



Texas Department of State Health Services

DSHS-Supplied Rabies Biologicals 2009 Surveillance Summary

Texas Health and Safety Code §826.025 allows 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. Although DSHS is supposed to be reimbursed for the cost of these biologicals, no one who has a valid exposure is denied access to the products because of their inability to pay.

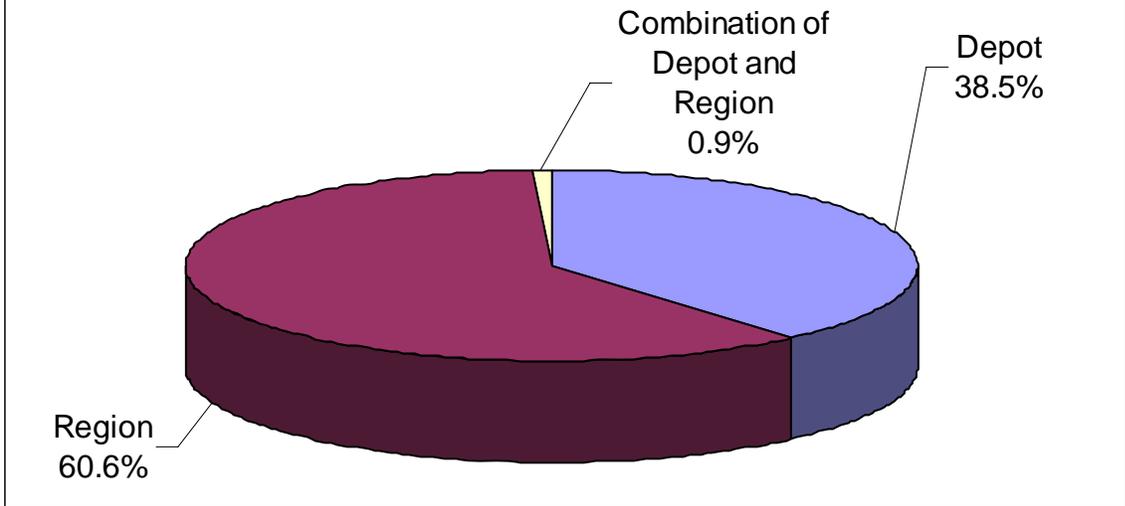
DSHS Health Service Region (HSR) offices may store and distribute the biologicals. In an effort to make the biologicals available to Texas residents throughout the state, some regional offices partner with local health departments and hospitals to serve as depots for storing and distributing biologicals. Surveillance data, including the demographic information on who received the biologicals and the reasons the biologicals were distributed, is maintained by DSHS (mandated by §97.123, Texas Administrative Code, "Provision of Anti-Rabies Biologicals").

Some private sources (such as hospitals, pharmacies, and healthcare systems) directly provide rabies biologicals to patients and do not partner with DSHS. **These sources do not supply surveillance information to DSHS and are not included in this summary.** DSHS supplies much of the biologicals distributed in the state of Texas; therefore, the data presented in this report should reflect overall trends.

Postexposure Rabies Prophylaxis

During 2009, rabies biologicals were distributed for postexposure prophylaxis (PEP) to 686 people, of whom 416 (60.6%) acquired the biologicals from regional DSHS offices, 264 (38.5%) from depots, and 6 (0.9%) from both a regional office and a depot (Figure 1). The total cost of the biologicals distributed from DSHS inventory was \$1,054,656 (\$597,359 for 2,579 vials [2 ml] of human rabies immune globulin and \$457,297 for 2,957 vials [1 ml] of vaccine).

Figure 1. Distribution Sites for Rabies Biologicals, 2009



Rabies biologicals were distributed to 682 (99.4%) Texas residents and 4 (0.6%) out-of-state residents: 1 person each from Colorado, Georgia, North Carolina, and Virginia. Distribution of postexposure biologicals based on the HSR in which the patient resided is summarized in Figure 2.

