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June 2014

# CHELAN-DOUGLAS PUBLIC HEALTH

## Current Conditions of Interest

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*"Always Working for a Safer and Healthier Community"*

### Rabies in Washington

There have been two cases of human rabies identified in Washington during the last 20 years. In 1995, a four-year-old child died of rabies four weeks after a bat was found in her bedroom; and in 1997, a 64-year-old man was diagnosed with rabies. These two Washington residents were infected with bat rabies virus.

The primary animals that carry rabies in the northwest United States are bats. Between 5-10% of bats submitted for testing are found to be rabid. Bats tested for rabies are more likely to test positive for rabies because they tend to be sick and injured bats; less than 1% of all bats in the wild are infected with rabies. Rabid bats have been found in almost every county in Washington.

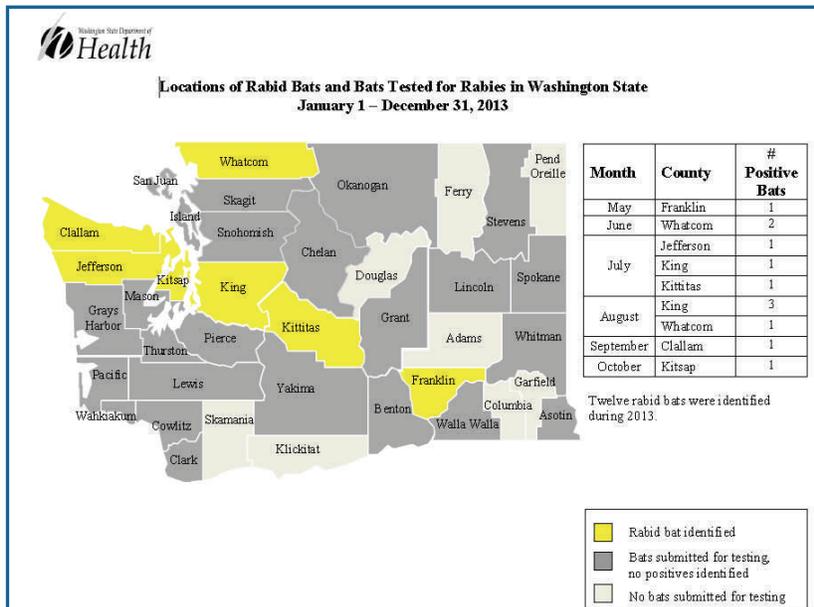
While rabid raccoons, skunks, foxes or coyotes have not been identified in Washington, the virus can be transmitted from bats to these mammals. In other parts of the United States, Canada, and Mexico, rabies may also be carried by raccoons, skunks, foxes or coyotes. In developing countries worldwide, dogs are the principal carriers of rabies.

During the last 20 years, several domestic animals in Washington have been diagnosed with rabies. In 2002, a rabid cat was identified in Walla Walla County with bat rabies. In 1994, a llama in King County died after becoming infected with a bat rabies virus, and in 1992, a horse in Benton County died of rabies. The last suspected rabid dog was identified in Pierce County in 1987.

In 2007, a rabid puppy imported from another country passed through Washington on its way to another state. It was diagnosed with rabies shortly after arriving at its destination, where it is counted as an animal case for that state. Several people in Washington were exposed.

**In 2013, eight Chelan-Douglas County residents received prophylaxis for potential exposure to rabies via terrestrial animals or bats.**

**Out of county and country patients were also exposed during 2013 and received rabies prophylaxis after returning home.**



