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West Virginia Rabies Surveillance - 2011

In 2011, 138 rabies-positive animals were identified in West Virginia. This is an increase from 2010, when there were 98 rabies-positive animals confirmed. 123 rabies-positive animals were documented in 2009.

Rabies is a virus that affects the nervous system and is nearly always fatal once clinical signs appear. Most often the rabies virus is transmitted from saliva through the bite of an infected animal. While the annual global disease burden of rabies results in approximately 55,000 deaths worldwide, the number of human rabies cases in the United States has drastically decreased since the 1950's. This is mainly due to vaccination of companion and livestock animals for rabies, as well as the development of human rabies vaccine and immunoglobulin. Rabies is now a relatively rare disease of humans in the U.S., with approximately 2-3 cases diagnosed in the each year.

Raccoons and skunks are the most common rabies vectors in West Virginia.

Most cases of animal rabies in the U.S. now occur in wildlife. Therefore,

*(See **Rabies**, page 2)*

IN THIS ISSUE:

Office of Epidemiology & Prevention Services

HIV/AIDS Surveillance & Prevention	(304) 558-2195
Cancer Epidemiology	(304) 356-4953
Infectious Disease Epidemiology	(304) 558-5358
Immunization Services	(304) 558-2188
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West Virginia Bureau for Public Health
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Earl Ray Tomblin, Governor
Michael J. Lewis, Secretary (DHHR)

(*Rabies*, *continued from page 1)*

surveillance is important to monitor for changes in rabies epidemiology, including the geographic spread of particular rabies virus variants. Passive rabies surveillance in West Virginia includes testing animals that have exposed a person or domestic animal. Active rabies surveillance in WV involves both passive surveillance and testing of animals that are found dead, sick acting, or have other clinical signs of rabies. The United States Department of Agriculture (USDA), Wildlife Services (WS) conducts much of the active surveillance in WV and focuses on particular "high-risk" animal species for rabies. These animals include raccoons, skunks, foxes, and coyotes.

The following tables illustrate 2011 rabies surveillance data in West Virginia.

Animals Tested for Rabies by Laboratory

Laboratory	Number of Animals Tested
Office of Laboratory Services (OLS)	679
United States Department of Agriculture laboratory (USDA)	1,016
Total	1,695

Animals Tested for Rabies by Reason

Reason for Testing	Number Tested	Number (%) Rabies-Positive
Human Exposure	421	22 (5)
Pet/Domestic Animal Exposure	156	61 (39)
Surveillance or Other Reasons	1,118	55 (5)

Positive Animal Rabies Cases by Species

Animal Species	Number Positive for Rabies
Raccoon	74
Skunk	40
Fox	6
Cat	8
Bobcat	2
Cow	2
Bat	4
Beaver	1
Otter	1
Dog	0
Total	138

In West Virginia, most animal rabies cases are found in the eastern portion of the state and are raccoon-strain rabies. Efforts to prevent the westward spread of raccoon-strain rabies focus heavily on the distribution of oral rabies vaccine to vaccinate raccoons against rabies. These vaccines are distributed as baits during the fall by USDA, WS throughout the middle portion of the state. Surveillance is conducted on either side of the bait zone to monitor rabies epidemiology and determine correct placement of future baits. Also in 2011, USDA, WS conducted a vaccine field trial in West Virginia to test the efficacy of new vaccine in hopes that it will provide better vaccine coverage in raccoons and other wildlife species. There are plans for the vaccine field trial to continue in 2012.

Other rabies resources including surveillance data (updated monthly) and brochures on active surveillance and rabies can be found on the DIDE rabies webpage: http://www.dhhr.wv.gov/oeps/disease/Zoonosis/Rabies/Pages/Rabies.aspx

Immunization Grant Surveillance Indicator End-of-Year Progress Report - 2011

The Centers for Disease Control and Prevention (CDC)-funded Immunization and Vaccines for Children Grant provides goals for vaccine-preventable disease (VPD) surveillance for the state of West Virginia. CDC requests a mid-year and end -of-year report on our progress on the surveillance indicators listed in the tables below. This document contains the results of the 2011 end-of-year progress report.

