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

2021 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, most DSHS Public Health Region (PHR) offices store and distribute rabies biologicals and some PHR offices partner with local health departments to serve as depots for storing and distributing biologicals. Exposure surveillance data is collected when the biologicals are distributed (required by §97.123, Texas Administrative Code, "Provision of Anti-Rabies Biologicals") and is maintained by DSHS.

Some private sources—such as clinics, hospitals, pharmacies, and healthcare systems—also 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 2021, DSHS distributed rabies biologicals for postexposure prophylaxis (PEP) to 261 people- 50 (19.2%) via PHR offices and 211 (80.8%) via local health department depots. The reported total cost of the biologicals distributed from DSHS inventory was $976,463 ($663,379 for 946 vials [2 ml] of human rabies immune globulin [HRIG] and $313,084 for 898 vials [1 ml] of vaccine). A full PEP series of biologicals (HRIG plus 4-5 doses of vaccine) was distributed to 167 people (64.0% of people receiving biologicals from DSHS inventory) at a total cost of $839,137 and an average cost of $5,025 per person (median: $4,899; range: $2,087-$8,502).

Rabies biologicals were distributed to 258 (98.9%) Texas residents and 3 (1.1%) out-of-state residents (California, Ohio, and Wyoming) who were visiting Texas when they needed rabies biologicals.

Figure 1. Number of People Receiving Rabies Biologicals by Public Health Region of Patient Residence, 2021.

