

## 2018 Independence Day Fireworks Surveillance Summary

Kansas’s Syndromic Surveillance Program (KSSP) receives Emergency Department (ED) data from hospitals across Kansas. Currently, KSSP receives information on 80% of all ED visits across the state. Data is sent very rapidly with visit data being available within 2-4 hours of the ED visit. Rapid data allows for rapid analysis and KSSP uses this data to analyze firework injuries yearly.

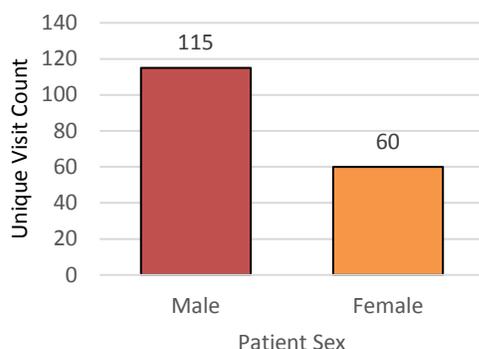
Prior to the firework selling season, KSSP worked with the Office of the State Fire Marshall to produce a summary of last year’s firework injuries. “During the 2017 Fourth of July holiday, there were 154 reported firework-related injuries. Injuries to the hands

were most common and hands or fingers were involved in 38% of identified emergency department visits. The eyes, face, or head were involved in over a quarter (28.5 percent) of all visits.”

Please follow this link to the rest of the OSFM News Release <https://firemarshal.ks.gov/news-releases/2018/06/26/celebrate-safely-this-fourth-of-july>

As the firework season progressed in 2018, data was pulled on July 8<sup>th</sup> for the July 1<sup>st</sup> – 7<sup>th</sup> period; data was reviewed, and false positives removed. This data was then used in public

Figure 1. 2018 Independence Day Firework ED Visits by Sex



messaging through KDHE Public Information, <https://khap2.kdhe.state.ks.us/NewsRelease/PDFs/07-10-2018%20Kansas%20Records%20Fireworks-Related%20Injuries%20Over%20July%204th%20Holiday%20-%20with%20images%2003.pdf> (see Fast Stats on page 10). During that time, Kansas EDs saw 133 visits related to firework injuries.

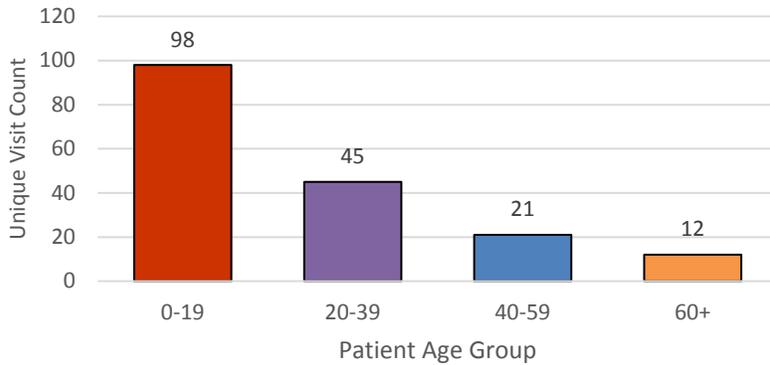
After the month of July, data was pulled for June and July 2018. Firework injuries were queried using the same definitions used for in prior data pulls. All visits were reviewed, false positives were removed, and true firework-related ED visits were classified by major

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Figure 2. 2018 Independence Day Firework ED Visits by Age Group



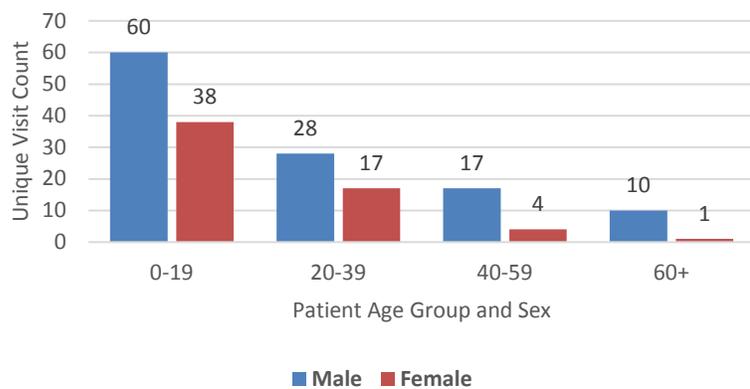
anatomical location of injury. Major anatomical location of injury was determined using the information contained in the Chief Complaint, Triage Notes, Admit Reason, and Discharge Diagnosis fields. There were 176 total firework-related ED visits captured in KSSP data for

June and July 2018. The following figures display these ED visits by patient sex, age, and anatomical location of injury. Sex was not listed for 1 patient. For 2018 KSSP data, the most common victims of firework injuries were males (Figure 1), accounting for 65% of all firework-related ED visits captured, and children ages 0-19 accounting for 56% 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 33% of all injuries mentioning hands and fingers. Injuries to the eyes, face, and head accounted for the second most injuries at 25% (Figure 4).

