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Kansas Influenza Surveillance Activities and a Recap of the 2016-2017 Season

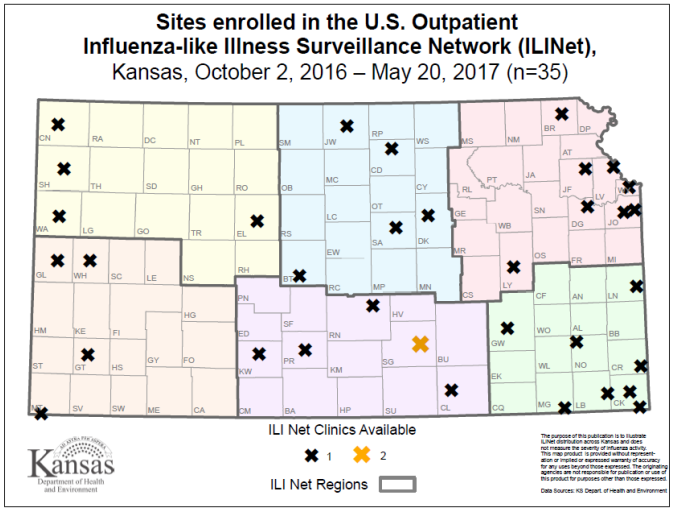
Introduction

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. 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 (≥100°F or ≥37.8°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

Figure 1



Inside

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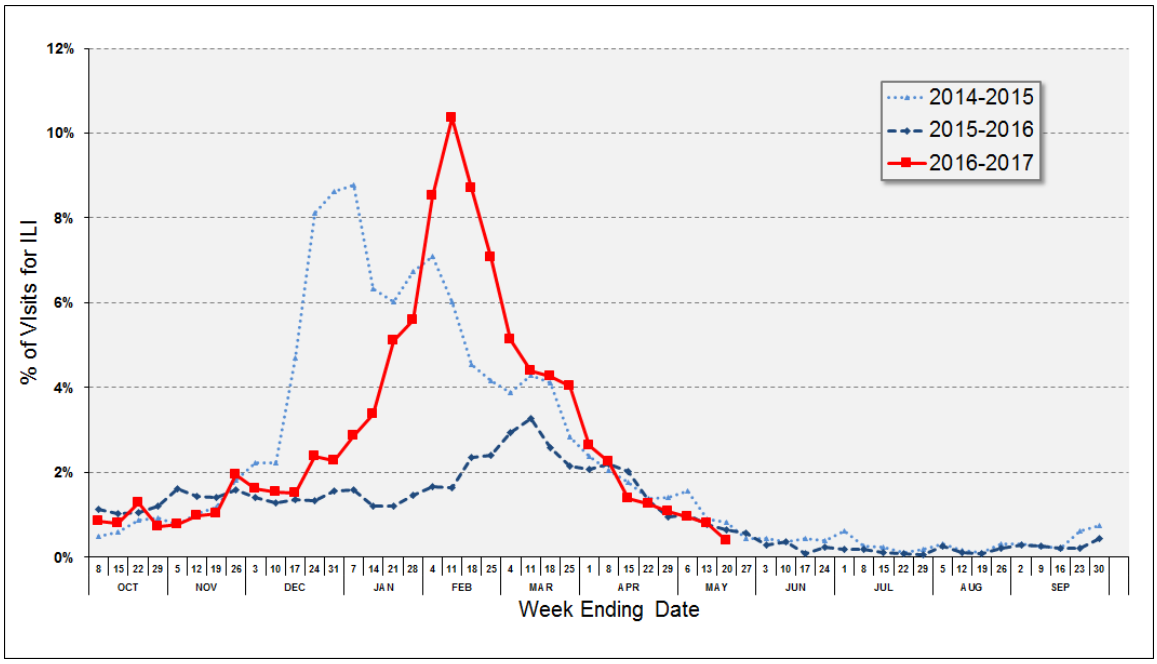
patients seen with ILI during the previous week by age group — preschool (0-4 years), school age through college (5-24 years), adults (25-49 years and 50-64 years), and older adults (>64 years). In addition, the total number of patients seen during the previous week for any illness was recorded. This 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.

Results

During the influenza surveillance period, starting October 2, 2016 (week 40) and ending May 20, 2017 (week 20), sites observed a total of 215,988 patients—6,652 (3.1%) sought care for ILI. The rate of ILI rose steadily from December 2016 through February 2017. The ILI rate peaked at 10.4% during the week ending February 11, 2017. The rate of ILI dropped below 2% during the week ending April 15, 2017 and remained low through the end of the surveillance period (Figure 2). This is plotted below along with the previous and current year values. 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. A total of 44 outbreaks were identified and investigated during the 2016-2017 surveillance period. Thirteen occurred in January, 27 occurred in February, and four occurred during March. The average number of cases was 17 (range 2-70); the average number of hospitalizations was 0 (range 0-5). There were six deaths associated with these outbreaks. The majority, 29 (66%), occurred in long- term care facilities. The remainder of outbreaks occurred in schools (11), hospitals (2), child

Figure 2. ILINet Visits as Percentage of Total Visits to Providers



care facilities (1), and correctional facilities (1). Typically, ILI in Kansas has peaked in December, January, or February. The ILI rate peaked in Kansas at 10.4% during the week ending February 11, 2017. The peak rate was higher than what was observed during the previous two surveillance periods; ILI peaked at 3.3% during 2015-16, and 8.8% during 2014-15. Four influenza viruses were detected in Kansas during the 2016-2017 flu season: A/H1, A/H3, and two B lineages. The predominant strain in Kansas and the U.S. was A/H3. Antigenic characterization performed by CDC indicated the majority of the tested viruses were similar to the 2016-2017 seasonal influenza vaccine components.

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 2017-2018 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 and https://www.cdc.gov/flu/protect/stopgerms.htm

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Statewide Blood Lead Surveillance Report Released

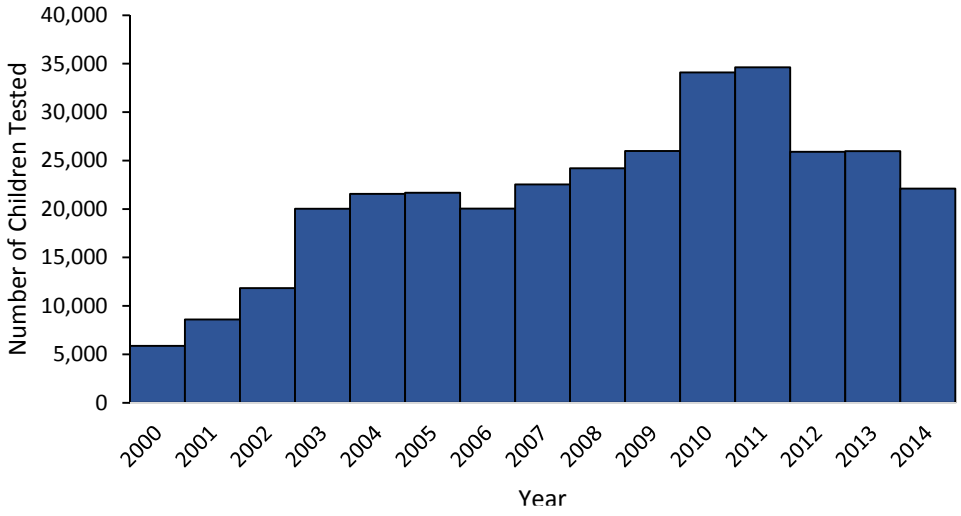
Introduction

The Kansas Department of Health and Environment's Environmental Public Health Tracking Program has released the Statewide Blood Lead Surveillance Report, which summarizes blood lead screening data for children and adults living in Kansas. Elevated blood lead, defined as a level of 5 micrograms of lead per deciliter of blood (µg/dL) or greater, in children can cause lowered IQ, learning disabilities, behavior problems, or developmental delay [1]. Because the definition of elevated changed from 10 µg/dL or greater to 5 µg/dL or greater in 2012, many statistics in this report use 10 µg/dL to compare Kansas data between years. Screening children for blood lead helps parents and providers detect lead exposure to a child earlier and find and remove the lead source faster.

