

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

### **2022 Annual Report**

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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.

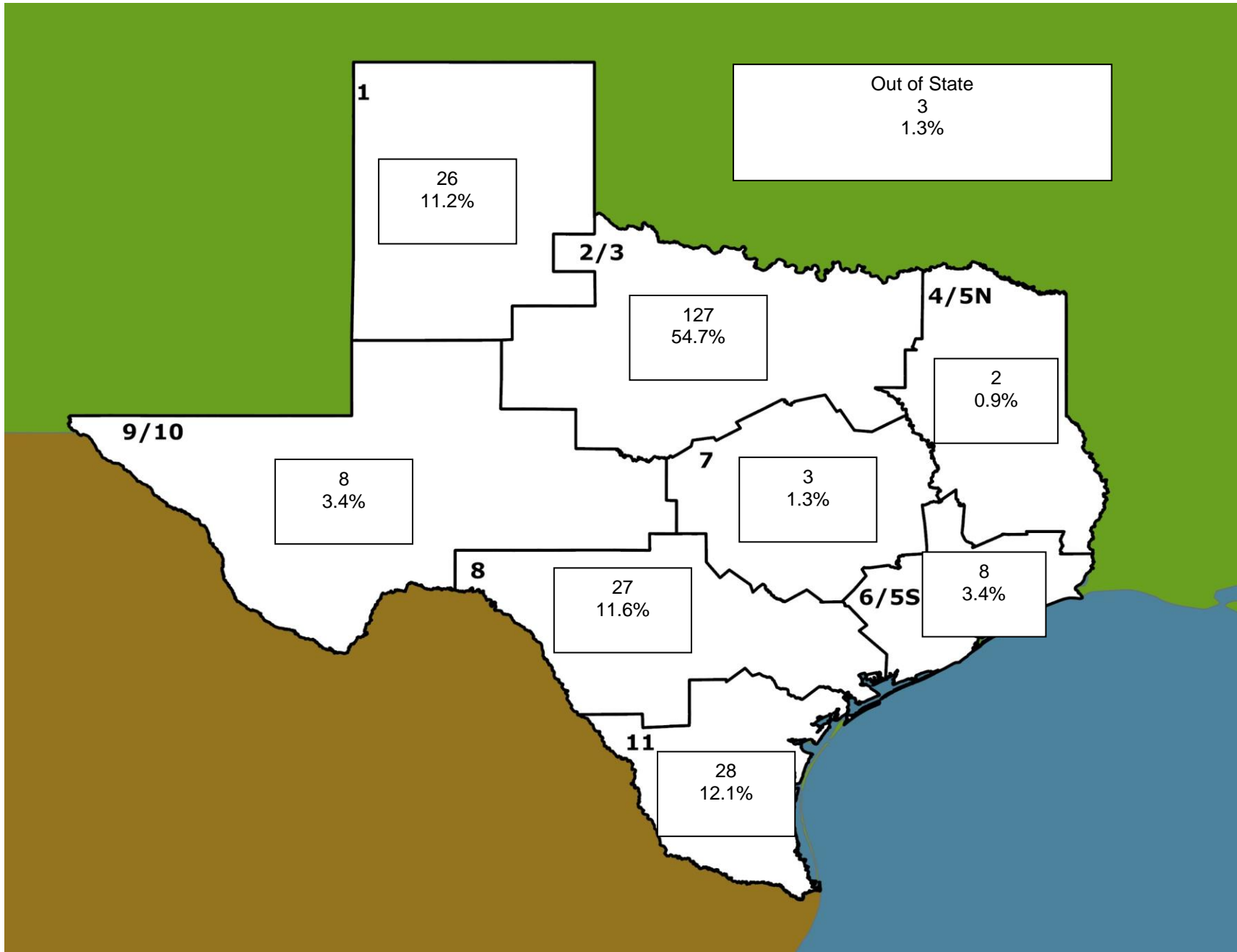
Some private sources—such as clinics, hospitals, pharmacies, and healthcare systems—also provide rabies biologicals to patients. These sources do not supply surveillance information to DSHS and are not included in this summary.

#### **Rabies Postexposure Prophylaxis**

During 2022, DSHS distributed rabies biologicals for postexposure prophylaxis (PEP) to 232 people; 53 (22.8%) via PHR offices and 179 (77.2%) via local health department depots. The reported total cost of the biologicals distributed from DSHS inventory was \$833,763 (\$551,200 for 790 vials [2 ml] of human rabies immune globulin [HRIG] and \$282,563 for 804 vials [1 ml] of vaccine). A full PEP series of biologicals (HRIG plus 4-5 doses of vaccine) was distributed to 147 people (63.4% of people receiving biologicals from DSHS inventory) at a total cost of \$749,146 and an average cost of \$5,096 per person (median: \$4,935; range: \$1,677-\$15,916).

