



Texas Department of State Health Services DSHS-Supplied Rabies Biologicals 2015 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 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 2015, rabies biologicals were distributed for postexposure prophylaxis (PEP) to 317 people, of whom 87 (27.4%) acquired the biologicals from DSHS HSR offices and 230 (72.6%) from depots. The reported total cost of the biologicals distributed from DSHS inventory was \$803,090 (\$577,356 for 1,200 vials [2 ml] of human rabies immune globulin [HRIG] and \$225,734 for 1,048 vials [1 ml] of vaccine). A full PEP series of biologicals (HRIG plus 4-5 doses of vaccine) was distributed to 189 people (59.6% of people receiving biologicals from DSHS inventory) at a total cost of \$618,565 and an average cost of \$3,273 per person (median: \$3,321, range: \$1,235-\$6,239).

Rabies biologicals were distributed to 316 (99.7%) Texas residents and 1 (0.3%) resident of Minnesota who was traveling in Texas. Distribution of postexposure biologicals based on the HSR of patient residence is summarized in Figure 1. Distribution of rabies biologicals by month is shown in Figure 2.

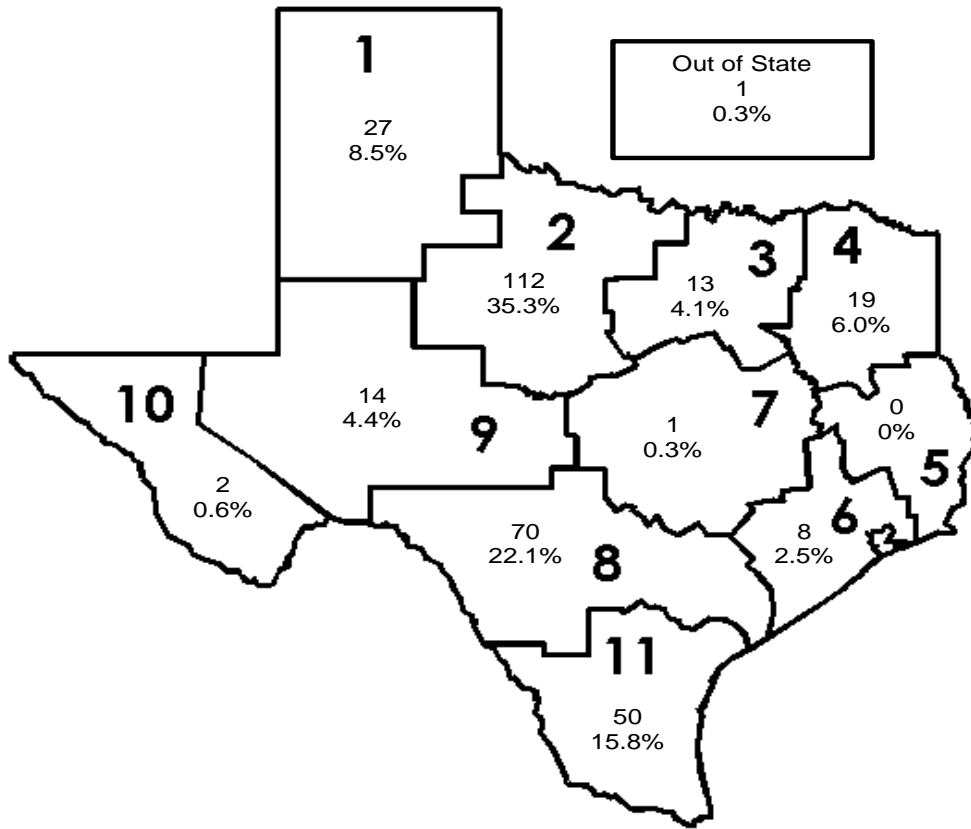


Figure 1. Number of People Receiving Rabies Biologicals by Health Service Region of Patient Residence, 2015

