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Immunization Coverage Assessment

by Charles Cohlma, MPH

The Kansas Department of Health and Environment (KDHE) Immunization Program conducts a yearly study to assess the immunization coverage rates of two-year-old children in Kansas, as well as the current coverage levels for children entering kindergarten. The assessments have gone through many changes to generate statistics which are more representative of the Kansas population and require less work and data submission from the individual schools. The sampling methodology for the 2014-2015 school assessment has changed, and many new levels of analysis have been added to the assessment.

In the past, schools submitted immunization records based on county and school type. Schools from larger counties, such as Sedgwick and Johnson, would submit fewer records from the total enrollment while smaller counties would need to send every record, causing an unequal distribution of the workload. A new sampling methodology developed in coordination with the CDC allowed for a new sampling scheme which more evenly distributed record submission. In this new sampling scheme, not all schools submitted records. Of the schools submitting records, the maximum number of records required was 30. While not all schools were required to submit immunization records, information regarding school enrollment and exemption information was collected from all Kansas kindergartens. With the alteration of the sampling scheme, it is important to note that all statistics calculated in the kindergarten and retrospective reports will not be comparable to the statistics calculated in years past.

The 2014-2015 Kindergarten Immunization Coverage Assessment is currently in the review process and will be posted online this fall on the [KDHE Immunization Program website](#).

Preliminary analysis of the 2014-2015 assessment has been completed. County coverage rates were calculated for all immunizations which are required for school entry including 5 doses of diphtheria, tetanus toxoids, and acellular pertussis vaccine (DTaP5); 4 doses of polio vaccine (Polio4); 2 doses of measles, mumps, and rubella vaccine (MMR2); 2 doses of varicella vaccine (Var2); and 3 doses of hepatitis B vaccine (HepB3). Coverage rates were also calculated for non-required vaccines, including 3 doses of *Haemophilus influenzae* type B vaccine (Hib3), 4 doses of pneumococcal conjugate vaccine (PCV4), and 2 doses of hepatitis A vaccine (HepA2). In the 2014-2015 kindergarten assessment, records were requested from 414 schools with 389 schools submitting a representative sample of 9,219 immunization records from public and private schools to determine up-to-date (UTD) status of Kansas kindergarteners. Statewide coverage levels at school entry for all required vaccines (DTaP5, Polio4, MMR2, Var2, and HepB3) were above 85%, with HepB3 having the highest coverage at 96.7%.

Additional analysis will be included in the 2014-2015 Kindergarten Immunization Coverage Assessment. One of the main additions to the analysis is the increase seen in immunization coverage rates in the 30 days following school entry. Commonly, schools utilize a brief window following the first day of school to allow students to get caught up on required immunizations. This window differs from school to school, but the increase in immunization coverage in this time period varies depending on stratification method, including school type (private vs. public), population density group (urban vs. moderately populated vs. sparsely populated), and school exclusion policy (excluding non-UTD children vs. not excluding non-UTD children). These stratifications are to be included in the 2014-2015 report with immunization coverage rates at school entry and 30 days after the first day of school. Additional analysis of vaccine exemptions by exemption type will be included in the report, including stratification by school type and county peer group classification.

