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Answers to Frequently Asked Questions about Varicella Case Investigations

by Charles Cohlma

In 2013, a total of 456 cases of varicella, commonly known as chickenpox, were reported to the Kansas Department of Health and Environment (KDHE). Of these reported cases, 411 (90%) were in children under 15 years old, and 148 (over 32%) cases were outbreak-associated. Vaccination remains the best method of prevention with the Centers for Disease Control and Prevention (CDC) recommending two doses of varicella vaccine for children, adolescents, and adults. A timely response to case reports can be the difference between isolated cases and outbreaks. Below are answers to frequently asked questions about varicella case investigations.

- **At what point do we notify the state of a case of varicella?**
 - * Varicella is a reportable disease. State regulations require cases or suspect cases to be reported within seven days, but immediate reporting of a suspect case is preferred. Cases may be reported via KDHE's epidemiology hotline (877-427-7317) or by fax (877-427-7318).
- **Once we have a diagnosed case of varicella, who should be excluded? What defines a susceptible contact?**
 - * Most cases of varicella occur in school-aged children or children who attend day care. When considering a suspected, probable, or confirmed case of varicella, check into the close contacts of the individual. In school settings, individuals who are in the same class would be considered contacts. Contacts of older children who have hourly school schedules may not be as clear. Please consider contacts to be individuals who share a classroom with the infectious individual for greater than one hour. Contacts must show either proof of immunization with at least one varicella-containing vaccine or a record which indicates a history of disease in order to remain in a school or daycare setting. History of disease must come from a physician; a parental statement does not constitute a valid history of disease.
- **How long do cases and contacts need to be excluded?**
 - * Each infected person shall remain in isolation for six days after the first crop of vesicles appears or until the lesions are crusted, whichever comes first.
 - * Each susceptible person in a school, child care facility, or family day care home shall be either vaccinated within 24 hours of notification to the secretary or excluded from the school, the child care facility, or the family day care home until 21 days after the onset of the last reported illness in the school, the child care facility, or the family day care home.
- **Do I need to list all potential contacts in the "Contact" tab (classmates, playmates, household, etc.)?**
 - * No. The only contacts you need to enter into the contacts tab are susceptible contacts.

Kansas Department of Health & Environment

Bureau of Epidemiology &
Public Health Informatics

D. Charles Hunt, MPH,
State Epidemiologist
& Director, BEPHI

Lou Saadi, Ph.D., Deputy
Director & State Registrar

Sheri Tubach, MPH, MS,
Senior Epidemiologist

Daniel Neises, MPH
Senior Epidemiologist

Farah Ahmed, PhD, MPH,
Environmental Health Officer

Ingrid Garrison, DVM, MPH,
DACVPM, State Public
Health Veterinarian

Bonnie Liscek, MPS,
Director, Surveillance Systems
& *Epi Updates* Editor

Curtis State Office Building
1000 SW Jackson St.
Topeka, KS 66612
Email: epihotline@kdheks.gov
Epi Hotline: 877-427-7317
Fax: 1-877-427-7318

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- **Even if the case was not exposed in the school/day care setting, do you still need information regarding the school/day care?**
 - * Yes. When we are investigating a case, we need to keep in mind all settings in which the disease may be transmitted. By completing the section in the Epidemiological tab of the EpiTrax case, we can keep track of the number of cases in a specific setting. This allows us to easily identify outbreak situations and exclude susceptible contacts.
- **How many cases of varicella need to occur in the same setting before it is considered an outbreak?**
 - * An outbreak of varicella is defined as five or more probable or confirmed cases with epidemiologic linkage between them.
- **I have a case of varicella in a school/day care in my county. At what point should I send out a letter to parents?**
 - * This depends on the situation and is determined on a case-by-case basis. Please contact KDHE prior to drafting press releases, letters to parents, or other notifications. We can advise and assist you in this process.
- **Where can I get more information about varicella and disease investigation?**
 - * [KDHE Disease Investigation Guidelines](#)
 - * [KS-TRAIN: Varicella Webinar](#), Registration Code: epi2014

Budget Period 3 (July 2014 – June 2015), as of 10/6/14

Disease Reporting and Disease Control Performance Measures

by Daniel Neises, MPH

Public Health Emergency Preparedness Cooperative Agreement
Capability #13: Public Health Surveillance and Epidemiological Investigation

Selected Diseases:

Disease	Case Classification Criteria
Hepatitis A	confirmed
Salmonellosis	confirmed, excluding typhoid fever
<i>E. coli</i> , STEC	confirmed
Shigellosis	confirmed
Tularemia	confirmed and probable
Varicella	confirmed and probable
Botulism	confirmed, excluding infant botulism
Measles	confirmed
Meningococcal disease	confirmed
Pertussis	confirmed, with laboratory results