Selected Findings

The number of children under age 6 years that have been tested for blood lead has increased in Kansas since 2000, though testing peaked in 2011 with 34,621 individual children tested (Figure 1). The number of children tested in Kansas has been on a downward

Figure 1. Number of children† tested for blood lead, Kansas 2000-2014

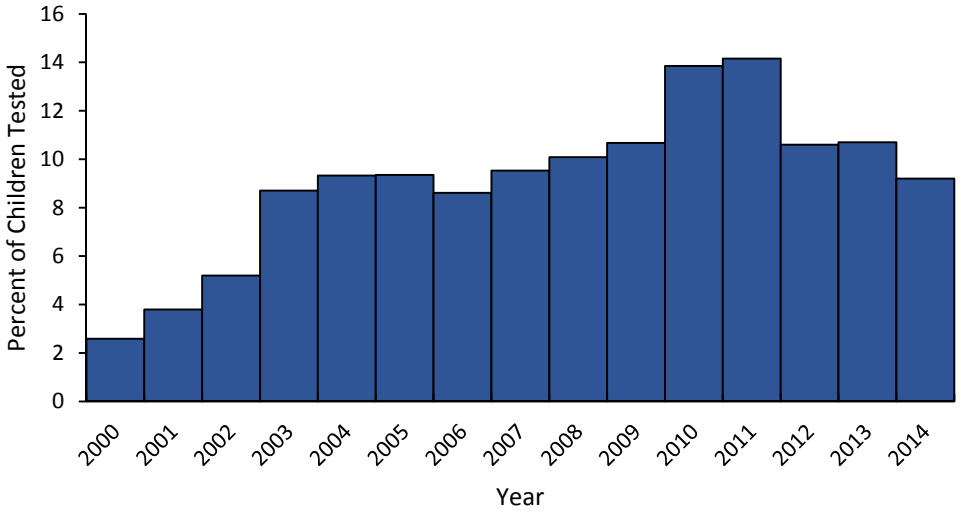


† Children under age 6

trend since 2011. Similarly, the overall proportion of children under age 6 that are tested for blood lead has generally increased since 2000, when just over 2.5% of children under age 6 were tested, with a decrease in testing since 2011 when over 14% of children under age 6 were tested for blood lead (Figure 2).

Universal lead testing is not mandated in Kansas, therefore, data represent varying testing practices and cannot be used to interpret incidence or prevalence for the overall population. In Kansas, the number of children under age 6 years with blood lead levels of 10 µg/dL or higher has increased and decreased over the past 15 years, but in general the

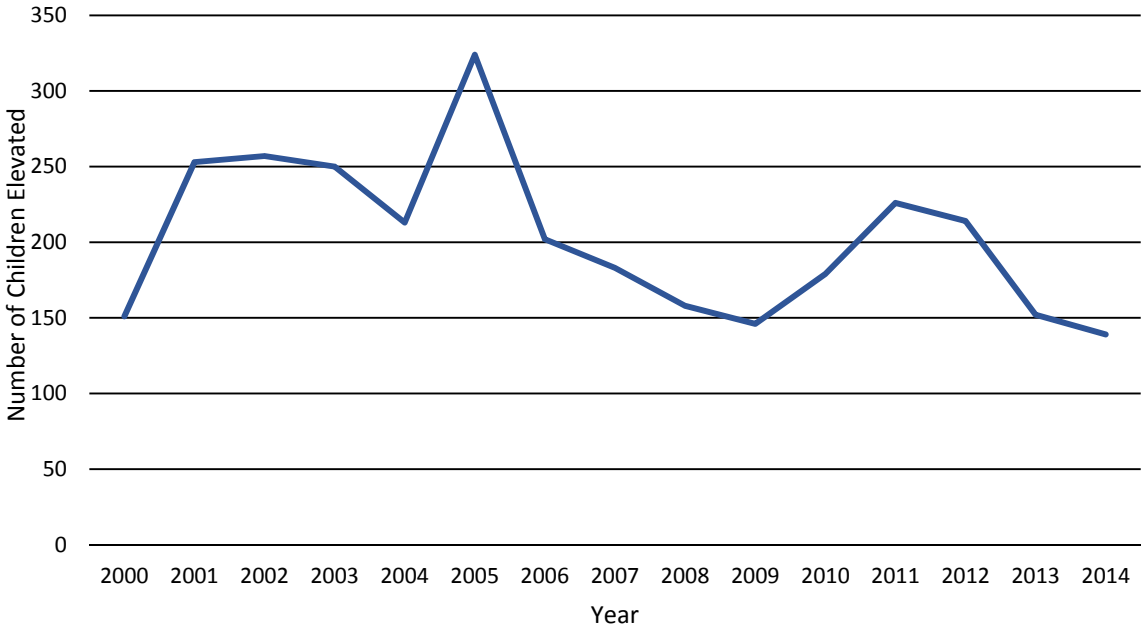
Figure 2. Percent of children† tested for blood lead, Kansas 2000-2014



† Children under age 6

number in 2014 is similar to the number in 2000 (Figure 3). While the number of children with confirmed elevated blood lead is similar in 2000 and 2014, the number of children screened for blood lead is quite different. Although there is a decrease in the number of children with a confirmed blood lead level of 10 µg/dL or greater in 2013 and 2014, this

Figure 3. Number of children† with confirmed blood lead of 10 µg/dL or higher, Kansas 2000-2014



† Children under age 6

does not necessarily indicate a decrease in elevated blood lead across the state because these years also saw a general decrease in the number of children screened for blood lead compared to the previous couple of years.

Lead Screening in Counties

In 2014, six counties in Kansas tested 15 percent or more of children under the age of 6 years. These counties were Clay (18.5%), Labette (17.2), Wyandotte (16.5), Harvey (15.7), Lyon (15.4), and Coffey (15.3). In the same year, there were also 30 counties that tested less than 2.5 percent of children under 6 years old. The specific percent of children tested for all counties can be found in Appendix A of the 2017 Statewide Blood Lead Surveillance Report. Low screening rates in counties with small populations makes risk comparisons between counties difficult.

Age of Housing

Among children, lead-based paint is the most common source of lead exposure [2]. Because lead-based paint was not banned for residential use in the United States until 1978, many houses built before 1979 contain lead-based paint that has the potential to chip, disintegrate into dust, and expose children to lead. A child can have regular lead exposure from this lead-based paint in any place where they spend time regularly such as their residence, daycare, or a relative's home. In Kansas, 84 counties have 75 percent or more of their housing built before 1979 [3]. Only two counties have less than 60 percent of housing built before 1979, Douglas (56.4%) and Johnson (52.7%) [3].