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## Rabies in Washington

### Washington State Bats Tested for Rabies, 2003-2011

| Counties         | 2003      |            | 2004      |            | 2005      |            | 2006      |            | 2007      |            | 2008      |            | 2009      |            | 2010      |            | 2011      |            | COUNTY TOTAL |              |
|------------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|--------------|--------------|
|                  | Pos. *    | Total      | Pos. *       | Total        |
| Adams            | 0         | 0          | 0         | 1          | 0         | 1          | 0         | 0          | 0         | 0          | 0         | 0          | 0         | 0          | 0         | 0          | 0         | 1          | 0            | 3            |
| Asotin           | 0         | 2          | 0         | 1          | 0         | 0          | 0         | 4          | 1         | 1          | 0         | 1          | 0         | 0          | 1         | 2          | 0         | 1          | 2            | 12           |
| Benton           | 0         | 2          | 0         | 6          | 0         | 2          | 0         | 1          | 0         | 4          | 0         | 33         | 1         | 37         | 0         | 4          | 0         | 0          | 1            | 89           |
| Chelan           | 0         | 3          | 0         | 5          | 0         | 8          | 1         | 8          | 0         | 1          | 1         | 7          | 0         | 1          | 0         | 2          | 1         | 1          | 3            | 36           |
| Clallam          | 0         | 1          | 0         | 3          | 0         | 4          | 0         | 7          | 1         | 2          | 1         | 4          | 0         | 6          | 0         | 1          | 1         | 7          | 3            | 35           |
| Clark            | 1         | 8          | 0         | 10         | 1         | 6          | 0         | 8          | 1         | 15         | 2         | 14         | 0         | 10         | 1         | 11         | 0         | 11         | 6            | 93           |
| Columbia         | 0         | 0          | 0         | 1          | 0         | 0          | 0         | 0          | 0         | 1          | 0         | 0          | 0         | 1          | 0         | 0          | 0         | 0          | 0            | 3            |
| Cowlitz          | 0         | 8          | 1         | 9          | 0         | 10         | 1         | 8          | 1         | 9          | 0         | 5          | 0         | 12         | 1         | 5          | 0         | 5          | 4            | 71           |
| Douglas          | 0         | 0          | 0         | 1          | 0         | 0          | 0         | 1          | 0         | 0          | 0         | 1          | 0         | 2          | 0         | 1          | 0         | 1          | 0            | 7            |
| Ferry            | 0         | 0          | 0         | 0          | 0         | 1          | 0         | 1          | 1         | 1          | 0         | 0          | 0         | 4          | 1         | 1          | 0         | 1          | 2            | 9            |
| Franklin         | 0         | 0          | 0         | 1          | 0         | 2          | 0         | 0          | 0         | 0          | 0         | 1          | 0         | 0          | 0         | 1          | 0         | 0          | 0            | 5            |
| Garfield         | 0         | 0          | 0         | 0          | 0         | 0          | 0         | 0          | 0         | 0          | 0         | 0          | 0         | 0          | 0         | 0          | 0         | 0          | 0            | 0            |
| Grant            | 0         | 1          | 0         | 1          | 0         | 1          | 0         | 2          | 0         | 0          | 0         | 0          | 0         | 1          | 0         | 2          | 0         | 1          | 0            | 9            |
| Grays Harbor     | 0         | 4          | 1         | 8          | 1         | 6          | 0         | 2          | 1         | 3          | 0         | 4          | 1         | 8          | 0         | 0          | 0         | 1          | 4            | 36           |
| Island           | 2         | 6          | 0         | 4          | 1         | 12         | 1         | 15         | 0         | 8          | 1         | 15         | 1         | 6          | 0         | 6          | 1         | 10         | 7            | 82           |
| Jefferson        | 0         | 0          | 0         | 0          | 0         | 0          | 0         | 2          | 0         | 1          | 0         | 1          | 1         | 5          | 0         | 2          | 0         | 1          | 1            | 12           |
| King             | 4         | 38         | 5         | 69         | 1         | 50         | 3         | 58         | 4         | 98         | 1         | 83         | 1         | 38         | 2         | 45         | 1         | 45         | 22           | 524          |
| Kitsap           | 1         | 13         | 2         | 26         | 1         | 15         | 1         | 13         | 3         | 20         | 0         | 16         | 0         | 18         | 1         | 10         | 0         | 15         | 9            | 146          |
| Kittitas         | 0         | 0          | 0         | 2          | 0         | 1          | 0         | 1          | 0         | 0          | 0         | 1          | 1         | 2          | 1         | 2          | 0         | 0          | 2            | 9            |
| Klickitat        | 0         | 0          | 0         | 0          | 0         | 2          | 0         | 0          | 0         | 2          | 0         | 1          | 0         | 1          | 0         | 3          | 0         | 1          | 0            | 10           |
