



## **Human Rabies Biologicals Supplied by the Texas Department of State Health Services**

## 2019 Annual Report

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. 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 those 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 2019, rabies biologicals were distributed for postexposure prophylaxis (PEP) to 287 people, of whom 95 (33.1%) acquired the biologicals from DSHS PHR offices and 192 (66.9%) from depots. The reported total cost of the biologicals distributed from DSHS inventory was \$1,017,422 (\$714,845 for 1,013 vials [2 ml] of human rabies immune globulin [HRIG] and \$302,577 for 1,004 vials [1 ml] of vaccine). A full PEP series of biologicals (HRIG plus 4-5 doses of vaccine) was distributed to 187 people (65.2% of people receiving biologicals from DSHS inventory) at a total cost of \$895,720 and an average cost of \$4,790 per person (median: \$4,871; range: \$1,677-\$8,085).

Rabies biologicals were distributed to 285 (99.3%) Texas residents and 2 (0.7%) out-of-state residents (California and Virginia). 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.

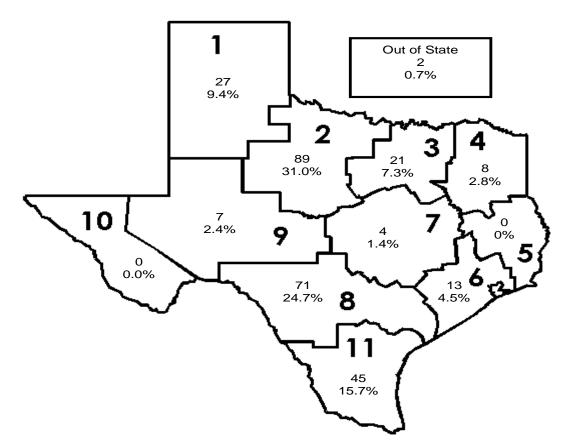


Figure 1. Number of People Receiving Rabies Biologicals by Public Health Region of Patient Residence, 2019

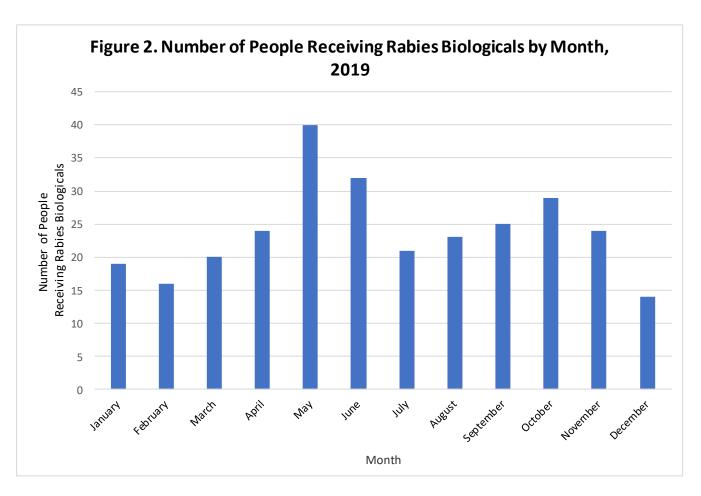


Table 1 lists the distribution of rabies biologicals by month and PHR of patient residence.

	Public Health Region											
Month	1 2 3	3	4	6	7	8	9	11	Out of State Resident	Total	%	
January	2	6	1		2		3		5		19	6.6%
February	2	4	1	2			5	1	1		16	5.6%
March	3	3	3	1		1	5	1	3		20	7.0%
April	4	2	1		1		13	1	2		24	8.4%
May	3	6	13	3			10		5		40	13.9%
June	1	15			5		7	1	3		32	11.1%
July	2	10			1		3		4	1	21	7.3%
August	2	8	2	1	1	2	3		4		23	8.0%
September	3	6	1		1		7		7		25	8.7%
October	2	9					10	3	5		29	10.1%
November	1	14		1	1	1	3		3		24	8.4%
December	2	6			1		2		3		14	4.9%
Total	27	89	22	8	13	4	71	7	45	1	287	100.0%
%	9.4%	31.0%	7.7%	2.8%	4.5%	1.4%	24.7%	2.4%	15.7%	0.3%	100.0%	

Table 1. Number of People Receiving Rabies Biologicals by Month and Public Health Region of Patient Residence, 2019

The number of people receiving rabies biologicals by distribution site are listed in Table 2.