Blood Lead in Adults

Persons aged 16 or older are most commonly exposed to lead through work or hobbies [4]. Exposure to lead can lead to anemia, kidney damage, hypertension, miscarriage, and decreased fertility in adults [5]. Adult Blood Lead Epidemiology and Surveillance (ABLES) data from 2012 indicates that Kansas has a higher rate of elevated blood lead level among workers and adults than 41 other ABLES reporting states.

These findings are available at Kansas Environmental Public Health Tracking Program. https://keap.kdhe.state.ks.us/Ephtm/.

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References

[1] Agency for Toxic Substances & Disease Registry (ATSDR). Lead Toxicity: What are the physiologic effects of lead exposure? 2016. Available from: https://www.atsdr.cdc.gov/csem/csem.asp?csem=7&po=10. Accessed on 4/1/2017.

[2] Agency for Toxic Substances & Disease Registry (ATSDR). Lead Toxicity: Where is lead found? 2016. Available from: https://www.atsdr.cdc.gov/csem/csem.asp?csem=7&po=5. Accessed on 4/1/2017.

[3] United States 2000 Census. Available from https://www.census.gov/census2000/sumfile3.html. Accessed on 4/1/2017.

[4] The National Institute for Occupational Safety and Health (NIOSH). Lead. 2013. Available from: https://www.cdc.gov/niosh/topics/lead/. Accessed on 4/1/2017.

[5] The National Institute for Occupational Safety and Health (NIOSH). Lead: Information for workers. 2013. Available from: https://www.cdc.gov/niosh/topics/lead/health.html. Accessed on 4/1/2017.

Prevalence of Health Risk Behaviors Among Kansas Cancer Survivors – 2015 KS Behavioral Risk Factor Surveillance System

Background

According to the National Cancer Act, the investment in cancer research has significantly improved cancer prevention, treatment, and survival. It has been projected that two thirds of individuals will survive at least five years after their cancer diagnosis in the United States [1]. Increased survivorship is likely attributed to multiple factors, including advancement in cancer screening, diagnosis, and treatment. However, healthy lifestyle behaviors, such as avoidance and cessation of tobacco products, regular physical activity, and a healthy diet, are shown to play a vital role as they are known to be associated with a reduction in morbidity and mortality in cancer survivors [2-5]. Cancer survivors engaged in unhealthy lifestyle behaviors can adversely affect their quality of life and increased risk for cancer recurrence and a new primary cancer [6]. This study will provide an understanding of the extent and disparities of unhealthy lifestyles among cancer survivors in Kansas.

Objective

The objective of this study was to examine the prevalence of selected health risk behaviors and health status among Kansas cancer survivors by their demographic characteristics.

Methods

The 2015 Kansas Behavioral Risk Factor Surveillance System (BRFSS) data were used for this report. Kansas BRFSS is an ongoing, annual, population-based, random digit-dial survey of non-institutionalized Kansas adults ages 18 years and older living in private residences or college housing with landline and/or cell phone service.

Weighted survey data analysis procedures were conducted to calculate prevalence estimates and 95 percent confidence intervals (CI) of selected health risk behaviors and health status among cancer survivors. Based on the BRFSS survey, the cancer survivor is defined as the person who has ever been diagnosed with any type of cancer other than skin cancer by a doctor, nurse, or other health professional. All analyses were performed by using SAS software 9.4.

Results

Health risk behaviors

In 2015, an estimated 2,273 (7.1%) Kansas adults have ever been diagnosed with any type of cancer (excluding skin cancer). Among these cancer survivors, approximately 15.0% of them were current smokers, 40.4% did not consume fruits at least one time per day, 22.1% did not consume vegetables at least one time per day, and 33.9% of them did not participate in any leisure time physical activity for the past 30 days other than their regular job (Table 1).

Higher prevalence of current smoking was seen among survivors who are females (16.8%), aged 35-44 years (36.0%), non-Hispanic African American (32.9%) and non-Hispanic other/multi-race (38.8%) survivors, those with annual household income less than

Table 1. Health behavior status among cancer survivors by selected characteristics, 2015 BRFSS

Health Risk Behaviors	Current Smoker		Did Not Consume Fruits ≥ 1 Times Per Day		Did Not Consume Vegetables ≥ 1 Times Per Day		Did Not Participate in Leisure Time Physical Activity for the Past 30 Days	
Demographics	Weighted Percentage	95% CI	Weighted Percentage	95% CI	Weighted Percentage	95% CI	Weighted Percentage	95% CI
Total	15.0%	(13.1, 16.9)	40.4%	(37.8, 43.0)	22.1%	(19.9, 24.4)	33.9%	(31.5, 36.4)
Gender								
Male	12.0%	(9.1, 15.0)	45.8%	(41.4, 50.1)	24.4%	(20.5, 28.3)	31.9%	(27.9, 35.9)
Female	16.8%	(14.3, 19.4)	37.1%	(33.9, 40.4)	20.8%	(18.2, 23.5)	35.2%	(32.1, 38.3)
Age groups								
18-34	26.3%	(13.9, 38.6)	41.7%	(27.0, 56.4)	12.9%	(4.2, 21.6)	21.6%	(10.7, 32.4)
35-44	36.0%	(24.0, 48.0)	53.7%	(40.0, 67.4)	27.9%	(16.0, 39.9)	38.7%	(25.3, 52.1)
45-64	22.5%	(18.8, 26.3)	48.4%	(43.9, 52.9)	22.9%	(19.1, 26.8)	34.6%	(30.4, 38.9)
65 years and older	6.2%	(4.7, 7.7)	33.4%	(30.4, 36.5)	22.1%	(19.4, 24.9)	35.0%	(31.9, 38.1)
Race*								
White, Non-Hispanic	23.4%	(17.7, 29.2)	48.4%	(41.5, 55.3)	22.4%	(17.4, 27.3)	28.7%	(23.9, 33.5)
African American, Non-Hispanic	32.9%	(13.4, 52.4)	26.9%	(12.4, 41.3)	17.5%	(4.7, 30.3)	14.6%	(7.1, 22.0)
Other/Multi-Race, Non-Hispanic+	38.8%	(23.5, 54.0)	35.2%	(20.3, 50.2)	20.0%	(10.9, 29.2)	38.7%	(23.2, 54.3)
Hispanic	8.6%	(1.6, 15.6)	34.9%	(16.5, 53.3)	-	-	48.6%	(29.9, 67.4)
Annual Household Income								
Less than $15,000	30.8%	(21.4, 40.2)	48.3%	(37.7, 58.9)	31.9%	(22.4, 41.3)	42.6%	(32.7, 52.6)
$15,000 - $24,999	22.8%	(17.0, 28.6)	44.5%	(37.7, 51.3)	24.8%	(19.0, 30.6)	44.3%	(37.7, 50.9)
$25,000- $34,999	18.3%	(12.3, 24.3)	50.8%	(43.0, 58.6)	19.4%	(13.5, 25.3)	37.0%	(29.3, 44.7)
$35,000- $49,999	13.5%	(8.5, 18.6)	35.8%	(29.1, 42.5)	26.3%	(20.0, 32.5)	31.3%	(24.9, 37.6)
$50,000 or higher	9.5%	(6.8, 12.3)	39.0%	(34.7, 43.3)	16.2%	(12.9, 19.4)	23.9%	(20.2, 27.7)
Education								
Less than high school	24.9%	(16.3, 33.6)	45.0%	(34.9, 55.0)	30.0%	(21.0, 39.0)	43.8%	(33.9, 53.7)
High school graduate or G.E.D	17.1%	(13.5, 20.7)	45.3%	(40.6, 50.0)	27.2%	(23.0, 31.3)	41.3%	(36.7, 45.8)
Some college	14.9%	(11.6, 18.2)	40.6%	(35.9, 45.3)	21.8%	(18.0, 25.7)	33.4%	(29.1, 37.7)
College graduate	8.5%	(6.1, 10.9)	33.2%	(29.1, 37.3)	14.0%	(10.8, 17.1)	22.9%	(19.4, 26.3)
Insurance Status								
Insured	14.0%	(12.1, 15.8)	39.5%	(36.8, 42.1)	22.2%	(19.9, 24.4)	33.4%	(30.9, 35.9)
Uninsured	29.5%	(18.0, 41.1)	53.1%	(39.2, 67.0)	22.0%	(11.8, 32.2)	41.1%	(28.2, 54.1)
Population Density								
Frontier/Rural/Densely-settled rural	17.6%	(14.1, 21.1)	43.9%	(39.4, 48.4)	24.6%	(20.8, 28.5)	37.3%	(33.0, 41.5)
Semi-urban/Urban	13.7%	(11.4, 16.0)	38.7%	(35.5, 41.9)	21.1%	(18.4, 23.8)	32.5%	(29.5, 35.5)

