Bureau of Epidemiology & Public Health Informatics

Kansas Department of Health and Environment

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Capture-Recapture: Birth Certificate Matching to Find Infants Born to Hepatitis B Positive Mothers

By Elizabeth Lawlor, MS

Hepatitis B virus (HBV) infection in a pregnant woman poses a serious risk to her infant. Without postexposure immunoprophylaxis, approximately 90% of infants born to hepatitis B infected mothers will develop chronic HBV infection, and approximately one-fourth of whom will eventually die from chronic liver disease. Perinatal hepatitis B transmission (transmission from mother to infant) can be prevented by identifying hepatitis B infected pregnant women and providing hepatitis B immune globulin (HBIG) and hepatitis B vaccine to their infants within 12 hours of birth, as well as completing the hepatitis B vaccination series on time. Following the last does of hepatitis B vaccine, the infant should be tested for hepatitis B surface antibodies (anti-HBs) and the hepatitis B surface antigen (HBsAg).

Kansas currently identifies infants born to hepatitis B positive mothers through several methods, including following-up on birth certificates where the hospital has marked that the mother is hepatitis B positive, hospitals reporting when a hepatitis B pregnant woman gives birth, as well as following-up on hepatitis B positive labs in order to obtain pregnancy status for all women aged 12 -55 years (hepatitis B is a reportable condition under Kansas law, which also states that all pregnant women must be tested for hepatitis B during each pregnancy). The Centers for Disease Control and Prevention estimates that 150 Kansas infants are born to hepatitis B positive mothers each year, but from 2008–2012, Kansas only identified an average of 48 infants. This may be because not all physicians test for hepatitis B during each pregnancy (especially if the pregnant woman is known to be chronically infected with hepatitis B), and some physicians may not order the correct test.

In order to identify additional infants born to hepatitis B positive women, starting November 1, KDHE began matching birth certificates to all individuals reported to KHDE who have tested positive for hepatitis B, using a methodology called “capture-recapture.” The purpose of capture-recapture is to identify missed cases by taking two sets of records and determining where they overlap. For the Perinatal Hepatitis B Prevention Program (PHBPP) capture-recapture, all of the hepatitis B positive individuals in KDHE’s surveillance systems (EDSS/EpiTrax) are now being compared to all birth certificate records to identify women who have given birth and have previously tested positive for hepatitis B. During the development of the capture-recapture program, KDHE matched hepatitis B surveillance records with birth certificates from January 1, 2013 through November 1, 2013; 19 infants were identified as being born to mothers who had previously tested positive for hepatitis B, but were not reported to KDHE during their current pregnancy.

Local Health Department Follow-up: When these individuals are identified, a Hepatitis B Pregnancy Event CMR will be created in EpiTrax. When these events are assigned to your county, please contact the OB/GYN and obtain the most recent hepatitis B laboratory result and fax it to KDHE (or upload the laboratory result as an attachment to the case). Even if the laboratory result is negative, please submit it to KDHE. If the result is negative, no additional follow up is needed. However, if the result is positive, then follow-up of the infant will need to be performed. This includes informing the infant’s physician of the mother’s hepatitis B status, obtaining dates for HBIG administration and hepatitis B vaccinations, and ensuring the infant’s physician conducts post-vaccination serological testing (anti-HBs and HBsAg) 1-2 months following the last dose of vaccine, but no earlier than 9 months of age. For additional information, please visit the PHBPP website: http://www.kdheks.gov/immunize/phbpp.htm.

Out-of-State Routing

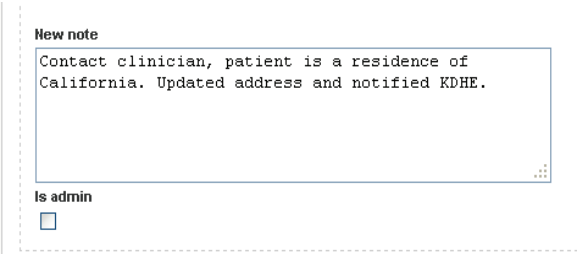
By Jodie Smith

You have spent the last few days entering information on contacts, exposures, and completing investigation forms only to find out that it is not for your jurisdiction. In fact, the patient does not even live in Kansas. What do you do next?

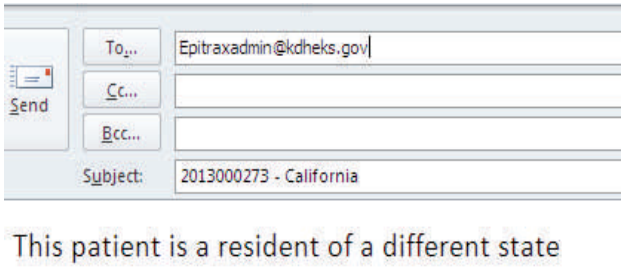
We do not want your hard work to be wasted; this is why we have established the Out-of-State routing process. Please review the steps below to help you understand how this process works.

