Texas Department of State Health Services
DSHS-Supplied Rabies Biologicals
2014 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 persons 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 Health Service Region (HSR) offices may store and distribute rabies biologicals and some HSR offices partner with local health departments and hospitals 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 2014, rabies biologicals were distributed for postexposure prophylaxis (PEP) to 356 people, of whom 132 (37.1%) acquired the biologicals from DSHS HSR offices and 224 (62.9%) from depots. The reported total cost of the biologicals distributed from DSHS inventory was $819,699 ($580,677 for 1,301 vials [2 ml] of human rabies immune globulin [HRIG] and $239,022 for 1,202 vials [1 ml] of vaccine). A full PEP series of biologicals (HRIG plus 4 doses of vaccine) was distributed to 208 people (58.4% of people receiving biologicals from DSHS inventory) at a total cost of $644,905 and an average cost of $3,101 per person (median: $3,202, range: $1,183-$5,656).

Rabies biologicals were distributed to 353 (99.2%) Texas residents and 3 (0.8%) out-of-state residents: 1 person each from California, Colorado, and Nebraska. Distribution of postexposure biologicals based on the HSR of patient residence is summarized in Figure 1.

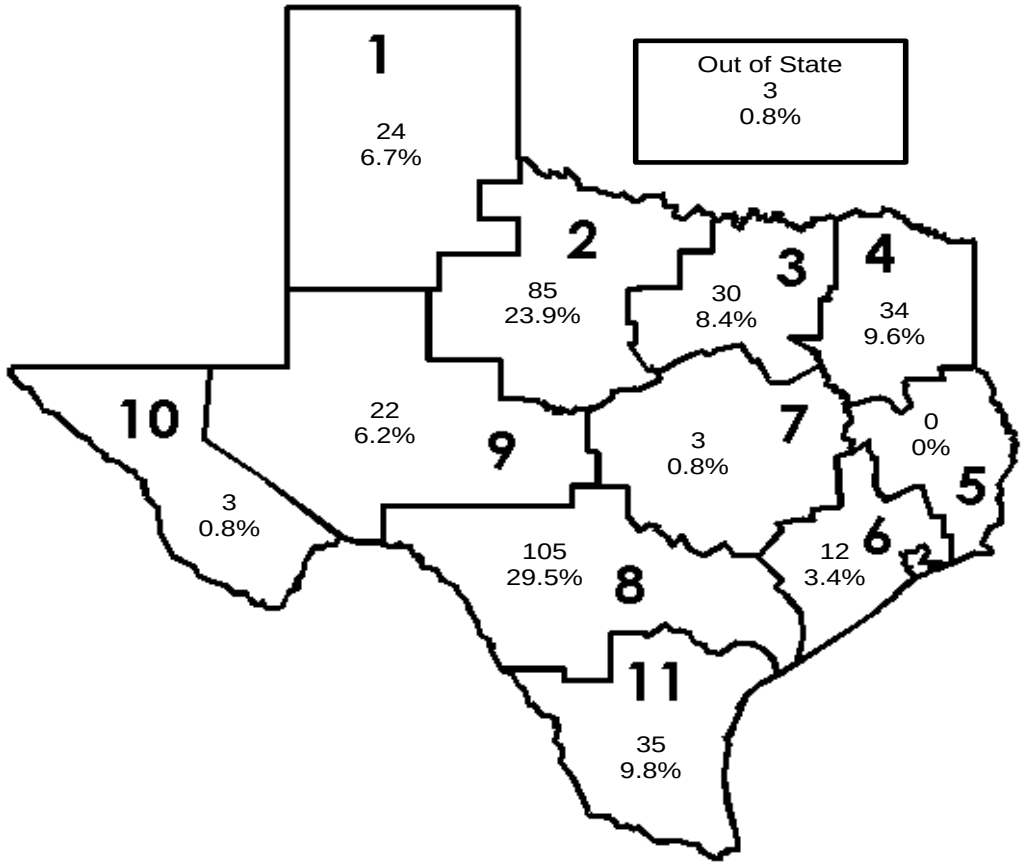
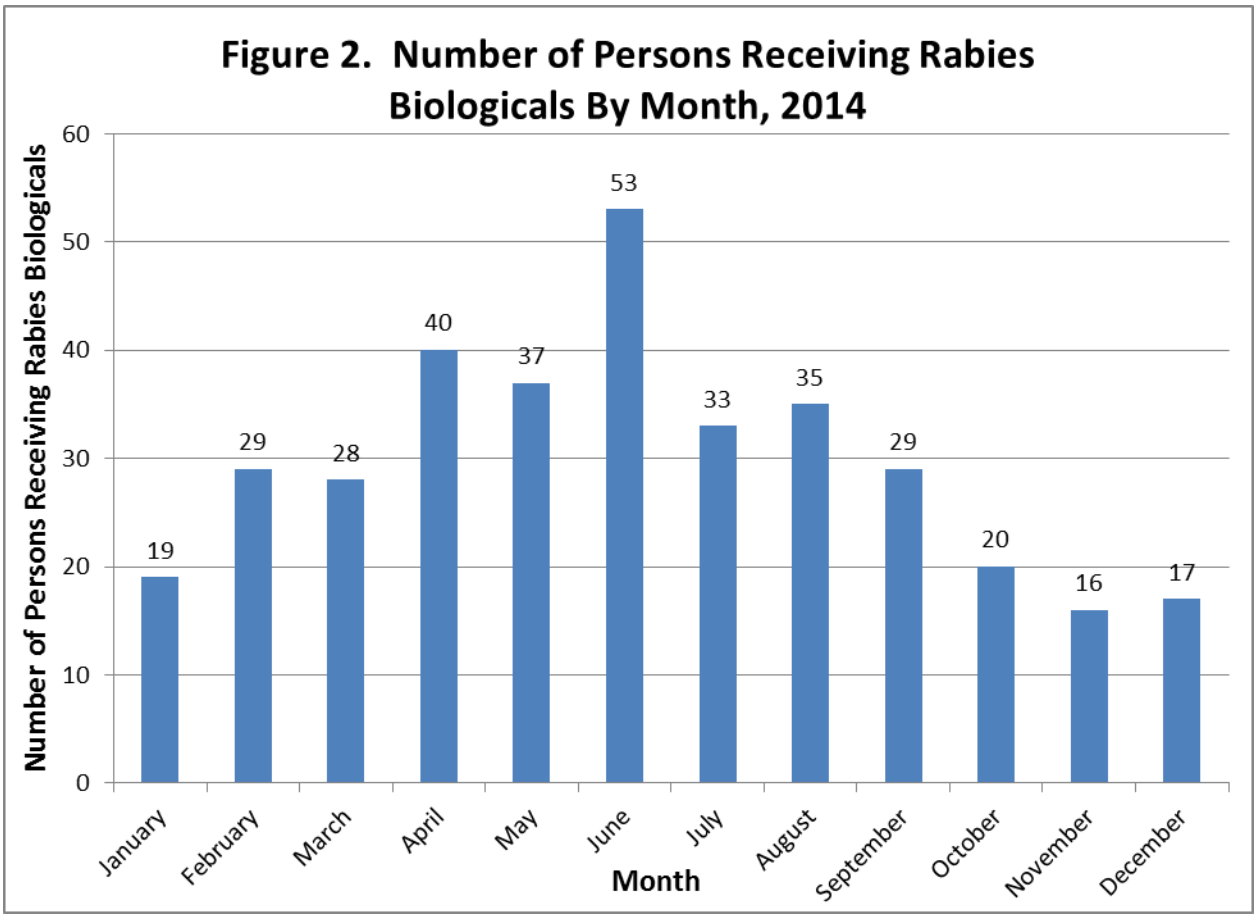


Figure 1. Number of People Receiving Rabies Biologicals by Health Service Region of Patient Residence, 2014

Table 1 shows the distribution of rabies biologicals by month and HSR of the patient's residence and Figure 2 shows the distribution of rabies biologicals by month.