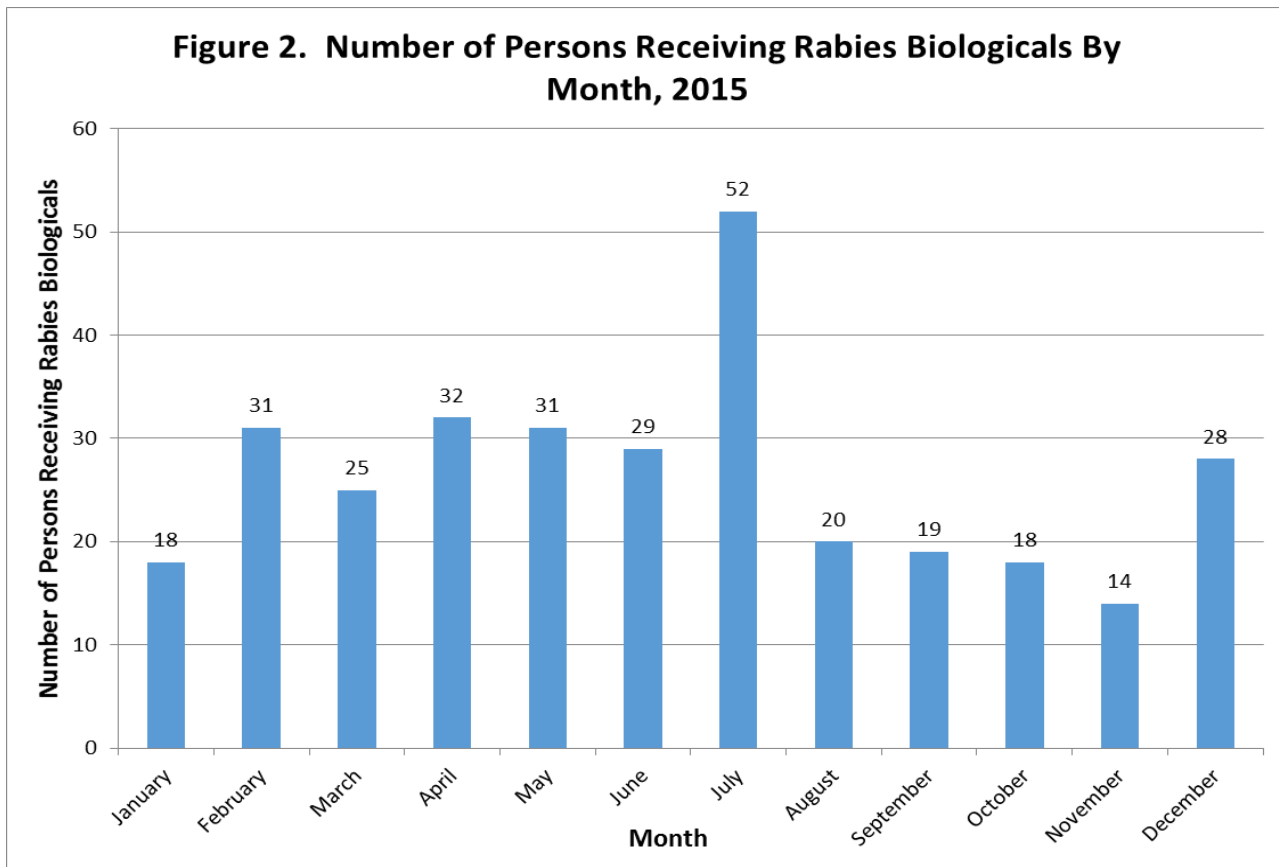


Figure 2. Number of Persons Receiving Rabies Biologicals By Month, 2015

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

Month	Health Service Region										Out of State Resident	Total	%
	1	2	3	4	6	7	8	9	10	11			
January	2	4		1	2		5			4		18	5.7%
February		10	1				13	3		4		31	9.8%
March		5	1	4			5	1		9		25	7.9%
April	2	8	1	2			8			11		32	10.1%
May	1	11	2	5	2		5	2		3		31	9.8%
June	8	10	2	3	1			1	1	2	1	29	9.1%
July	1	34			1		10	1		5		52	16.4%
August	4	4	1		1		9	1				20	6.3%
September	4	7	1	3				1		3		19	6.0%
October	2	6					4	2	1	3		18	5.7%
November	2	1	2		1	1	3	1		3		14	4.4%
December	1	12	2	1			8	1		3		28	8.8%
Total	27	112	13	19	8	1	70	14	2	50	1	317	100.0%
%	8.5%	35.3%	4.1%	6.0%	2.5%	0.3%	22.1%	4.4%	0.6%	15.8%	0.3%	100.0%	

Table 1. Number of Persons Receiving Rabies Biologicals by Health Service Region of Patient Residence, 2015

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 are detailed in Table 3.