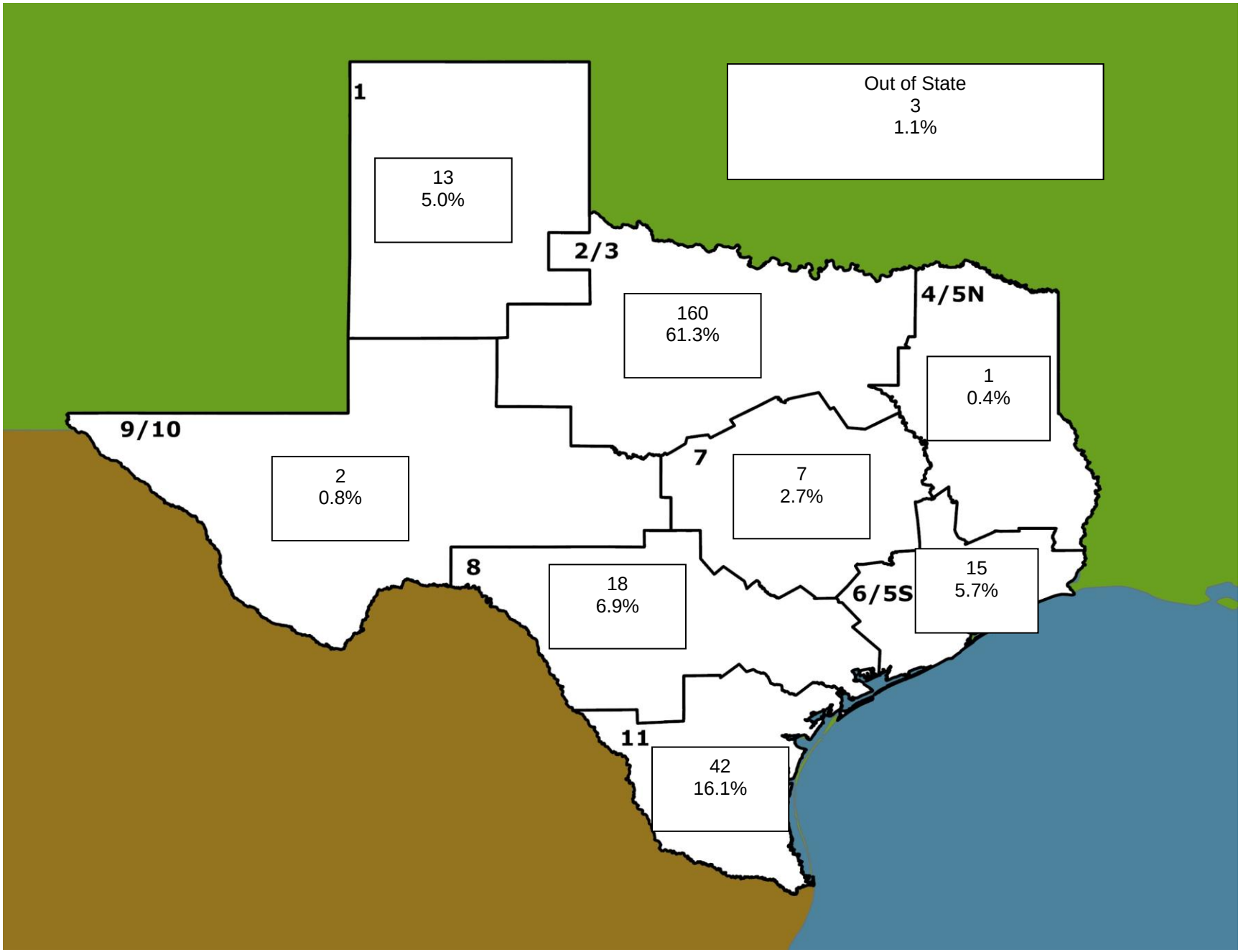

Table 1. Number of People Receiving Rabies Biologicals by Distribution Site, 2021.

DSHS-Supplied Rabies Biologicals Distribution Site	Number of Persons Receiving Rabies Biologicals
DSHS Public Health Region 1	**13**
DSHS PHR 1 Regional Office - Amarillo	13
DSHS Public Health Region 2/3	**169**
Abilene-Taylor County Public Health District	65
Brownwood-Brown County Health Department	57
Collin County Healthcare Services	9
Denton County Health Department	11
Wichita Falls-Wichita County Public Health District	27
DSHS Public Health Region 6/5S	**14**
Beaumont City Health Department	10
DSHS PHR 6/5S Regional Office - Houston	4
DSHS Public Health Region 8	**18**
DSHS Field Office - Uvalde County	3
DSHS Field Office - Val Verde County	3
San Antonio Metro Health District	4
Victoria County Public Health Department	8
DSHS Public Health Region 9/10	**2**
DSHS Nursing Department - Alpine	1
DSHS Nursing Department - Brady	1
DSHS Public Health Region 11	**45**
City of Laredo Health Department	3
DSHS PHR 11 Regional Office - Harlingen	10
DSHS Sub-Office - Corpus Christi	15
Hidalgo County Health Department	17
Statewide Total	**261**

Table 2. Number of People Receiving Rabies Biologicals by Month and Public Health Region of Patient Residence, 2021.

Month	Public Health Region								Out of State Resident	Total	%
	1	2/3	4/5N	6/5S	7	8	9/10	11			
January	2	11				4		3		**20**	**7.7%**
February	1	9				4		2		**16**	**6.1%**
March	1	9		3		6		4		**23**	**8.8%**
April	1	20			1			5	1	**28**	**10.7%**
May		23	1					4		**28**	**10.7%**
June	5	21		5	4			5		**40**	**15.3%**
July		13						4	1	**18**	**6.9%**
August		11		1	1		1	3		**17**	**6.5%**
September	1	7		2	1		1	1		**13**	**5.0%**
October	1	15						5	1	**22**	**8.4%**
November	1	5		2				3		**11**	**4.2%**
December		16		2		4		3		**25**	**9.6%**
Total	**13**	**160**	**1**	**15**	**7**	**18**	**2**	**42**	**3**	**261**	**100%**
%	**5.0%**	**61.3%**	**0.4%**	**5.7%**	**2.7%**	**6.9%**	**0.8%**	**16.1%**	**1.1%**	**100%**	

Of the 261 people reporting possible exposure to rabies, 58 (22.2%) were caused by an animal species classified as high risk for transmitting rabies (bats, coyotes, foxes, raccoons, and skunks) and 203 (77.8%) were caused by an animal species classified as neither high nor low risk for transmitting rabies. Although some species, such as rodents, are classified as low risk for transmitting rabies, all mammals can become infected with and transmit rabies. DSHS utilizes a risk assessment process, which includes many other factors besides the species of exposing animal, to determine a general level of rabies transmission risk for a given exposure situation. In certain circumstances, PEP may be recommended even for exposures involving low-risk species.