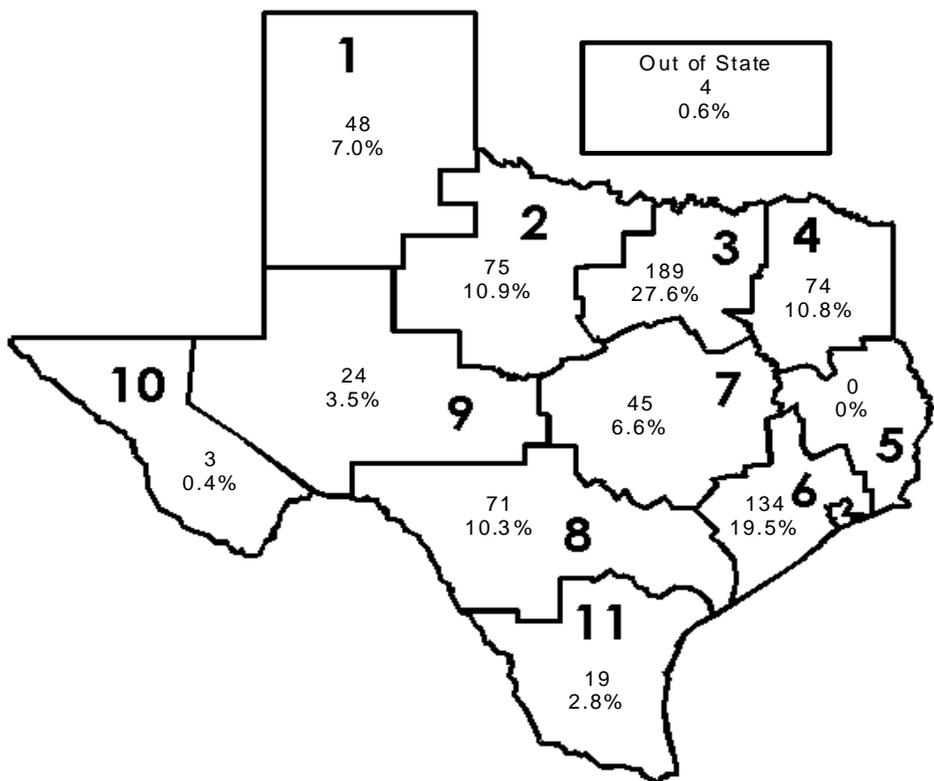


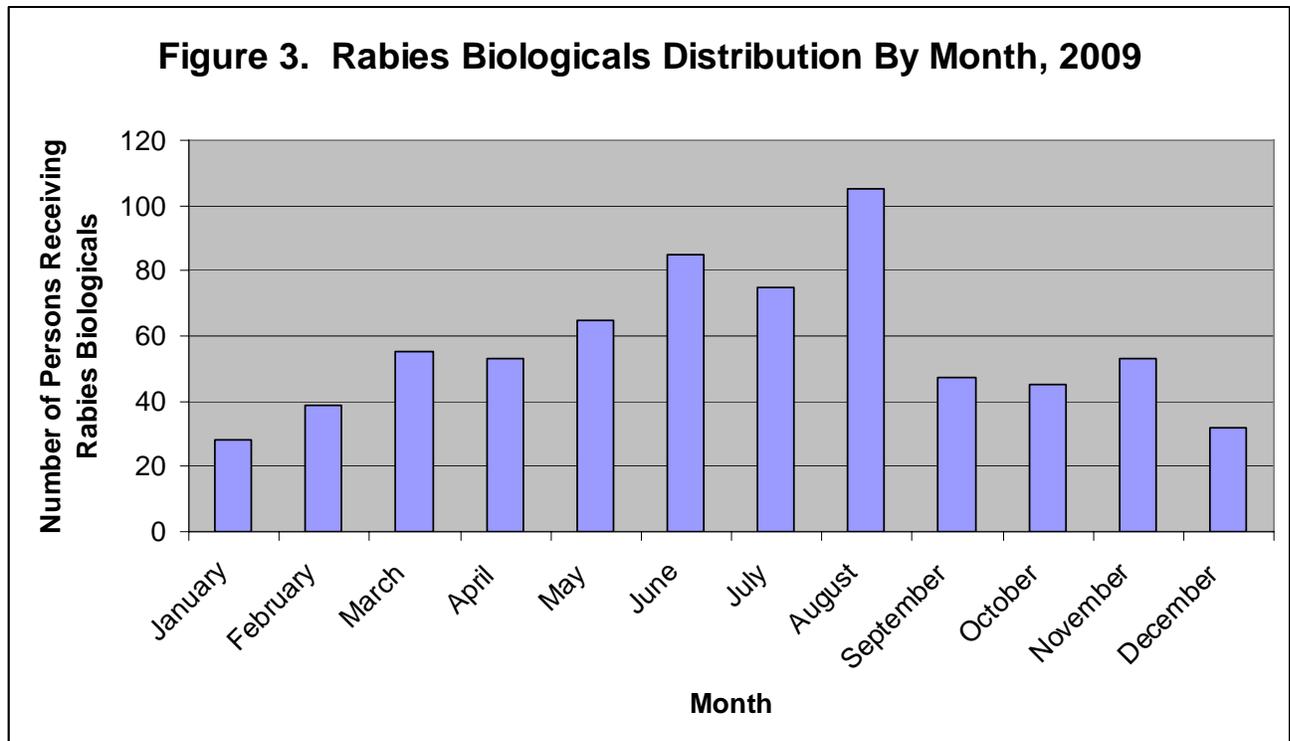
Figure 2. Number of People Receiving Postexposure Prophylaxis by Health Service Region of Patient Residence, 2009