	Health Service Region										Out of State Resident	Total	%
Month	**1**	**2**	**3**	**4**	**6**	**7**	**8**	**9**	**10**	**11**			
January		2		6	1		7	1		2		**19**	**5.3%**
February		2	5	6			9	1	1	5		**29**	**8.1%**
March	2	11	1		4		7	2		1		**28**	**7.9%**
April	1	16	4	1	1	2	9	2	1	3		**40**	**11.2%**
May		14	1	3			14	3		2		**37**	**10.4%**
June	2	12	4		4	1	20	6	1	3		**53**	**14.9%**
July	4	6	3	6	1		6	1		4	2	**33**	**9.3%**
August	1	4	5	5	1		13	3		3		**35**	**9.8%**
September	7	8	2	3			5			3	1	**29**	**8.1%**
October	2	4	2				6	2		4		**20**	**5.6%**
November	2	3	1	1			5	1		3		**16**	**4.5%**
December	3	3	2	3			4			2		**17**	**4.8%**
Total	**24**	**85**	**30**	**34**	**12**	**3**	**105**	**22**	**3**	**35**	**3**	**356**	**100.0%**
%	**6.7%**	**23.9%**	**8.4%**	**9.6%**	**3.4%**	**0.8%**	**29.5%**	**6.2%**	**0.8%**	**9.8%**	**0.8%**	**100.0%**	

Table 1. Number of Persons Receiving Rabies Biologicals by Health Service Region of Patient Residence, 2014



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

Animals designated as being of high risk for transmitting rabies (bats, coyotes, foxes, raccoons, and skunks) accounted for 107 (30.1%) of the exposures. Animals classified as low risk for rabies (e.g. rodents, rabbits, moles, and opossums) accounted for 1 (0.3%) exposure (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.

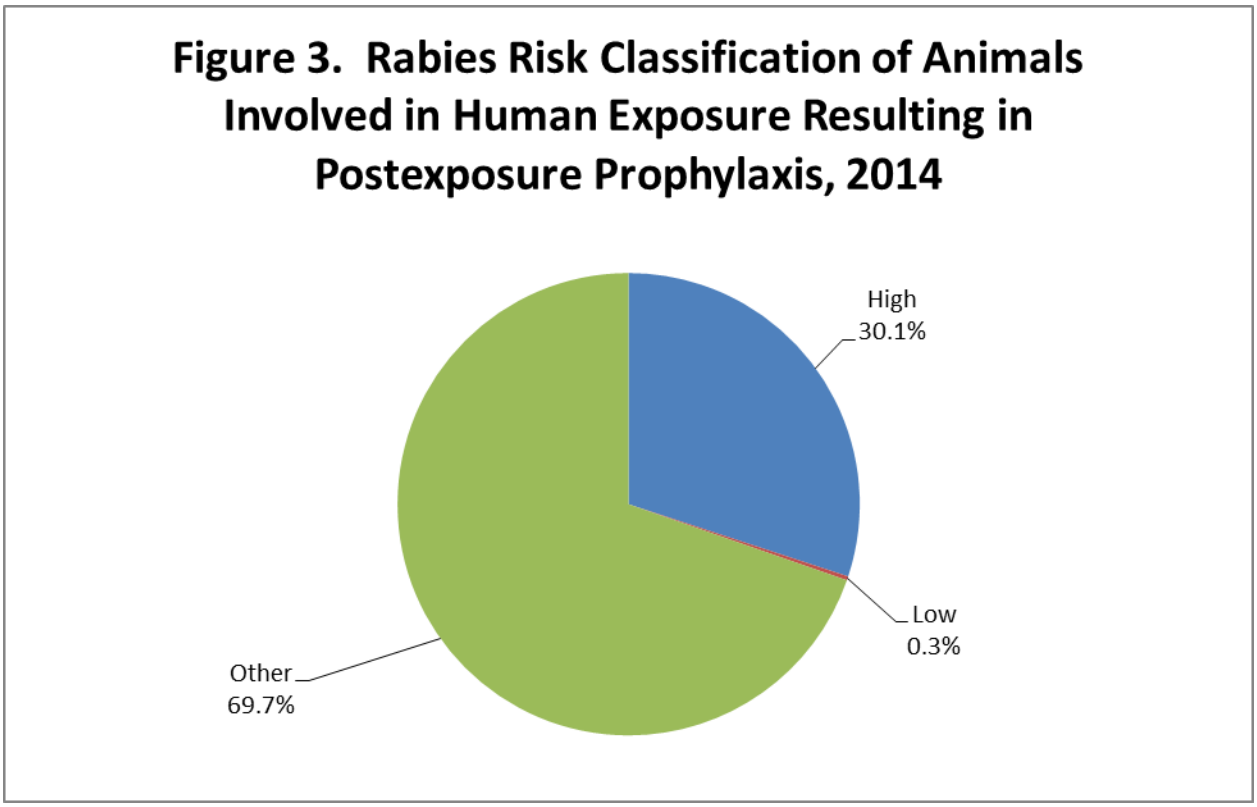
Reported routes of exposure are shown in Figure 4.