Dogs and cats accounted for 163 (62.5%) of the reports of potential rabies exposures resulting in PEP. Of those, 33 (20.2%) were owned by the patient's family, 20 (12.3%) were owned by someone other than the patient's family, 106 (65.0%) were listed as either a stray or wild animal, and 4 (2.5%) had no ownership information identified. The vaccination status of 58 (35.6%) of the dogs and cats was reported as known, with 2 (3.4% of those with reported vaccination status) being vaccinated and 56 (96.6% of those with reported vaccination status) not being not vaccinated. The vaccination status of 105 (64.4%) of the dogs and cats was reported as unknown.

Table 3. Number of People Receiving Rabies Biologicals by Species of Exposing Animal and Public Health Region of Patient Residence, 2021.

Exposing Animal	Public Health Region										
	1	2/3	4/5N	6/5S	7	8	9/10	11	Out of State Resident	Total	%
Bat	2	4		10	3	6		11		**36**	**13.8%**
Bovine	1	13			1			2		**17**	**6.5%**
Cat	1	52	1	1	2	4		8		**69**	**26.4%**
Coati								1		**1**	**0.4%**
Dog	6	61			1	6	2	16	2	**94**	**36.0%**
Fox		4								**4**	**1.5%**
Goat		11								**11**	**4.2%**
Horse	1	8								**9**	**3.4%**
Human				1						**1**	**0.4%**
Raccoon	2	1		3		2		4	1	**13**	**5.0%**
Skunk		5								**5**	**1.9%**
Wild hog		1								**1**	**0.4%**
Total	**13**	**160**	**1**	**15**	**7**	**18**	**2**	**42**	**3**	**261**	**100%**
%	**5.0%**	**61.3%**	**0.4%**	**5.7%**	**2.7%**	**6.9%**	**0.8%**	**16.1%**	**1.1%**	**100%**	

Table 4. Routes of Exposure for People Receiving Rabies Biologicals, 2021.

Route of Exposure	Exposing Animal/Human												Total	%
	Bat	Bovine	Cat	Coati	Dog	Fox	Goat	Horse	Human	Raccoon	Skunk	Wild hog		
Bat found in room or house	3												**3**	**1.1%**
Bite	17	1	50	1	69	1				10		1	**150**	**57.5%**
Contact with saliva	1	6			5								**12**	**4.6%**
Direct contact with animal	6		2		4			1					**13**	**5.0%**
Indirect contact with animal	1		5								1		**7**	**2.7%**
Mucous membrane exposure		9	4		9	2	10	7		1	4		**46**	**17.6%**
Not listed	2	1			3	1		1		1			**9**	**3.4%**
Other									1				**1**	**0.4%**
Scratch	1		8		4		1			1			**15**	**5.7%**
Unknown	5												**5**	**1.9%**
Total	**36**	**17**	**69**	**1**	**94**	**4**	**11**	**9**	**1**	**13**	**5**	**1**	**261**	**100%**
%	**13.8%**	**6.5%**	**26.4%**	**0.4%**	**36.0%**	**1.5%**	**4.2%**	**3.4%**	**0.4%**	**5.0%**	**1.9%**	**0.4%**	**100%**	

Table 5. Primary Anatomic Location of Rabies Exposure for People Receiving Rabies Biologicals, 2021.

Anatomic Location of Exposure	Exposing Animal												Total	%
	Bat	Bovine	Cat	Coati	Dog	Fox	Goat	Horse	Human	Raccoon	Skunk	Wild hog		
Arm	1	1	4		14					1			**21**	**8.0%**
Foot	1		1		5								**7**	**2.7%**
Hand	16	9	34	1	21	1		4	1	6			**93**	**35.6%**
Head	3	1	1		6					1			**12**	**4.6%**
Leg	2		9		25					3		1	**40**	**15.3%**
Multiple anatomic sites	2	1	13		12	2	11	3		1	4		**49**	**18.8%**
Not listed	2	5	1		10	1				1			**20**	**7.7%**
Other	1										1		**2**	**0.8%**
Torso			1		1			1					**3**	**1.1%**
Unknown	8		5					1					**14**	**5.4%**
Total	**36**	**17**	**69**	**1**	**94**	**4**	**11**	**9**	**1**	**13**	**5**	**1**	**261**	**100%**
%	**13.8%**	**6.5%**	**26.4%**	**0.4%**	**36.0%**	**1.5%**	**4.2%**	**3.4%**	**0.4%**	**5.0%**	**1.9%**	**0.4%**	**100%**	

Age was reported for 232 (88.9%) of the recipients. The average age of those receiving PEP was 35.4 years (males 35.2 years, females 35.5 years). The median age of those receiving PEP was 32.0 years (males 32.0 years, females 33.0 years). Of the recipients, 116 (44.4%) were male, 143 (54.8%) were female, and sex was not reported for 2 (0.8%) recipients. Of those people receiving PEP, 28 (10.7%) were reported as previously immunized for rabies, 223 (85.4%) were not previously immunized for rabies, and the immunization status for 10 (3.8%) people was not reported.

