

## Forced Sexual Intercourse and Suicide Attempt among Kansas High School Students: Kansas Youth Risk Behavior Survey 2011 and 2013

### Introduction

Victims of forced sexual intercourse often experience profound health impacts as consequences of the assault, including suicide ideation. Suicide is the second leading cause of death among persons 10-34 years of age nationwide. The purpose of the study is to examine the association between forced sex and suicide attempt among Kansas high school students. The 2011 and 2013 Kansas Youth Risk Behavior Survey (YRBS) data were analyzed for 3,817 high school students. Multivariable logistic regression for complex survey design was utilized to estimate the association between forced sex and suicide attempt. Seven percent of students attempted suicide within the past year. The odds of attempting suicide was two times as high among students who experienced forced sex compared to students without the experience. Additional significant risk factors included bullying victimization, non-Hispanic (NH) other multiracial, sadness, vomiting or taking laxatives to lose weight and using substances. Results indicate that public health efforts are needed to prevent youth suicide attempts in Kansas, specifically among victims of forced sex.

### Background

Victims of forced sexual intercourse often experience substantial physical and mental health impacts, both as short and long term consequences of the assault.<sup>[1]</sup> Forced sex is linked to attempting suicide.<sup>[2]</sup> This is a public health threat because suicide is the second leading cause of death among persons 10-34 years of age in the United States.<sup>[3]</sup> In 2014, suicides accounted for 42,773 deaths nationwide.<sup>[3]</sup> In Kansas, 477 people lost their lives to suicide in 2015.<sup>[4]</sup> The 2015 Kansas age-adjusted suicide death rate far exceeds the goal set by Healthy People 2020 (i.e., 16.3 vs. 10.2 suicide deaths per 100,000 population).<sup>[5]</sup>

Although empirical evidence suggests forced sex is associated with suicide attempts<sup>[2]</sup>, little is known about this relationship among Kansas youth. The purpose of this study is to examine the association between forced sexual intercourse and suicide attempt among Kansas high school students.

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## Methods

A population-based cross-sectional study design was used to analyze 2011 and 2013 YRBS data. The YRBS is a biennial survey about adolescent health risk and protective behaviors conducted by the Centers for Disease Control and Prevention. The YRBS is conducted as a two-stage cluster sample design surveying students in schools and classrooms. All Kansas public schools with grades nine through 12 were eligible and schools were randomly selected with a probabilistic selection proportional to enrollment. Within selected schools, all classes in a required subject matter or classes that met at the same time were included in the sampling frame. The school-level response rate was 79 percent and the student response rate was 84 percent. Survey results were weighted to reflect Kansas’s high school student population.

The primary exposure is forced sexual intercourse. This variable is indicated when a

Variable	Wording of the question
Suicide attempt	Percentage of students who actually attempted suicide one or more times during the past 12 months.
Forced sexual intercourse	Percentage of students who had ever been physically forced to have sexual intercourse when they did not want to.
Missed school because student felt unsafe	Percentage of students who did not go to school on one or more of the past 30 days because they felt they would be unsafe at school or on their way to or from school.
Physical dating violence	Among students who dated or went out with someone during the past 12 months, the percentage who had been physically hurt on purpose by someone they were dating or going out with one or more times during the past 12 months.
Bullied at school	During the past 12 months, have you ever been bullied on school property?
Sadness	During the past 12 months, did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped doing some usual activities?
Vomiting or taking laxatives to lose weight	During the past 30 days, did you vomit or take laxatives to lose weight or to keep from gaining weight?
<i>Substance use*</i>	
Marijuana	Percentage of students who used marijuana one or more times during their life.
Aerosol	Percentage of students who sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high one or more times during their life.
Methamphetamines	Percentage of students who used methamphetamines one or more times during their life.
Ecstasy	Percentage of students who used ecstasy one or more times during their life.
Prescription drug	Percentage of students who have taken a prescription drug (such as OxyContin, Percocet, Vicodin, codeine, Adderall, Ritalin, or Xanax) without a doctor's prescription one or more times during their life.
* The substance use variable was indicated if a student reported any use of marijuana, aerosol, methamphetamines, ecstasy, or prescription drugs.	

respondent reported ‘Yes’ to the question “Have you ever been physically forced to have sexual intercourse when you did not want to?”. The outcome of interest is youth suicide attempt. This variable was indicated when a student self-reported attempting suicide one or more times during the past 12 months.