Table 1 and Figure 3 show the distribution of rabies biologicals by month and HSR of the patient's residence.

Month	HSR-1	HSR-2	HSR-3	HSR-4	HSR-6	HSR-7	HSR-8	HSR-9	HSR-10	HSR-11	Total
January	3	9	4	1	5	2	2	1	0	1	28
February	2	5	13	0	10	4	2	3	0	0	39
March	1	5	20	7	12	4	3	1	0	2	55
April	10	8	9	10	6	4	2	3	0	1	53
May	5	7	17	5	9	6	9	5	0	2	65
June	4	8	24	10	13	3	21	0	0	2	85
July	3	5	17	10	27	6	4	1	0	2	75
August	16	13	29	14	19	6	5	2	1	0	105
September	0	4	14	5	10	5	5	1	2	1	47
October	3	1	15	6	9	2	2	4	0	3	45
November	0	3	20	3	11	2	10	1	0	3	53
December	1	7	7	3	3	1	6	2	0	2	32
Total	48	75	189	74	134	45*	71	24	3	19	682

Table 1. Number of Persons Receiving Rabies Biologicals and Region of Patient Residence, 2009 (Texas residents only)

*The number of people receiving biologicals in HSR-7 during 2009 represents a significant decrease compared to prior years due to regional efforts to encourage healthcare providers to order biologicals directly from the manufacturers. HSR-7 led all regions in total distributions during 2007 (339 persons; 26.4% of all biologicals distributed by DSHS) and 2008 (214 persons; 23.7% of all biologicals distributed by DSHS).



The species of animals associated with the potential rabies exposures is 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 275 (40.1%) of the exposures. Animals classified as low risk for rabies (e.g. rodents, rabbits, moles, and opossums) accounted for 8 (1.2%) exposures (Figure 4). One course of PEP was administered due to exposure to a human with rabies. The human rabies case was atypical and comparatively mild; the patient survived. However, a close personal contact received PEP due to mucous membrane exposure to the patient.

Routes of exposure are shown in Figure 5.

Species Associated with Exposure Resulting in PEP	Number	%
Dog	225	32.8%
Bat	178	25.9%
Cat	132	19.2%
Raccoon	66	9.6%
Skunk	21	3.1%
Cattle	18	2.6%
Horse	8	1.2%
Coyote	6	0.9%
Primate	6	0.9%
Unknown/Not Listed	5	0.7%
Fox	4	0.6%
Squirrel	4	0.6%
Bobcat	3	0.4%
Javelina	2	0.3%
Opossum	2	0.3%
Coati	1	0.1%
Goat	1	0.1%
Gopher	1	0.1%
Human	1	0.1%
Mink	1	0.1%
Rabbit	1	0.1%
TOTAL	686	100%