1. You have verified that the patient does not reside in Kansas and will now need to indicate this information within EpiTrax. To do this, you will change the Demographic tab patient information. In the State field please reflect the current state of residence and mark the county as Unknown.

2. In the Notes section of EpiTrax, please indicate that you have changed the residence based on information you have received. If possible, please state the source of the information (e.g., Doctor verified that the patient lives in Colorado; changed address field, and submitted to EpiTrax Admin).



3. Next, you will notify KDHE by sending an email to EpiTraxAdmin@kdheks.gov. In the email subject line, please state the CMR record number and the correct state of residence (e.g., 2013559002 Colorado).



4. The EpiTrax Admin team will then submit the information from the CMR to the correct state, including any investigation information you have entered into EpiTrax.

This process will help foster our relationships with other states and ensure that your hard work will be recognized. We appreciate your help with this routing procedure!

Vaccine-Preventable Disease Surveillance Indicators

by Chelsea Raybern, 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 October 1 to October 31, 2013 can be found in the table below. The bolded percentages represent the indicators that have less than 90% completion. Changes have been made in how the completeness of two indicators are calculated: transmission setting and vaccination status. Initially, for completeness of indicators, fields that were marked as unknown or left blank were considered unanswered. Beginning with the surveillance indicators published in April 2013 for cases that were reported in March, unknown is considered a valid response for transmission setting and for vaccination status if the patient is older than 18 years. It is important to note that data reflected for the onset date indicator is pulled from the onset date field within the clinical tab in Epitrax, not within the investigation tab. The case counts presented in this report are preliminary numbers and are subject to change.

Keep up the good work! The indicators date of birth, gender, race, ethnicity, hospitalization, death, and vaccination status were completed for at least 90% of all VPDs reported from October 1 to October 31, 2013. Local health departments completed all indicators for the one measles case and completed at least 92% of all indicators for *Streptococcus pneumoniae* cases. All but two indicators (transmission setting and completed investigations) were at least 90% complete for the pertussis and varicella cases reported in October. The median number of days for local health departments to accept *Haemophilus influenzae*, *Streptococcus pneumoniae*, and measles cases was one.

Still room for improvement…Percent of completed investigations was less than 90% for more than half of the diseases (*Haemophilus influenzae*, pertussis, and varicella) reported in October. Transmission setting was completed for only 81% of pertussis cases and 75% of varicella cases. The median number of days for local health departments to accept pertussis and varicella cases was four with a range of zero to 26 days and zero to six days, respectively. The range number of days for local health departments to accept *Streptococcus pneumoniae* cases was zero to15.

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 Chelsea Raybern at (785) 296-0339 or craybern@kdheks.gov.

VPD Indicators Reported from October 1 to October 31, 2013 in Kansas

Indicators	*Haemophilus influenzae,* invasive	Measles	Pertussis	*Streptococcus pneumoniae,* invasive	Varicella
Number of reported cases	4	1	67	13	24
% of cases with date of birth	100%	100%	99%	100%	100%
% of cases with gender	100%	100%	99%	100%	100%
% of cases with race	100%	100%	94%	92%	100%
% of cases with ethnicity	100%	100%	91%	92%	96%
% of cases with onset date	**75%**	100%	90%	92%	100%
% of cases with hospitalized noted	100%	100%	93%	100%	100%
% of cases with died noted	100%	100%	94%	92%	100%
% of cases with vaccination status	100%	100%	90%	100%*	96%
% of cases with transmission setting	N/A§	100%	**81%**	N/A§	**75%**
% of investigations completed by local health departments¶	**75%**	100%	**72%**	100%	**83%**
Median # of days from report to case acceptance (range)‡	1 (1-2)	1 (1)	4 (0-26)	1 (0-15)	4 (0-6)

*Indicator is considered complete if either polysaccharide or conjugate pneumococcal vaccine history is documented.
§Indicator field is not included in supplemental disease form.
¶Status includes when local health department completes investigation, approves the case, or when the case is closed by state.
‡Time from public health report date to when local health department accepts case.

