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Bureau of Epidemiology & Public Health Informatics

Animal Rabies—Investigation and Surveillance

by Chelsea Raybern, MPH

As of April 12, 13 cases of animal rabies have been reported in Kansas: nine skunks, one bat, one cat, one dog, and one sheep (Table 1). Rabies is a highly fatal viral zoonosis and any mammal can get rabies. Wildlife serves as the primary source of infection; the skunk is the reservoir for rabies in Kansas. It is anticipated that as the weather warms up outside the number of rabies cases will continue to rise due to increased interactions between humans and animals with wildlife. It is important that local health investigators understand how to assess exposure and conduct rabies

Table 1: Rabies positive animals by county, Kansas, 2019

County	Bat	Cat	Dog	Sheep	Skunk	Total
Barton	0	0	0	0	2	2
Butler	0	0	0	0	1	1
Comanche	0	1	0	0	0	1
Ellsworth	0	0	0	1	0	1
Jefferson	0	0	0	0	1	1
Johnson	0	0	1	0	0	1
Marion	0	0	0	0	1	1
Saline	0	0	0	0	1	1
Scott	0	0	0	0	1	1
Sedgwick	1	0	0	0	1	2
Wichita	0	0	0	0	1	1
Total	1	1	1	1	9	13

contact investigations. Below are a few tips to assist local investigators after they receive report of an animal testing positive or unsuitable for rabies:

- Identify if any humans or animals were exposed to the “rabid” animal.** The rabies virus is found in the saliva and neural tissue of an infected animal. The common mode of transmission is through a *bite* from a rabid animal, but rabies transmission can occur through *non-bite* exposures.

 - **Bite exposure** – Any penetration of the skin by teeth.
 - **Non-bite exposures** – Contamination of fresh open wounds with saliva or neural tissue, contamination of mucous membranes (e.g., lining of the mouth or inside eyelids) with saliva or neural tissue, scratches from wildlife (e.g., skunk, raccoon, feral cat), and corneal and organ transplantations from humans infected with rabies.

Contact such as petting or handling an animal, or contact with blood, urine, or feces does not constitute an exposure. Once the material containing the virus is dry, the virus is considered noninfectious.
- Humans that have been exposed should receive rabies post-exposure prophylaxis (PEP).** Administration of PEP depends on the person’s rabies vaccination status.

 - **Previously unvaccinated and healthy persons** – human rabies immunoglobulin (HRIG) and four doses of rabies vaccine on day 0, 3, 7 and 14.
 - **Previously unvaccinated and immunocompromised persons** – HRIG and five doses of rabies vaccine on day 0, 3, 7, 14, and 28.
 - **Previously vaccinated persons** – two doses of rabies vaccine on day 0 and 3. HRIG should not be given.



HRIG should always be administered in a previously unvaccinated person that has been exposed, even if it was a non-bite exposure. HRIG can be given up to and including day 7 of the vaccination series.

- **The management of animals exposed to rabies is based on vaccination status and species type of the animal exposed.** Vaccination history will determine whether the animal needs to undergo a *45-day observation period* or *4- or 6-month quarantine (or euthanasia)*. Length of quarantine is species dependent (Table 2 – based off of the algorithm created by the Lawrence-Douglas County Health Department).

Table 2: Management of Animals Exposed to Rabies

Animal Vaccination Status	Animal Type	Recommendation	
Currently Vaccinated	Dog, Cat, Ferret, Horse, Cattle, Sheep	<ul style="list-style-type: none"> • Booster (w/in 96 hours of exposure*) • Observe 45 days 	
Overdue for Vaccination	Dog, Cat	With appropriate documentation	<ul style="list-style-type: none"> • Booster (w/in 96 hours of exposure*) • Observe 45 days
		Without appropriate documentation	<ul style="list-style-type: none"> • Consult with KDHE (required) prior to booster w/in 96 hours of exposure* – Prospective Serological Monitoring – Animal in quarantine until results available <p>OR</p>
	Ferret, Horse, Cattle, Sheep		With appropriate documentation
		Without appropriate documentation	<ul style="list-style-type: none"> • Euthanize • 6-month quarantine
Never Vaccinated	Dog, Cat	<ul style="list-style-type: none"> • Euthanize • OR • Booster (w/in 96 hours of exposure*) • 4-month quarantine 	
	Ferret, Horse, Cattle, Sheep	<ul style="list-style-type: none"> • Euthanize • OR • 6-month quarantine 	

*If rabies booster vaccination is given >96 hours after exposure the observation OR quarantine period may be extended.

If an animal develops signs suggestive of rabies during the 45-day observation period or 4 or 6 month quarantine, it should be euthanized immediately and tested for rabies.

Interactive rabies data can be found at: <https://keap.kdhe.state.ks.us/Ephtm/PortalPages/ContentLanding> (click on “Environmental Exposures” then “Rabies Surveillance”). It provides maps that display counties for which animals have been tested for rabies by test result and counties for which animals have tested positive for rabies by species. In addition, static graphs are available that show all animal rabies testing results by animal species.