Due to continuous KSSP hospital onboarding efforts, there are significant differences in volumes of data available for analysis and differences in regional coverage of Kansas.

To account for this and allow for some comparison between years, Firework-related ED visit counts were translated to a weekly rate per 1,000 ED Visits (Figure 5). Weekly firework-related ED visit rates by week showed very little difference between 2016, 2017, and 2018.

Figure 3. 2018 Independence Day Firework ED Visits by Sex and



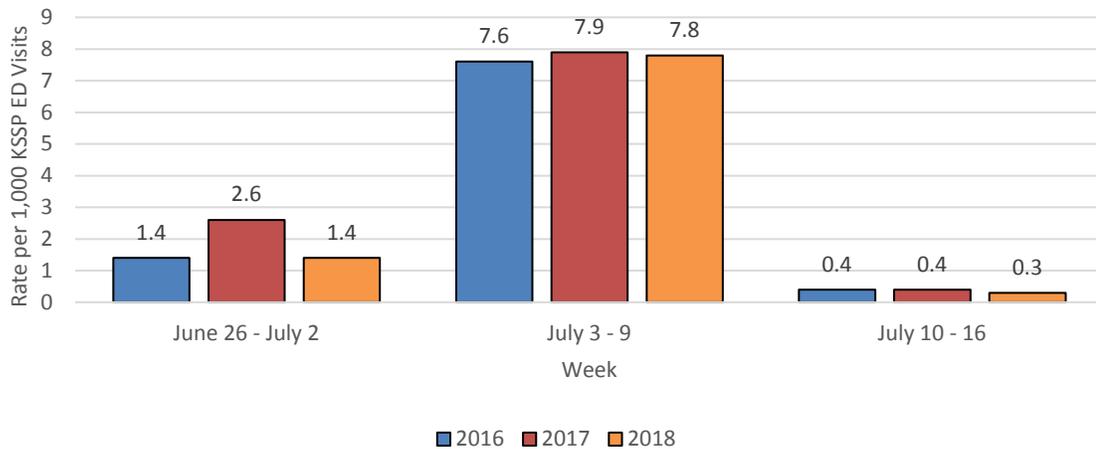
(Editor's Note: Data collection was supported by the Grant or

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Figure 4. 2018 Independence Day Firework ED Visits by Anatomical Location of Injury



Figure 5. Kansas Firework-Related Emergency Department Visit Rate by Week, 2016-2018



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## Assessment of Morbidity and Mortality Related to Extreme Weather Events, Kansas, 2010-2015

### Objective

Determine the impact of extreme weather events on Kansas morbidity and mortality.

### Methods

Four sources of data were used for this analysis. Two data sources originated from the Kansas Hospital Association (KHA); one included information on patients who visited Kansas Emergency Departments (EDs), and the other included information on patients who were seen in an ED and then hospitalized. Two data sources originated from the Kansas Department of Health and Environment (KDHE); Kansas Trauma Registry included information on patients who were admitted to, transferred to, or died in any Kansas hospital due to an initial encounter of non-superficial trauma injury, and death certificates filed with KDHE provided mortality information.

Two datasets – the ED dataset and the death certificate dataset – were restricted to Kansas residents only. The hospitalization dataset and the trauma dataset included non-Kansas residents.

Morbidity (ED, hospitalization, and trauma) data was queried for International Classification of Disease (ICD) codes related to extreme weather events. The ICD-9 codes queried were:

- E908.1 Tornado
- E908.2 Floods
- E908.3 Blizzard (snow and ice)
- E908.4 Dust storm
- E908.8 Other cataclysmic storms
- E908.9 Unspecified cataclysmic storms
- E907 Lightning
- E904.3 Accident due to exposure (to weather conditions), not elsewhere classifiable

Mortality (death certificate) data was queried for the following ICD-10 codes related to extreme weather events:

- X37.1 Tornado
- X38 Flood
- X37.2 Blizzard (snow, ice)
- X37.8 Other cataclysmic storms
- X37.9 Unspecified cataclysmic storms
- X33 Lightning
- X39 Exposure to other forces of nature

The scope of the analysis was limited to 2010-2015, the most recent time period for which data was available among all sources.

