



EPI UPDATES

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Increasing Awareness about Radon in Kansas: Overview of the 2014 Radon Action Month

By Henri Menager

Radon is a natural, tasteless, odorless, colorless, and radioactive gas produced from the decay of uranium found in nearly all soils. It enters homes through cracks in the foundation of homes and accumulates in basements, crawl spaces, and lower living areas of buildings. It can be found in the air, soil, and water.¹

According to the U.S. Environmental Protection Agency (EPA), radon is the second leading cause of lung cancer in the United States and the number one leading cause of lung cancer among non-smokers. It contributes to more than 20,000 lung cancer deaths per year in the United States. In addition, the lung cancer risk is much higher in smokers than in non-smokers.¹

It is estimated that one in every 15 homes in the U.S. has elevated radon levels. The EPA recommends fixing the home when a level of radon at or above four picocuries per liter (pCi/L) is found. About one out of every three radon measurements performed in Kansas are above the action level of 4 pCi/L. Elevated levels of radon have been detected in every county in the State. While radon problems may be more common in some areas than others (due to geology, types of constructions, and other factors), it is impossible to predict the radon level in a particular home without testing.

In 2013, under the leadership of the Environmental Public Health Tracking (EPHT) Program at the Kansas Department of Health and Environment (KDHE), Kansas participated, along with seven other states, in a project to concurrently update information about radon, lung cancer, and smoking and to widely share this information with the public. This initiative culminated with an enhanced awareness campaign during the 2014 National Radon Action Month (RAM) in January with the ultimate goal of increasing the number of homes tested and the number of homes with high levels of radon mitigated. The following is an overview of the activities held around the RAM activities.

The 2014 RAM activities included mainly the following:

1. Publication of a website with new data and maps on radon potential, lung cancer incidence, and smoking rates among adults;
2. Awareness campaign targeting public health professionals, homeowners, clinicians, and the public in general;
3. Free radon test kits distribution; and
4. Data collection on several aspects of radon testing in Kansas.

EPHT Radon Website

Completing this component of the project required an actualization of the radon potential map of Kansas originally created by the U.S. Geological Survey two decades ago. The Kansas Geological Survey (KGS) collaborated with the EPHT program and the Radon program at the Bureau of Environmental Health (BEH) at KDHE to produce a map of radon potential in Kansas based on geology and indoor air measurements. This map can be used at programmatic and policy development levels. It merely indicates

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what the average level of radon is expected to be in an area and cannot be used to estimate the radon level in an individual home.

Using data from the Kansas Cancer Registry (KCR), a map of the incidence of lung cancer in Kansas was created. In this map, counties were grouped into regions with a population large enough in order to generate stable statistics. Even though most of the incident lung cancers are caused by smoking, the problem is most likely to be worse if the population's exposure to radon is not controlled.

The third map presented an estimate of smoking prevalence in each Kansas county using modeled data from the Behavioral Risk Factor Surveillance System (BRFSS). This map can be used to encourage smoking cessation, as smoking increases the risk of lung cancer due to radon exposure. The website is located at: <http://keap.kdhe.state.ks.us/EPHT/portal/PPortal/ContentData.aspx>

Radon Awareness Campaign

For EPHT and BEH, the campaign started in early December of 2013 and took advantage of the national effort during January 2014. It included all media, electronic and printed, and covered all markets in the State. The basic message followed EPA's recommendations and can be summarized as follows:

- Test your home for radon — it's easy and inexpensive;
- Fix your home if your radon level is four pCi/L or higher; and
- Radon levels less than four pCi/L still pose a risk, and in many cases may be reduced.

On December 12, 2013, the EPHT epidemiologist in collaboration with the Kansas State University Radon Program staff presented at Kansas Public Health Grand Rounds on the importance of radon as an environmental hazard. The audience was mainly composed of public health professionals and environmental health students.

On December 20, 2013, the Governor of Kansas issued a proclamation declaring January 2014 as the Kansas Radon Action Month.