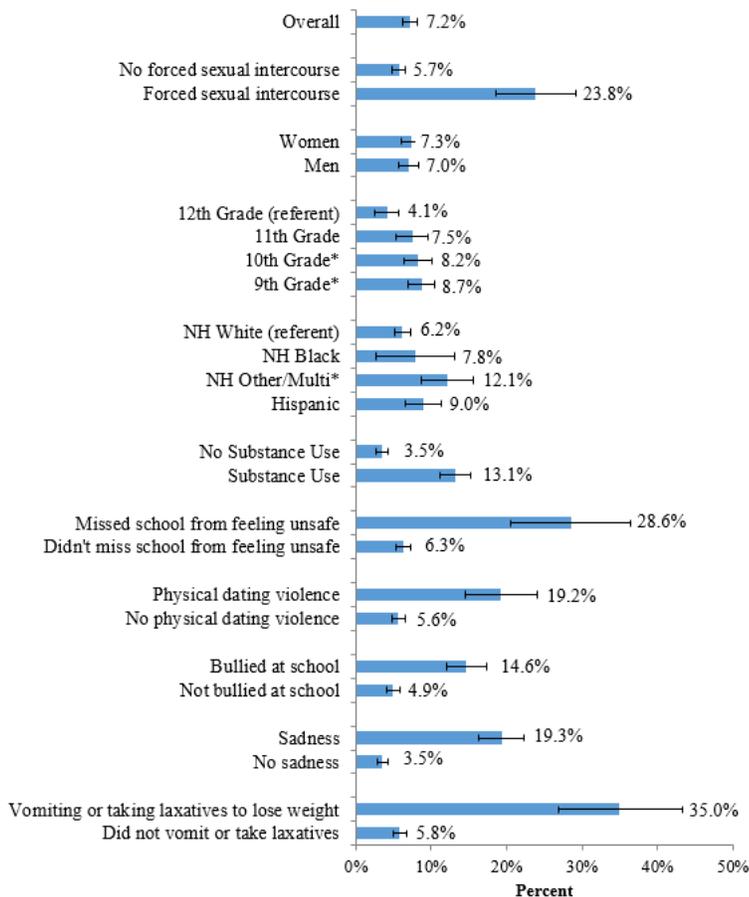
The Risk Factor Model for Youth Suicide was used as a theoretical framework to select potential confounders.<sup>[6]</sup> Risk factors refer to behavioral health issues/disorders, personal characteristics, adverse/stressful life

circumstances, risky behaviors, family characteristics and social and cultural environmental factors that are associated with youth suicide.<sup>[6]</sup> The goal is to modify these risk factors to help prevent suicide and/or utilize these factors to help identify vulnerable youth.

Multivariable logistic regression for complex survey designs was utilized to estimate the independent association between forced sexual intercourse and suicide attempt. Potential confounders were identified from the Risk Factor Model for Youth Suicide theoretical framework via a change-in-estimate criterion (Table 1). This approach identifies confounders that alter the unadjusted exposure-outcome effect by a magnitude of 10 percent or greater.<sup>[7]</sup> Variables that are deemed confounders are controlled for in the regression analysis.<sup>[7]</sup> All analyses were conducted using SAS 9.4 and significance was

defined with a 2-tailed alpha of 0.05 (SAS Institute Inc., Cary, North Carolina).

Table 2. Prevalence of suicide attempt among Kansas high school students by selected demographic, psychological and behavioral health characteristics. (n=3817)



Abbreviation: NH= non-Hispanic

\*An asterisk indicates which sub-stratum is significantly different from the reference category, with respect to outcome (i.e., attempting suicide).

## Results

A combined sample of 3,817 Kansas high school students were included in the analysis. During the 2010/2011 and 2012/2013 school years, more than seven percent of students reported experiencing forced sex and/or attempting suicide within the past year. Therefore, approximately 10,264 students experienced forced sex and 9,987 students attempted suicide. The percentage of students who attempted suicide was significantly higher among students who experienced forced sex, were in 9th and 10th grade compared to 12th, were NH other/multiracial compared to NH white, used substances, missed school because they felt unsafe, experienced physical dating violence, were bullied at school, experienced sadness and vomited or took laxatives to lose weight (Table 2).

In the multivariable model, odds of attempting suicide was twice as high among Kansas high school students who experienced forced sexual intercourse compared to peers without the experience (Odds Ratio 2.0, 95% CI: 1.29-3.23). Additional significant risk factors associated with attempted suicide included being a victim of bullying, NH other multiracial, experiencing sadness, vomiting or taking laxatives to lose weight and using substances. Odds of attempting suicide was over three times as high among students who experienced sadness compared to peers who did not report sadness. In addition, odds of

Table 3. Risk factors among Kansas high school students who attempted suicide, KS YRBS 2011 and 2013 (n= 2,641)

	Unadjusted OR	95% CI	Multivariable OR*	95% CI
Forced sexual intercourse	5.2	(3.5-7.7)	2	(1.3-3.2)
Race/ethnicity				
NH black	0.6	(0.2-1.8)	0.7	(0.2-2.1)
NH other/multiracial	1.8	(1.2-2.7)	1.7	(1.0-2.8)
Hispanic	1.1	(0.7-1.7)	1	(0.6-1.6)
Sadness	7.2	(4.8-10.6)	3.6	(2.3-5.5)
Substance use	3.7	(2.7-5.1)	2.1	(1.5-3.1)
Missed school because student felt unsafe	4.7	(3.0-7.3)	1.6	(0.9-2.8)
Physical dating violence	4.1	(2.6-6.4)	1.6	(1.0-2.8)
Bullied at school	3.6	(2.6-4.9)	1.9	(1.3-2.7)
Vomiting or taking laxatives to lose weight	10.8	(6.8-17.0)	4.3	(2.6-7.1)

Abbreviations: OR, odds ratio; CI, confidence interval; NH, non-Hispanic.