Note: Statistically significant was defined by non-overlapping 95% CIs.
* Prevalence estimates for race and ethnicity were age-adjusted to the U.S. 2000 standard population.
\+ Other non-Hispanic group includes American Indian or Alaskan Native, Asian, Native Hawaiian or Pacific Islander.
\- Data are not presented due to small number of cases.
Source: 2015 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

$15,000 (30.8%), those who received less than high school education (24.9%), those without health insurance (29.5%), and those who lived in frontier, rural, or densely-settled rural area (17.6%).

Higher prevalence of not consuming fruits at least one time per day was seen among survivors who are males (45.8%), aged 35-44 years (53.7%) and 45-64 years (48.4%), non-Hispanic White (48.4%) survivors, those with annual household income less than $35,000

(45~51%), those who did not complete high school (45.0%) or received a high school diploma or GED (45.3%), those without health insurance (53.1%), and those who lived in frontier, rural, or densely-settled rural area (43.9%).

Higher prevalence of not consuming vegetables at least one time per day was seen among survivors who are males (24.4%), aged 35-44 years (27.9%), non-Hispanic White (22.4%) survivors, those with annual household income less than $15,000 (30.0%), and those who lived in frontier, rural, or densely-settled rural area (24.6%).

Higher prevalence of not participating in leisure time physical activity for the past 30 days was seen among survivors who are females (35.2%), aged 35-44 years (38.7%), Hispanic (48.6%) survivors, those with annual household income less than $25,000 (43~44%), those who received less than high school education (43.8%), those without health insurance (41.1%), and those who lived in frontier, rural, or densely-settled rural area (37.3%).

Health Status

In 2015, an estimated of 22.5% of cancer survivors were physically unhealthy for 14 or more days in the past month, and 12.2% of them were mentally unhealthy for 14 or more days in the past month. There were 24.6% of cancer survivors whose self-perceived poor health interfered with usual activities for 14 or more days in the past month (Table 2).

Higher prevalence of physically unhealthy for 14 or more days in the past month was seen among survivors aged 45-64 years (27.5%), non-Hispanic other/multi-race (33.5%) survivors, those with annual household income less than $15,000 (49.3%), those who received less than high school education (35.1%), those without health insurance (28.4%), and those who lived in frontier, rural, or densely-settled rural area (25.6%).

Higher prevalence of mentally unhealthy for 14 or more days in the past month was seen among survivors who are females (14.9%), aged 18-34 years (27.2%), non-Hispanic African American (36.9%) survivors, those with annual household income less than $15,000 (32.6%), those who received less than high school education (24.0%), and those who did not have health insurance (27.5%).

Higher prevalence of self-perceived poor health interfering with usual activities for 14 or more days in the past month was seen among survivors who are females (25.6%), aged 45-64 years (29.2%), non-Hispanic African American (51.3%) survivors, those with annual household income less than $15,000 (52.0%), those who received less than high school education (39.1%), those without health insurance (39.6%), and those who lived in frontier/rural/densely-settled rural area (31.9%).

Conclusion

Our findings indicated the existence of disparities within various demographic subgroups in multiple lifestyle behaviors among cancer survivors. This population-based information suggests the public health strategies are needed to reduce tobacco use, increase fruits and vegetables consumption, increase physical activities, and promote healthy behaviors, thus improving status of cancer survivors.

Table 2. Physical and Mental Health Status Among Cancer Survivors by Selected Characteristics, 2015 BRFSS

Health Status	Physically Unhealthy for ≥ 14 Days in Past 30 Days		Mentally Unhealthy for ≥ 14 Days in Past 30 Days		Poor Health Interfered with Usual Activities for ≥ 14 Days in Past 30 Days	
Demographics	Weighted Percentage	95% CI	Weighted Percentage	95% CI	Weighted Percentage	95% CI
Total	22.5%	(20.4, 24.7)	12.2%	(10.4, 14.0)	24.6%	(21.6, 27.6)
Gender						
Male	22.7%	(19.1, 26.3)	8.0%	(5.5, 10.5)	22.6%	(17.5, 27.7)
Female	22.4%	(19.7, 25.2)	14.9%	(12.5, 17.4)	25.6%	(21.9, 29.3)
Age groups						
18-34	26.0%	(13.3, 38.7)	27.2%	(14.4, 40.0)	23.6%	(9.1, 38.1)
35-44	15.6%	(6.2, 25.1)	20.6%	(10.9, 30.4)	26.5%	(13.0, 40.0)
45-64	27.5%	(23.5, 31.4)	15.9%	(12.7, 19.1)	29.2%	(24.2, 34.3)
65 years and older	19.7%	(17.2, 22.2)	6.9%	(5.3, 8.5)	21.0%	(17.5, 24.5)
Race*						
White, Non-Hispanic	21.2%	(15.9, 26.5)	15.8%	(10.8, 20.7)	20.5%	(15.0, 25.9)
African American , Non-Hispanic	31.6%	(14.3, 49.0)	36.9%	(15.2, 58.6)	51.3%	(34.1, 68.5)
Other/Multi-Race, Non-Hispanic+	33.5%	(19.7, 47.2)	34.0%	(20.4, 47.6)	41.6%	(26.0, 57.2)
Hispanic	22.8%	(8.0, 37.7)	18.3%	(5.6, 31.0)	27.6%	(4.7, 50.5)
Annual Household Income						
Less than $15,000	49.3%	(39.0, 59.6)	32.6%	(22.3, 42.9)	52.0%	(40.0, 64.1)
$15,000 - $24,999	25.6%	(20.2, 31.0)	20.4%	(14.9, 25.9)	25.7%	(19.1, 32.3)
$25,000- $34,999	27.5%	(20.5, 34.5)	11.5%	(6.8, 16.2)	24.0%	(14.8, 33.3)
$35,000- $49,999	16.5%	(11.5, 21.5)	8.3%	(4.3, 12.3)	22.1%	(13.7, 30.5)
$50,000 or higher	12.9%	(10.0, 15.8)	6.2%	(3.9, 8.4)	12.1%	(8.2, 15.9)
Education						
Less than high school	35.1%	(25.5, 44.8)	24.0%	(15.1, 32.9)	39.1%	(26.5, 51.8)
High school graduate or G.E.D	23.9%	(20.1, 27.6)	12.4%	(9.3, 15.5)	25.0%	(20.1, 30.0)
Some college	23.2%	(19.4, 27.0)	11.3%	(8.4, 14.1)	23.7%	(18.8, 28.6)
College graduate	14.9%	(12.0, 17.7)	8.1%	(5.8, 10.4)	17.8%	(13.4, 22.3)
Insurance Status						
Insured	22.0%	(19.9, 24.2)	11.1%	(9.4, 12.8)	23.4%	(20.5, 26.3)
Uninsured	28.4%	(15.6, 41.1)	27.5%	(15.0, 40.0)	39.6%	(23.6, 55.5)
Population Density						
Frontier/Rural/Densely-settled rural	25.6%	(21.8, 29.5)	12.7%	(9.6, 15.7)	31.9%	(26.1, 37.7)
Semi-urban/Urban	21.1%	(18.4, 23.7)	12.1%	(9.9, 14.3)	21.4%	(18.0, 24.8)