DSHS-Supplied Rabies Biologicals Distribution Site	Number of Persons Receiving Rabies Biologicals
DSHS Public Health Region 1	27
DSHS Office - Amarillo	24
DSHS Office - Lubbock	3
DSHS Public Health Region 2/3	116
Abilene-Taylor County Health District	45
Brownwood-Brown County Health Department	37
Collin County Health Care Services	2
Denton County Public Health	3
Wichita Falls-Wichita County Public Health District	29
DSHS Public Health Region 4/5	6
DSHS Office - Tyler	6
DSHS Public Health Region 6/5	15
Beaumont Public Health Department	2
DSHS Office - Houston	13
DSHS Public Health Region 7	0
DSHS Public Health Region 8	72
DSHS Office - Del Rio	8
DSHS Office - Eagle Pass	6
DSHS Office - Uvalde	8
San Antonio Metropolitan Health District	31
Victoria County Public Health Department	19
DSHS Public Health Region 9/10	6
DSHS Office - Brady	2
Ector County Health Department	4
DSHS Public Health Region 11	45
DSHS Office - Corpus Christi	21
DSHS Office - Harlingen	4
Hidalgo County Health and Human Services	15
Laredo Health Department	5
Statewide Total	287

Table 2. Number of People Receiving Rabies Biologicals by Distribution Site

The species of exposing animal was reported for 281 exposures; the species was not listed for 6 exposures. Of the 281 exposures for which species was reported, 81 (28.8%) were designated as being of high risk for transmitting rabies (bats, coyotes, foxes, raccoons, and skunks); 5 (1.8%) were classified as being of low risk for transmitting rabies (rodents, rabbits, moles, and opossums); and 195 (69.4%) were classified as neither high nor low risk for transmitting rabies (Figure 3). Although some species are considered low risk for rabies, all mammals can become infected with and transmit 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, postexposure prophylaxis may be recommended even for exposures involving low-risk species.

The species of animals associated with the potential rabies exposures are detailed in Table 3.

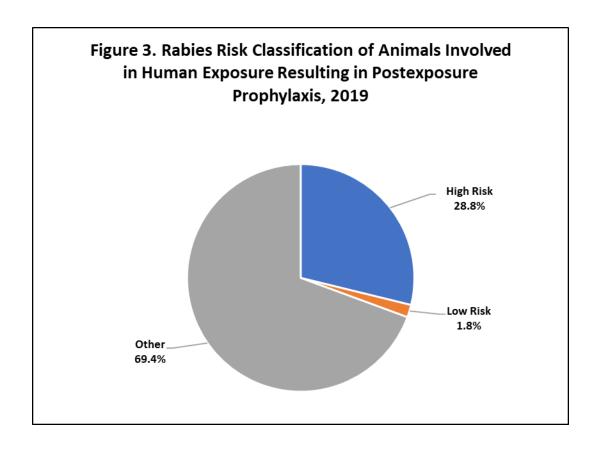
Species Associated with Exposure Resulting in PEP	Number	%
Badger	1	0.3%
Bat	52	18.1%
Bobcat	1	0.3%
Cat	71	24.7%
Cattle	4	1.4%
Coyote	1	0.3%
Dog	100	34.8%
Fox	2	0.7%
Horse	14	4.9%
Species not Listed	6	2.1%
Opossum	1	0.3%
Pig	1	0.3%
Primate	3	1.0%
Raccoon	15	5.2%
Rat	2	0.7%
Skunk	11	3.8%
Squirrel	2	0.7%
Total	287	100.0%

Table 3. Number of People Receiving Rabies
Biologicals by Species of Exposing Animal, 2019