Table 2. Species Associated with Rabies PEP, 2009

Exposing Animal	HSR-1	HSR-2	HSR-3	HSR-4	HSR-6	HSR-7	HSR-8	HSR-9	HSR-10	HSR-11	Grand Total
Bat	2	7	24	37	79	7	12	1		9	178
Bobcat			1		1	1					3
Cat	11	27	42	8	8	11	15	7		3	132
Cattle	2	9	3	3		1					18
Coati			1								1
Coyote			4			1	1				6
Dog	28	25	76	10	20	20	28	11	2	5	225
Fox	1	1	2								4
Goat		1									1
Gopher				1							1
Horse	3		4		1						8
Human					1						1
Javelina		1							1		2
Mink			1								1
Not Listed					1						1
Opossum		1	1								2
Primate			5		1						6
Rabbit					1						1
Raccoon		3	24	6	14	3	11	3		2	66
Skunk	1	1	2	6	4	1	4	1		1	21
Squirrel				3				1			4
Unknown					4						4
Grand Total	48	76	190	74	135	45	71	24	3	20	686

Table 3. Persons Receiving Rabies Biologicals by HSR and Exposing Animal, 2009

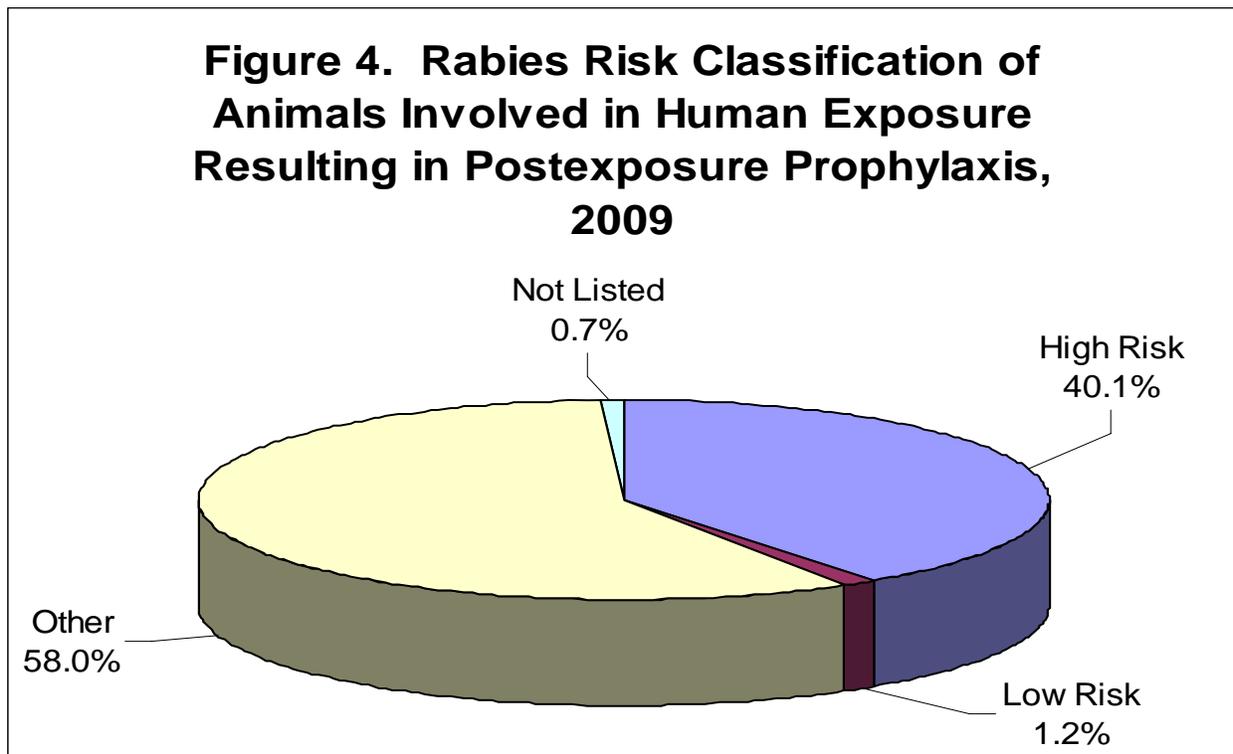