Overall, we did reasonably well with the individual surveillance indicator completeness for our 2011 reporting efforts. We met all of the listed individual surveillance indicator targets except for the two related to meningococcal disease. Only 9/11 meningococcal cases (82%) had complete vaccine history and 9/11 (82%) had complete serogroup information. One additional case had an isolate OLS was unable to serotype. CDC requests that 90% of meningococcal cases have complete vaccination history and known serogroup. Serogroup data were missing from two cases diagnosed out-of-state and missing vaccine history was attributed to inability to contact the case patient in one instance.

CDC also requests that we have complete surveillance indicator information for 90% of certain VPD cases. We did not meet this goal in 2011. Overall, only 114/145 (79%) of our VPDs had complete surveillance indicator information. In addition, ten pertussis cases were reported as having had pertussis vaccine before symptom onset, but vaccination dates were missing for these cases. Eight out of ten of these cases (80%) were in children who should have more readily accessible vaccination records than adults. If these cases were removed from the complete surveillance indicator calculation, only 72% of our 2011 VPD cases would be considered to have complete surveillance indicator information. Missing surveillance indicator information is summarized below, and tables outlining surveillance indicator completeness for each VPD reported in West Virginia in 2011 are attached at the end of this document.

Missing surveillance indicator data consists of missing race and/or ethnicity information for pertussis and invasive Streptococcal pneumoniae (n=12), missing address information for pertussis (n=1), missing symptom onset date for pertussis and Haemophilus influenza (n=2), missing date of report to public health for pertussis (n=1), missing vaccination history for pertussis, meningococcal disease, and invasive Streptococcal pneumonia (n=17), missing laboratory testing information (including antibiotic sensitivity testing) for pertussis, meningococcal disease, and invasive Streptococcal pneumonia (n=18), and missing epidemiologic data for pertussis (n=19 unknown responses to “part of an outbreak”; n= 22 unknown responses to “epi-linked to another case”; n=3 cases without evidence of contact tracing).

While no single surveillance indicator stands out as the cause of incomplete data, West Virginia has a relatively low incidence rate of VPDs and small numbers of missing surveillance indicators add up over time and lower our data completion rate. Some tips for increasing our surveillance indicator completion in the future include:

- Asking cases (or their parent/guardian) to identify race and ethnicity during the interview process. Most people will not be offended by these questions. However, if someone asks why you need that information, explain that CDC uses it to identify groups who are at higher risk for disease so appropriate prevention efforts can be made. It is better to ask and have a case refuse to answer than mark it “Unknown” because you did not want to offend someone. If you are concerned that asking for this information may jeopardize your ability to complete your interview, ask these questions last.
- If a case (or their parent/guardian) cannot identify another epi-linked case, do not mark “Unknown” to reflect the fact that one must exist somewhere. With the exception of tetanus and influenza, VPDs are human

*(See **VPD Surveillance**, page 4)*

(***VPD Surveillance***, *continued from page 3)*

diseases and are contracted from another person in some manner. This question refers to known individuals from whom the case may have contracted their disease.

- If there is no identified outbreak occurring in your county/region at the time, do not mark "Unknown" to reflect the fact that an outbreak may exist. If an outbreak situation evolves, it is very easy to go back in and change a "NO" response to a "YES".
- Use available resources to obtain vaccination records for cases. If the information is not available in WVSIIS, these records may be obtained from a case's physician and/or school records. The state VPD epidemiologist is happy to assist in the effort to find vaccination records for VPD cases and can be reached at 304-558-5358.
- If you have problems obtaining records on laboratory testing performed in another state, the VPD epidemiologist may be able to help and can be reached at 304-558-5358.

A list of surveillance indicators for selected VPDs likely to be seen in West Virginia can be found on the Division of Infectious Disease Epidemiology's Vaccine-Preventable Disease webpage at: http://www.dhhr.wv.gov/oeps/disease/IBD_VPD/VPD/Documents/Surveillance%20Indicators%20for%20Selected%20Vaccine-Preventable%20Diseases.pdf and in the CDC's "Manual for the Surveillance of Vaccine-Preventable Diseases" at: http://www.cdc.gov/vaccines/pubs/surv-manual/index.html.