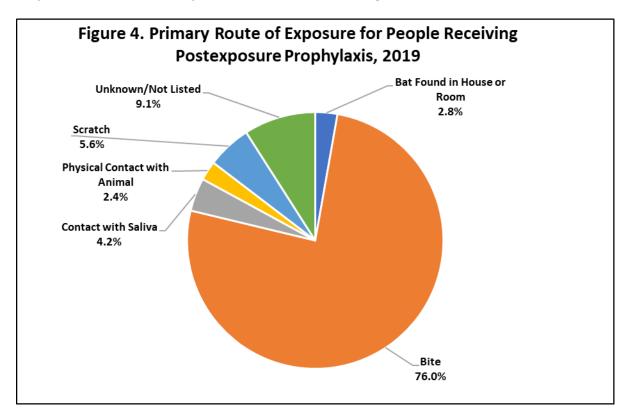
The number of people receiving biologicals by PHR and animal causing the potential rabies exposure is detailed in Table 4.

Exposing Animal				Publi	c Health	Region				Out of State Resident	Total	%
	1	2	3	4	6	7	8	9	11			
Badger							1				1	0.3%
Bat	2	6	2	1	9	2	19	1	9	1	52	18.1%
Bobcat									1		1	0.3%
Cat	6	36	1			2	18	4	4		71	24.7%
Cattle		1		3							4	1.4%
Coyote									1		1	0.3%
Dog	10	31	3	3	1		26	2	24		100	34.8%
Fox									2		2	0.7%
Horse	2	3	9								14	4.9%
Not Listed		2	4								6	2.1%
Opossum		1									1	0.3%
Pig		1									1	0.3%
Primate	1	1					1				3	1.0%
Raccoon	1	4	1		2		4		3		15	5.2%
Rat		1					1				2	0.7%
Skunk	5	1	2	1	1				1		11	3.8%
Squirrel		1					1				2	0.7%
Total	27	89	22	8	13	4	71	7	45	1	287	100.0%
%	9.4%	31.0%	7.7%	2.8%	4.5%	1.4%	24.7%	2.4%	15.7%	0.3%	100.0%	

Table 4. Number of People Receiving Rabies Biologicals by Species of Exposing Animal and Public Health Region of Patient Residence, 2019



Reported routes of exposure are shown in Figure 4.



The primary anatomic sites of exposure are listed in Table 5.

Dogs and cats accounted for 171~(59.6%) of the reports of potential rabies exposures resulting in PEP. Of those, 6~(3.5%) were owned by the patient's family, 26~(15.2%) were owned by someone other than the patient's family, 135~(78.9%) were listed as either a stray or wild animal, and 4~(2.3%) had no ownership information identified (Figure 5). The vaccination status of 35~(20.5%) of the dogs and cats was reported as known, with all 35~being not vaccinated. The vaccination status of 135~(78.9%) of the dogs and cats was reported as unknown and the vaccination status of 1~(0.6%) of the dogs and cats was not reported.

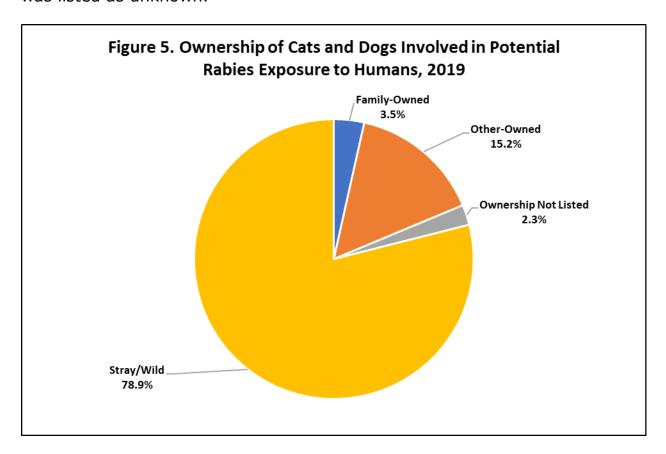
The average age of those receiving PEP was 35.9 years (males 35.1 years, females 36.7 years). The median age of those receiving PEP was 33.0 years (males 34.0 years, females 32.0 years). Of the

Anatomic Location of Exposure	Number of People	%
Hand	109	38.0%
Leg	52	18.1%
Multiple Anatomic Sites	29	10.1%
Unknown/Not Listed	29	10.1%
Head/Neck	22	7.7%
Arm	27	9.4%
Foot	11	3.8%
Torso	8	2.8%
Total	287	100.0%

Table 5. Primary
Anatomic Location of
Rabies Exposure for
People Receiving Rabies
Biologicals, 2019

recipients, 150 (52.3%) were male and 137 (47.7%) were female. Of those people receiving PEP, none were reported as previously immunized for rabies, 2 (0.7%) were not previously immunized for rabies, the immunization status for 1 (0.3%)

person was not listed, and the rabies immunization status for 284 (99.0%) people was listed as unknown.