## Results

The ED dataset held the largest number of patients for the 5-year period (N=380), followed by the trauma dataset (N=94) and the hospitalization dataset (N=44). Only three death certificates were linked to extreme weather events. Excluding the less well-defined categories of “exposure to weather, not elsewhere classifiable” (N=171), “unspecified storms” (N=18), and “other storms” (N=10), morbidity was highest in the tornado-related weather category (N=237), followed by lightning (N=71), dust storms

Figure 1. Morbidity and Mortality Data by Extreme Weather Category, Kansas, 2010-2015

	ED	Hospitalization	Trauma	Mortality
Tornado	131	30	76	2
Flood	3	0	0	0
Blizzard	2	0	1	0
Dust Storm	4	0	2	0
Other Storms	8	0	2	0
Unspecified Storms	15	2	1	0
Lightning	57	3	10	1
Exposure to weather, not elsewhere classifiable	160	9	2	0
Total	380	44	94	3

(N=6), blizzards (N=3) and floods (N=3) (Figure 1).

Examining only the ED dataset over the 2010-2015 time period, the number of patients seen at Kansas Emergency

Departments per weather category per year is steadily low, with the exception of tornado and lightning visits (Figure 2). Ninety-two percent of all visits due to tornadoes occurred in 2011 and 2012, with 106 (81%) occurring during 2011. A higher number of patients were seen due to lightning in 2011 (N=16) and 2012 (N=14) compared to other years, when there were less than 10 visits per year.

Only three Kansas residents were reported to have died from an extreme weather event that occurred in Kansas during the five-year period.

Two died from injuries during a tornado, and one suffered cardiac arrest secondary to being struck by lightning.

## Discussion

The total number of patients coded as related to extreme weather in Kansas from 2010 to 2015 varied by the morbidity and mortality dataset queried. The ED dataset’s total of 380 patients compared to the 94 patients seen in the trauma dataset and the 44 patients seen in the hospitalization dataset suggests that most of the morbidity caused

Figure 2. Patients Who Visited Kansas Emergency Departments by Extreme Weather

	2010	2011	2012	2013	2014	2015
Tornado	1	106	14	1	5	4
Flood	1	0	2	0	0	0
Blizzard	0	1	1	0	0	0
Dust Storm	0	2	1	0	1	0
Other Storms	0	1	4	3	0	0
Unspecified Storms	4	4	3	2	1	1
Lightning	5	16	14	5	5	4
Exposure to weather, not elsewhere classifiable	36	38	24	21	30	19

by Kansas weather is not serious enough to cause hospitalization, and that most patients are treated in the ED and discharged.

Only three deaths due to extreme weather were recorded. Two were attributed to tornadoes in 2011; one occurred in Wabaunsee County, and the other in Lyon County. A death due to lightning occurred in 2012 in Coffey County. Deaths among Kansas residents that occurred outside of the state, such as the deaths that occurred due to the 2011 Joplin, Missouri tornado, were not included in this analysis.

The 2011 Joplin, Missouri tornado is likely the cause of the high number of ED visits recorded due to tornadoes in 2011, with affected Kansas residents returning to Kansas hospitals for medical care. The hospitalization dataset showed that 27 of the 30 tornado-related hospitalizations occurred in 2011. When out-of-state residents were excluded from that category, only 12 tornado-related hospitalizations were seen in 2011 among Kansas residents; the 15 out-of-state residents were likely all hospitalized due to the Joplin, Missouri tornado. A 2011 tornado in Lyon County may also contribute to the tornado-related ED visits recorded that year.

It is important to consider the similarities and differences of each dataset used in this analysis. The morbidity and mortality data sets may include the same individual's weather-related injury or death. If a Kansas resident sought care at an emergency department, was then admitted to the hospital and reported to KDHE via the trauma registry, and later died from that injury, that resident would be recorded in each of this study's four data sets. Only Kansas residents are included in the ED and mortality datasets, while non-Kansas residents are found in the hospitalization and trauma datasets. Additionally, each dataset is more likely to include patients seen for direct injuries and deaths due to weather (e.g., a tree branch falling on a person during a storm), compared to indirect injuries and deaths (e.g. a tree branch falling on a person who was participating in storm cleanup or recovery efforts).

Future research on the health impacts of extreme weather in Kansas should examine the patients classified into "exposure to weather, not elsewhere classifiable", "unspecified storms", and "other storms" to better understand what types of injuries and weather contribute to those categories. Examining the emergency department data collected by the Kansas Syndromic Surveillance Program, which includes more detailed information about each patient's chief complaint and the ED's triage notes, could more conclusively link patients to a specific weather event, and further classify each patient's morbidity as a specific type of injury.