Free Radon Test Kit Distribution and Data Collection

The purpose of this activity was first to incentivize homeowners to test their homes and second to collect data on hindering and facilitating factors for radon testing of homes in the State. Due to the low number of houses tested in western part of the state, most of the efforts were concentrated in this area.

Testing a home involves setting up the test kit for two to seven days in the appropriate location and mailing the completed test to a designated laboratory for reading. Once the reading is completed the laboratory sends the result back to the homeowner or sender. Approximately, 2,200 test kits were distributed throughout the state from December 2013 to February 2014. As of April 8, 2014, BEH has received results for 1,298 of those test kits or 59%. The average level of all returned tests was 6.04 pCi/L, well above the EPA action level of four pCi/L. The range of test values was 0.3 to 162.5 pCi/L. As a reference, in the U.S., the average indoor radon level is estimated to be about 1.3 pCi/L, and about 0.4 pCi/L of radon is normally found in the outside air. ⁱⁱ More test results are expected, and a final analysis is expected late this year.

A survey of the free test kit participants is being administered currently. It is expected to provide more information the characteristics of the recipients and the reasons that facilitate or hinder radon testing in Kansas. This information may be helpful for future interventions.

In conclusion, based on the data collected during the 2014 Radon Action Month, radon gas in homes continues to be a serious health hazard in Kansas. BEH's efforts to increase awareness about radon during the 2014 Radon Action Month were very successful, thanks to effective collaboration between KDHE programs, partner agencies, and local partners. We hope to build on this momentum to increase overtime the proportion of homes tested for radon in the state and the proportion of homes found with elevated radon levels that have undergone mitigation.

ⁱ (EPA) Environmental Protection Agency. *EPA Assessment of Risks from Radon in Homes*. EPA 402-R-03-003. U.S. Environmental Protection Agency, Washington, DC, June 2003.

ⁱⁱ U.S. EPA. *A Citizen's Guide to Radon*. Accessed on 4/14/2014 at <http://www.epa.gov/radon/pubs/citguide.html>

West Nile Virus Surveillance in Kansas

by Amie Worthington

West Nile Virus (WNV) is the leading cause of domestically-acquired arboviral disease in the United States. The Kansas Department of Health and Environment (KDHE) began surveillance for WNV in 2001, and the first human case was reported in Kansas in 2002. This surveillance system has three main components: mosquito collection and identification, testing of mosquitoes for WNV, and reporting the results to public health partners.

Kansas has seen a sharp increase of human cases in the past two seasons, with 57 cases in 2012 and 92 cases in 2013. This is in comparison to an average of 16 cases during 2002—2011. The U.S. has seen similar increases in WNV cases. This increase of cases could be due to a confluence of ecological factors including higher than normal temperatures that may have influenced mosquito and bird abundance.¹

Since WNV first emerged in Kansas in 2002, Sedgwick County has historically had the most human cases of any county in our state. Therefore, mosquito surveillance efforts have been concentrated in Sedgwick County recently. The data are used as a proxy for mosquito activity for the entire state.

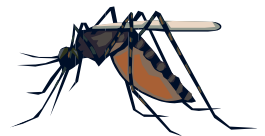
KDHE, the Sedgwick County Health Department (SCHD), and the Kansas Biological Survey (KBS) will collaborate for the second year for WNV mosquito surveillance. Mosquito surveillance is conducted at eight locations in the Wichita metropolitan area. Mosquito traps are set and collected weekly during the months of May through September. The *Culex* mosquitoes, the primary vector for WNV, are sent the Kansas Health and Environmental Laboratories to be tested.

KDHE will monitor human WNV through reports from physicians and laboratories. Mosquito and human surveillance results will be posted on the KDHE website weekly (http://www.kdheks.gov/epi/arboviral_disease.htm) and published monthly in the *Epi Updates* newsletter. Each state reports data to a national surveillance database called ArboNet (<http://www.cdc.gov/westnile/statsMaps/>). ArboNet maintains data on arboviral infections among presumptive viremic blood donors, veterinary disease cases, mosquitoes, and sentinel animals.