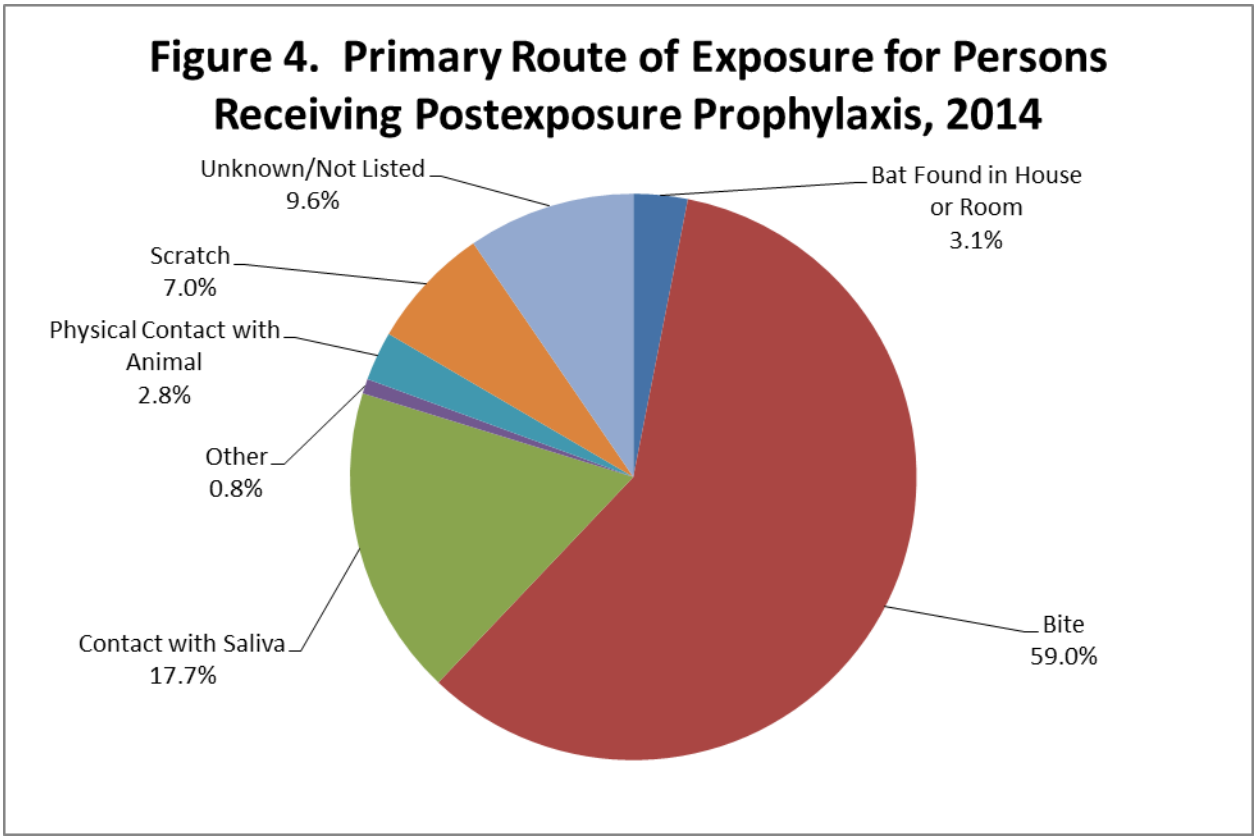
Species Associated with Exposure Resulting in PEP	Number	%
Dog	126	35.4%
Cat	79	22.2%
Bat	64	18.0%
Horse	24	6.7%
Raccoon	22	6.2%
Cattle	15	4.2%
Fox	10	2.8%
Skunk	10	2.8%
Unknown/Not Listed	2	0.6%
Bobcat	1	0.3%
Coyote	1	0.3%
Gopher	1	0.3%
Ringtail	1	0.3%
TOTAL	**356**	**100%**