\* Multivariable logistic regression adjusted for forced sexual intercourse, race/ethnicity, sadness, substance use, missed school because student felt unsafe, physical dating violence, bullied at school, and vomiting or taking laxatives to lose weight.

attempting suicide was over four times as high among students who vomited or took laxatives to lose weight compared to peers who did not report this behavior. Gender, grade level and physical dating violence were not deemed confounders and thus not adjusted for in the multivariable model (Table 3).

## Discussion

Approximately 9,987 Kansas high school students attempted suicide within the past year. The odds of

attempting suicide was two times as high among students who experienced forced sex compared to students without the experience. Suicide attempt prevalence and significant risk factors mirror previous research and national estimates. Specifically, bullying victimization, NH other multiracial, sadness, vomiting or taking laxatives to lose weight and substance use were significant risk factors for attempting suicide.[6, 8-9] Findings differ from the literature with respect to gender. [8-9] Gender did not confound or modify the association between forced sex and suicide attempt. This is likely due to the higher self-reported rate of suicide attempts among high school aged males.

Results indicate public health efforts are needed to prevent youth suicide attempts, specifically among victims of forced sex. Kansas public health officials should support primary prevention efforts that target known risk and protective factors across multiple forms of violence.[10] Addressing numerous forms of violence at once such as child maltreatment, teen dating violence, intimate partner violence, sexual violence, youth

violence, bullying and elder maltreatment, is necessary to coordinate and integrate public health resources.[10] Individual change strategies are important to consider but addressing these issues with population-based/trauma informed approaches could be more impactful. [10] Community-level strategies that could impact populations include community/school support and connectedness, increased access to mental health and substance abuse services and coordination of resources and services among community agencies.[6,10]

The Second Step Program with a Bullying Prevention Unit is currently being implemented in 12 Kansas elementary schools. The program decreases bullying and promotes self-efficacy and community connectedness. These school are also reviewing and/or revising their bullying policies to reflect best practice. Additionally, Metropolitan Organization to County Sexual Assault (MOCSA) is a community-level project in Kansas to combat sexual violence perpetration. There are also local- and state-level Suicide Prevention Coalitions that provide trainings and other resources to help prevent suicide among at-risk youth.

## Limitations

Inherent limitations of cross-sectional study designs are present. Limitations include self-reported prevalence, inability to decipher temporal ordering of the exposure and outcome (e.g., it is not known whether a student experienced forced sex before attempting suicide and therefore no causality can be determined) and generalizability is limited to high school students enrolled in a public school. It is important to note that many of the variables of interest can only be collected via self-report and therefore self-report is not considered a strong bias. The potential residual confounding via dichotomized risk factors, could impact study findings.

## Conclusion

The odds of attempting suicide was two times as high among Kansas high school students who experienced forced sex compared to students without the experience. To address the high prevalence of students attempting suicide, public health professionals should work on reducing the occurrence of empirically known risk factors via trauma informed public health interventions. Suicide is preventable and it warrants primary prevention action.

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## Annual Summary of Vital Statistics Issued

The Annual Summary of Vital Statistics, 2015, is now available for use in program evaluations and community health assessments. The report contains more than 120 tables, figures and maps reporting statistics on birth, death, fetal death, abortion, marriage and marriage dissolution. The organization of the 2015 Annual Summary differs significantly from that of the 2014 Annual Summary. Consult the Technical Notes for a mapping of table and figure numbers in one to those in the other.

The state's infant mortality rate decreased from 6.3 deaths per 1,000 live births in 2014 to 5.9 deaths per 1,000 live births in 2015. This was the lowest state infant mortality rate since Kansas created its vital records system in 1912. Teen pregnancy numbers decreased by 7.9 percent, from 3,118 in 2014 to 2,872 in 2015. The pregnancy rate for mothers under 20 years of age was 14.8 per 1,000 females. This is the lowest pregnancy rate for this age-group in the past 20 years, down from a peak of 33.9 in 1996.

Five new tables were added to the 2015 Annual Summary. Three are multi-year summaries to introduce major sections of the Annual Summary (titles are abbreviated):

- B1. Population by year and sex (30-year summary)
- E1. Death by year and by population group, Kansas and the U.S. (5 year summary)
- F1. Marriage and Marriage Dissolutions by year (30 year summary).

Two other new tables were added on topics of interest to KDHE epidemiologists:

- E15. Work-related injury deaths by industry of decedent's occupation by year (10 year summary)
- E17. Diabetes Mellitus as an underlying and contributing cause of death.

The number of births to Kansas residents in 2015 was 39,126, a decrease of 0.2 percent from 39,193 in 2014. The state's birth rate decreased to 13.4 per 1,000 population from 13.5 in 2014. The Annual Summary is available online at <http://www.kdheks.gov/hci/annsumm.html>. Available at that URL is a set of 25 spreadsheets that contain county level statistics for many of the indicators.