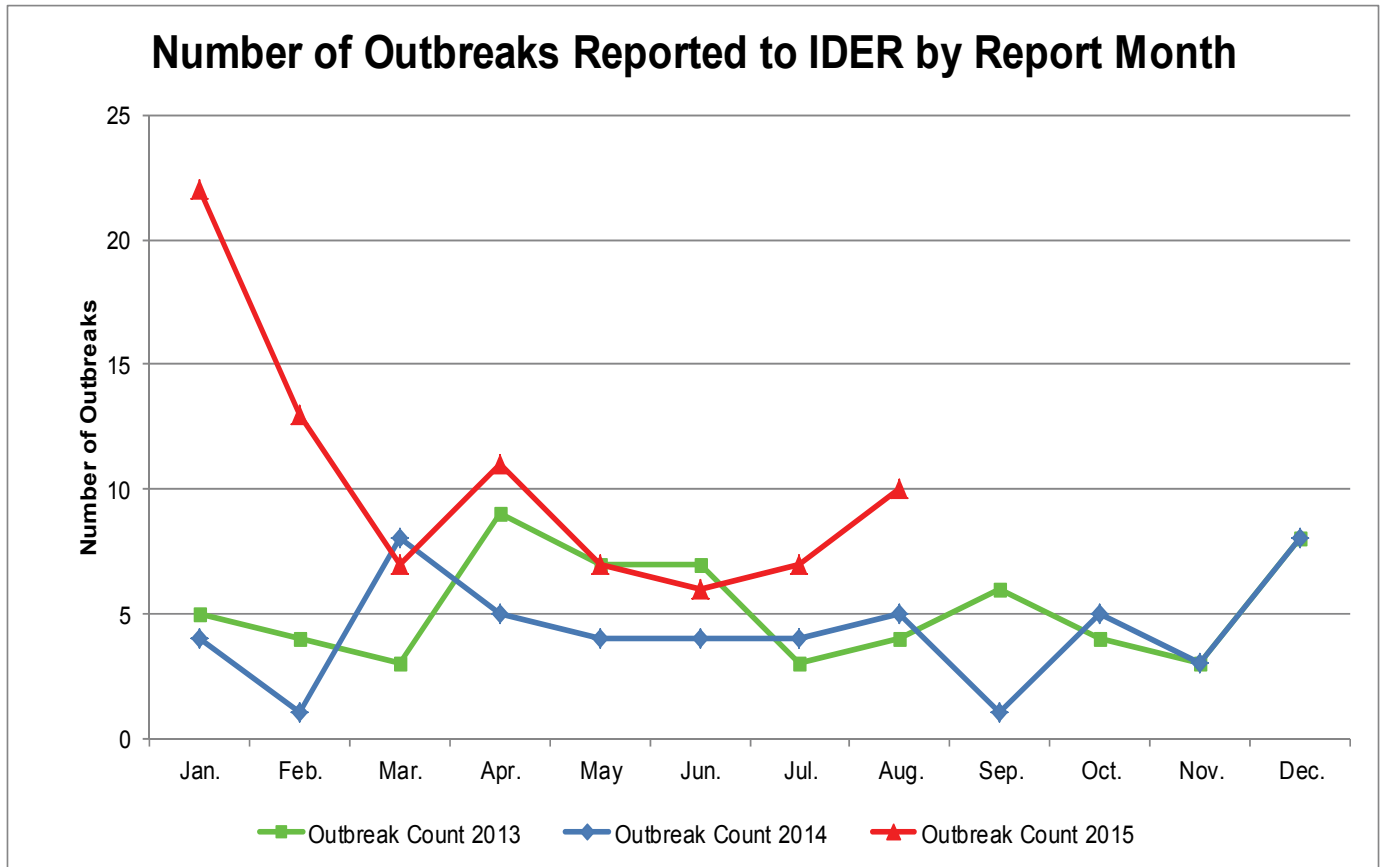
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Date Reported	Facility Type	Transmission	Disease	County
8/6/2015	Recreational water source	Water	Cryptosporidiosis	Multiple Counties
8/7/2015	Private home	Unknown	Campylobacteriosis	Wilson
8/17/2015	Restaurant	Food	Unknown Etiology	Geary
8/19/2015	Restaurant	Food	Unknown Etiology	Sedgwick
8/21/2015	Grocery store	Food	Unknown Etiology	Riley
8/24/2015	Unknown	Food	Salmonellosis	Multistate
8/26/2015	Unknown	Animal Contact	Salmonellosis	Multistate
8/26/2015	Child care center	Unknown	Shiga toxin-producing <i>Esche-</i>	Trego
8/27/2015	Restaurant	Food	Unknown Etiology	Shawnee
8/31/2015	Restaurant	Food	Unknown Etiology	Wyandotte

Kansas Disease Investigation Guideline Updates

The following disease guidelines have been reviewed and updated. They can be accessed at www.kdheks.gov/epi/disease_investigation_guidelines.htm.

- Arboviral (including WNV) Disease Investigation Guideline
- Highly Pathogenic Avian Influenza (HPAI) H5: Public Health Guidelines
- Malaria Investigation Guideline
- Pertussis Investigation Guideline
- Plague Investigation Guideline
- Tularemia Investigation Guideline



Vaccine-Preventable Disease Surveillance Indicators

by Mychal Davis, 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 August 1 to August 31, 2015, can be found in the table below. The bolded percentages represent the indicators that have less than 90% completion. The case counts presented in this report are preliminary numbers and are subject to change.