Disease Reporting: Proportion of selected disease reports received by a public health agency within the awardee-required timeframe. Calculated by using [EpiTrax fields](#):

$$\frac{(\text{Lab Test Date or Date Diagnosed – Presumptive}) - (\text{Date Reported to Public Health})}{\text{KDHE-required disease reporting timeframe}} \leq$$

Disease Control: Proportion of reports of selected disease for which initial control measures were initiated within an appropriate timeframe. Calculated by using [EpiTrax fields](#):

$$\frac{(\text{Date LHD Investigation Started}) - (\text{Date Reported to Public Health})}{\text{CDC-required timeframe}} \leq$$

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Disease Reporting

Disease	KDHE Required Timeframe	Statewide Received	Statewide Received On Time	%	% Change from Previous Month
Hepatitis A	7 days	1	1	100	-
Salmonellosis	7 days	151	149	99	-
<i>E. coli</i> , STEC	7 days	20	20	100	-
Shigellosis	7 days	13	13	100	-
Tularemia	7 days	5	5	100	-
Varicella	7 days	55	50	91	-3
Botulism	4 hours*	-	-	-	-
Measles	4 hours*	9	8	89	-
Meningococcal disease	4 hours*	-	-	-	-
Pertussis	4 hours*	43	34	79	-13

*Because EpiTrax does not capture time reported to public health, KDHE is allowed to "consider cases as immediately reported if the selected case event date and date of first report to a health department occur on the same date."

Disease Control

Disease	CDC Required Timeframe	Statewide Received	Statewide Investigated On Time	%	% Change from Previous Month
Hepatitis A	7 days	1	1	100	-
Salmonellosis	3 days	151	127	84	+1
<i>E. coli</i> , STEC	3 days	20	19	95	-5
Shigellosis	3 days*	13	11	85	+15
Tularemia	2 days	5	4	80	-20
Varicella	1 day*	55	44	80	+3
Botulism	1 day	-	-	-	-
Measles	1 day	9	9	100	-
Meningococcal disease	1 day	-	-	-	-
Pertussis	1 day*	43	33	77	+17

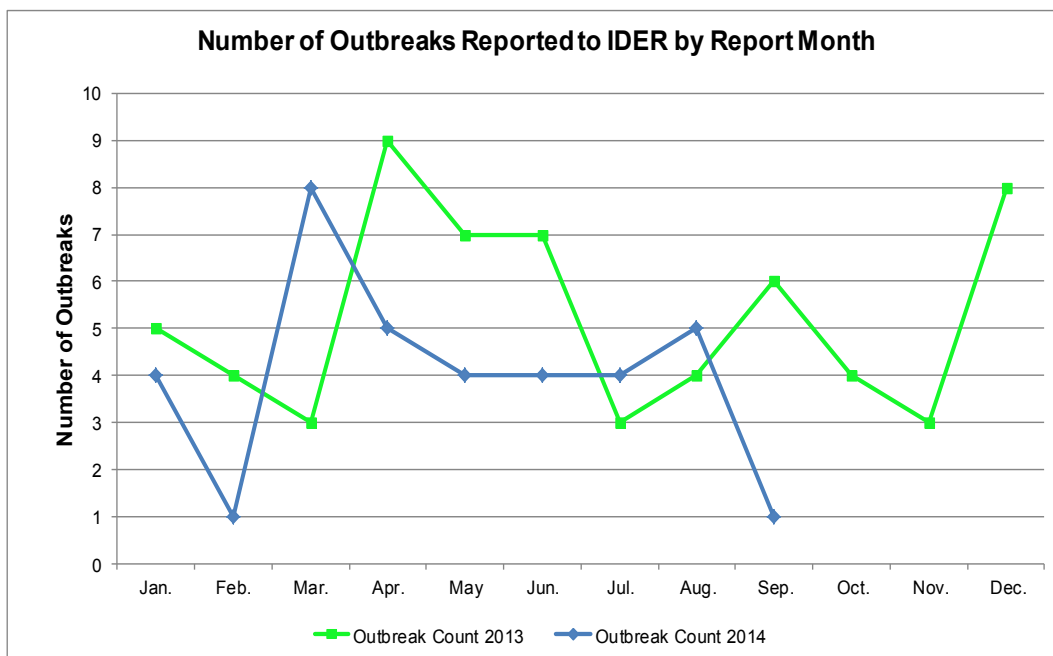
*Collecting data for these diseases is optional. KDHE has defined these timeframes, not CDC.

Pertussis Investigation and EpiTrax Training Webinars

Please join us on October 29, 2014 for this training. There will be two sessions: 9:00 a.m. -10:00 a.m. and 1:00 p.m. - 2:00 p.m.