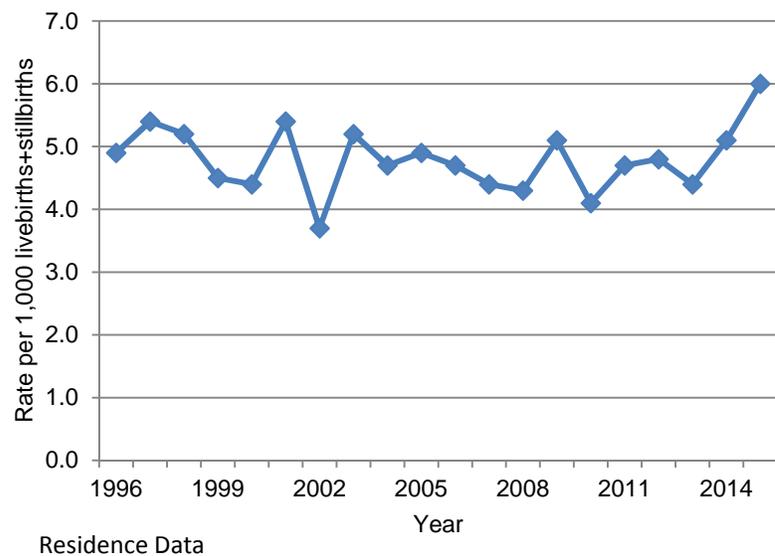
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## The Effect of Recent Changes in the Legal Definition of a Stillbirth on Kansas Resident Stillbirth Rates

Stillbirth numbers and rates for Kansas residents have traditionally been quite variable. However, the count (237) and rate (6.0 per 1,000 livebirths plus stillbirths) for 2015 were the highest recorded in the 1996-2015 period (Figure 1).

While it is possible that this increase represents an underlying change in stillbirth incidence in Kansas, it is more likely that is an artifact of a legal change in the definition of a stillbirth (in K.S.A. 65-2401) that went into effect on July 1, 2014.

Figure 1. Stillbirth Rates, Kansas, 1996-2015



According to the definition in place before July 1, 2014,

“Stillbirth” means any complete expulsion or extraction from its mother of a product of human conception the weight of which is in excess of 350 grams, irrespective of the duration of pregnancy, resulting in other than a life birth, as defined in this act, and which is not an induced termination of pregnancy.

Beginning July 1, 2014, the definition changed to:

“Stillbirth” means any complete expulsion or extraction from its mother of a human child the gestational age of which is not less than 20 completed weeks, resulting in other than a live birth, as defined in this section, and which is not an induced termination of pregnancy.

In Table 1, stillbirths to Kansas resident mothers over the past five years (2011-2015) are cross-tabulated by fetal weight and by clinical estimate of gestation. This allows a separation of each year’s count by mandatory reporting regime.

Prior to July 1, 2014, physicians were not required to report stillbirths less than 350 grams. The change on that date to a definition based on clinical estimate of gestation was responsible for adding 25 stillbirths to the total for 2014 and 60 stillbirths to the total for 2015.

In 2013, the last full year under the old definition of a stillbirth, there were 172 stillbirths that met the reporting requirement. If the same requirement had been in place in 2014 and 2015, the number of stillbirths would have been 174 in each year, virtually unchanged.

Hence it appears that the overall rise in the number of stillbirths since 2013 is purely an artifact of the change in the reporting requirement on July 1, 2014.

Under both reporting regimes, there were a handful of stillbirths that were reported even though such report was not strictly required by the law.

**Table 1. Stillbirths by fetal weight in grams and year, by length of gestation, Kansas residents, 2011-2015**

Fetal Weight (grams)	Year	Length of gestation (weeks)		
		<20	>=20	n.s.
<=350	2011	0	1	0
	2012	0	0	0
	2013	1	0	0
	2014	1	24	0
	2015	2	58	0
>350	2011	4	182	1
	2012	1	194	0
	2013	0	172	0
	2014	1	172	1
	2015	1	171	2
n.s.	2011	0	0	0
	2012	0	0	0
	2013	0	0	0
	2014	0	2	0
	2015	1	2	0

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## Kansas Influenza Surveillance Activities and a Recap of the 2015-2016 Season

### Introduction

Influenza is not a nationally notifiable disease, nor is it a notifiable disease in Kansas. Because patient-level data is not reported to state health departments or to the Centers for Disease Control and Prevention (CDC), the burden of disease must be tracked through non-traditional methods. Influenza surveillance in Kansas consists of four components that provide data on outpatient influenza-like illness, influenza viruses, and influenza-associated deaths. Recently, Kansas has been establishing a Syndromic Surveillance plan to survey influenza-like illness burden on hospital emergency departments in Kansas. Work is being done to validate Syndromic Surveillance results against previously used methods to ensure accuracy in results.