Keep up the good work! Almost all indicators were at least 90% complete for all pertussis cases reported, except for symptom profile information. Similarly, almost all indicators were 90% complete for *Streptococcus pneumoniae* cases, with the exception of onset date.

Still room for improvement... Varicella cases did not reach the 90% benchmark for completed onset date or transmission setting fields. Likewise, *Streptococcus pneumoniae* did not reach the 90% benchmark for onset date. Rubella case did not reach the 90% benchmark for vaccination status, transmission setting, symptoms profiles, or died noted fields. *Haemophilus influenzae* cases did not reach the 90% benchmark for date of birth, race, ethnicity, onset date, hospitalized noted, died noted, or vaccination status fields.

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 Mychal Davis at (785) 368-8208 or mda-vis@kdheks.gov.

VPD Indicators Reported from August 1 to August 31, 2015 in Kansas

Indicators	<i>Haemophilus influenzae</i> , invasive	Rubella	Pertussis	<i>Streptococcus pneumoniae</i> , Invasive	Varicella
Number of reported cases	3	1	54	6	15
% of cases with date of birth	67%	100%	91%	100%	93%
% of cases with gender	100	100%	100%	100%	100%
% of cases with race	33%	100%	93%	100%	93%
% of cases with ethnicity	33%	100%	91%	100%	93%
% of cases with onset date [‡]	33%	100%	91%	67%	80%
% of cases with hospitalized noted	67%	100%	98%	100%	93%
% of cases with died noted	33%	0%	98%	100%	93%
% of cases with vaccination status*	33%	0%	96%	100% [§]	93%
% of cases with transmission setting [¶]	N/A ^{**}	0%	94%	N/A ^{**}	87%
% of cases with completed symptom profiles	N/A ^{**}	0%	70%	N/A ^{**}	93%

*Excludes cases with a State Case Status of "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 considered complete if either polysaccharide or conjugate pneumococcal vaccine history is documented.

¶Unknown is considered a valid response for this indicator.

**Indicator field is not included in supplemental disease form; *S. pneumoniae* and *H. influenzae* do not have clinical case definitions.

§§ Status is calculated based on when local health department completes investigation.

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

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. The first column is the EpiTrax field. The second column represents the number of cases with data in the field, and the third column, Percent Completed, represents the frequency of completion of the data field in EpiTrax. The indicators in red text represent a decrease in the percent complete since last month. In order to align with preparedness targets for initiation of disease control measures and to set goals for case investigation completeness, targets for these measures are shown in the table below. We hope that these targets will help local health departments prioritize case investigations. For questions, contact Sheri Tubach at stubach@kdheks.gov.

August 2015		State's Total Number of Cases* = 401	
EpiTrax Indicators			
EpiTrax Field	Number of Cases with Field Completed	Percent Completed	
Address City	391	98	
Address County	401	100	
Address Zip	388	97	
Date of Birth	398	99	
Died	340	85	
Ethnicity†	329	82	
Hospitalized	342	85	
Occupation	151	38	
Onset Date	288	72	
Pregnancy††	133	65	
Race †	343	86	
Sex †	400	100	
Date LHD Investigation Started	293	73	
Date LHD Investigation Completed	258	64	
Persons Interviewed	266	66	
Persons Lost to Follow-Up	20	5	
Persons Refused Interview	10	2	
Persons Not Interviewed	105	26	
Performance Measures			
	Number of Cases	Percent of Cases	
Disease control measures began within the target for each disease [^]	262	65	
Case investigations were completed within the target for each disease [^]	123	31	

* Calculations do not include Hepatitis B - chronic, Hepatitis C – past or present, or 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 on the following page for disease control and case investigation targets.