Note: Statistically significant was defined by non-overlapping 95% CIs.
* Prevalence estimates for race and ethnicity were age-adjusted to the U.S. 2000 standard population.
+ Other non-Hispanic group includes American Indian or Alaskan Native, Asian, Native Hawaiian or Pacific Islander.
Source: 2015 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

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Risk Factors, Preventive Practices, and Health Care by Cancer Survivorship Status, Kansas, 2014

Background

Cancer recurrence and development of second primary cancers (SPC) among survivors are affected by certain modifiable risk factors, such as tobacco use, obesity, and physical inactivity [1]. Providing cancer patients with screening recommendations and guidance about health promotion activities are part of high-quality survivorship care [2]. Currently, only limited information exists on the prevalence of behavioral risk factors among cancer survivors. It is unclear whether the screening practices among cancer survivors are similar to persons without cancer diagnosis. This information is crucial to planning for the best survivorship care for optimal health results.

Objective

The objective of this study was to compare the behavioral risk factors and preventive service use between survivors of any type of cancer (excluding skin cancer) and persons without a cancer diagnosis in Kansas. We also examined survivorship health and health care status to inform future public health and strategic health care planning.

Methods

The 2014 Kansas Behavioral Risk Factor Surveillance System (BRFSS) data were used for this report. Kansas BRFSS is an ongoing, annual, population-based, random digit-dial survey of non-institutionalized Kansas adults ages 18 years and older living in private residences or college housing with landline or cell phone service. The cancer survivorship status was defined as cancer survivors and persons without a cancer diagnosis. Cancer survivors were defined as those who have ever been diagnosed with any type of cancer (excluding skin cancer).

Persons without a cancer diagnosis were defined as those who had never been told by a health professional that they had any type of cancer (except skin cancer). Descriptive statistics were computed for the cancer survivors and persons without cancer diagnosis.

We compared health and health care indicators among two survivorship status groups. We further compared the selected risk factors and the engagement in preventive practices among these two groups. Using multivariate logistic regression, we compared the proportion of health/health care indicators, selected risk factors, and preventive practices among

the two groups by adjusting for sex, age, race/ethnicity, annual household income, and general disability. Statistical significance was determined by 95% confidence intervals (CIs) for the prevalence or adjusted odds ratios (AORs). X2 test was used to evaluate between-group differences at the $\alpha<0.05$. All analyses were performed by using SAS software 9.4.

Table 1. Characteristics of Cancer Survivors and Persons with no Diagnosis of Cancer, Kansas, 2014

Characteristics	Cancer Survivors[a] N[b] (%)	Persons Without a Cancer Diagnosis N[b] (%)
Overall	1,310 (100%)	12,399 (100%)
Gender		
Male	429 (36.5%)	5,421 (50.2%)
Female	881 (63.5%)	6,978 (49.8%)
Race		
White, NH	1,198 (90.8%)	10,487 (78.9%)
African American, NH	41 (4.2%)	485 (5.8%)
Other Multi-racial, NH	36 (2.8%)	536 (5.4%)
Hispanic	21 (2.2%)	753 (9.9%)
Age group		
< 40	54 (9.0%)	3,083 (41.8%)
40-49	63 (7.2%)	1,722 (15.9%)
50-64	373 (32.0%)	3,902 (25.3%)
≥ 65	807 (51.8%)	3,595 (17.0%)
Education		
< High School	80 (11.3%)	754 (11.1%)
High School Graduate	370 (28.2%)	3,479 (27.4%)
Some College	375 (34.0%)	3,611 (34.4%)
College Graduate	477 (26.5%)	4,487 (27.1%)
Household Income		
< $15,000	102 (9.0%)	891 (7.4%)
$15,000-$24,999	198 (15.6%)	1,687 (14.3%)
$25,000-$34,999	164 (11.7%)	1,219 (9.7%)
$35,000-$49,999	188 (14.8%)	1,694 (13.4%)
≥ $50,000	435 (32.6%)	4,933 (38.8%)
Population Density		
Rural	395 (30.0%)	3,827 (29.5%)
Urban	902 (70.0%)	8,307 (70.5%)
Disability		
Living With a Disability	549 (42.4%)	2,941 (20.6%)
Living Without a Disability	717 (57.6%)	9,041 (79.4%)

Note: [a] Cancer survivors are defined as respondents answered "yes" to the question "Has a doctor, nurse, or other health professional ever told you that you had any other types of cancer?"
[b] Missing and unknown excluded.
Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion. KDHE.

Results

Demographics

In 2014, cancer survivors tended to be females (63.5%), non-Hispanic Whites (90.8%), and older (51.8% ≥ age 65) than persons without cancer diagnosis (49.8%, 78.9%, and 17.0%, respectively) (Table 1). Most adults in two groups received high school diploma or had a higher than high school education. A higher proportion of adults in each group had an annual household income of $50,000 or more (32.6% for cancer survivors; 38.8% for persons without diagnosis of cancer). Most of adults in both groups are living in urban counties. A larger proportion of cancer survivors (42.4%) are living with a disability compared with persons without cancer diagnosis (20.6%).

Health/Health Care Status

A significantly larger proportion of cancer survivors (38.8%) perceived their health as fair to poor than persons with no diagnosis of cancer (26.5%). A significantly greater proportion of cancer survivors (18.8%) were physically unhealthy for 14 or more days in the past month than persons without a cancer diagnosis (11.9%) (Table 2).

Table 2. Comparison of Health Care Indicators Among Two Survivorship Status Groups: Cancer Survivors and Persons Without a Cancer Diagnosis, Kansas, 2014

Health/Health Care Indicator	Cancer Survivor Percentage* ± SE	Persons Without a Cancer Diagnosis Percentage* ± SE	P-value
Health Status			
Self-reported Fair/Poor Health	38.8 ± 2.8	26.5 ± 1.2	< 0.001
Physically Unhealthy for ≥ 14 Days in Previous Month	18.8 ± 2.0	11.9 ± 0.8	< 0.001
Emotionally Unhealthy for ≥ 14 Days in Previous Month	12.7 ± 1.7	11.6 ± 0.8	0.46
Poor Health Interfered With Usual Activities for ≥ 14 Days in Previous Month	14.2 ± 2.1	11.5 ± 1.1	0.10
Health Care Access			
Lack of Healthcare Coverage	7.5 ± 1.5	12.3 ± 0.9	0.01
No Personal Doctor or Healthcare Provider	13.6 ± 2.0	18.7 ± 1.0	0.03
Couldn't See Doctor Due to Cost Within Last year	21.7 ± 2.4	15.8 ± 0.9	0.01

Note: - *Adjusted percentages were computed using marginal standardization and were adjusted for sex, age, race/ethnicity, household income, and disability.
- SE=standard error.
- P-value <0.05 indicates statistically significant between-group differences.

Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion,

Significantly lower proportion of cancer survivors (7.5%) didn't have healthcare coverage compared with persons without a diagnosis of cancer (12.3%). A significantly lower proportion of cancer survivors (13.6%) did not have personal doctor or healthcare provider than persons with no diagnosis of cancer (18.7%). In addition, significantly higher proportion of cancer survivors (21.7%) couldn't see doctor due to cost within last year compared with persons without a cancer diagnosis (15.8%) (Table 2.).

Risk Factors

The unadjusted prevalence for current smoking did not differ significantly by cancer survivorship status. However, after adjusting for sociodemographic characteristics, significant difference was observed and the odds of being a current smoker was 1.24 times higher among cancer survivors (AOR = 1.24; 95% CI: 1.00-1.54) compared with persons without a cancer diagnosis. The unadjusted prevalence of overweight or obese was not significantly different for the two groups, but after adjusting for sociodemographic characteristics, significant difference was observed and the odds of being overweight or obese was 15% lower among cancer survivors compared with persons without a cancer diagnosis (AOR = 0.85; 95% CI: 0.72-1.00). The unadjusted prevalence of heavy drinking was low among the two groups and did not differ significantly by survivorship status. The difference remained insignificant in the AOR for heavy drinking after adjusting for sociodemographic characteristics (AOR = 1.08; 95% CI: 0.74-1.57). The unadjusted prevalence of no leisure time physical

activity was significantly higher among cancer survivors (32.6%; 95% CI: 29.7%-35.7%) compared with persons without diagnosis of cancer. However, no significant difference was seen in the AOR for physical activity after adjusting for sociodemographic characteristics (AOR = 1.02; 95% CI: 0.87-1.20).

Cancer Screening

More than 70% of women aged 40 years and older in each group had mammograms within the past 2 years. The unadjusted prevalence of having mammograms within the past two years did not differ significantly by survivorship status; this is also true after we adjusted for sociodemographic characteristics (AOR= 1.03; 95% CI: 0.83-1.28). On the other hand, more than 80% of women aged 21 to 65 in each group had pap test within the preceding 3 years, but no significant difference was observed in the unadjusted prevalence between the two groups; this remained true after we adjusted for sociodemographic characteristics (AOR= 1.37; 95% CI: 0.78-2.43) (Table 3).

Table 3.Prevalence of selected risk factors and cancer screenings among cancer survivors and persons without a cancer diagnosis, Kansas, 2014

Risk Factors and Cancer Screening	%[a] (95% CI)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	P-value[g]
Risk Factors[b]				
Current Smoking				
Cancer Survivor	18.0 (15.3-21.0)	0.99 (0.81-1.21)	1.24 (1.00-1.54)	0.04
Persons Without a Cancer Diagnosis	18.1 (17.2-19.0)		1 [Reference]	
Overweight/Obese (BMI ≥25kg/m²)				
Cancer Survivor	67.9 (64.7-71.0)	1.04 (0.89-1.21)	0.85 (0.72-1.00)	0.04
Persons Without a Cancer Diagnosis	67.1 (66.0-68.2)		1 [Reference]	
Heavy Drinking				
Cancer Survivor	4.1 (2.9-5.7)	0.79 (0.55-1.13)	1.08 (0.74-1.57)	0.69
Persons Without a Cancer Diagnosis	5.2 (4.7-5.7)		1 [Reference]	
No Leisure-time Physical Activity in Previous Month				
Cancer Survivor	32.6 (29.7-35.7)	1.61 (1.39-1.86)	1.02 (0.87-1.20)	0.78
Persons Without a Cancer Diagnosis	23.1 (22.3-24.1)		1 [Reference]	
Cancer Screening				
Last Mammograms < 2 Years[c]				
Cancer Survivor	72.9 (68.9-76.6)	1.11 (0.90-1.37)	1.03 (0.83-1.28)	0.78
Persons Without a Cancer Diagnosis	70.8 (69.3-72.3)		1 [Reference]	
Pap Test < 3 Years[d]				
Cancer Survivor	84.4 (76.3-90.1)	1.19 (0.70-2.02)	1.37 (0.78-2.43)	0.28
Persons Without a Cancer Diagnosis	82.1 (80.4-83.7)		1 [Reference]	
Ever Met USPSTF CRC Screening Guideline[e]				
Cancer Survivor	77.0 (73.1-80.5)	1.96 (1.57-2.44)	1.64 (1.30-2.06)	<0.001
Persons Without a Cancer Diagnosis	63.2 (61.7-64.6)		1 [Reference]	
Ever Had PSA Test[f]				
Cancer Survivor	86.9 (82.2-90.5)	5.65 (3.90-8.19)	2.84 (1.90-4.24)	<0.001
Persons Without a Cancer Diagnosis	54.0 (52.1-55.9)		1 [Reference]	

Note: [a.] Proportions were computed using marginal standardization.
[b.] Adjusted odds ratio (OR) for risk factors were adjusted for sex, age, race/ethnicity, household income, and disability.
[c.] Women aged 40 years or older, adjusted OR were adjusted for age, race/ethnicity, household income, and disability.
[d.] Women aged 21 to 65 years, adjusted OR were adjusted for age, race/ethnicity, household income, and disability.
[e.] Adults aged 50 to 75 years, adjusted OR were adjusted for sex, age, race/ethnicity, household income, and disability.
[f.] Men aged 40 years or older, adjusted OR were adjusted for age, race/ethnicity, household income, and disability.
[g] *P*-values were for the adjusted ORs.
Source: 2014 Kansas Behavioral Risk Factor Surveillance System, Bureau of Health Promotion, KDHE.

The unadjusted prevalence of adults aged 50 to 75 years who have met the USPSTF guidelines for colorectal cancer (CRC) screening was significantly higher among cancer survivors (77.0%; 95% CI: 73.1%-80.5%) compared with persons without a diagnosis of cancer (63.2%; 95% CI: 61.7%-64.6%) (Table 3). The difference remained significant after we adjusted for sociodemographic characteristics, the odds of meeting the USPSTF CRC screening guidelines was 1.64 times higher among cancer survivors (AOR = 1.64; 95% CI: 1.90-2.06) compared with persons without a cancer diagnosis.

More than 50% of men aged 40 years or older in each group had a PSA test during their lifetime; the unadjusted prevalence of ever had a PSA test was significantly higher among cancer survivors (86.9%; 95% CI: 82.2%-90.5%) than persons without a cancer diagnosis (54.0%; 95% CI: 52.1%-55.9%) (Table 3). The difference remained significant after we adjusted for sociodemographic characteristics, the odds of ever having a PSA test was 2.84 times higher among cancer survivors (AOR = 2.84; 95% CI: 1.90-4.24) compared with persons without a diagnosis of cancer.