### Methods

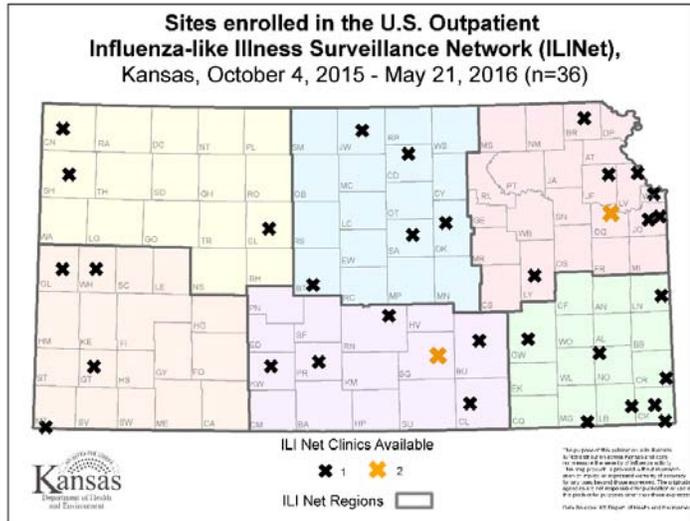
The U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet) is a collaboration between the CDC and state, local, and territorial health departments. The purpose of the surveillance is to track influenza-like illness (ILI), recognize trends in influenza transmission, determine the types of influenza circulating, and detect changes in

influenza viruses. Influenza-like illness is defined by the CDC as fever ( $\geq 100^{\circ}\text{F}$  or  $\geq 37.8^{\circ}\text{C}$ , measured either at the ILINet site or at the patient's home) with cough and/or sore throat, in the absence of a known cause other than influenza.

The Bureau of Epidemiology and Public Health Informatics (BEPHI) at the Kansas Department of Health and Environment (KDHE) recruited health care providers throughout Kansas to participate in ILINet (Figure 1). Each week,

ILINet site personnel determined the total number of patients seen with ILI during the previous week by age group — preschool (0-4 years), school age through college (5-24 years), adults (25-49 years and 50-64 years), and older adults (>64 years). In addition, the total number of patients seen during the previous week for any illness was recorded. This data was submitted to the CDC via the internet or fax; sites are asked to report the previous week's data by 11:00 AM each Tuesday.

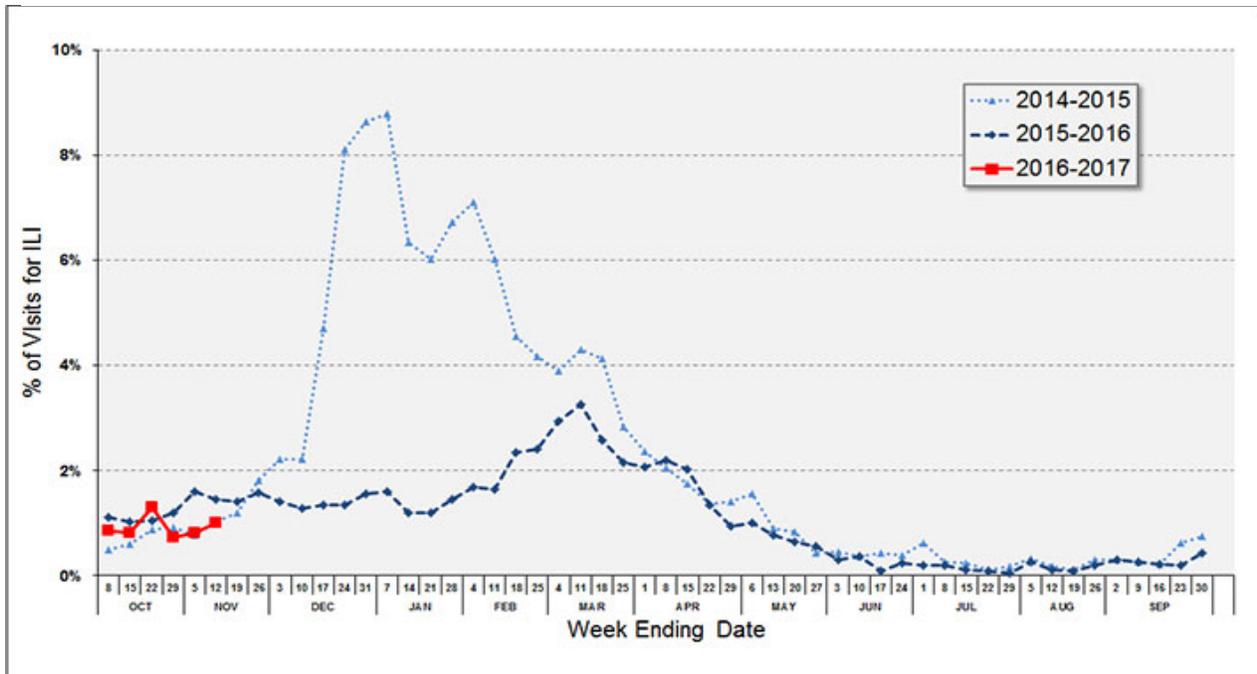
Figure 1



## Results

During the influenza surveillance period, starting October 4, 2015 (week 40) and ending May 21, 2016 (week 20), sites observed a total of 218,686 patients—7,306 (3.3%)

Table 1. ILINet Visits as Percentage of Total Visits to Providers



sought care for ILI. The rate of ILI rose steadily from February 2016 through March 2016 (Table 1). The ILI rate peaked at 3.3% during the week ending March 12, 2016. The rate of ILI dropped below 2% during the week ending April 23, 2016 and remained low through the end of the surveillance period. This is plotted below along with the previous and current year values. Most recent ILINet reporting has 20 of 35 (57%) of sites having submitted data by the reporting deadline for the current week. Current season statistics show the percent of visits staying below the two percent mark and KDHE's work in Syndromic Surveillance corroborates these figures.