Table 6 shows 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 98 (37.5%) cases, the animal was not available for testing or quarantine in 104 (39.8%) cases, the testing status was not listed or unknown in 48 (18.4%) cases and the animal was quarantined in 10 (3.8%) cases. Rabies biologicals were distributed to 5 people (1.9%) while laboratory results were pending and 10 people (3.8%) 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.

Table 6. Rabies Testing Status and Test Results from Animals That Caused People to Receive Postexposure Prophylaxis, 2021.

Laboratory Testing Status	Number	%	
Animal Quarantined*	10	3.8%	
Animal Not Available for Testing or Quarantine	104	39.8%	
Testing Status Not Listed or Unknown	48	18.4%	
N/A	1	0.4%	
Tested	98	37.5%	
	Test Result	**Number**	**% of Tested Specimens**
	Positive	81	82.7%
	Sample Decomposed	4	4.1%
	Results pending at the time the biologicals were distributed*	5	5.1%
	Sample Destroyed	1	1.0%
	Result Inconclusive	7	7.1%

*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. Number of People Receiving Rabies Biologicals Due to Exposures to Animals That Were Not Available for Testing or Quarantine for Rabies, 2021

Exposing Animal	Public Health Region								Out of State Resident	Total	%
	1	2/3	4/5N	6/5S	7	8	9/10	11			
Bat	2			10	1	5		3		**21**	**20.2%**
Cat	1	13	1			2		1		**18**	**17.3%**
Dog	6	29			1	4	1	12	1	**54**	**51.9%**
Raccoon	2			3		1		3	1	**10**	**9.6%**
Wild hog		1								**1**	**1.0%**
Total	**11**	**43**	**1**	**13**	**2**	**12**	**1**	**19**	**2**	**104**	**100%**
%	**10.6%**	**41.3%**	**1.0%**	**12.5%**	**1.9%**	**11.5%**	**1.0%**	**18.3%**	**1.9%**	**100%**	

Table 8. Number of People Receiving Rabies Biologicals Due to Exposures to Animals That Tested Non-negative for Rabies, 2021.

Exposing Animal	Public Health Region							Total	%
	PHR 1	PHR 2/3	PHR 6/5S	PHR 7	PHR 8	PHR 9/10	PHR 11		
Bat				2			3	**5**	**5.4%**
Bovine	1	13		1			2	**17**	**18.3%**
Cat		27	1					**28**	**30.1%**
Dog		14				1		**15**	**16.1%**
Fox		4						**4**	**4.3%**
Goat		10						**10**	**10.8%**
Horse	1	7						**8**	**8.6%**
Raccoon					1			**1**	**1.1%**
Skunk		5						**5**	**5.4%**
Total	**2**	**80**	**1**	**3**	**1**	**1**	**5**	**93**	**100%**
%	**2.2%**	**86.0%**	**1.1%**	**3.2%**	**1.1%**	**1.1%**	**5.4%**	**100%**	

Table 9. Number of People Receiving Rabies Biologicals for Exposures to Animals That Tested Positive for Rabies, 2021.

Exposing Animal	Public Health Region					Total	%
	PHR 1	PHR 2/3	PHR 6/5S	PHR 7	PHR 11		
Bat					2	**2**	**2.5%**
Bovine	1	13		1		**15**	**18.5%**
Cat		26	1			**27**	**33.3%**
Dog		12				**12**	**14.8%**
Fox		4				**4**	**4.9%**
Goat		10				**10**	**12.3%**
Horse	1	5				**6**	**7.4%**
Skunk		5				**5**	**6.2%**
Total	**2**	**75**	**1**	**1**	**2**	**81**	**100%**
%	**2.5%**	**92.6%**	**1.2%**	**1.2%**	**2.5%**	**100%**	