The disposition of the animals causing the exposures is detailed in Table 6. The animal causing the exposure was tested for rabies in a public health laboratory in 59 (20.6%) cases; the animal was not available for testing or quarantine in 197 (68.6%) cases; the testing status was not listed in 26 (9.1%) cases; and the animal was quarantined in 5 (1.7%) of cases. Rabies biologicals were distributed to 2 people (0.7%) while laboratory results were pending and 5 people (1.7%) 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. 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.

Laboratory Testing Status	Number	%		
Animal Quarantined*	5		1.7%	
Animal Not Available for Testing or Quarantine	197		68.6%	
Testing Status Not Listed	26		9.1%	
Tested	59		20.6%	
	Test Result	Number	% of Tested Specimens	
	Positive	37	62.7%	
	Sample Decomposed	10	16.9%	
	Sample Unsatisfactory	1	1.7%	
	Results pending at the time the biologicals were distributed*	2	3.4%	
	Result Inconclusive	4	6.8%	
	Sample Destroyed	2	3.4%	
	Test Result Not Listed	3	5.1%	

## Table 6. Rabies Testing Status and Test Results from Animals That Caused People to Receive Postexposure Prophylaxis, 2019

\*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 7 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		Public Health Region Out of					Out of	Total	%			
<b>Animal</b>	1	2	3	4	6	7	8	9	11	State	IUlai	70
Badger							1				1	0.5%
Bat	2	2	1	1	3	2	9	1	6	1	28	14.2%
Bobcat									1		1	0.5%
Cat	6	23	1			1	12	4	3		50	25.4%
Cattle		1									1	0.5%
Coyote									1		1	0.5%
Dog	8	26	3	1	1		23	2	23		87	44.2%
Fox									2		2	1.0%
NL		2	1								3	1.5%
Primate	1						1				2	1.0%
Raccoon	1	3	1		2		4		3		14	7.1%
Rat		1					1				2	1.0%
Skunk	1		1		1				1		4	2.0%
Squirrel							1				1	0.5%
Total	19	58	8	2	7	3	52	7	40	1	197	100.0%
%	9.6%	29.4%	4.1%	1.0%	3.6%	1.5%	26.4%	3.6%	20.3%	0.5%	100.0%	

Table 7. Number of People Receiving Rabies Biologicals Due to Exposures to Animals That Were Not Available for Testing or Quarantine for Rabies, 2019

Table 8 lists the number of people receiving rabies biologicals in those instances where the exposing animal tested non-negative for rabies.

Exposing		Public Health Region							0/
Animal	1	2	3	4	6	8	11	Total	%
Bat					6	10	2	18	30.5%
Cat		9				6		15	25.4%
Cattle				3				3	5.1%
Dog		1		2				3	5.1%
Horse	2	3	9					14	23.7%
Skunk	4	1		1				6	10.2%
Total	6	14	9	6	6	16	2	59	100.0%
%	10.2%	23.7%	15.3%	10.2%	10.2%	27.1%	3.4%	100.0%	

Table 8. Number of People Receiving Rabies Biologicals Due to Exposures to Animals That Tested Non-negative for Rabies, 2019

Table 9 shows the number of people receiving rabies biologicals for exposures to an animal that tested positive for rabies.

Species of Rabies- Positive Animal	Number of People Exposed	%
Bat	3	8.1%
Cat	13	35.1%
Cattle	3	8.1%
Horse	13	35.1%
Skunk	5	13.5%
Total	37	100.0%

Table 9. Number of People Receiving Rabies Biologicals for Exposures to Animals That Tested Positive for Rabies, 2019