KDHE also participates in surveillance of laboratory-confirmed influenza viruses, respiratory viral panel testing, and mortality due to pneumonia and influenza. For the most recent information on the current ILI season and past seasons, please go to <http://www.kdheks.gov/flu/surveillance.htm>.

Four outbreaks were identified and investigated during the 2015-2016 surveillance period. One occurred in February and the other three occurred during April. The average number of cases was 39 (range 10-58); the average number of hospitalizations was 2 (range 0-6). There was one death associated with these outbreaks. All occurred in long-term care facilities.

Typically, ILI in Kansas has peaked in December, January, or February. The ILI rate peaked in Kansas at 3.3% during the week ending March 12, 2016. The peak rate was lower than what was observed during the previous two surveillance periods; ILI peaked at 8.8% during 2014-15, and 6.0% during 2013-14. Four influenza viruses were detected in Kansas: A/H1, A/H3, and two B lineages. The predominant strain in Kansas and the U.S. was A/H1. Antigenic characterization performed by CDC indicated the 2015-2016 seasonal influenza vaccine was a good match for all circulating viruses.

During the 2015-16 influenza season, 12 deaths were directly attributed to influenza. This was a sharp decline from the previous season with 95 deaths. Of the Kansas deaths, 42% were among those between the ages of 45-64 years. Four influenza outbreaks in long-term care facilities were investigated during the 2015-16 influenza season.

## Discussion

With the ILI season ramping up, we would like to remind everyone of the CDC's guidelines to limit the spread of seasonal illnesses. The single best way to prevent the flu is to get a flu vaccine each season. The seasonal flu vaccine protects against the influenza viruses that research indicates will be most common during the upcoming season. There are several flu vaccine options for the 2016-2017 flu season.

Other recommendations include:

- **Avoid close contact** with people who are sick. When you are sick, keep your distance from others to protect them from getting sick too.
- **Stay home** from work, school, and errands when you are sick. This will help prevent spreading your illness to others.

- **Cover your mouth and nose** with a tissue when coughing or sneezing. It may prevent those around you from getting sick. (Most experts believe that flu viruses spread mainly by droplets made when people with flu cough, sneeze or talk.)

Most people who get the flu will have mild illness, will not need medical care or antiviral drugs, and will recover in less than two weeks. Some people, however, are more likely to get flu complications that can result in hospitalization and sometimes death. Pneumonia, bronchitis, sinus infections and ear infections are examples of flu-related complications. The flu also can make chronic health problems worse. For example, people with asthma may experience asthma attacks while they have the flu, and people with chronic congestive heart failure may experience a worsening of this condition triggered by flu. Listed below are the groups of people who are more likely to get serious flu-related complications if they get sick with influenza.

- Children younger than 5, but especially children younger than 2 years old
- Adults 65 years of age and older
- Pregnant women (and women up to two weeks postpartum)
- Residents of nursing homes and other long-term care facilities
- Also, American Indians and Alaskan Natives

For full CDC recommendations, visit: [https://www.cdc.gov/flu/about/disease/high\\_risk.htm](https://www.cdc.gov/flu/about/disease/high_risk.htm) and <https://www.cdc.gov/flu/protect/stopgerms.htm>

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## **Creation of a Kansas Spring Extreme Weather Syndrome Definition and Unique Records**

### **Objective**

To evaluate syndrome definitions capturing storm- and extreme weather-related emergency department visits in Kansas hospitals participating in the National Syndromic Surveillance Program (NSSP).

### **Introduction**

Kansas storms can occur without warning and have potential to cause a multitude of health issues. Extreme weather preparedness and event monitoring for public health effects is being developed as a function of Syndromic Surveillance at the Kansas Department of Health and Environment (KDHE). The Syndromic Surveillance Program at KDHE utilized emergency department (ED) data to detect direct health effects of the weather events in the first nine months of 2016. Current results show injuries directly related to the storms and also some unexpected health effects that warrant further exploration.

## Methods

A basic syndrome definition was defined based on extreme spring and summer weather events experienced in Kansas. This broad definition pulled records from Kansas EDs that included the following in the Chief Complaint or Triage Notes fields:

- Storm
- Rain
- Torna(dos)
- Wind
- Flood

This broad syndrome definition was performed on data submitted to the Kansas’s production server through NSSP between January 1 and August 30, 2016. After the initial pull, duplicate records for the same patient and visit were removed.