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
E. coli, STEC	confirmed
Shigellosis	confirmed
Tularemia	confirmed and probable
Varicella	confirmed and probable
Botulism	confirmed, excluding infant botulism
Measles	confirmed
Meningococcal disease	confirmed
Pertussis	confirmed

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

(Lab Test Date or Date Diagnosed – Presumptive) – (Date Reported to Public Health)
≤ KDHE required disease reporting timeframe

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

(Date LHD Investigation Started) – (Date Reported to Public Health)
≤ CDC required timeframe

Disease Reporting

Disease	KDHE Required Timeframe	Statewide Received	Statewide Received On Time	%	% change from previous month
Hepatitis A	7 days	8	8	100	0
Salmonellosis	7 days	181	178	98	0
E. coli, STEC	7 days	36	34	94	-2
Shigellosis	7 days	19	19	100	0
Tularemia	7 days	12	11	92	+1
Varicella	7 days	124	120	97	-1
Botulism	4 hours*	-	-	-	-
Measles	4 hours*	-	-	-	-
Meningococcal disease	4 hours*	-	-	-	-
Pertussis	4 hours*	76	62	82	+3

**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."*

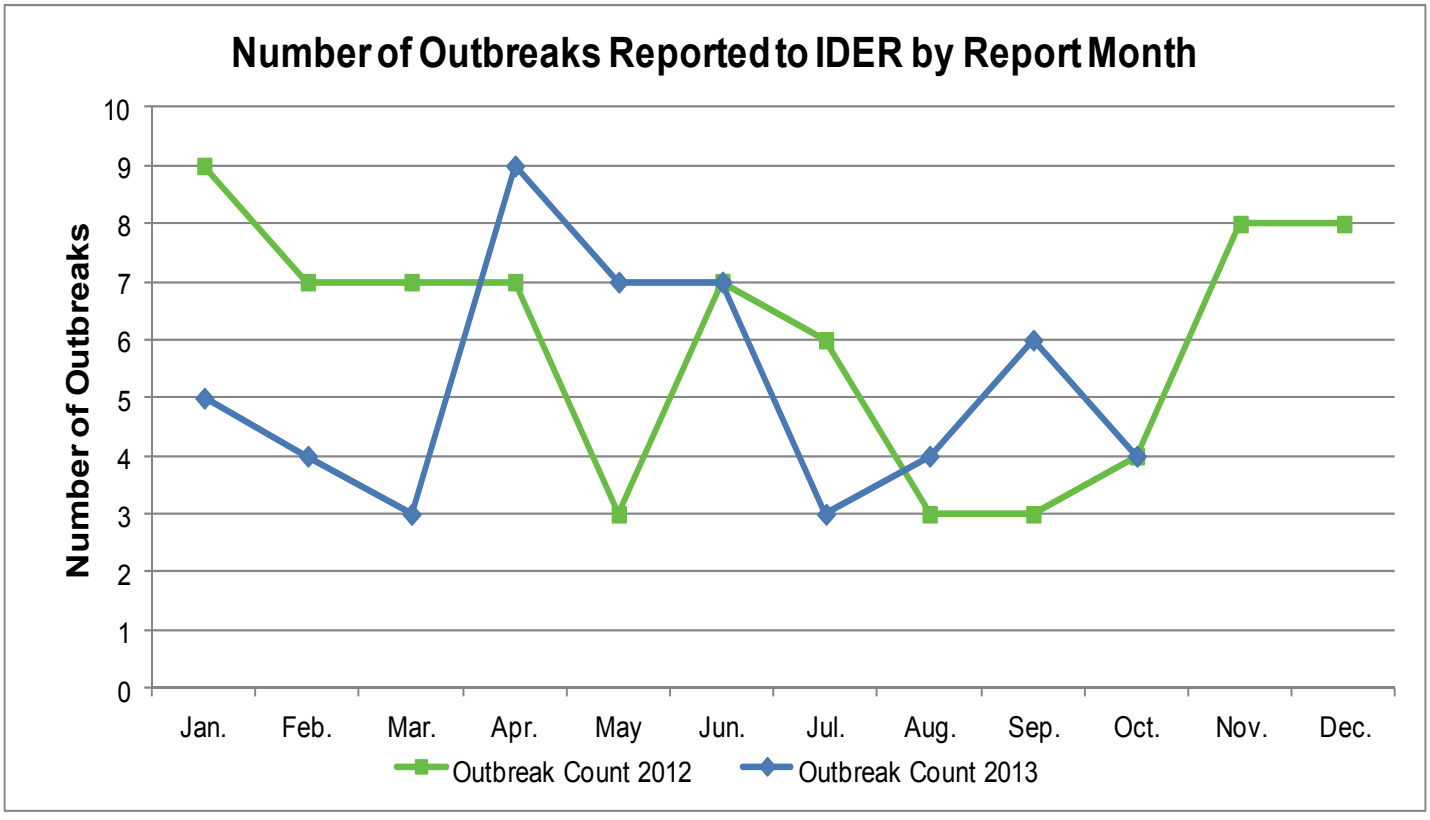
(Continued on page 5)