For any questions about rabies investigation or our rabies interactive surveillance page, please call the KDHE Epidemiology Hotline at 1-877-427-7317.



UPDATE EPITRAX DATA QUALITY INDICATORS

by Sheri Tubach, MPH MS

The Bureau of Epidemiology and Public Health Informatics has implemented a set of monthly quality indicators and performance measures to encourage data quality improvement in EpiTrax and timeliness of investigations. I am now calculating the performance measures of interview attempt and interview completion using either the report date to the LHD or the date the event was created in EpiTrax. The disease specific targets for interview initiation and interview completion can be found below. I hope that these performance measures will be more helpful in prioritizing case investigations.

For questions, contact Sheri Tubach at sheri.tubach@ks.gov

March 2019		State's Total Number of Cases* = 183
EpiTrax Indicators		
EpiTrax Field	Number of Cases with Field Completed	Percent Completed
Address City	182	99
Address County	183	100
Address Zip	181	99
Date of Birth	183	100
Died	173	95
Ethnicity†	163	89
Hospitalized	171	93
Occupation	117	64
Onset Date	148	94
Pregnancy††	77	81
Race †	166	91
Sex †	183	100
Persons Interviewed	134	73
Persons Lost to Follow-Up	15	8
Persons Refused Interview	3	2
Persons Not Interviewed	31	17
	Number of Cases	Percent of Cases
Interview was attempted within the target for each disease ^{^52}	72	56
Case investigations were completed within the target for each disease [^]	65	51

*Calculations do not include Hepatitis B - chronic, Hepatitis C - Chronic or acute, or Animal Rabies

** Out-of-state, discarded, deleted or those deemed to be not a case are not included in this calculation.

† Unknown considered incomplete.

†† Pregnancy completeness calculated on females only

[^] See the table below for interview attempt and completed case interview targets

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Disease Targets

Diseases	Disease Control (Days)*	Completed Case Investigation (Days)**
Anthrax; Botulism; Brucellosis; Cholera; Diphtheria; Hantavirus Pulmonary Syndrome; Hepatitis A; Influenza deaths in children <18 years of age; Measles; Meningitis, bacterial; Meningococemia; Mumps; Plague; Poliomyelitis; Q Fever; Rabies, human; Rubella; Severe acute respiratory syndrome (SARS); Smallpox; Tetanus; Tularemia; Viral hemorrhagic fever; Yellow fever	1	3
Varicella	1	5
Pertussis	1	14
Campylobacter infections; Cryptosporidiosis; Cyclospora infection; Giardiasis; Hemolytic uremic syndrome, post diarrheal; Hepatitis B, acute; Legionellosis; Listeriosis; Salmonellosis, including typhoid fever; Shigellosis; Shiga-toxin Escherichia coli (STEC); Trichinosis; Vibriosis (not cholera)	3	5
Arboviral disease (including West Nile virus, Chikungunya, and Dengue); Haemophilus influenzae, invasive disease; Streptococcus pneumoniae, invasive	3	7
Ehrlichiosis / Anaplasmosis; Lyme disease; Malaria; Spotted Fever Rickettsiosis	3	14
Hepatitis B, chronic; Hepatitis C, chronic; Hepatitis C, acute; Leprosy (Hansen disease); Psittacosis; Streptococcal invasive, drug-resistant disease from Group A Streptococcus; Toxic shock syndrome, streptococcal and staphylococcal; Transmissible spongiform encephalopathy (TSE) or prion disease	N/A	N/A

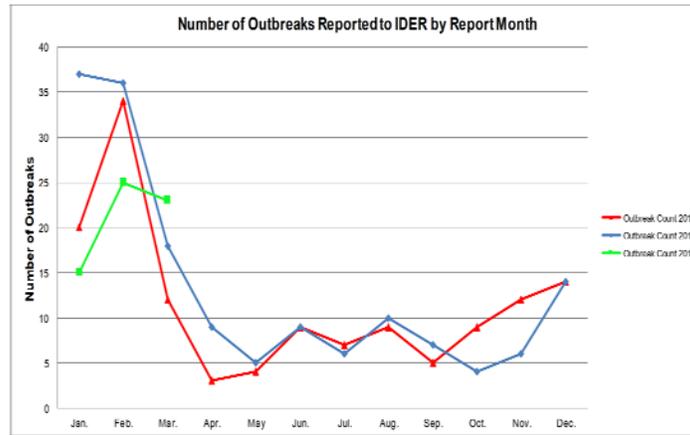
Monthly Disease Counts

Please refer to the Cumulative Case Reports of Diseases (http://www.kdheks.gov/epi_case_reports_by_county.htm) for current case count information.