Rabies biologicals were distributed to 229 (98.7%) Texas residents and 3 (1.3%) out-of-state residents (Iowa, Louisiana, and Oklahoma) who were visiting Texas when they needed rabies biologicals.

**Figure 1. Number of People Receiving Rabies Biologicals by Public Health Region of Patient Residence, 2022.**



**Table 1. Number of People Receiving Rabies Biologicals by Distribution Site, 2022.**

<b>DSHS-Supplied Rabies Biologicals Distribution Site</b>	<b>Number of Persons Receiving Rabies Biologicals</b>
<b>DSHS Public Health Region 1</b>	<b>28</b>
DSHS PHR 1 Regional Office - Amarillo	22
DSHS PHR 1 Regional Office - Lubbock	6
<b>DSHS Public Health Region 11</b>	<b>30</b>
City of Laredo Health Department	7
DSHS PHR 11 Regional Office - Harlingen	4
DSHS Sub-Office - Corpus Christi	7
Hidalgo County Health Department	11
UT Health Pediatrics Edinburg	1
<b>DSHS Public Health Region 2/3</b>	<b>129</b>
Abilene-Taylor County Public Health District	82
Brownwood-Brown County Health Department	18
Collin County Healthcare Services	11
Denton County Health Department	3
Grayson County Health Department	1
Wichita Falls-Wichita County Public Health District	14
<b>DSHS Public Health Region 6/5S</b>	<b>8</b>
Beaumont City Health Department	8
<b>DSHS Public Health Region 7</b>	<b>2</b>
DSHS PHR 7 Regional Office - Temple	2
<b>DSHS Public Health Region 8</b>	<b>27</b>
DSHS Field Office - Maverick County	1
DSHS Field Office - Uvalde County	3
DSHS Field Office - Val Verde County	1
San Antonio Metro Health District	13
Victoria County Public Health Department	9
<b>DSHS Public Health Region 9/10</b>	<b>8</b>
DSHS Nursing Department - Alpine	1
DSHS Nursing Department - Brady	4
DSHS PHR 9/10 Regional Office - Midland	2
Ector County Health Department	1
<b>Statewide Total</b>	<b>232</b>

**Table 2. Number of People Receiving Rabies Biologicals by Month and Public Health Region of Patient Residence, 2022.**

Month	DSHS Public Health Region Of Patient Residence								Out of State Resident	Total	%
	1	2/3	4/5N	6/5S	7	8	9/10	11			
January	1	7						1		9	3.9%
February	2	2	1	1		1		1		8	3.4%
March	2	8		4			1	1		16	6.9%
April	2	4						3		9	3.9%
May	5	19		1			1	1	1	28	12.1%
June	3	20				1		2	1	27	11.6%
July	2	27		1	1		4	5		40	17.2%
August		11				4	1	3		19	8.2%
September		12	1	1	2	4	1	6		27	11.6%
October	8	9				8				25	10.8%
November	1	6				7		1	1	16	6.9%
December		2				2		4		8	3.4%
<b>Total</b>	<b>26</b>	<b>127</b>	<b>2</b>	<b>8</b>	<b>3</b>	<b>27</b>	<b>8</b>	<b>28</b>	<b>3</b>	<b>232</b>	<b>100.0%</b>
<b>%</b>	<b>11.2%</b>	<b>54.7%</b>	<b>0.9%</b>	<b>3.4%</b>	<b>1.3%</b>	<b>11.6%</b>	<b>3.4%</b>	<b>12.1%</b>	<b>1.3%</b>	<b>100.0%</b>	

Of the 232 people reporting possible exposure to rabies, 70 (30.2%) were caused by an animal species classified as high risk for transmitting rabies (bats, coyotes, foxes, raccoons, and skunks), 161 (69.4%) were caused by an animal species classified as neither high nor low risk for transmitting rabies, and 1 (0.4%) was caused by an animal species classified as 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 131 (56.5%) of the reports of potential rabies exposures resulting in PEP. Of those, 26 (19.8%) were owned by the patient’s family, 10 (7.6%) were owned by someone other than the patient’s family, 94 (71.8%) were listed as either a stray or wild animal, and 1 (0.8%) had no ownership information identified. The vaccination status of 49 (37.4%) of the dogs and cats was reported as known, with 2 (4.1% of those with reported vaccination status) being vaccinated and 47 (95.9% of those with reported vaccination status) not being vaccinated. The vaccination status of 82 (62.6%) 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, 2022.**

