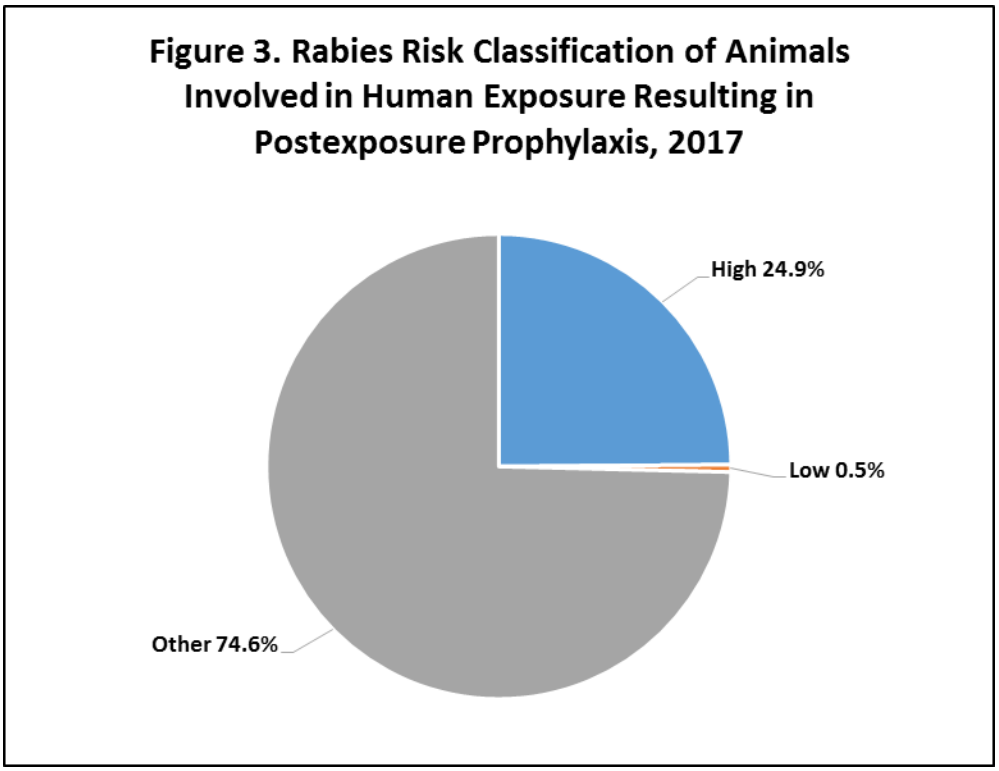
Of the 390 animals for which species was reported, 97 (24.9%) were designated as being of high risk for transmitting rabies (bats, coyotes, foxes, raccoons, and skunks); 2 (0.5%) were classified as being of low risk for transmitting rabies (rodents, rabbits, moles, and opossums); and 291 (74.6%) were classified as neither high nor low risk for transmitting rabies (Figure 3). Although some species are considered low risk for rabies, all mammals are capable of becoming infected with and transmitting rabies. A risk assessment process, which includes many other factors besides species of exposing animal, is utilized to determine a general level of rabies transmission risk for a given exposure setting. In certain circumstances, post-exposure prophylaxis may be recommended even for exposures involving low-risk species.

Species Associated with Exposure Resulting in PEP	Number	%
Dog	166	42.2%
Cat	101	25.7%
Bat	53	13.5%
Raccoon	21	5.3%
Skunk	16	4.1%
Cattle	13	3.3%
Coyote	4	1.0%
Primate	3	0.8%
Pig	3	0.8%
Unknown/Not Listed	3	0.8%
Fox	3	0.8%
Horse	3	0.8%
Bobcat	1	0.3%
Squirrel	1	0.3%
Rat	1	0.3%
Javelina	1	0.3%
Total	**393**	**100.0%**

Table 2. Number of People Receiving Rabies Biologicals by Species of Exposing Animal, 2017