Conclusion

This study found that a significantly higher percentage of cancer survivors had fair/poor health status, were physical unhealthy for 14 or more days in the past month, were unable to see doctor due to cost within last year, were current smokers and had no leisure time physical activity in the past month, and did obtain screening examinations according to recommended guidelines compared to the individuals without a diagnosis of cancer. A significantly lower percentage of cancer survivors were uninsured, did not have personal doctor or healthcare provider, and were obese compared to the individuals without a diagnosis of cancer. Our findings are consistent with previous breast cancer survivorship study of comparison between female breast cancer patients and women with no history of cancer [3,4,5], and align with previous survivorship study of comparing cancer survivors and general population in Korea [2]. Higher cancer screening rates in cancer survivors, even after adjustment for sociodemographic factors, warrant future studies to explore different health beliefs and risk perceptions in this population related to cancer prevention. This population-based information suggests survivors should be closely monitored, specifically to reduce risk behaviors and increase participation in cancer screening as new guidelines should continue to be included in long-term care plans for cancer survivors.

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Kansas Physicians Meeting Reporting Challenge

Timely and accurate reporting of death certificates in Kansas results in better assessment of public health concerns in the state. The filing of certificates involves funeral homes, physicians, and the Office of Vital Statistics (OVS) at the Kansas Department of Health and Environment. The process has been a paper and electronic one in the past. With the passage in 2016 of House Bill 2518 the death certificate filing process changed. The law requiring all death certificates filed with OVS be filed electronically through the Kansas Electronic Death Registration System (EDRS) became effective on January 1, 2017.

OVS learned HB2518 had passed in late-March 2016. Upon learning of the mandate OVS field staff traveled across the state conducting EDRS training sessions in preparation for January 1. In addition, a self-paced training course was offered and webinars were conducted.

On June 30, 2016 there were 499 physicians online. One year later the state has 2,765 physicians using EDRS.

All 2017 deaths have been filed electronically and the office has received positive feedback from decedents' families regarding improved turnaround time for a death certificate. Many families need the death certificate to close out estates and to submit insurance claims. These benefits go hand-in-hand with the CDC's goal of 80% of all death events being reported within 10 days. This goal can only be reached by all death reporters using EDRS. The U.S. Centers for Disease Control and Prevention and agency epidemiologists are also better able to identify deadly outbreaks and proactively address health risks. Steady improvement has been achieved regarding the percent of death events being reported within 10 days. At month-end June 2016, we were averaging 44.4% of all death records reported within 10 days. At month-end June 2017, we are averaging 64.3% of all death records reported within 10 days (Table 1).

Table 1. Death Certificate Average Reporting Rate by Time Period, Kansas

Time Period	Average Monthly Reporting within 10 Days
Jan. 2016 – June 2016	44.4%
July 2016 – Dec. 2016	53.4%
Jan. 2017 – June 2017	64.3%

Although Kansas has seen solid sustained improvements in the timeliness of death events, reporting rates are still short of the CDC

goal. In addition, opportunities exist for improved quality of data. The OVS team is developing an online training module to improve the quality of death data reporting. Watch for updates on a release date for this training module.

Kay Haug
Office of Vital Statistics
Bureau of Epidemiology and Public Health Informatics

2017 Independence Day Fireworks Surveillance Summary

In 2017, 154 emergency department (ED) visits were directly related to fireworks from June 12th to August 13th. These incident estimates were obtained or derived from the Kansas Syndromic Surveillance Program's production (KSSP) ED data set. The counts below are based only on ED visits that could be directly linked to firework activities found in the free text or ICD 10 diagnosis code data.

Figure 1.

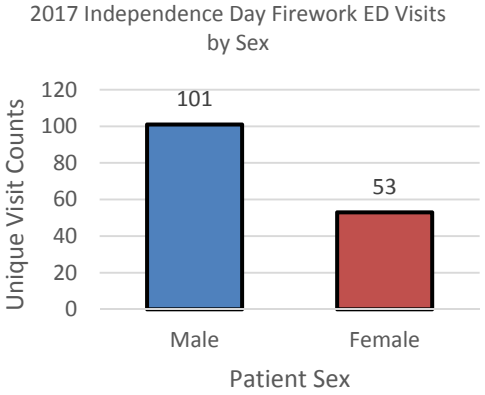


Figure 2

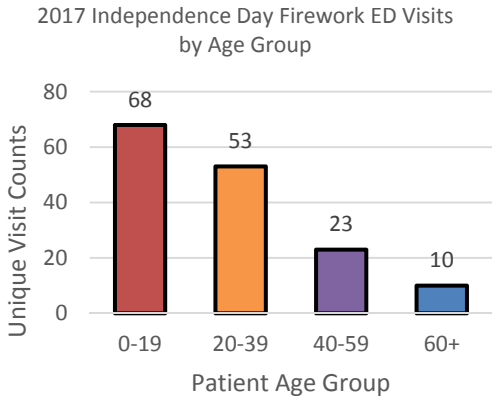
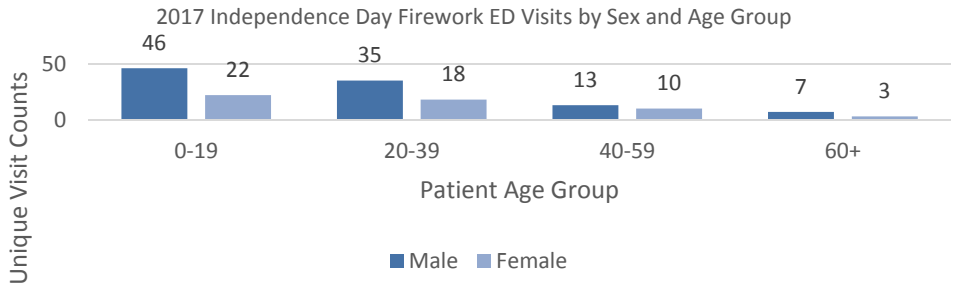


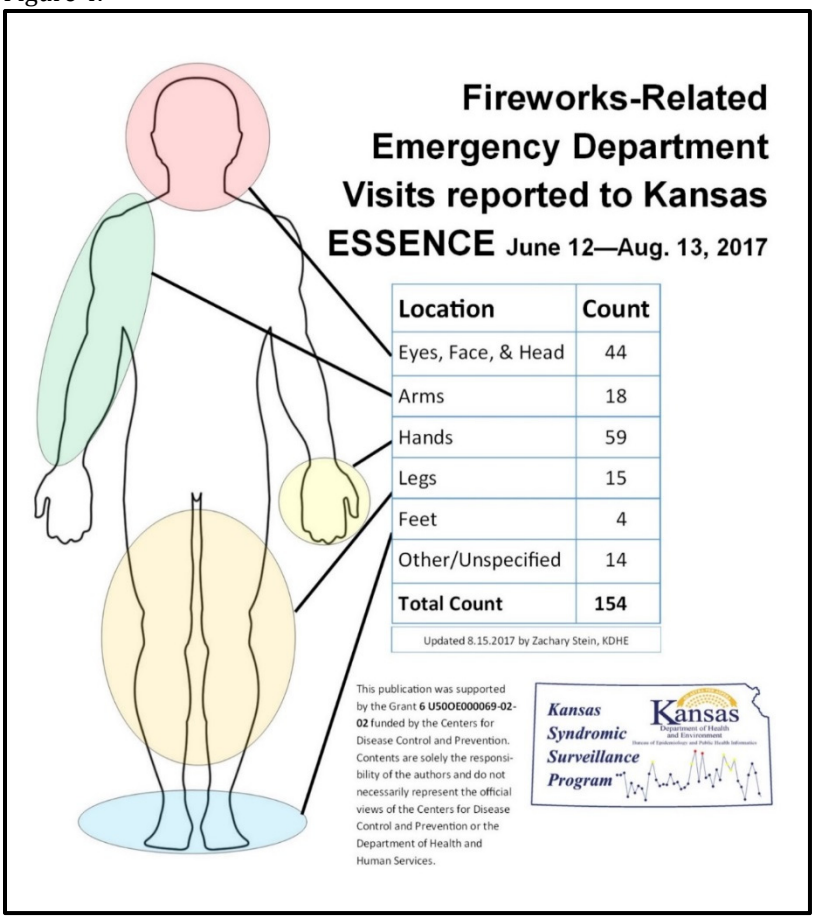
Figure 3.