| Lewis            | 2         | 25         | 0         | 12         | 0         | 12         | 0         | 13         | 0         | 15         | 0         | 17         | 0         | 13         | 0         | 10         | 1         | 9          | 3            | 126          |
| Lincoln          | 0         | 0          | 0         | 1          | 1         | 2          | 0         | 0          | 0         | 1          | 0         | 0          | 0         | 0          | 0         | 0          | 0         | 0          | 1            | 4            |
| Mason            | 0         | 6          | 0         | 12         | 0         | 5          | 0         | 3          | 1         | 8          | 0         | 4          | 0         | 2          | 0         | 4          | 0         | 2          | 1            | 46           |
| Okanogan         | 1         | 3          | 0         | 3          | 0         | 1          | 0         | 2          | 1         | 2          | 0         | 0          | 1         | 3          | 0         | 0          | 0         | 0          | 3            | 14           |
| Pacific          | 1         | 3          | 1         | 9          | 0         | 7          | 0         | 0          | 0         | 1          | 2         | 8          | 1         | 4          | 0         | 3          | 0         | 1          | 5            | 36           |
| Pend Oreille     | 2         | 3          | 0         | 0          | 0         | 1          | 1         | 2          | 0         | 0          | 0         | 0          | 0         | 1          | 0         | 0          | 0         | 3          | 3            | 10           |
| Pierce           | 0         | 21         | 1         | 28         | 2         | 15         | 1         | 20         | 2         | 29         | 1         | 31         | 1         | 29         | 1         | 12         | 1         | 10         | 10           | 195          |
| San Juan         | 0         | 3          | 0         | 1          | 0         | 0          | 0         | 1          | 0         | 3          | 0         | 0          | 0         | 2          | 0         | 0          | 0         | 3          | 0            | 15           |
| Skagit           | 0         | 4          | 0         | 7          | 0         | 3          | 0         | 6          | 1         | 4          | 1         | 7          | 1         | 7          | 0         | 5          | 0         | 2          | 3            | 45           |
| Skiamaia         | 0         | 0          | 0         | 1          | 0         | 0          | 1         | 1          | 0         | 2          | 0         | 1          | 0         | 0          | 0         | 0          | 0         | 0          | 1            | 5            |
| Snohomish        | 3         | 17         | 3         | 24         | 0         | 19         | 3         | 25         | 0         | 24         | 2         | 20         | 2         | 29         | 3         | 24         | 1         | 15         | 17           | 197          |
| Spokane          | 2         | 16         | 3         | 12         | 2         | 21         | 0         | 18         | 3         | 18         | 0         | 12         | 0         | 19         | 0         | 8          | 0         | 7          | 10           | 131          |
| Stevens          | 0         | 4          | 1         | 4          | 0         | 3          | 0         | 8          | 0         | 3          | 0         | 4          | 1         | 4          | 0         | 4          | 0         | 2          | 2            | 36           |
| Thurston         | 2         | 26         | 1         | 28         | 1         | 9          | 1         | 19         | 0         | 24         | 1         | 22         | 1         | 27         | 2         | 16         | 2         | 97         | 11           | 208          |
| Wahkiakum        | 0         | 0          | 0         | 1          | 0         | 4          | 0         | 1          | 0         | 1          | 2         | 7          | 0         | 2          | 0         | 1          | 0         | 2          | 2            | 19           |
| Walla Walla      | 0         | 0          | 0         | 4          | 2         | 3          | 0         | 1          | 0         | 3          | 0         | 0          | 0         | 0          | 0         | 2          | 1         | 1          | 3            | 14           |
| Whitman          | 2         | 10         | 1         | 14         | 2         | 17         | 1         | 20         | 1         | 7          | 1         | 8          | 0         | 15         | 0         | 10         | 1         | 5          | 9            | 106          |
| Whitman          | 0         | 1          | 0         | 2          | 0         | 0          | 0         | 0          | 0         | 1          | 0         | 5          | 0         | 1          | 0         | 1          | 0         | 2          | 1            | 13           |
| Yakima           | 0         | 1          | 0         | 0          | 0         | 2          | 0         | 2          | 0         | 3          | 0         | 2          | 0         | 1          | 0         | 0          | 0         | 1          | 0            | 12           |
| <b>TOTAL</b>     | <b>23</b> | <b>229</b> | <b>20</b> | <b>311</b> | <b>15</b> | <b>246</b> | <b>15</b> | <b>273</b> | <b>22</b> | <b>315</b> | <b>17</b> | <b>335</b> | <b>14</b> | <b>311</b> | <b>14</b> | <b>200</b> | <b>11</b> | <b>204</b> | <b>151</b>   | <b>2,423</b> |
| Percent Positive | 10.0      |            | 6.4       |            | 6.1       |            | 5.5       |            | 7.0       |            | 5.1       |            | 4.5       |            | 7.0       |            | 5.4       |            | 6.2          |              |
| # Unsatisfactory |           | n/a        |           | 37         |           | 18         |           | 15         |           | 14         |              |              |