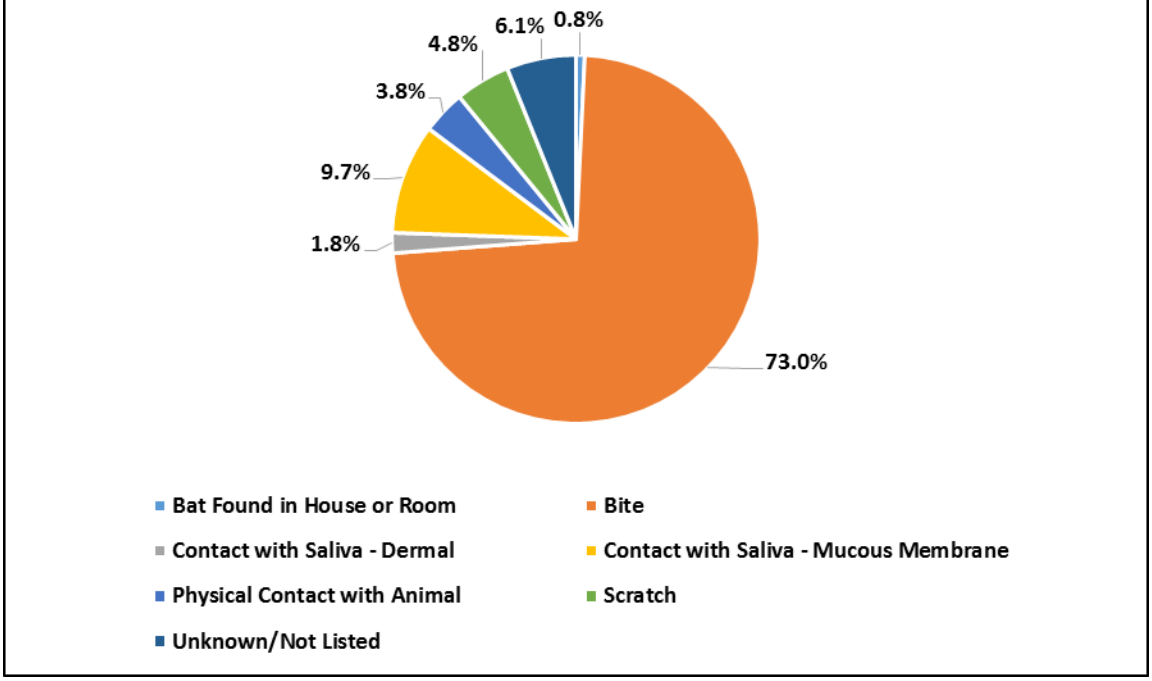
Exposing Animal	Public Health Region										Out of State Resident	Total	%
	1	2	3	4	6	7	8	9	10	11			
Bat	4	3	1	4	5		20			16		**53**	**13.5%**
Bobcat		1										**1**	**0.3%**
Cat	9	46	5				34			7		**101**	**25.7%**
Cattle		7		3			2	1				**13**	**3.3%**
Coyote	1	2							1			**4**	**1.0%**
Dog	12	23	9	20		2	66	2		31	1	**166**	**42.2%**
Fox							2		1			**3**	**0.8%**
Horse		3										**3**	**0.8%**
Javelina										1		**1**	**0.3%**
Pig		1	1			1						**3**	**0.8%**
Primate	1	1								1		**3**	**0.8%**
Raccoon		3		3	1		8	2		4		**21**	**5.3%**
Rat										1		**1**	**0.3%**
Skunk		13		1						2		**16**	**4.1%**
Squirrel							1					**1**	**0.3%**
Unknown/Not Listed		1					1			1		**3**	**0.8%**
Total	**27**	**104**	**16**	**31**	**6**	**3**	**134**	**5**	**2**	**64**	**1**	**393**	**100.0%**
%	**6.9%**	**26.5%**	**4.1%**	**7.9%**	**1.5%**	**0.8%**	**34.1%**	**1.3%**	**0.5%**	**16.3%**	**0.3%**	**100.0%**	

Table 3. Number of People Receiving Rabies Biologicals by Species of Exposing Animal and Public Health Region of Patient Residence, 2017



Reported routes of exposure are shown in Figure 4.