The remaining set was then searched by hand to identify terms caught by the syndrome definition that were not related to storm activity or extreme weather. Record chief complaints were then scanned by hand to identify common words containing the search criteria and then removed. Keywords not of interest to the syndrome definition that were caught were: migraine, window, drain, restrain, train, and many other proper nouns that contained one of the keywords.

These remaining visits were then sorted by nature of visit and unexpected records were recorded for future direction of syndrome definition development.

## Results

The initial data pull under these conditions yielded 17,691 unique emergency department visits from January 1 to August 30 during the 2016 year. From this, records were classified based on key words resulting in the pull. Table 1 shows the initial pull results, the remaining records after errant results were expunged, the percentage of visits that were removed, and the most common reason for removal.

Table 1. Storm-related Search Terms and Case Exclusion Rates

Key Words	Initial Pull Hits	Remaining Cases after Cleaning the Dataset	% of Cases Removed	Most Common Reason Removed
Storm	345	20	94.2%	Proper noun containing “storm”
Rain	16,292	62	99.6%	Proper noun containing “rain” along with the words migraine, drain, and restrain
Torna	7	7	0.0%	
Wind	836	66	92.1	Proper noun containing “wind” along with non-storm-related window injuries
Flood	20	14	30.0%	Misspelled “floor” as “flood”
Storm with Rain	23	1	95.7%	
Storm with Wind	8	1	87.5%	
Rain with Wind	156	4	97.4%	
Rain with Torna	1	1	0.0%	
Rain with Flood	2	0	100%	
Wind with Flood	1	0	100%	

Of these records remaining after cleaning, 20 were related to storms, 62 were related to rain, seven were related to tornado activity, 66 were related to wind, and 14 were related to flooding along with the mixed variable instances shown in the table. A majority of the wind-related ED visits were injuries and the majority of the tornado activity events were related to injuries sustained while taking shelter. Many of the injuries mentioning storms were sustained in preparation for the storm, and a handful were due to mental stresses regarding storm activity.

## Conclusion

Syndrome definition development is an iterative process that will vary by region. By manually looking at line-level data details, future searches can better accommodate these errant results and false positives. These studies will facilitate more rapid extreme weather response in Kansas and allow better situational awareness. Along with general storm-related injuries, knowledge of the unusual records caught by a syndrome definition can also help direct public education in preparation of future storms. With injuries sustained while taking shelter and injuries sustained in preparation for the storm, we can take these unique ED visits and work on interventions to prevent future occurrences.

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## 2015 Teen Pregnancy Report Issued

The Kansas Department of Health and Environment (KDHE) prepares the Teen Pregnancy report annually to provide data to support assessment and evaluation of teen pregnancies in Kansas. KDHE has a number of programs directed at reducing teen pregnancy. The report contains a series of summary tables detailing pregnancy outcomes (live births, abortions, and stillbirths) for females 10-19 years of age. Pregnancies among adolescents and teens accounted for 6.7 percent (2,872) of the 42,942 pregnancies in 2015. About 86.7 percent resulted in a live birth (n=2,490), 12.7 percent in abortion (n=365), and the remainder in stillbirths (n=17).

Table 1. Age-group Specific Teen Pregnancy Rates per 1,000 female populations by year, Kansas, 2001-2015

Year	Age Groups					
	(10-19)	10-14	15-17	18-19	10-17	15-19
2001	28.8	0.8	30.2	101.4	11.9	56.0
2002	28.3	0.9	28.3	96.0	11.3	54.7
2003	26.4	0.8	26.6	92.9	10.5	51.3
2004	26.1	0.8	25.8	86.8	10.3	50.3
2005	26.7	0.8	25.7	85.1	10.4	50.8
2006	27.1	0.9	25.5	87.1	10.4	52.2
2007	27.8	0.8	26.8	93.1	10.9	53.2
2008	28.6	0.7	27.1	95.7	10.9	55.0
2009	26.8	0.6	25.2	88.5	10.0	51.6
2010	23.1	0.6	22.4	77.6	8.8	45.1
2011	20.9	0.7	18.4	72.2	7.3	40.8
2012	19.7	0.4	17.0	70.8	6.6	39.0
2013	17.1	0.4	14.6	62.4	5.7	34.0
2014	16.0	0.4	13.6	58.6	5.3	33.2
2015	14.8	0.2	11.5	55.9	4.5	29.3

Residence data

Other findings include:

- The pregnancy rate for females aged 10-19 was 14.8 per 1,000 age group specific female population in 2015, down 7.5 percent from 2014 (16.0)(Table 1).
- Pregnancy rates among females 15-17 years of age, (11.5 per 1,000 female age group population) and females aged 18-19 (55.9 per 1,000 age group population) compared favorably with the Healthy People 2020 national targets of 36.2 and 72.2, respectively.
- In 2015, Black non-Hispanic pregnancy rates remained unchanged among teens 10-17 years of age from 2014, while white non-Hispanic and Hispanic pregnancy rates decreased by 23.7 percent and 9.1 percent, respectively.