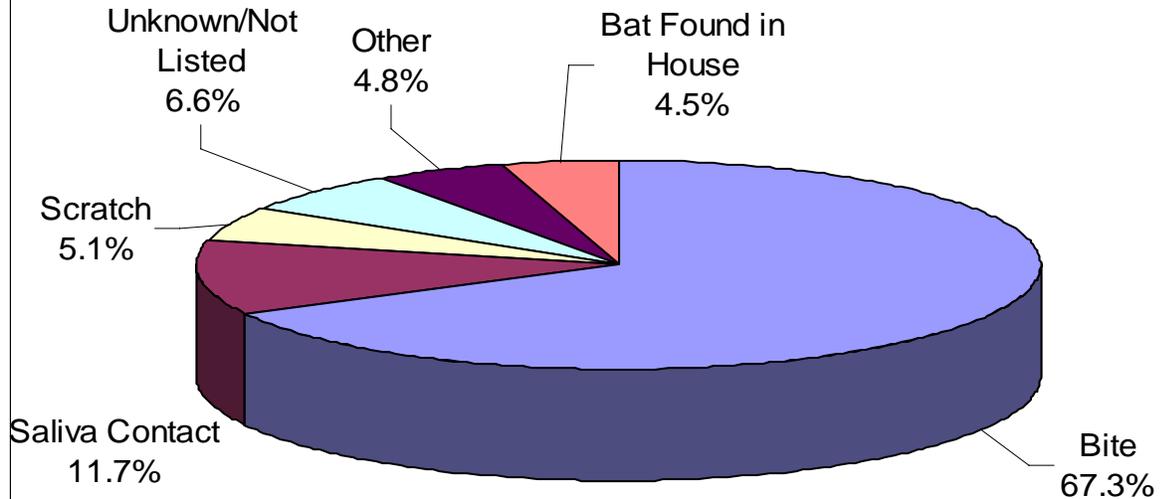
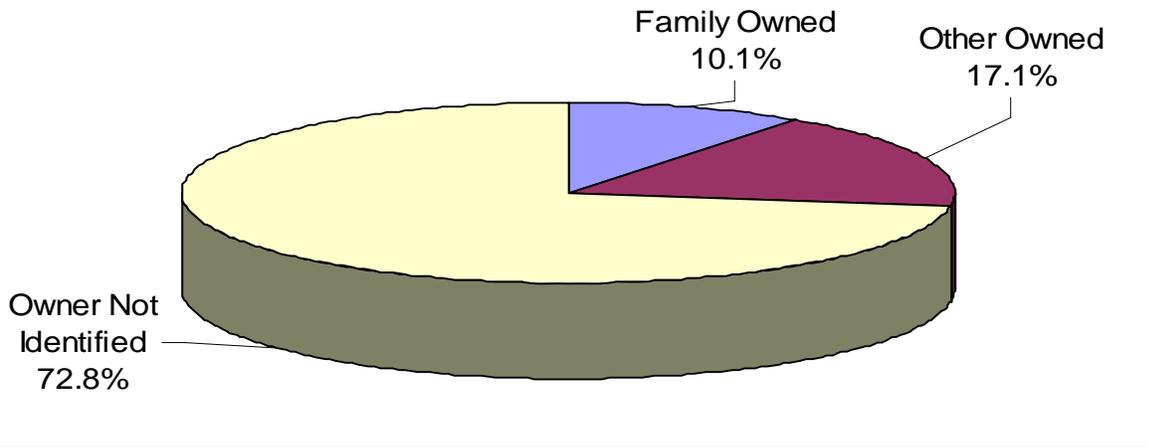


Figure 5. Primary Route of Exposure for Persons Receiving Postexposure Prophylaxis, 2009



Dogs and cats accounted for 357 (52.0%) of the reports of potential rabies exposures resulting in PEP. Of those, 36 (10.1%) were owned by the patient's family, 61 (17.1%) were owned by someone other than the patient's family, and 260 (72.8%) were listed as either a stray or had no ownership information identified (Figure 6). The vaccination status of 265 (74.2%) of the dogs and cats was either reported as unknown or not reported. The vaccination status of 92 (25.8%) of the dogs and cats was reported, with 88 (95.7% of those with vaccination status known) being not currently vaccinated against rabies and 4 (4.3% of those with vaccination status known) being currently vaccinated.