Figure 4. Primary Route of Exposure for People Receiving Postexposure Prophylaxis, 2017



Dogs and cats accounted for 267 (67.9%) of the reports of potential rabies exposures resulting in PEP. Of those, 23 (8.6%) were owned by the patient's family, 47 (17.6%) were owned by someone other than the patient's family, 186 (69.7%) were listed as either a stray or wild animal, and 11 (4.1%) had no ownership information identified (Figure 5). The vaccination status of 66 (24.7%) of the dogs and cats was reported as known, with 64 (97.0% of those with vaccination status known) being not currently vaccinated and 2 (3.0% of those with vaccination status known) being currently vaccinated. The vaccination status of 199 (74.5%) of the dogs and cats was reported as unknown and the vaccination status of 2 (0.7%) of the dogs and cats was not reported.

Anatomic Location of Exposure	Number of People	%
Hand	150	38.2%
Leg	85	21.6%
Arm	45	11.5%
Multiple Anatomic Sites	44	11.2%
Head/Neck	37	9.4%
Not Listed	15	3.8%
Foot	9	2.3%
Torso	8	2.0%
Total	**393**	**100.0%**

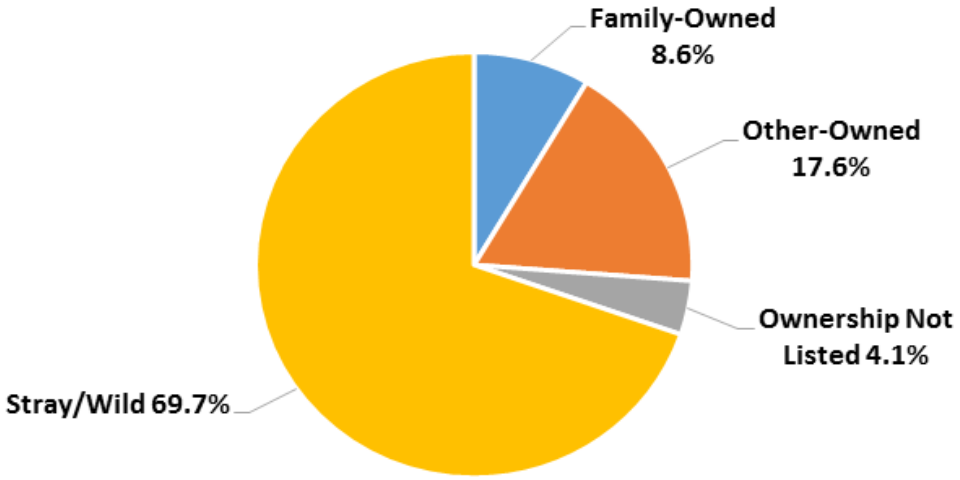
Table 4. Primary Anatomic Location of Rabies Exposure for People Receiving Rabies Biologicals, 2017

The average age of those receiving PEP was 35.3 years (males 33.4 years, females 37.4 years). The median age of those receiving PEP was 33.0 years (males 30.0 years, females 37.0 years). Of the recipients, 201 (51.1%) were male and 187 (47.6%) were female; sex was not reported for 5 (1.3%) recipients. Of those people receiving PEP, 8 (2.0%) were previously immunized for rabies, 7 (1.8%) were not previously immunized for rabies, and the rabies

immunization status for 378 (96.2%) was not listed. The primary anatomic sites of exposure are listed in Table 4.

The animal causing the exposure was tested for rabies in a public health laboratory in 85 (21.6%) cases; the animal was not available for testing or quarantine in 301 (76.6%) cases; the testing status was not listed in 6 (1.5%) cases; and the animal was quarantined in 1 (0.3%) case. Rabies biologicals were distributed to 6 people (1.5% of people receiving PEP) while laboratory results were pending and 1 person (0.3% of people receiving PEP) while the animal causing the exposure was being quarantined for rabies observation. The final laboratory results for those samples which were pending at the time rabies biologicals were distributed were not recorded in the database (Table 5). PEP is occasionally begun while the exposing animal is being tested when the animal or exposure situation is deemed high risk. Additionally, sometimes the exposing animal is located for testing or quarantine after PEP has been initiated. PEP is generally discontinued if the laboratory result is negative or the animal successfully completes quarantine.