Table 2. Species Associated with Exposure Resulting in Rabies PEP, 2014

Exposing Animal	Health Service Region										Out of State Resident	Total	%
	1	2	3	4	6	7	8	9	10	11			
Bat	2	5	3	13	10		13	1	1	16		**64**	**18.0%**
Bobcat		1										**1**	**0.3%**
Cat	7	22	5	7	1		22	7		6	2	**79**	**22.2%**
Cattle		11	3					1				**15**	**4.2%**
Coyote								1				**1**	**0.3%**
Dog	11	33	11	9	1	2	45	5	1	8		**126**	**35.4%**
Fox		4				1	2	2			1	**10**	**2.8%**
Gopher							1					**1**	**0.3%**
Horse	4		1	3			13	3				**24**	**6.7%**
Raccoon		4	4	1			7	2	1	3		**22**	**6.2%**
Ringtail										1		**1**	**0.3%**
Skunk		5	3				1			1		**10**	**2.8%**
Unknown/Not Listed				1			1					**2**	**0.6%**
TOTAL	**24**	**85**	**30**	**34**	**12**	**3**	**105**	**22**	**3**	**35**	**3**	**356**	**100.0%**
%	**6.7%**	**23.9%**	**8.4%**	**9.6%**	**3.4%**	**0.8%**	**29.5%**	**6.2%**	**0.8%**	**9.8%**	**0.8%**	**100.0%**	

Table 3. Number of Persons Receiving Rabies Biologicals by Health Service Region of Patient Residence and Exposing Animal, 2014





Dogs and cats accounted for 205 (57.6%) of the reports of potential rabies exposures resulting in PEP. Of those, 35 (17.1%) were owned by the patient's family, 31 (15.1%) were owned by someone other than the patient's family, 135 (65.9%) were listed as either a stray or wild animal, and 4 (2.0%) had no ownership information identified (Figure 5). The vaccination status of 72 (35.1%) of the dogs and cats was reported, with 68 (94.4% of those with vaccination status known) being not currently vaccinated against rabies and 4 (5.6% of those with vaccination status known) being currently vaccinated. The vaccination status of 132 (64.4%) of the dogs and cats was reported as unknown and the vaccination status of 1 (0.5%) of the dogs and cats was not reported.

The average age of those receiving PEP was 34.4 years (males 32.2 years, females 37.0 years). The median age of those receiving PEP was 32.5 years (males 28.0 years, females 36.0 years). Of the recipients, 187 (52.5%) were male and 168 (47.2%) were female; sex was not reported for 1 (0.3%) recipients. Of those persons receiving PEP, 17 (4.8%) were previously immunized for rabies, 16 (4.5%) were not previously immunized for rabies, and the rabies immunization status for 323 (90.7%) was not listed. The primary anatomic sites of exposure are listed in Table 4.