To encourage prevention measures, SCHD developed and distributed educational pocket cards. Code Enforcement inspectors distributed these pocket cards as part of their daily interactions with citizens. SCHD, with use of surveillance data, collaborated with the City of Wichita to target mitigation efforts.

Remember these preventative measures to protect yourself and your community as arboviral disease season approaches:

- Use insect repellent products containing DEET, picaridin, IR3535, and some oil of lemon eucalyptus, and para-menthane-diol on skin. Follow label directions.
- Empty standing water from tarps, old tires, buckets and other places where rainwater is trapped. Use larvicide in low-lying areas where water cannot be removed. Refresh water for bird baths, pet bowls, and wading pools at least every three days.



¹Kuehn, Bridget M. "Record Heat May Have Contributed to a Banner Year for West Nile Virus." *Jama* 308.18 (2012): 1846. Print.

Shipping Rabies Specimens

by Chelsea Raybern, MPH

It is that time of year again where we are seeing an increase in rabies cases! Just a reminder that the Kansas State Veterinary Diagnostic Laboratory (KSVDL) offers \$6.00 flat rate shipping labels that can be used to ship rabies specimens that are less than 15 lbs. These provide a guaranteed overnight delivery from anywhere in Kansas to KSVDL via UPS.

- To purchase these labels, contact KSVDL at (866) 512-5650.
- Labels should arrive in the mail one day after purchasing.
- When using these labels, make sure to ship your package via **UPS Ground**.
 - **Do not** select the overnight option—the specimen will be delivered overnight via UPS Ground even if the overnight option is not selected.
- Samples should be sent to:

Veterinary Diagnostic Laboratory/RABIES Laboratory
 College of Veterinary Medicine
 Kansas State University – VCS Building
 1800 North Denison Ave.
 Manhattan, KS 66506

Vaccine-Preventable Disease Surveillance Indicators—Quarterly Report

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 January 1 to March 31, 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.

Keep up the good work! The indicators date of birth and gender were completed for at least 92% of all VPDs reported from January 1 to March 31, 2014. Local health departments completed all indicators for the one meningococcal case, and all indicators were at least 94% complete for varicella cases except for transmission setting and completed investigations. More than half of the pertussis indicators (date of birth, gender, onset date, hospitalization, death, vaccination status, and transmission setting) were at least 92% complete.

Still room for improvement... Investigations were less than 90% complete for all reported VPDs except for the one meningococcal case. More than half of the *Haemophilus influenzae* indicators and *Streptococcus pneumoniae* indicators (race, ethnicity, onset date, hospitalization, death, vaccination status and completed investigations) were less than 90% complete.

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 January 1 to March 31, 2014 in Kansas[†]

Indicators	<i>Haemophilus influenzae</i> , invasive	Meningococcal Disease	Pertussis	<i>Streptococcus pneumoniae</i> , invasive	Varicella
Number of reported cases	12	1	98	45	68
% of cases with date of birth	92%	100%	98%	100%	99%
% of cases with gender	100%	100%	98%	100%	100%
% of cases with race	75%	100%	89%	84%	97%
% of cases with ethnicity	83%	100%	87%	82%	94%
% of cases with onset date [‡]	67%	100%	92%	80%	96%
% of cases with hospitalized noted	75%	100%	94%	87%	99%
% of cases with died noted	75%	100%	95%	87%	99%
% of cases with vaccination status ^{**}	67%	100%	94%	84%*	94%
% of cases with transmission setting ^{§§}	N/A [§]	N/A [§]	93%	N/A [§]	88%
% of investigations completed by local health departments ^{††}	75%	100%	84%	89%	84%

[†]Indicator regarding median (range) number of days from report to case acceptance is not included in this quarterly report due to some discrepancies that occurred during data extraction. This problem is being addressed.

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

[§]Indicator field was 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.

[‡]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.