For 2017 KSSP data, the most common victims of firework injuries were males (Figure 1), accounting for 65.5% of all firework-related ED visits and children ages 0-19 accounting for 44.2% of these visits (Figure 2). At every age breakout, male injuries exceeded female injuries (Figure 3).

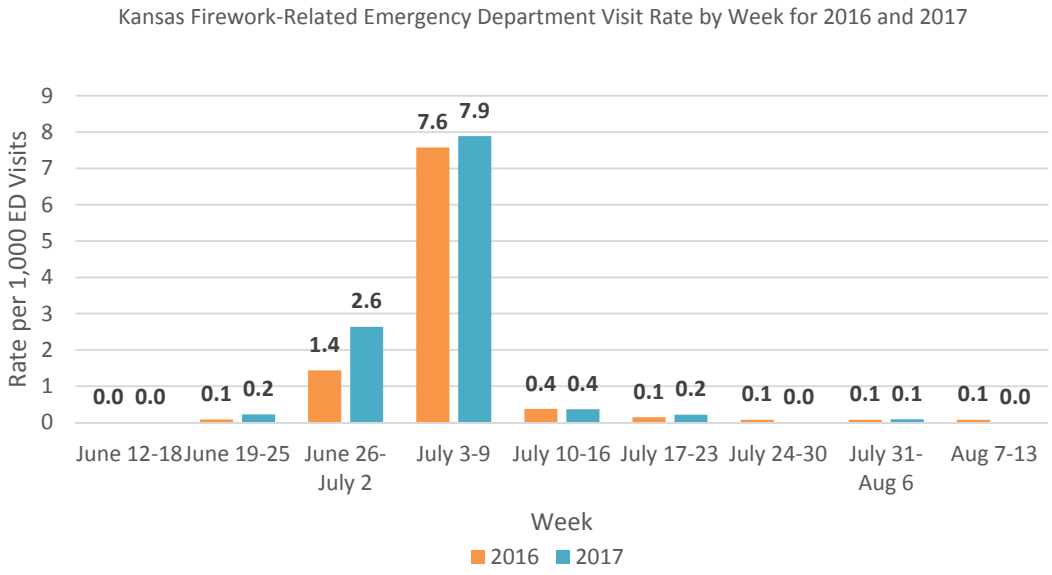
The most common anatomical location of the injury was one or both hands with 38.3% of all injuries mentioned hands as their primary injury. Injuries to the eyes, face, and head accounted for the second most injuries (28.6% of all patients) (Figure 4).

Figure 4.



Due to continuous KSSP hospital onboarding efforts, there are significant differences in volume of data available for analysis and the statewide data coverage. To account for this and allow for comparison to last year, Firework-Related ED Visit counts were translated to a weekly rate per 1,000 ED Visits. Weekly firework-related ED visit rate by week showed very little difference between 2017 and 2016 (Figure 5).

Figure 5.



2016 Kansas Vital Statistics*

County of Residence	Live Births	Deaths	Marriages	Marriage Dissolutions	County of Residence	Live Births	Deaths	Marriages	Marriage Dissolutions
Kansas	38,048	26,129	17,948	7,198					
Allen	137	155	59	43	Lyon	417	252	199	69
Anderson	111	111	40	35	McPherson	308	351	179	67
Atchison	203	191	79	29	Marion	118	166	57	16
Barber	56	51	31	7	Marshall	112	128	64	27
Barton	331	294	171	74	Meade	54	52	19	9
Bourbon	194	190	95	55	Miami	345	303	209	90
Brown	112	111	48	12	Mitchell	84	67	26	11
Butler	757	639	428	141	Montgomery	385	459	209	114
Chase	32	44	33	1	Morris	63	81	30	13
Chautauqua	28	59	19	9	Morton	25	31	16	3
Cherokee	217	248	87	64	Nemaha	140	120	63	15
Cheyenne	39	37	11	6	Neosho	217	202	100	30
Clark	24	29	7	2	Ness	37	43	14	14
Clay	117	103	58	19	Norton	66	81	28	15
Cloud	91	145	48	44	Osage	183	187	67	41
Coffey	95	96	47	103	Osborne	40	66	22	7
Comanche	13	28	7	0	Ottawa	61	85	29	19
Cowley	397	434	212	104	Pawnee	64	81	35	17
Crawford	480	427	210	84	Phillips	68	64	26	12
Decatur	31	46	15	9	Pottawatomie	394	164	113	31
Dickinson	225	241	108	67	Pratt	126	126	45	24
Doniphan	74	78	31	11	Rawlins	34	41	17	6
Douglas	1,177	650	792	161	Reno	683	722	396	132
Edwards	31	28	16	14	Republic	43	81	30	17
Elk	35	38	7	2	Rice	110	114	56	23
Ellis	357	258	168	50	Riley	976	378	766	156
Ellsworth	63	86	25	37	Rooks	68	66	28	6
Finney	655	210	288	99	Rush	40	65	12	8
Ford	646	241	286	79	Russell	81	81	19	15
Franklin	298	296	149	65	Saline	662	518	353	187
Geary	967	230	500	358	Scott	63	55	19	17
Gove	40	38	7	5	Sedgwick	7,309	4,513	3,227	1,789
Graham	20	32	14	10	Seward	429	136	192	70
Grant	123	51	28	18	Shawnee	2,189	1,870	1,077	456
Gray	86	68	26	13	Sheridan	33	30	9	2
Greeley	15	15	10	4	Sherman	73	66	21	24
Greenwood	67	109	32	7	Smith	40	70	18	6
Hamilton	37	19	5	10	Stafford	53	40	22	5
Harper	65	83	30	22	Stanton	25	22	30	6
Harvey	379	408	240	76	Stevens	74	45	27	19
Haskell	55	29	17	5	Sumner	255	246	156	76
Hodgeman	23	22	5	3	Thomas	119	69	75	26
Jackson	169	129	71	20	Trego	28	55	19	5
Jefferson	202	178	165	15	Wabaunsee	67	68	48	9
Jewell	36	35	19	10	Wallace	23	16	6	3
Johnson	7,350	3,735	2,795	805	Washington	67	75	39	4
Kearny	61	35	18	11	Wichita	21	22	12	4
Kingman	74	102	43	19	Wilson	114	102	42	26
Kiowa	37	20	14	7	Woodson	38	52	11	4
Labette	293	285	86	48	Wyandotte	2,694	1,348	1,354	282
Lane	16	32	9	6	n.s.	4	2	0	0
Leavenworth	999	655	504	225					
Lincoln	37	37	20	8					
Linn	95	119	65	32					
Logan	54	22	19	8					

*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

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