\* Numbers reported through 2007 were inclusive of positive and negative test results; beginning in 2008 all specimens submitted (including unsatisfactory results) were included in counts.

### Washington State Animals Tested for Rabies, 1988-2012

(Rabid animals in parentheses)

| Year                   | Bat               | Cat             | Dog         | Ferret     | Raccoon    | Skunk     | Rodent     | Lago-morph | Other Wild | Other Domestic | Total              |
|------------------------|-------------------|-----------------|-------------|------------|------------|-----------|------------|------------|------------|----------------|--------------------|
| 1988                   | 69 (4)            | 165             | 110         | 15         | 16         | 3         | 12         | 2          | 5          | 3              | 400                |
| 1989                   | 102 (9)           | 124             | 91          | 20         | 9          | 4         | 8          | 1          | 9          | 4              | 372                |
| 1990                   | 63 (4)            | 104             | 82          | 5          | 7          | 5         | 5          | 1          | 14         | 4              | 290                |
| 1991                   | 90 (9)            | 105             | 96          | 13         | 8          | 3         | 13         | 0          | 19         | 2              | 349                |
| 1992                   | 73 (5)            | 132             | 90          | 16         | 14         | 2         | 12         | 0          | 14         | 6 (1)*         | 359                |
| 1993                   | 68 (1)            | 122             | 95          | 8          | 4          | 8         | 16         | 2          | 10         | 13             | 346                |
| 1994                   | 58 (14)           | 105             | 90          | 7          | 4          | 3         | 15         | 0          | 16         | 14 (1)^        | 312                |
| 1995                   | 263 (15)          | 140             | 114         | 12         | 8          | 1         | 23         | 3          | 15         | 18             | 597                |
| 1996                   | 257 (13)          | 104             | 101         | 8          | 9          | 2         | 14         | 3          | 20         | 12             | 530                |
| 1997                   | 780 (51)          | 155             | 118         | 7          | 17         | 4         | 15         | 2          | 18         | 11             | 1127               |
| 1998                   | 447 (27)          | 126             | 109         | 8          | 11         | 1         | 6          | 0          | 19         | 16             | 743                |
| 1999                   | 334 (25)          | 103             | 71          | 3          | 11         | 3         | 8          | 1          | 14         | 13             | 561                |
| 2000                   | 330 (23)          | 105             | 60          | 1          | 2          | 4         | 6          | 1          | 9          | 4              | 522                |
| 2001                   | 263 (22)          | 111             | 93          | 2          | 3          | 1         | 8          | 0          | 4          | 5              | 490                |
| 2002                   | 186 (12)          | 99 (1)          | 53          | 7          | 2          | 2         | 9          | 1          | 8          | 9              | 376                |
| 2003                   | 229 (23)          | 137             | 72          | 0          | 11         | 1         | 4          | 1          | 9          | 10             | 474                |
| 2004                   | 311 (20)          | 141             | 70          | 3          | 13         | 6         | 11         | 0          | 6          | 10             | 571                |
| 2005                   | 245 (15)          | 132             | 66          | 3          | 12         | 2         | 5          | 1          | 10         | 4              | 480                |
| 2006                   | 273 (15)          | 105             | 70          | 4          | 13         | 1         | 2          | 1          | 8          | 5              | 482                |
| 2007                   | 315 (22)          | 132             | 97          | 1          | 16         | 3         | 5          | 0          | 9          | 3              | 581                |
| 2008                   | 337 (17)          | 143             | 76          | 1          | 10         | 2         | 5          | 1          | 9          | 11             | 595                |
| 2009                   | 311 (14)          | 133             | 90          | 1          | 12         | 5         | 4          | 1          | 7          | 9              | 573                |
| 2010                   | 200 (14)          | 103             | 63          | 0          | 14         | 1         | 6          | 1          | 9          | 10             | 407                |
| 2011                   | 204 (11)          | 87              | 51          | 1          | 9          | 1         | 2          | 0          | 8          | 5              | 368                |
| 2012                   | 221 (9)           | 98              | 54          | 2          | 7          | 0         | 4          | 0          | 7          | 9              | 402                |
| <b>Total 1988-2012</b> | <b>6029 (395)</b> | <b>3011 (1)</b> | <b>2082</b> | <b>148</b> | <b>242</b> | <b>68</b> | <b>218</b> | <b>23</b>  | <b>276</b> | <b>210 (2)</b> | <b>12307 (398)</b> |