Figure 5. Ownership of Cats and Dogs Involved in Potential Rabies Exposure to Humans, 2017



Laboratory Testing Status	Number	%	
Animal Quarantined*	1	0.3%	
Animal Not Available for Testing or Quarantine	301	76.6%	
Testing Status Not Listed	6	1.5%	
Tested	85	21.6%	
	Test Result	**Number**	**% of Tested Specimens**
	Positive	67	78.8%
	Sample Decomposed	7	8.2%
	Results pending at the time the PEP biologicals were distributed*	6	7.1%
	Result Inconclusive	3	3.5%
	Negative	2	2.4%

Table 5. Rabies Testing Status and Test Results from Animals That Caused People to Receive Postexposure Prophylaxis, 2017

*PEP is occasionally begun while the exposing animal is being tested when the animal or exposure situation is deemed high risk. Additionally, sometimes the exposing animal is located for testing or quarantine after PEP has been initiated. PEP is generally discontinued if the laboratory result is negative or the animal successfully completes quarantine.

Table 6 lists the number of people receiving rabies biologicals for those instances in which the exposing animal was not available for testing or quarantine for rabies.

Exposing Animal	Public Health Region										Total	%
	1	2	3	4	6	7	8	9	10	11		
Bat	2	3	1	4	4		16			12	**42**	**14.0%**
Bobcat		1									**1**	**0.3%**
Cat	8	30	4				33			7	**82**	**27.2%**
Cattle		1									**1**	**0.3%**
Coyote	1	2							1		**4**	**1.3%**
Dog	9	21	8	4		1	59	2		31	**135**	**44.9%**
Fox							2		1		**3**	**1.0%**
Javelina										1	**1**	**0.3%**
Pig		1				1					**2**	**0.7%**
Primate	1	1								1	**3**	**1.0%**
Raccoon		3		3	1		6	2		4	**19**	**6.3%**
Rat										1	**1**	**0.3%**
Skunk		2		1							**3**	**1.0%**
Squirrel							1				**1**	**0.3%**
Unknown/Not Listed		1					1			1	**3**	**1.0%**
Total	**21**	**66**	**13**	**12**	**5**	**2**	**118**	**4**	**2**	**58**	**301**	**100.0%**
%	**7.0%**	**21.9%**	**4.3%**	**4.0%**	**1.7%**	**0.7%**	**39.2%**	**1.3%**	**0.7%**	**19.3%**	**100.0%**	

Table 6. Number of People Receiving Rabies Biologicals Due to Exposures to Animals That Were Not Available for Testing or Quarantine for Rabies, 2017

Table 7 lists the number of people receiving rabies biologicals in those instances where the exposing animal tested non-negative for rabies.

Exposing Animal	Public Health Region									Out of State Resident	Total	%
	1	2	3	4	6	7	8	9	11			
Bat	1				1		2		3		**7**	**9.1%**
Cat	1	15					1				**17**	**22.1%**
Cattle		3		3			2	1			**9**	**11.7%**
Dog	3		1	16		1	6			1	**28**	**36.4%**
Horse		2									**2**	**2.6%**
Pig			1								**1**	**1.3%**
Skunk		11							2		**13**	**16.9%**
Total	**5**	**31**	**2**	**19**	**1**	**1**	**11**	**1**	**5**	**1**	**77**	**100.0%**
%	**6.5%**	**40.3%**	**2.6%**	**24.7%**	**1.3%**	**1.3%**	**14.3%**	**1.3%**	**6.5%**	**1.3%**	**100.0%**	

Table 7. Number of People Receiving Rabies Biologicals Due to Exposures to Animals That Tested Non-negative for Rabies, 2017