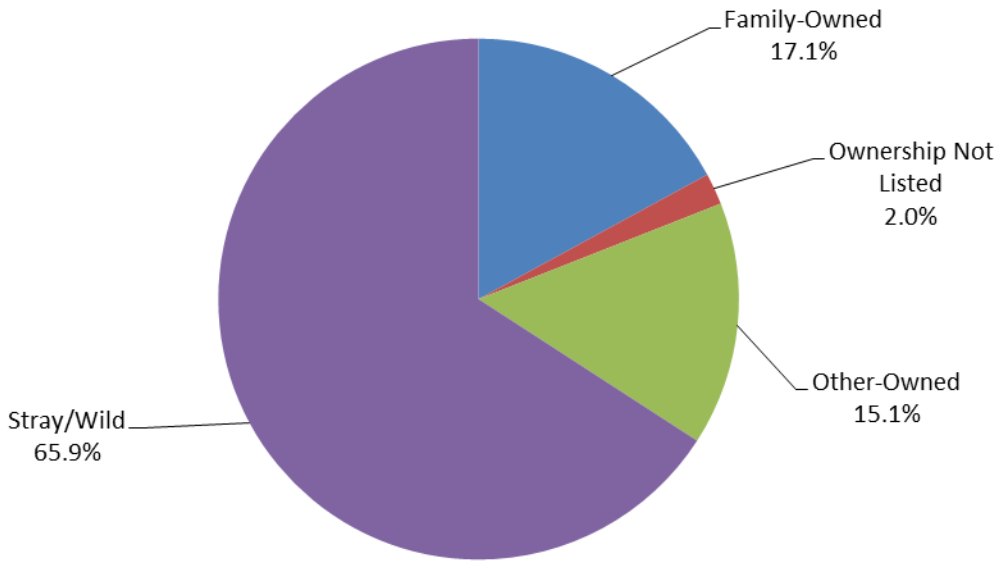
Anatomic Location of Exposure	Number of People	%
Hand	187	52.5%
Leg	47	13.2%
Head/Neck	31	8.7%
Arm	27	7.6%
Multiple Anatomic Sites	21	5.9%
Unknown/Not Listed	19	5.3%
Mucous Membrane	9	2.5%
Foot	8	2.2%
Torso	7	2.0%
TOTAL	**356**	**100%**

Table 4. Primary Anatomic Location of Rabies Exposures, 2014

The animal causing the exposure was tested for rabies in a public health laboratory in 119 (33.4%)

cases; the animal was not available for testing in 224 (62.9%) cases; the testing status was not listed in 7 (2.0%) cases; and the animal was quarantined in lieu of testing in 6 (1.7%) cases. Biologicals were distributed to 6 persons (1.7% of persons receiving PEP) while the animal causing the exposure was being quarantined for rabies observation. Biologicals were distributed to 2 people (0.6% of persons receiving PEP) while laboratory results were pending. 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 Dogs and Cats Involved in Potential Rabies Exposure to Humans, 2014



Laboratory Testing Status	Number	%	
Animal Not Tested - Quarantined*	6	1.7%	
Animal Not Tested - Unavailable	224	62.9%	
Testing Status Not Listed	7	2.0%	
Tested	119	33.4%	
	Test Result	**Number**	**% of Tested Specimens**
	Positive	103	86.6%
	Sample Destroyed	7	5.9%
	Sample Decomposed	4	3.4%
	Results pending at the time the PEP biologicals were distributed*	2	1.7%
	Result Inconclusive	1	0.8%
	Result Negative	1	0.8%
	Sample Unsatisfactory	1	0.8%

Table 5. Rabies Testing Status and Test Results from Animals That Caused People to Receive Postexposure Prophylaxis, 2014

*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 persons receiving rabies biologicals for those instances in which the exposing animal was unavailable for rabies testing.

Exposing Animal	Health Service Region									Out of State Resident	Total	%
	1	2	3	4	6	8	9	10	11			
Bat	2	4	1	6	6	7	1	1	12		40	17.9%
Bobcat		1									1	0.4%
Cat	7	12	5	2	1	17	7		5	2	58	25.9%
Cattle		4									4	1.8%
Coyote							1				1	0.4%
Dog	7	19	9	1	1	40	5	1	8		91	40.6%
Fox		1				1	2				4	1.8%
Raccoon		3	4	1		5	2	1	3		19	8.5%
Ringtail									1		1	0.4%
Skunk		1	2								3	1.3%
Unknown/Not Listed				1		1					2	0.9%
Total	**16**	**45**	**21**	**11**	**8**	**71**	**18**	**3**	**29**	**2**	**224**	**100.0%**
%	**7.1%**	**20.1%**	**9.4%**	**4.9%**	**3.6%**	**31.7%**	**8.0%**	**1.3%**	**12.9%**	**0.9%**	**100.0%**	

Table 6. Number of Persons Receiving Rabies Biologicals Due to Exposures to Animals That Were Unavailable for Rabies Testing or Quarantine, 2014