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, postdiarrheal; Hepatitis B, acute; Legionellosis; Listeriosis; Salmonellosis, including typhoid fever; Shigellosis; Shiga-toxin <i>Escherichia coli</i> (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, past or present; 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

***Disease Control:** Calculated by using EpiTrax fields: **(Date LHD Investigation Started) – (Date Reported to Public Health)**

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

KDHE Disease Investigation Webpage

Kansas Training Modules

- [KS-TRAIN](#)
- [Disease Investigator Training](#)
- [EpiTrax Introductory Training](#)
- [Pentaho 5 Basic Training](#)

The Infectious Disease Epidemiology and Response (IDE&R) team is pleased to announce updates to its Disease Investigation webpage. The webpage has always been a valuable portal to the Disease Investigation Guidelines and EpiTrax resources; it can now be used to access KS-TRAIN courses promoted by IDE&R. The [Disease Investigator Training](#) link is available to support the basic training needs of the local communicable disease investigator.

Access these new web resources through http://www.kdheks.gov/epi/disease_investigation.htm.

Disease	Reported Disease Counts - August 2015							Grand Total	3 Year Avg. 2012-2014
	Not Available	Confirmed	Not a Case	Probable	Suspect	Unknown			
	Count	Count	Count	Count	Count	Count			
Campylobacteriosis	38	18	2	14	0	0	72	84	
Carbapenem-resistant Enterobacteriaceae	0	0	2	0	3	0	5	4	
Chikungunya Fever	1	0	0	1	0	0	2	1	
Coccidioidomycosis	1	0	0	0	0	0	1	0	
Cryptosporidiosis	9	23	0	13	1	0	46	13	
Cyclosporiasis	1	1	0	0	0	0	2	1	
Dengue	0	0	0	0	1	0	1	2	
Ebola Active Monitoring	6	0	0	0	0	0	6	0	
Ehrlichiosis, <i>Ehrlichia chaffeensis</i> (f. HME)	7	4	2	1	0	0	14	13	
Ehrlichiosis, <i>Ehrlichia ewingii</i>	0	1	1	0	0	0	2	1	
Ehrlichiosis/Anaplasmosis, undetermined	0	0	1	0	0	0	1	0	
Giardiasis	6	3	0	0	0	0	9	19	
<i>Haemophilus influenzae</i> , invasive disease	1	2	0	0	0	0	3	4	
Hepatitis A	0	0	5	0	0	0	5	21	
Hepatitis B virus infection, chronic	3	0	203	12	0	0	218	56	
Hepatitis B, acute	0	1	2	1	0	0	4	4	
Hepatitis C virus, past or present	98	55	78	0	6	0	237	220	
Hepatitis C, acute	0	1	0	0	0	0	1	2	
Hepatitis, viral other	1	0	0	0	0	0	1	0	
Legionellosis	4	0	0	0	0	0	4	6	
Lyme Disease (<i>Borrelia burgdorferi</i>)	10	1	11	1	1	0	24	38	
Measles (rubeola)	0	0	2	0	0	0	2	6	
Mumps	0	0	1	0	0	0	1	2	
Non-Reportable Condition	1	0	0	0	0	0	1	1	
Norovirus	0	0	2	0	0	0	2	2	
Pertussis	37	11	11	5	1	0	65	122	
Q Fever (<i>Coxiella burnetii</i>), Acute	1	0	0	0	0	0	1	1	
Rabies, animal	6	7	2	3	2	0	20	16	
Rubella	1	0	41	0	0	0	42	28	
Salmonellosis	11	58	1	1	1	0	72	62	
Shiga toxin-producing <i>Escherichia coli</i> (STEC)	10	8	5	0	7	0	30	16	
Shigellosis	4	9	0	0	2	0	15	8	
Spotted Fever Rickettsiosis (RMSF)	27	0	14	12	0	0	53	61	
Streptococcal disease, invasive, Group A	0	4	3	0	0	0	7	3	
<i>Streptococcus pneumoniae</i> , invasive disease	1	5	0	0	0	0	6	4	
Transmissible Spongiform Enceph (TSE / CJD)	1	0	0	0	0	0	1	1	
Tularemia (<i>Francisella tularensis</i>)	3	0	0	0	0	0	3	7	
Varicella (Chickenpox)	5	2	17	8	0	0	32	44	
Vibriosis (non-cholera <i>Vibrio</i> species infections)	3	0	0	0	0	0	3	0	
West Nile virus neuroinvasive disease	0	0	0	1	0	0	1	4	
West Nile virus non-neuroinvasive disease	6	0	23	3	1	0	33	56	
Yersiniosis	0	0	1	0	0	0	1	0	
Grand Total	303	214	430	76	26	0	1,049	933	