Animals designated as being of high risk for transmitting rabies (bats, coyotes, foxes, raccoons, and skunks) accounted for 87 (27.4%) of the exposures. Animals classified as low risk for rabies (e.g. rodents, rabbits, moles, and opossums) accounted for 2 (0.6%) exposures (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.

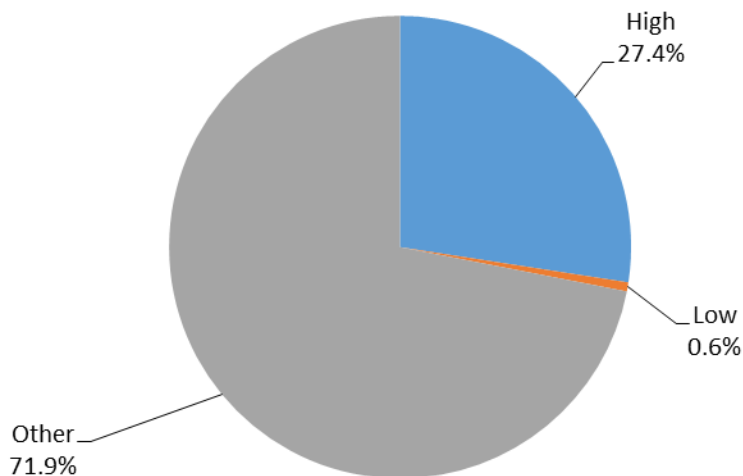
Species Associated with Exposure Resulting in PEP	Number	%
Dog	125	39.4%
Cat	82	25.9%
Bat	64	20.2%
Raccoon	15	4.7%
Horse	7	2.2%
Cattle	6	1.9%
Unknown/Not Listed	5	1.6%
Skunk	4	1.3%
Fox	3	0.9%
Rabbit	2	0.6%
Coyote	1	0.3%
Primate	1	0.3%
Ringtail	1	0.3%
Sheep	1	0.3%
Total	317	100.0%