^{§§}Unknown is considered a valid response for this indicator.

Disease	Reported Disease Counts - March 2014						Grand Total	3 Year Avg. 2011-2013
	Not Available	Confirmed	Not a Case	Probable	Suspect			
	Count	Count	Count	Count	Count	Count	Count	
Arboviral, other	1	0	0	0	0	1	0	
Brucellosis	0	0	2	0	0	2	0	
Campylobacteriosis	14	12	0	0	8	34	45	
Carbapenem-resistant Enterobacteriaceae	1	0	2	0	2	5	0	
Cryptosporidiosis	1	2	0	0	0	3	8	
Giardiasis	2	1	0	0	0	3	9	
<i>Haemophilus influenzae</i> , invasive disease (Including Hib)	1	3	0	0	0	4	5	
Hepatitis A	1	0	5	0	1	7	32	
Hepatitis B virus infection, chronic	7	0	53	28	0	88	33	
Hepatitis B, acute	1	0	9	1	0	11	8	
Hepatitis C virus, past or present	75	55	69	3	6	208	170	
Hepatitis C, acute	2	0	2	0	0	4	1	
Influenza	2	2	4	0	0	8	0	
Legionellosis	2	0	0	0	0	2	2	
Listeriosis	0	1	0	0	0	1	0	
Lyme Disease (<i>Borrelia burgdorferi</i>)	6	0	3	1	1	11	11	
Malaria (<i>Plasmodium spp.</i>)	0	3	0	0	0	3	0	
Meningococcal disease (<i>Neisseria meningitidis</i>)	1	0	0	0	0	1	1	
Mumps	1	0	0	0	0	1	4	
Norovirus	0	4	0	0	0	4	42	
Outbreak Case - Unknown Etiology	0	0	0	15	0	15	18	
Pertussis	19	5	2	4	3	33	52	
Q Fever (<i>Coxiella burnetii</i>), Acute	1	0	0	0	0	1	2	
Rabies, animal	5	3	1	0	0	9	17	
Rubella	0	0	83	0	0	83	2	
Salmonellosis	3	17	1	0	0	21	17	
Shiga toxin-producing <i>Escherichia coli</i> (STEC)	7	2	0	0	1	10	5	
Shigellosis	0	2	0	0	0	2	5	
Spotted Fever Rickettsiosis (RMSF)	2	0	4	1	0	7	5	
Streptococcal disease, invasive, Group A	0	5	0	0	1	6	5	
<i>Streptococcus pneumoniae</i> , invasive disease	2	4	0	0	1	7	11	
Varicella (Chickenpox)	16	1	8	9	0	34	53	
West Nile virus non-neuroinvasive disease	1	0	3	0	0	4	1	
Grand Total	174	122	251	62	24	633	565	

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](#):

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

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

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

Disease Reporting

Disease	KDHE Required Timeframe	Statewide Received	Statewide Received On Time	%	% change from previous month
Hepatitis A	7 days	10	10	100	0
Salmonellosis	7 days	275	269	98	0
<i>E. coli</i> , STEC	7 days	51	49	96	0
Shigellosis	7 days	26	26	100	0
Tularemia	7 days	14	13	93	0
Varicella	7 days	231	220	95	0
Botulism	4 hours*	-	-	-	-
Measles	4 hours*	-	-	-	-
Meningococcal disease	4 hours*	1	1	100	0
Pertussis	4 hours*	146	102	70	0