In the future, VPD investigations submitted for state review with incomplete surveillance indicator information will be returned to the submitter(s) for completion. If there is a valid reason for missing data, please indicate the reason(s) in the notes section of the WVEDSS form.

Surveillance Indicator Tables for Vaccine-Preventable Diseases (VPDs), page 4-7

Surveillance Indicators for Confirmed/Probable* Mumps Cases – 2011 (n=1)	**Percent complete in 2011**	**Missing data**
Demographics (Name, address, gender, race, ethnicity, date of birth)	100%	
Clinical Case Definition	100%	
Date of Symptom Onset	100%	
Date of Report to Public Health	100%	
Vaccination History	100%	
Hospitalization	100%	
Laboratory Testing	100%	
Transmission Setting	0%	Transmission setting was unknown
Epidemiologic Data – Outbreak Related	100%	
Epidemiologic Data – Epi-linked to Another Case	100%	
Epidemiologic Data – Contact Tracing Complete	100%	

*There were a few suspected cases, which should also include all above listed information.

Surveillance Indicators for Confirmed/Probable H. flu Cases – 2011 (n=2 in children < 5 years of age*)	**Percent complete in 2011**	**Missing data**
Demographics (Name, address, gender, race, ethnicity, date of birth)	100%	
Clinical Case Definition	100%	
Date of Symptom Onset	50%	1 patient lost to follow-up due to inaccurate contact information
Date of Report to Public Health	100%	
Vaccination History	100%	
Serotype	100%	
Specimen Source	100%	
Type of Infection	100%	

*Even though CDC only monitors completeness of data for children < 5 years of age, this information should be complete for all cases, regardless of age.

Surveillance Indicators for Confirmed/Probable Meningococcal Cases – 2011 (n=11)	**Percent complete in 2011**	**Missing data**
Demographics (Name, address, gender, race, ethnicity, date of birth)	100%	
Clinical Case Definition	100%	
Date of Symptom Onset	100%	
Date of Report to Public Health	100%	
Vaccination History	82%	1 patient never returned calls & the family member interviewed didn't know vaccination history
Serogroup	82%	We did not have serogroup data for patients diagnosed in FL and OH
Type of Infection	100%	

Surveillance Indicators for Confirmed/Probable Pertussis Cases – 2011 (n=103)	**Percent complete in 2011**	**Missing data**
Demographics (Name, address, gender, race, ethnicity, date of birth)	93%	7 missing race and/or ethnicity and/or address
Clinical Case Definition	100%	
Date of Symptom Onset	99%	1 missing
Date of Report to Public Health	99%	1 missing
Vaccination History	86%	14 missing all vaccination information, additional 10 missing dates of vaccination
Complications (including information on hospitalization, presence of whoop, post-tussive vomiting, and paroxysmal cough, apnea, chest x-rays for pneumonia, seizures and encephalopathy)	93%	7 missing at least one of the complications listed on left
Antibiotic Treatment	100%	
Laboratory Testing	99%	1 Unknown – you can ask the patient about testing if you don't have a lab report
Epidemiologic Data – Outbreak Related	82%	19 reported as Unknown
Epidemiologic Data – Epi-linked to Another Case	79%	22 listed as Unknown
Epidemiologic Data – Contact Tracing Complete	97%	3 have no evidence of contact tracing, if there are no contacts, please state this in the notes section

Surveillance Indicators for Confirmed Invasive *S. pneumonia* Cases – 2011 (n=28 in children < 5 years of age*)	**Percent complete in 2011**	**Missing data**
Demographics (Name, address, gender, race, ethnicity, date of birth)	82%	5 missing race and/or ethnicity
Clinical Case Definition	100%	
Date of Symptom Onset	100%	
Date of Report to Public Health	100%	
Vaccination History	96%	1 case was listed as Unknown
Type of Infection	100%	
Specimen Source	100%	
Underlying Medical Conditions	89%	3 missing: Note: None is an option
Antibiotic Sensitivity Profile	93%	2 missing
Capsular Type	93%	2 missing

*Even though CDC only monitors completeness of data for children < 5 years of age, this information should be complete for all cases, regardless of age.

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