This webinar will cover everything pertussis, including epidemiology of the disease, case and contact investigation, current regulations and recommendations, and entering information into EpiTrax.

Monthly Outbreak Summaries



Date Reported	Facility Type	Transmission	Disease	County
9/22/2014	Other	Person-to-Person	Pertussis	Ford

Bureau of Epidemiology and Public Health Informatics

Staff Updates

We would like to congratulate Sheri Tubach on her new role as Director of Infectious Disease Epidemiology and Response! Sheri holds both BS and MS degrees in Biochemistry and a MPH from Kansas State University. Sheri has been an epidemiologist with KDHE since 2007 and a senior epidemiologist at KDHE since 2011.

A big welcome to Anne Straily, our newest epidemiologist! Anne's background is in veterinary medicine and military public health. She attended Kansas State University for both undergrad and veterinary school. After veterinary school, Anne worked at a small animal clinic for 2.5 years before she joined the Air Force Reserve as a Public Health Officer and decided to return to grad school to pursue a Masters of Public Health. Anne finished her Masters of Public Health in May of this year and started at KDHE in July. She will be one of the vaccine-preventable diseases (VPD) epidemiologists. Her primary project is the Varicella School Surveillance Project, but she has also taken over the VPD Surveillance Quality Indicators.

Shannon Sandall is our new EpiTrax Coordinator. Shannon has been with KDHE since March of this year in an administrative support role. She is excited to take on the EpiTrax Coordinator position and to have the opportunity to get to know everyone at the Local Health Departments. Shannon's background is in education, and she is looking forward to being able to use that knowledge in her current position.

Vaccine-Preventable Disease Surveillance Indicators

By Anne Straily, DVM, 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 September 1 to September 30, 2014, can be found in the table below. The percentages in bold represent the indicators that have less than 90% completion. The case counts presented in this report are preliminary numbers and are subject to change.

New this month! Several measures have been added to the surveillance indicators, including completeness of symptom profiles, the percent of cases accepted within three days of report to the local health department (LHD), and the percent of cases with investigations completed within 14 days. The symptom profile data is pulled from the symptom information entered under the Investigation tab in EpiTrax. Symptom profiles were developed based on the symptoms necessary to meet the clinical case definition:

Measles: rash (yes/no), rash onset date, duration of the rash, fever (yes/no), and the highest measured temperature

Pertussis: cough (yes/no), cough onset date, duration of cough, paroxysmal cough (yes/no), inspiratory whoop (yes/no), posttussive vomiting (yes/no), and apnea (yes/no)

Varicella: rash (yes/no), rash onset date, characterization of the rash (macular/popular/vesicular), and rash location (generalized/focal)

Keep up the good work! The indicators date of birth, gender, race, and ethnicity were at least 90% completed for all VPDs reported from September 1 to September 30, 2014. All but one indicator (completed investigation within 14 days) was at least 100% complete for *Streptococcus pneumoniae* cases. The median number of days for LHD's to accept pertussis and varicella cases was zero, while the median number of days to accept *Haemophilus influenzae* and invasive *Streptococcus pneumoniae* was one. Over 95% of varicella cases and 100% of *Haemophilus influenzae* and *Streptococcus pneumoniae* cases were accepted within three days. At least 95% of varicella cases were completed within 14 days.

Still room for improvement... Only 81% of pertussis cases were accepted within three days. Less than half of the investigations for reported pertussis cases were completed within 14 days. The indicators for onset date, hospitalization, died, and vaccination status were less than 75% completed for pertussis and 82% complete for varicella. For pertussis and varicella cases only 57% of cases had transmission setting documented. Only 42% of varicella and 87% of pertussis cases had completed symptom profiles.

Please continue to focus on completing these fields in EpiTrax for all VPDs as the goal is to reach 90% or higher completion on all indicators. For questions regarding this data, please contact Anne Straily at (785) 296-5588 or astraily@kdheks.gov.

VPD Indicators Reported from September 1 to September 30, 2014 in Kansas

Indicators	<i>Haemophilus influenzae</i> , invasive	Pertussis	<i>Streptococcus pneumoniae</i> , invasive	Varicella
Number of reported cases	5	47	4	61
% of cases with date of birth	100%	96%	100%	98%
% of cases with gender	100%	100%	100%	100%
% of cases with race	100%	94%	100%	93%
% of cases with ethnicity	100%	95%	100%	90%
% of cases with onset date [‡]	80%	72%	100%	62%
% of cases with hospitalized noted	80%	72%	100%	79%
% of cases with died noted	80%	72%	100%	82%
% of cases with vaccination status*	100%	62%	100% [§]	66%
% of cases with transmission setting [¶]	N/A ^{**}	57%	N/A ^{**}	57%
% of investigations completed by local health departments within 14 days ^{§§}	80%	47%	75%	95%
% of cases accepted within 3 days of report to LHD ^{¶¶}	100%	81%	100%	95%
Median # of days from report to case acceptance (range) ^{¶¶¶}	1 (0-1)	0 (0-19)	1 (0-1)	0 (0-2)
% of cases with completed symptom profiles	N/A ^{**}	87%	N/A ^{**}	42%

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

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

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

[¶]Unknown is considered a valid response for this indicator.