\* Horse

^ Llama

Lagomorphs include: rabbit and pika

Other domestic include: alpaca, burro, cattle, goat, horse, llama, mule, pig, sheep, zebra

Rodents include: beaver, chinchilla, chipmunk, degu, gerbil, gopher, hamster, marmot, mouse, muskrat, nutria, porcupine, prairie dog, rat, squirrel, vole, woodchuck

Other wild include: badger, bear, bison, bobcat, cougar, coyote, deer, fox, kinkajou, lynx, marten, mink, mole, monkey/non-human primate, ocelot, opossum, otter, seal, shrew, sugar glider, weasel, wolf, wolf-hybrid, zarilla (striped polecat)



### Rabies

#### **Post-Exposure Prophylaxis (PEP)**

Rabies vaccination should be administered according to the most current Advisory Committee on Immunization Practices (ACIP) recommendations. The July 2009 provisional recommendations to reduce the number of rabies vaccine doses given in the PEP series from 5 to 4 doses for unvaccinated persons who are immunocompetent. The Centers for Disease Control and Prevention (CDC) adopted these recommendations in March 2010 (<http://www.cdc.gov/mmwr/PDF/rr/rr5902.pdf>). Additional ACIP recommendations are at: <http://www.cdc.gov/mmwr/PDF/rr/rr5703.pdf>.

**The appropriate protocol for rabies post-exposure prophylaxis depends on the exposed patient's previous rabies vaccination history:**

For people who have **never** been vaccinated against rabies:

- One dose (20 IU/kg) of human rabies immune globulin (HRIG) is administered on day 0. If anatomically feasible, the full dose of HRIG should be thoroughly infiltrated into the wounds and surrounding tissues, such as the area of the face that was bitten. Any remaining volume should be injected intramuscularly at a site distant from vaccine administration; typically the deltoid muscles are reserved for vaccine and not used for administering HRIG. Use a sufficiently long needle to assure intramuscular injections. HRIG should never be administered in the same syringe or in the same anatomical site as vaccine.

#### **AND one of two vaccine options:**

- For immunocompetent persons only: **four** doses of cell culture rabies vaccine at 1 mL/dose administered intramuscularly in the deltoid muscle on days 0, 3, 7, and 14. Alternating deltoid sites may be more comfortable for the patient. The anterolateral aspect of the upper thigh can be used in infants/young children. Use a sufficiently long needle to assure intramuscular injections. Do not administer in the gluteal region due to potential for diminished immunologic response.

For persons who are immunosuppressed (see definition below\*): **five** doses of cell culture rabies vaccine at 1 mL/dose administered intramuscularly in the deltoid muscle on days 0, 3, 7, 14, and 28. The anterolateral aspect of the upper thigh can be used in infants/young children. Use a sufficiently long needle to assure intramuscular injections. Administration of the vaccine should avoid the gluteal region due to potential for diminished immunologic response. After the fifth dose obtain one or more serum samples to test for rabies virus neutralizing antibody titers using rapid fluorescent focus inhibition test (RFFIT) to ensure an acceptable response has occurred. Titers can be obtained through:

- Kansas State University (785)-532-4298  
<http://www.vet.k-state.edu/depts/dmp/service/rabies/index.htm>
- Atlanta Health Associates (770)-205-9091 or (800)-717-5612  
<http://www.atlantahealth.net/>

#### **Resources**

- [Washington State Department of Health Rabies Page](#)
- [Washington State Department of Health Human Rabies Guidelines](#)
- [Washington State Department of Health Suspected Rabies Exposure Guidelines](#)