Figure 6. Ownership of Dogs and Cats Involved in Potential Rabies Exposure to Humans, 2009



The average age of those receiving PEP was 35.3 years (median, 34 years), with 356 (51.9%) being male and 326 (47.5%) being female. Sex was not listed for 4 (0.6%) of those receiving PEP.

Of those persons receiving PEP, 26 (3.8%) were previously immunized for rabies; 28 (4.1%) were not previously immunized for rabies; and the rabies immunization status for the remaining 632 (92.1%) persons was not reported; however, the vast majority were likely not pre-immunized. The primary anatomic sites of exposure are listed in Table 4.

Anatomic Location of Exposure	Number of People
Hand	252
Leg	128
Unknown/Not Listed	93
Arm	84
Head/Neck	58
Multiple Anatomic Sites	26
Foot	25
Torso	19
Mucous Membrane	1

Table 4. Primary Anatomic Location of Rabies Exposures, 2009

The animal causing the exposure was tested for rabies in a public health laboratory in 161 (23.5%) cases; the animal was not available for testing in 511 (74.5%) cases; the testing status was not listed in 13 (1.9%) cases; and the animal was quarantined in lieu of testing in 1 (0.1%) case. Biologicals were distributed to 1 person (0.1% of persons receiving PEP) while the dog causing the exposure was being quarantined for rabies observation. Biologicals were distributed to 19 people (2.8% of persons receiving PEP) while laboratory results were pending. Laboratory results for pending samples were ultimately reported positive in 5 cases; negative in 2 cases; and were not recorded in the database in 12 cases (Table 5). PEP is occasionally begun while the exposing animal is being tested or quarantined when the exposing animal or exposure situation is deemed high risk. Additionally, sometimes the exposing animal is located for testing or quarantine after PEP is begun. PEP is generally discontinued if the laboratory result is negative or the animal successfully completes the quarantine.

Laboratory Testing Status	Number	%	
Animal Not Tested (Quarantined)	1	0.1%	
Animal Not Tested (Unavailable)	511	74.5%	
Testing Status Not Listed	13	1.9%	
Tested	161	23.5%	
	Test Result	Number	% of Tested Specimens
	Positive	127	78.9%
	Results pending at the time the PEP biologicals were distributed*	19	11.8%
	Sample Destroyed	7	4.3%
	Sample Decomposed	6	3.7%
Negative	2	1.2%	

Table 5. Rabies Testing Status and Test Results from Animals That Caused People to Receive Postexposure Prophylaxis, 2009

*PEP is occasionally begun while the exposing animal is being tested when the exposing animal or exposure situation is deemed high risk. Additionally, sometimes the exposing animal is located for testing after PEP is begun. PEP is generally discontinued if the laboratory result is negative.

Table 6 lists the number of persons receiving rabies biologicals for those instances in which the exposing animals were unavailable for rabies testing.

Exposing Animal	HSR-1	HSR-2	HSR-3	HSR-4	HSR-6	HSR-7	HSR-8	HSR-9	HSR-10	HSR-11	Grand Total
Bat	2	3	12	24	57	4	9	1		9	121
Bobcat			1		1	1					3
Cat	7	22	36	6	7	10	13	7		3	111
Coati			1								1
Coyote			4			1	1				6
Dog	15	15	64	10	20	13	19	5	2	5	168
Fox	1	1	2								4
Goat		1									1
Gopher				1							1
Horse			4								4
Javelina		1							1		2
Mink			1								1
Not Listed					1						1
Opossum		1	1								2
Primate			5		1						6
Raccoon		1	22	6	14	3	11	3		2	62
Skunk	1	1		1	2	1	2	1			9
Squirrel				3				1			4
Unknown					4						4
Grand Total	26	46	153	51	107	33	55	18	3	19	511

Table 6. Number of Persons Receiving Rabies Biologicals Due to Exposures to Animals That Were Unavailable for Rabies Testing, 2009