^{**}Transmission setting and symptom profile are not evaluated for *S. pneumoniae* and *H. influenzae*.

^{§§}Status is calculated based on the date the local health department completes investigation.

^{¶¶¶}Time is from public health report date to when local health department accepts case.

Disease	Reported Disease Counts - September 2014						Grand Total	3 Year Avg. 2011-2013
	Not Available	Confirmed	Not a Case	Probable	Suspect	Unknown		
	Count	Count	Count	Count	Count	Count	Count	
Amebiasis (<i>Entamoeba histolytica</i>)	0	1	0	0	0	0	1	1
<i>Anaplasma phagocytophilum</i> (f. HGE)	0	0	3	0	0	0	3	2
Brucellosis	1	0	1	0	0	0	2	1
Campylobacteriosis	37	30	0	0	11	0	78	65
Carbapenem-resistant Enterobacteriaceae	0	0	0	0	0	5	5	0
Chikungunya Fever	2	0	0	0	1	0	3	0
Cryptosporidiosis	0	2	0	9	0	0	11	40
Dengue	0	0	1	0	0	0	1	2
Ehrlichiosis, <i>Ehrlichia chaffeensis</i> (f. HME)	3	0	1	1	0	0	5	5
Giardiasis	4	6	0	0	2	0	12	18
<i>Haemophilus influenzae</i> , invasive disease (Including Hib)	1	4	0	0	0	0	5	1
Hepatitis A	2	1	1	0	0	0	4	35
Hepatitis B virus infection, chronic	8	0	26	12	0	0	46	37
Hepatitis B, acute	0	0	5	1	0	0	6	5
Hepatitis C virus, past or present	107	31	63	1	3	0	205	168
Hepatitis C, acute	1	0	0	0	0	0	1	1
Histoplasmosis	0	0	0	0	1	0	1	0
Legionellosis	2	0	0	0	0	0	2	4
Lyme Disease (<i>Borrelia burgdorferi</i>)	7	0	4	0	1	0	12	40
Malaria (<i>Plasmodium spp.</i>)	0	1	0	0	0	0	1	1
Measles (rubeola)	1	0	3	0	1	0	5	1
Meningitis, Bacterial Other	1	0	0	0	1	0	2	2
Mumps	1	0	0	0	1	0	2	6
Non-Reportable Condition	1	0	0	0	0	0	1	0
Norovirus	0	0	2	0	0	0	2	1
Outbreak Case - Unknown Etiology	0	6	0	0	0	0	6	0
Pertussis	24	7	5	6	2	0	44	91
Q Fever (<i>Coxiella burnetii</i>), Acute	0	0	1	1	1	0	3	3
Rabies, animal	11	1	2	1	0	0	15	14
Rhinovirus/Enterovirus	1	0	2	0	0	0	3	0
Rubella	0	0	49	0	0	0	49	1
Salmonellosis	7	55	0	0	0	0	62	61
Shiga toxin-producing <i>Escherichia coli</i> (STEC)	2	2	0	0	4	0	8	12
Shigellosis	0	3	0	0	2	0	5	6
Spotted Fever Rickettsiosis (RMSF)	17	0	8	4	1	0	30	44
St. Louis encephalitis virus non-neuroinvasive disease	0	0	1	0	0	0	1	0
Streptococcal disease, invasive, Group A	0	1	1	0	0	0	2	3
<i>Streptococcus pneumoniae</i> , invasive disease	0	4	0	0	0	0	4	3
Toxic-shock syndrome (staphylococcal)	1	0	0	0	0	0	1	0
Transmissible Spongiform Enceph (TSE / CJD)	0	0	0	0	1	0	1	1
Tularemia (<i>Francisella tularensis</i>)	1	1	2	0	0	0	4	3
Varicella (Chickenpox)	29	6	17	12	0	0	64	64
Vibriosis (non-cholera <i>Vibrio</i> species infections)	1	0	0	0	0	0	1	0
West Nile virus neuroinvasive disease	3	0	1	2	0	0	6	8
West Nile virus non-neuroinvasive disease	28	1	26	13	6	0	74	62
Grand Total	304	163	225	63	39	5	799	814