Table 2. Species Associated with Exposure Resulting in Rabies PEP, 2015 3

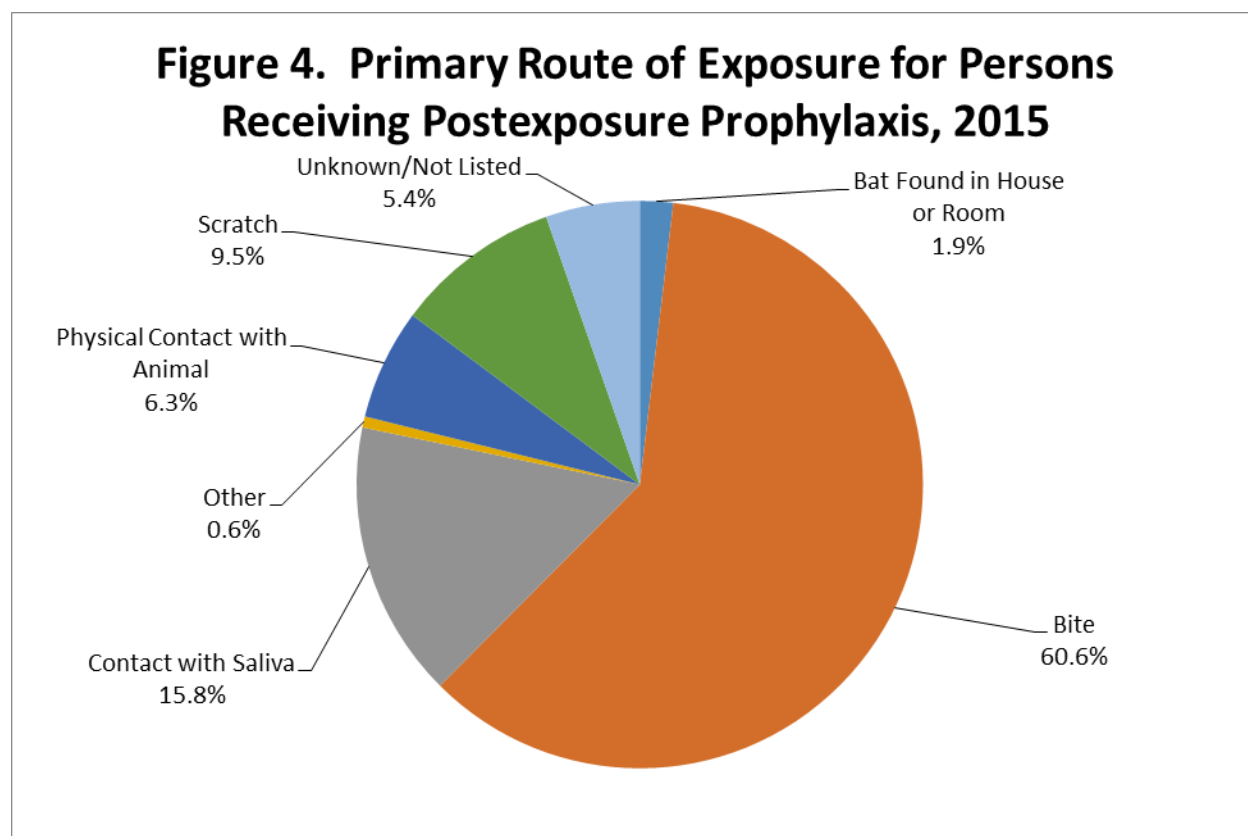
Exposing Animal	Health Service Region											Out of State Resident	Total	%
	1	2	3	4	6	7	8	9	10	11				
Bat	5	12	1	3	5		8	1	1	28		64	20.2%	
Cat	11	33	4	2		1	18	10		3		82	25.9%	
Cattle		5					1					6	1.9%	
Coyote							1					1	0.3%	
Dog	9	50	6	5	1		35	3	1	14	1	125	39.4%	
Fox				2						1		3	0.9%	
Horse		3		4								7	2.2%	
Raccoon		5		1	2		4			3		15	4.7%	
Ringtail							1					1	0.3%	
Skunk		1	1				1			1		4	1.3%	
Unknown/Not Listed	1	1		2			1					5	1.6%	
Primate	1											1	0.3%	
Rabbit		1	1									2	0.6%	
Sheep		1										1	0.3%	
Total	27	112	13	19	8	1	70	14	2	50	1	317	100.0%	
%	8.5%	35.3%	4.1%	6.0%	2.5%	0.3%	22.1%	4.4%	0.6%	15.8%	0.3%	100.0%		

Table 3. Number of Persons Receiving Rabies Biologicals by Health Service Region of Patient Residence and Exposing Animal, 2015

Figure 3. Rabies Risk Classification of Animals Involved in Human Exposure Resulting in Postexposure Prophylaxis, 2015



Reported routes of exposure are shown in Figure 4.



Dogs and cats accounted for 207 (65.3%) of the reports of potential rabies exposures resulting in PEP. Of those, 44 (21.3%) were owned by the patient's family, 54 (26.1%) were owned by someone other than the patient's family, 106 (51.2%) were listed as either a stray or wild animal, and 3 (1.4%) had no ownership information identified (Figure 5). The vaccination status of 91 (44.0%) of the dogs and cats was reported, with 86 (94.5% of those with vaccination status known) being not currently vaccinated and 5 (5.5% of those with vaccination status known) being currently vaccinated. The vaccination status of 113 (54.6%) of the dogs and cats was reported as unknown and the vaccination status of 3 (1.4%) of the dogs and cats was not reported.