Disease Control

Disease	CDC Required Timeframe	Statewide Received	Statewide Investigated On Time	%	% change from previous month
Hepatitis A	7 days	8	8	100	0
Salmonellosis	3 days	181	148	82	-1
E. coli, STEC	3 days	36	22	61	+4
Shigellosis	3 days*	19	13	68	-1
Tularemia	2 days	12	11	92	-8
Varicella	1 day*	124	108	87	0
Botulism	1 day	-	-	-	-
Measles	1 day	-	-	-	-
Meningococcal disease	1 day	-	-	-	-
Pertussis	1 day*	76	70	92	-8

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

Monthly Outbreak Summaries



Facility Type	Organism	Transmission	County	Date Reported
Child Care Center	Hand, Foot and Mouth Disease	Person-to-Person	Sedgwick	10/9/2013
School or College	Pertussis	Person-to-Person	Leavenworth	10/12/2013
School or College	Pertussis	Person-to-Person	Finney	10/28/2013
School or College	Pertussis	Person-to-Person	Johnson	10/29/2013

Reported Disease Counts - October 2013

Disease	State Case Status: Not Available	Confirmed	Not a Case	Probable	Suspect	Grand Total	3 yr. Avg. 2010-2012
	Count	Count	Count	Count	Count	Count	
Amebiasis (*Entamoeba histolytica*)	1	0	0	0	0	**1**	**0**
Anthrax	1	0	0	0	0	**1**	**0**
Brucellosis	0	0	1	0	1	**2**	**1**
Campylobacteriosis	22	25	2	0	17	**66**	**54**
Cholera (*Vibrio cholerae*)	1	0	0	0	0	**1**	**0**
Coccidioidomycosis	0	1	0	0	0	**1**	**0**
Cryptosporidiosis	2	6	0	1	0	**9**	**12**
Dengue	0	0	0	1	0	**1**	**1**
Ehrlichiosis, *Ehrlichia chaffeensis* (f. HME)	0	2	6	4	0	**12**	**2**
Giardiasis	2	18	0	0	0	**20**	**12**
Haemophilus influenzae, invasive disease (Including Hib)	1	3	1	0	0	**5**	**2**
Hantavirus Infection	0	0	0	0	1	**1**	**0**
Hepatitis A	0	1	6	0	0	**7**	**37**
Hepatitis B virus infection, chronic	12	0	18	17	0	**47**	**47**
Hepatitis B, acute	1	0	5	1	0	**7**	**7**
Hepatitis C virus, past or present	70	56	46	0	8	**180**	**161**
Hepatitis C, acute	1	0	0	0	0	**1**	**1**
Hepatitis E, acute	0	0	1	0	0	**1**	**0**
Legionellosis	0	1	0	0	0	**1**	**3**
Lyme Disease (*Borrelia burgdorferi*)	22	2	25	2	1	**52**	**18**
Malaria (*Plasmodium spp.*)	0	0	0	0	1	**1**	**0**
Measles (*Rubeola*)	2	0	1	0	0	**3**	**1**
Meningitis, Bacterial Other	0	0	3	0	0	**3**	**2**
Mumps	2	0	2	0	0	**4**	**5**
Norovirus	0	1	0	0	0	**1**	**2**
Pertussis	35	17	6	6	11	**75**	**105**
Q Fever (*Coxiella burnetti*), Acute	0	0	0	0	1	**1**	**0**
Rabies, animal	3	1	3	0	2	**9**	**7**
Salmonellosis	5	35	0	0	0	**40**	**43**
Shiga toxin-producing *Escherichia coli* (STEC)	3	4	1	0	2	**10**	**14**
Shigellosis	0	3	0	0	1	**4**	**17**
Spotted Fever Rickettsiosis (RMSF)	11	0	9	11	0	**31**	**23**
St. Louis encephalitis virus non-neuroinvasive disease	0	0	3	0	0	**3**	**0**
Streptococcal disease, invasive, Group A	1	2	0	0	0	**3**	**2**
Streptococcus pneumoniae, invasive disease	1	12	1	0	0	**14**	**8**
Transmissible Spongioform Enceph (TSE/CJD)	1	0	0	0	0	**1**	**1**
Tularemia (*Francisella tularensis*)	2	0	0	0	0	**2**	**1**
Vancomycin-resistant *Staphylococcus aureus* (VRSA)	0	0	0	0	1	**1**	**0**
Varicella (Chickenpox)	3	1	13	21	0	**38**	**51**
West Nile virus neuroinvasive disease	1	0	0	10	0	**11**	**2**
West Nile virus non-neuroinvasive disease	16	0	22	15	1	**54**	**19**
Grand Total	**222**	**191**	**175**	**89**	**48**	**725**	**660**