Exposing Animal	DSHS Public Health Region of Patient Residence									Total	%
	1	2/3	4/5N	6/5S	7	8	9/10	11	Out of State Resident		
Bat	2	3	1	6	3	6		13		34	14.7%
Cat		27		1		5	2	7		42	18.1%
Cow	11	11					1		1	24	10.3%
Coyote	1						1			2	0.9%
Dog	12	58				12		6	1	89	38.4%
Fox		1								1	0.4%
Goat							3			3	1.3%
Horse		2								2	0.9%
Pig		1								1	0.4%
Raccoon		15		1		4	1	2		23	9.9%
Skunk		8	1						1	10	4.3%
Squirrel		1								1	0.4%
<b>Total</b>	<b>26</b>	<b>127</b>	<b>2</b>	<b>8</b>	<b>3</b>	<b>27</b>	<b>8</b>	<b>28</b>	<b>3</b>	<b>232</b>	<b>100.0%</b>
<b>%</b>	<b>11.2%</b>	<b>54.7%</b>	<b>0.9%</b>	<b>3.4%</b>	<b>1.3%</b>	<b>11.6%</b>	<b>3.4%</b>	<b>12.1%</b>	<b>1.3%</b>	<b>100.0%</b>	

**Table 4. Routes of Exposure for People Receiving Rabies Biologicals, 2022.**

Route of Exposure	Exposing Animal												Total	%
	Bat	Cat	Cow	Coyote	Dog	Fox	Goat	Horse	Pig	Raccoon	Skunk	Squirrel		
Bite	13	30		2	68				1	16	6	1	137	59.1%
Contact with Blood					1						1		2	0.9%
Contact with Saliva			18										18	7.8%
Direct Contact with Animal	7	2			1						2		12	5.2%
Indirect Contact with Animal	1												1	0.4%
Mucous Membrane Exposure	2	2	6		18	1	3	2		4			38	16.4%
Not Listed	2				1						1		4	1.7%
Scratch	9	8								3			20	8.6%
<b>Total</b>	<b>34</b>	<b>42</b>	<b>24</b>	<b>2</b>	<b>89</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>23</b>	<b>10</b>	<b>1</b>	<b>232</b>	<b>100.0%</b>
<b>%</b>	<b>14.7%</b>	<b>18.1%</b>	<b>10.3%</b>	<b>0.9%</b>	<b>38.4%</b>	<b>0.4%</b>	<b>1.3%</b>	<b>0.9%</b>	<b>0.4%</b>	<b>9.9%</b>	<b>4.3%</b>	<b>0.4%</b>	<b>100.0%</b>	

**Table 5. Primary Anatomic Location of Rabies Exposure for People Receiving Rabies Biologicals, 2022.**

Anatomic Location of Exposure	Exposing Animal												Total	%
	Bat	Cat	Cow	Coyote	Dog	Fox	Goat	Horse	Pig	Raccoon	Skunk	Squirrel		
Arm	2	5			9					3	2		21	9.1%
Foot	1	2			1					1			5	2.2%
Hand	11	23	15	2	24	1	3	2	1	11	6	1	100	43.1%
Head	5				7								12	5.2%
Leg	5	6			36					5	1		53	22.8%
Mucous Membrane			2										2	0.9%
Multiple Anatomic Sites	5	4	2		9					2			22	9.5%
Not Listed	4	2	5		3					1	1		16	6.9%
Torso	1												1	0.4%
<b>Total</b>	<b>34</b>	<b>42</b>	<b>24</b>	<b>2</b>	<b>89</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>23</b>	<b>10</b>	<b>1</b>	<b>232</b>	<b>100.0%</b>
<b>%</b>	<b>14.7%</b>	<b>18.1%</b>	<b>10.3%</b>	<b>0.9%</b>	<b>38.4%</b>	<b>0.4%</b>	<b>1.3%</b>	<b>0.9%</b>	<b>0.4%</b>	<b>9.9%</b>	<b>4.3%</b>	<b>0.4%</b>	<b>100.0%</b>	

Age was reported for 232 (100.0%) of the recipients. The average age of those receiving PEP was 37.6 years (males 37.4 years, females 38.0 years). The median age of those receiving PEP was 36.0 years (males 36.0 years, females 36.0 years). Of the recipients, 125 (53.9%) were male and 107 (46.1%) were female. Of those people receiving PEP, 26 (11.2%) were reported as previously immunized for rabies, 203 (87.5%) were not previously immunized for rabies, and the immunization status for 3 (1.3%) people was not reported.