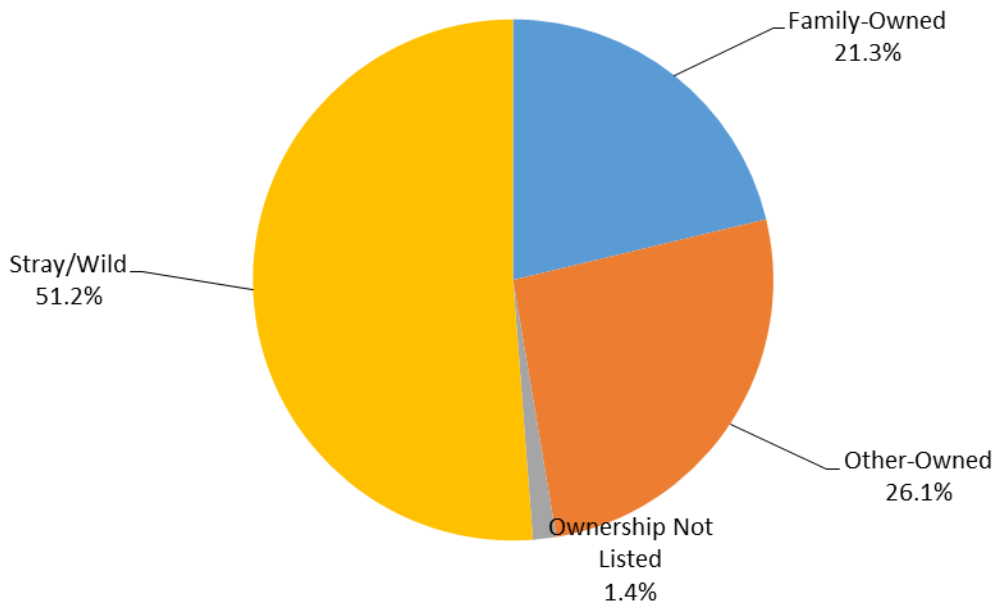
The average age of those receiving PEP was 35.4 years (males 33.2 years, females 39.3 years). The median age of those receiving PEP was 33.0 years (males 29.0 years, females 42.0 years). Of the recipients, 188 (59.3%) were male and 127 (40.1%) were female; sex was not reported for 2 (0.6%) recipients. Of those persons receiving PEP, 10 (3.2%) were previously immunized for rabies, 7 (2.2%) were not previously immunized for rabies, and the rabies immunization status for 300 (94.6%) was not listed. The primary anatomic sites of exposure are listed in Table 4.

Anatomic Location of Exposure	Number of People	%
Arm	22	6.9%
Foot	8	2.5%
Hand	152	47.9%
Head/Neck	21	6.6%
Leg	42	13.2%
Multiple Anatomic Sites	44	13.9%
Torso	5	1.6%
Unknown/Not Listed	23	7.3%
Total	317	100.0%

Table 4. Primary Anatomic Location of Rabies Exposures, 2015

The animal causing the exposure was tested for rabies in a public health laboratory in 93 (29.3%) cases; the animal was quarantined in lieu of testing in 5 (1.6%) cases; the animal was not available for testing or quarantine in 213 (67.2%) cases; and the testing status was not listed in 6 (1.9%) cases. Biologicals were distributed to 5 persons (1.6% of persons receiving PEP) while the animal causing the exposure was being quarantined for rabies observation. Biologicals were distributed to 5 people (1.6% 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, 2015



Laboratory Testing Status	Number	%	
Animal Quarantined*	5	1.6%	
Animal Not Available for Testing or Quarantine	213	67.2%	
Testing Status Not Listed	6	1.9%	
Tested	93	29.3%	
	Test Result	Number	% of Tested Specimens
	Positive	67	72.0%
	Sample Decomposed	15	16.1%
	Results pending at the time the PEP biologicals were distributed*	5	5.4%
	Result Inconclusive	2	2.2%
	Test Result Not Listed	2	2.2%
	Sample Destroyed	1	1.1%
	Sample Unsatisfactory	1	1.1%

Table 5. Rabies Testing Status and Test Results from Animals That Caused People to Receive Postexposure Prophylaxis, 2015

*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 not available for testing or quarantine for rabies.

Exposing Animal	Health Service Region										Out of State Resident	Total	%
	1	2	3	4	6	7	8	9	10	11			
Bat	3	11	1	3	3		8	1	1	21		52	24.4%
Cat	10	16	4	1		1	17	7		3		59	27.7%
Coyote							1					1	0.5%
Dog	9	16	6	3	1		25	2	1	12	1	76	35.7%
Fox										1		1	0.5%
Raccoon		4		1	2		3			2		12	5.6%
Ringtail							1					1	0.5%
Skunk		1	1							1		3	1.4%
Unknown/ Not Listed	1	1		2			1					5	2.3%
Primate	1											1	0.5%
Rabbit		1	1									2	0.9%
Total	24	50	13	10	6	1	56	10	2	40	1	213	100.0%
%	11.3%	23.5%	6.1%	4.7%	2.8%	0.5%	26.3%	4.7%	0.9%	18.8%	0.5%	100.0%	

Table 6. Number of Persons Receiving Rabies Biologicals Due to Exposures to Animals That Were Not Available for Testing or Quarantine for Rabies, 2015