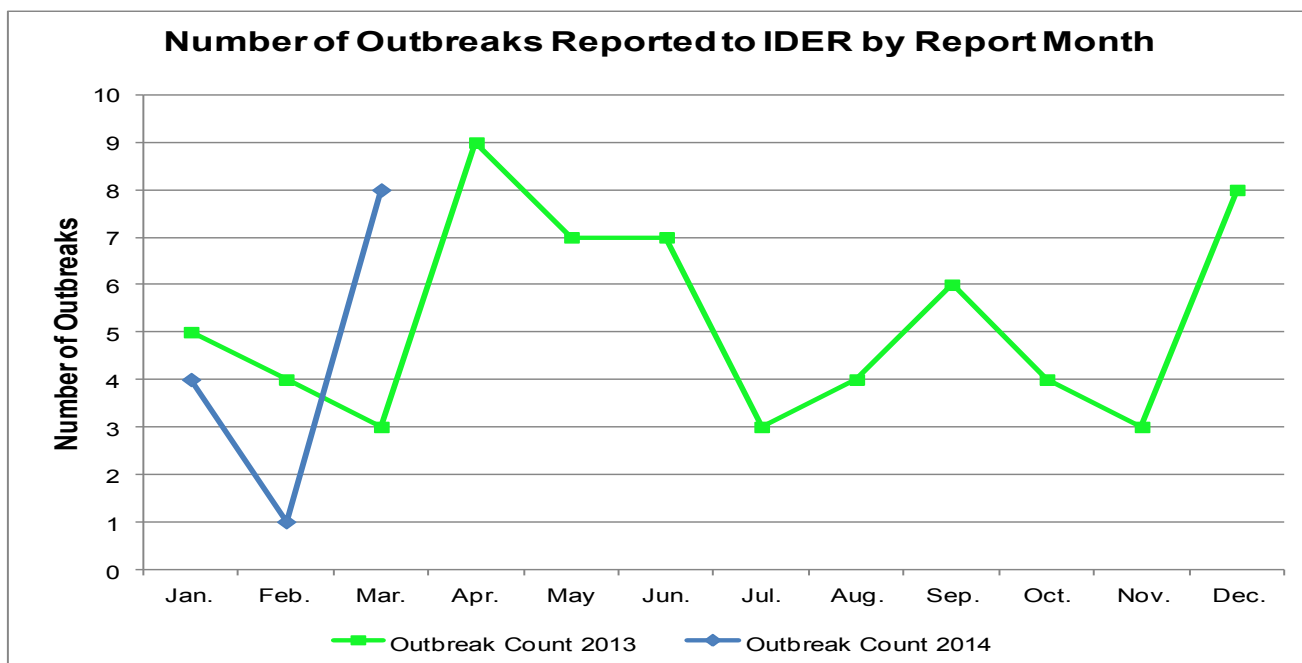
*Because EpiTrax does not capture time reported to public health, KDHE is allowed to "consider cases as immediately reported if the selected case event date and date of first report to a health department occur on the same date."

Disease Control

Disease	CDC Required Timeframe	Statewide Received	Statewide Investigated On Time	%	% change from previous month
Hepatitis A	7 days	10	10	100	0
Salmonellosis	3 days	275	213	77	-1
<i>E. coli</i> , STEC	3 days	51	35	69	+2
Shigellosis	3 days*	26	19	73	0
Tularemia	2 days	14	13	93	0
Varicella	1 day*	231	203	88	+2
Botulism	1 day	-	-	-	-
Measles	1 day	-	-	-	-
Meningococcal disease	1 day	1	1	100	0
Pertussis	1 day*	146	129	88	+1

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

Monthly Outbreak Summaries



Facility Type	Organism	Transmission	County	Date Reported
Hospital	Norovirus	Person-to-Person	Johnson	3/10/2014
Other	Outbreak Case - Unknown Etiology	Person-to-Person	Johnson	3/11/2014
Adult Care Facility	Norovirus	Person-to-Person	Sedgwick	3/13/2014
Hospital	Norovirus	Indeterminate/Other/Unknown	Stanton	3/17/2014
Restaurant	Outbreak Case - Unknown Etiology	Indeterminate/Other/Unknown	Shawnee	3/24/2014
School or College	Pertussis	Person-to-Person	Sedgwick	3/24/2014
School or College	Outbreak Case - Unknown Etiology	Food	Marion	3/28/2014
Restaurant	Outbreak Case - Unknown Etiology	Food	Douglas	3/31/2014