The exposing animal was tested for rabies in a public health laboratory in 86 (37.1%) cases, the animal was not available for testing or quarantine in 114 (49.1%) cases, the testing status was not listed or unknown in 31 (13.4%) cases and the animal was quarantined in 1 (0.4%) case. Rabies biologicals were distributed to 5 people (2.2%) while laboratory results were pending and 1 person (0.4%) 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. Disposition, Rabies Testing Status, and Test Results from Animals That Caused People to Receive Postexposure Prophylaxis, 2022.**

Laboratory Testing Status	Number	%	
Animal Quarantined*	1	0.4%	
Animal Not Available for Testing or Quarantine	114	49.1%	
Testing Status Not Listed or Unknown	31	13.4%	
Tested	86	37.1%	
	Test Result	Number	% of Tested Specimens
	Positive	78	90.7%
	Sample Decomposed	1	1.2%
	Results pending at the time the biologicals were distributed*	5	5.8%
	Sample Destroyed	1	1.2%
	Result Inconclusive	1	1.2%

\*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, 2022.**

Exposing Animal	DSHS Public Health Region of Patient Residence								Total	%
	1	2/3	4/5N	6/5S	7	8	9/10	11		
Bat	1	2	1	3	1	5		10	23	20.2%
Cat		13		1		4		3	21	18.4%
Coyote	1						1		2	1.8%
Dog	12	26				7		4	49	43.0%
Fox		1							1	0.9%
Pig		1							1	0.9%
Raccoon		7		1		4		1	13	11.4%
Skunk		3							3	2.6%
Squirrel		1							1	0.9%
<b>Total</b>	<b>14</b>	<b>54</b>	<b>1</b>	<b>5</b>	<b>1</b>	<b>20</b>	<b>1</b>	<b>18</b>	<b>114</b>	<b>100.0%</b>
<b>%</b>	<b>12.3%</b>	<b>47.4%</b>	<b>0.9%</b>	<b>4.4%</b>	<b>0.9%</b>	<b>17.5%</b>	<b>0.9%</b>	<b>15.8%</b>	<b>100.0%</b>	

**Table 8. Number of People Receiving Rabies Biologicals Due to Exposures to Animals That Tested Non-negative for Rabies, 2022.**

Exposing Animal	DSHS Public Health Region of Patient Residence							Out of State Resident	Total	%
	1	2/3	4/5N	7	8	9/10	11			
Bat		1		2	1		1		5	6.2%
Cat		11				1	2		14	17.3%
Cow	11	11				1		1	24	29.6%
Dog		21							21	25.9%
Goat						3			3	3.7%
Horse		2							2	2.5%
Raccoon		6							6	7.4%
Skunk		4	1					1	6	7.4%
<b>Total</b>	<b>11</b>	<b>56</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>5</b>	<b>3</b>	<b>2</b>	<b>81</b>	<b>100.0%</b>
<b>%</b>	<b>13.6%</b>	<b>69.1%</b>	<b>1.2%</b>	<b>2.5%</b>	<b>1.2%</b>	<b>6.2%</b>	<b>3.7%</b>	<b>2.5%</b>	<b>100.0%</b>	

**Table 9. Number of People Receiving Rabies Biologicals for Exposures to Animals That Tested Positive for Rabies, 2022.**

Exposing Animal	DSHS Public Health Region of Patient Residence							Out of State Resident	Total	%
	1	2/3	4/5N	7	8	9/10	11			
Bat		1		2	1		1		5	6.4%
Cat		11				1	2		14	17.9%
Cow	10	11				1		1	23	29.5%
Dog		20							20	25.6%
Goat						3			3	3.8%
Horse		2							2	2.6%
Raccoon		6							6	7.7%
Skunk		3	1					1	5	6.4%
<b>Total</b>	<b>10</b>	<b>54</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>5</b>	<b>3</b>	<b>2</b>	<b>78</b>	<b>100.0%</b>
<b>%</b>	<b>12.8%</b>	<b>69.2%</b>	<b>1.3%</b>	<b>2.6%</b>	<b>1.3%</b>	<b>6.4%</b>	<b>3.8%</b>	<b>2.6%</b>	<b>100.0%</b>	