***Disease Control:** Calculated by using EpiTrax Fields: **(Date LHD Investigation Started) OR (Call Attempt 1 date for Salmonellosis and STEC) - (Date Reported to Public Health) OR (Date Reported to KDHE)**

****Completed Case Investigation:** Calculated by using EpiTrax fields: **(Date LHD Investigation Completed) - (Date Reported to Public Health) OR (Date Reported to KDHE)**

Outbreaks Report



Date Reported	Facility Type	Transmission/Exposure	Disease/Condition	County
3/1/2019	School or college	Person-to-person	Norovirus	Harvey
3/4/2019	Adult care facility	Person-to-person	Respiratory Syncytial Virus (RSV)	Johnson
3/5/2019	School or college	Person-to-person	Influenza	Jefferson
3/5/2019	Adult care facility	Person-to-person	Respiratory Syncytial Virus (RSV)	Johnson
3/7/2019	Adult care facility	Person-to-person	Respiratory Syncytial Virus (RSV)	Johnson
3/7/2019	Adult care facility	Person-to-person	Rotavirus	Shawnee
3/11/2019	Adult care facility	Person-to-person	Influenza	Johnson
3/12/2019	Adult care facility	Person-to-person	Influenza	Butler
3/14/2019	Adult care facility	Person-to-person	Influenza	Dickinson
3/15/2019	Adult care facility	Person-to-person	Influenza	Miami
3/16/2019	Adult care facility	Person-to-person	Influenza	Sedgwick
3/19/2019	Restaurant	Food	Unknown Etiology	Johnson
3/20/2019	Adult care facility	Person-to-person	Influenza	Crawford
3/21/2019	Adult care facility	Person-to-person	Influenza	Johnson
3/24/2019	Adult care facility	Person-to-person	Influenza	Douglas
3/25/2019	Adult care facility	Person-to-person	Influenza	Anderson
3/25/2019	Hospital	Indeterminate/Other/Unknown	Unknown Etiology	Johnson
3/25/2019	Restaurant	Food	Unknown Etiology	Johnson
3/25/2019	Adult care facility	Person-to-person	Influenza	Sedgwick
3/26/2019	Adult care facility	Person-to-person	Unknown Etiology	Johnson
3/27/2019	Hospital	Person-to-person	Clostridium difficile	Wyandotte
3/28/2019	Adult care facility	Person-to-person	Influenza	Morton
3/28/2019	Other	Food	Shiga toxin-producing Escherichia coli	Sedgwick



Vaccine-Preventable Disease Surveillance Indicators

by Allison Zaldivar, MPH

The completeness and quality of specific surveillance indicators for vaccine-preventable diseases (VPDs) reported to the Kansas Department of Health and Environment (KDHE) from January 1 to March 31, 2019 can be found in the table below. As always, the bolded percentages represent the indicators that have less than 90% completion and the data presented in the chart is preliminary and subject to change.

Please note that there are two new indicators added in the table. Starting this quarter, the median number of days from case report to case acceptance, as well as median number of days from case report to investigation completion will be assessed for all reported VPDs. Acceptance and completion targets may be found below on the page labeled “Disease Targets.”

Keep up the good work! All indicators surpassed the 90% completion goal this quarter. Most indicators reached 100% completion! All median case acceptance and completion targets were met.

For questions regarding this data, please contact Allison Zaldivar at 785-368-8208 or Allison.Zaldivar@ks.gov.

VPD Indicators Reported during Quarter 1 (January 1 to March 31 2019) in Kansas

Indicators	<i>Haemophilus influenzae, invasive</i>	Meningococcal disease	Mumps	Pertussis	<i>Invasive Pneumococcal disease</i>	Varicella
Number of reported cases	20	1	1	31	91	34
% of cases with date of birth	100%	100	100%	100%	100%	100%
% of cases with gender	100%	100	100%	100%	100%	100%
% of cases with race	100%	100	100%	100%	99%	100%
% of cases with ethnicity	100%	100	100%	94%	97%	100%
% of cases with onset date [‡]	95%	100	100%	100%	95%	100%
% of cases with hospitalized noted	100%	100	100%	97%	99%	100%
% of cases with died noted	100%	100	100%	100%	99%	100%
% of cases with vaccination status*	100%	100	100%	100%	99%§	100%
% of cases with transmission setting [¶]	N/A**	N/A**	100%	100%	N/A**	100%
% of cases with completed symptom profiles	100%	N/A**	100%	100%	99%	94%
Median # of days from report to case acceptance (range) [†]	0	0	0	0	0	0
Median # of days from report to case completion (range)	2	0	0	2	0	2

Excludes cases with a State Case Status of “Suspect”, “Out of State”, or “Not a Case.”

[‡]Data is pulled from onset date field within the clinical tab, not the investigation tab.

*Unknown is considered a valid response if patient is older than 18 years of age.

**Indicator field is not included in supplemental disease form; Meningococcal disease does not have a clinical case definition.

§Indicator considered complete if either polysaccharide or conjugate pneumococcal vaccine history is documented.

¶Unknown is considered a valid response for this indicator

[†]Calculated using EpiTrax fields: (Date LHD Investigation Started) OR (Call Attempt 1 date) – (Date Reported to Public Health)

^{||}Calculated using EpiTrax fields: (Date LHD Investigation Completed) – (Date Reported to Public Health)