The 2015 Teen Pregnancy report can be found at <http://www.kdheks.gov/phi/index.htm>.

Bureau of Epidemiology and Public Health Informatics

## Kansas Health Statistics Report

### 2015 Kansas Vital Statistics\*

County of Residence	Live Births	Deaths	Marriages	Marriage Dissolutions	County of Residence	Live Births	Deaths	Marriages	Marriage Dissolutions
Kansas	39,126	26,611	17,595	8,036					
Allen	144	174	59	26	Lyon	416	300	193	91
Anderson	84	95	31	26	McPherson	336	380	175	72
Atchison	208	197	90	36	Marion	109	184	52	20
Barber	59	70	36	10	Marshall	138	120	47	24
Barton	362	298	176	73	Meade	68	48	21	9
Bourbon	211	210	109	50	Miami	354	321	215	97
Brown	133	97	63	17	Mitchell	77	83	37	19
Butler	744	642	404	148	Montgomery	447	458	199	113
Chase	24	28	33	9	Morris	54	89	41	8
Chautauqua	42	55	20	10	Morton	24	40	11	6
Cherokee	252	244	107	72	Nemaha	146	117	75	19
Cheyenne	39	37	8	7	Neosho	189	190	98	42
Clark	25	37	7	5	Ness	33	47	8	8
Clay	89	112	45	26	Norton	61	62	34	37
Cloud	127	150	53	25	Osage	158	226	69	45
Coffey	76	105	50	115	Osborne	49	79	19	6
Comanche	21	36	12	5	Ottawa	60	77	24	13
Cowley	445	464	214	143	Pawnee	67	77	47	26
Crawford	477	437	219	112	Phillips	50	70	31	13
Decatur	34	41	12	8	Pottawatomie	362	194	83	35
Dickinson	236	259	130	81	Pratt	142	119	61	21
Doniphan	97	87	29	18	Rawlins	26	43	11	8
Douglas	1,327	723	812	197	Reno	683	743	428	181
Edwards	29	37	13	14	Republic	49	88	26	15
Elk	21	45	15	4	Rice	132	122	41	11
Ellis	364	259	170	69	Riley	1,017	339	768	215
Ellsworth	65	102	38	42	Rooks	58	63	24	8
Finney	725	229	223	77	Rush	37	55	13	8
Ford	649	241	244	81	Russell	74	85	33	19
Franklin	320	267	144	76	Saline	729	536	324	196
Geary	1,118	218	535	341	Scott	51	40	31	11
Gove	37	37	14	5	Sedgwick	7,284	4,421	3,308	2,148
Graham	21	35	15	3	Seward	428	128	177	89
Grant	121	53	35	22	Shawnee	2,269	1,879	1,072	360
Gray	81	55	26	13	Sheridan	28	32	7	4
Greeley	16	25	2	4	Sherman	84	83	44	26
Greenwood	69	104	37	10	Smith	50	52	19	6
Hamilton	34	31	8	7	Stafford	55	66	26	6
Harper	80	103	28	18	Stanton	39	17	19	10
Harvey	411	399	230	116	Stevens	77	53	20	36
Haskell	56	30	30	7	Sumner	290	264	175	58
Hodgeman	14	22	7	4	Thomas	107	87	68	27
Jackson	172	158	66	13	Trego	46	50	21	4
Jefferson	184	201	95	16	Wabaunsee	90	68	36	12
Jewell	31	36	13	9	Wallace	20	22	18	2
Johnson	7,528	3,858	2,586	939	Washington	86	79	38	12
Kearny	63	35	18	9	Wichita	20	25	19	3
Kingman	98	95	49	19	Wilson	98	116	38	34
Kiowa	37	17	13	4	Woodson	31	53	25	9
Labette	257	254	104	57	Wyandotte	2,763	1,358	1,157	294
Lane	13	30	4	10	n.s.	2	2	0	0
Leavenworth	1,013	612	506	244					
Lincoln	28	37	17	8					
Linn	109	104	49	36					
Logan	43	34	16	4					

\*Residence data are presented for birth and deaths

Occurrence data are presented for marriage and marriage dissolutions n.s. = not stated

Source: Kansas Department of Health & Environment Bureau of Epidemiology and Public Health Informatics

## Kansas Health Statistics Report

The Public Health Informatics Unit (PHI) of the Kansas Department of Health and Environment's Bureau of Epidemiology and Public Health Informatics produces *Kansas Health Statistics Report* to inform the public about availability and uses of health data. Material in this publication may be reproduced without permission; citation as to source, however, is appreciated. Send comments, questions, address changes, and articles on health data intended for publication to: PHI, 1000 SW Jackson, Suite 130 Topeka, KS, 66612-1354, [Kansas.Health.Statistics@kdheks.gov](mailto:Kansas.Health.Statistics@kdheks.gov), or 785-296-1531. Susan Mosier, MD, Secretary KDHE; D. Charles Hunt, MPH, State Epidemiologist and Director, BEPHI; Elizabeth W. Saadi, PhD, State Registrar, Deputy Director, BEPHI; Greg Crawford, BEPHI, Editor.

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