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## **Announcements**

### **2018 National Tribal Health Conference**

The 2018 National Tribal Health Conference will take place in Oklahoma City, Oklahoma, September 17-20, 2018. The National Tribal Health Conference (NTHC) is the largest American Indian and Alaska Native specific gathering each year focused specifically on health. The conference focuses on exploring health policy and its impact on Tribes, advancing Tribal capacity to expand own policy work, and policy and political work in the arenas of health care, public, behavioral, and environmental health. The conference features multiple tracks of concurrent breakout sessions, as well as general plenary sessions that feature nationally recognized guest speakers and elected and appointed governmental officials. A very important component of the National Tribal Health Conference are the government consultation and listening sessions that are held in conjunction with the conference, but are offered on pre- or post-conference days. The conference is hosted and planned annually by the National Indian Health Board, as well as local member organizations or Tribes. The 2018 National Tribal Health Conference (NTHC) is being hosted locally by the Southern Plains Tribal Health Board. The Southern Plains Board serves Native American Tribes in Kansas in addition to other states. For information on the conference visit: [http://www.cvent.com/events/2018-national-tribal-health-conference/event-summary-be53056da4224252b87ed4d36ba1cf34.aspx?utm\\_campaign=fyi\\_newsletter&utm\\_medium=email&utm\\_source=govdelivery](http://www.cvent.com/events/2018-national-tribal-health-conference/event-summary-be53056da4224252b87ed4d36ba1cf34.aspx?utm_campaign=fyi_newsletter&utm_medium=email&utm_source=govdelivery).

### **Kansas Health Matters Releases Indicators for Opioid Usage**

Kansas Health Matters' partners have recently added 7 new indicators to the system, pertaining to opioids medication prescribed to beneficiaries of the Medicare – Part D program. These new indicators review dosage amounts, number of days supplied, and medication reaction time (long and short). The indicators are as follows:

- Percent Medicare Part D Beneficiaries Having Daily Opioid Dosage  $\geq$  50 MME\*
- Percent Medicare Part D Beneficiaries Having Daily Opioid Dosage  $\geq$  90 MME\*
- Percent Medicare Part D Beneficiaries Receiving Both Long & Short Acting Opioids
- Percent Medicare Part D Beneficiaries Receiving Opioid & Benzodiazepine Prescriptions
- Percent Medicare Part D Beneficiaries Receiving Opioids Supply Greater Than 10-Days
- Percent Medicare Part D Claims with Opioid Prescriptions Written for More Than 10-Day Supply
- Percent Medicare Part D Beneficiaries Receiving PPV\*\*

To view the new indicators, visit <http://www.kansashealthmatters.org/>.

\*MME = Morphine Milligram Equivalent

\*\*PPV = Pneumococcal Polysaccharide Vaccine

## **Kansas Health Matters 2<sup>nd</sup> Quarter Indicator Updates**

All indicators administered by the Kansas Health Matters partnership are updated annually, each calendar year quarter, a group of the indicators are updated with the most recent data available. For the second quarter of 2018 the following indicators have been updated and are available for viewing at <http://www.kansashealthmatters.org/> .

The updated indicators are;

- Average Monthly WIC Participation per 1,000 population
- Percent of Infants Fully Immunized at 24 Months
- Percent of WIC Mothers Breastfeeding Exclusively
- Public Water Supply Coliform Compliance
- Public Water Supply Nitrate Compliance

For any inquiries, please use the “Contact Us” selection that can be found at the bottom of the home page or email; [info@kansashealthmatters.org](mailto:info@kansashealthmatters.org).

## **Carbon Monoxide Poisoning Now A Reportable Condition**

KDHE recently updated regulations for the reporting of notifiable disease conditions (KAR 28-1-1 through 28-1-18) adding Carbon Monoxide Poisoning to Kansas’s list of reportable diseases. The updated regulations now require all mandatory reporters to report all Carbon Monoxide Poisoning cases to KDHE. Due to the rapid implementation of the new regulations, physicians and hospitals had little time to adjust to the new reporting rule. KDHE’s Environmental Public Health Tracking (EPHT) program has been using the Kansas Syndromic Surveillance (KSSP) data to identify potential cases of Carbon Monoxide Poisoning that were not reported to KDHE and then educate providers on new reporting regulations. KSSP data is incredibly timely, but only receives approximately 80% of all emergency department visits across Kansas. KDHE’s EPHT is confident that many more Carbon Monoxide Poisoning events are going uncaptured and unreported.

An overview of mandatory disease reporting for health professionals in Kansas can be found at [http://www.kdheks.gov/epi/disease\\_reporting.html](http://www.kdheks.gov/epi/disease_reporting.html)

## **KIC Module Updates with CY2017 Information**

Kansas Information for Communities (KIC) website query tool, for many years now, has been a means for community groups, medical students, local health departments and more, to access vital statistics information pertaining to Pregnancy, Birth, Death, Hospital Discharge (Diagnosis & Procedure), Cancer and Population. Also, available in the system are multiple resources regarding other public health information. There are 7 modules in the system as previously mentioned which are updated annually.

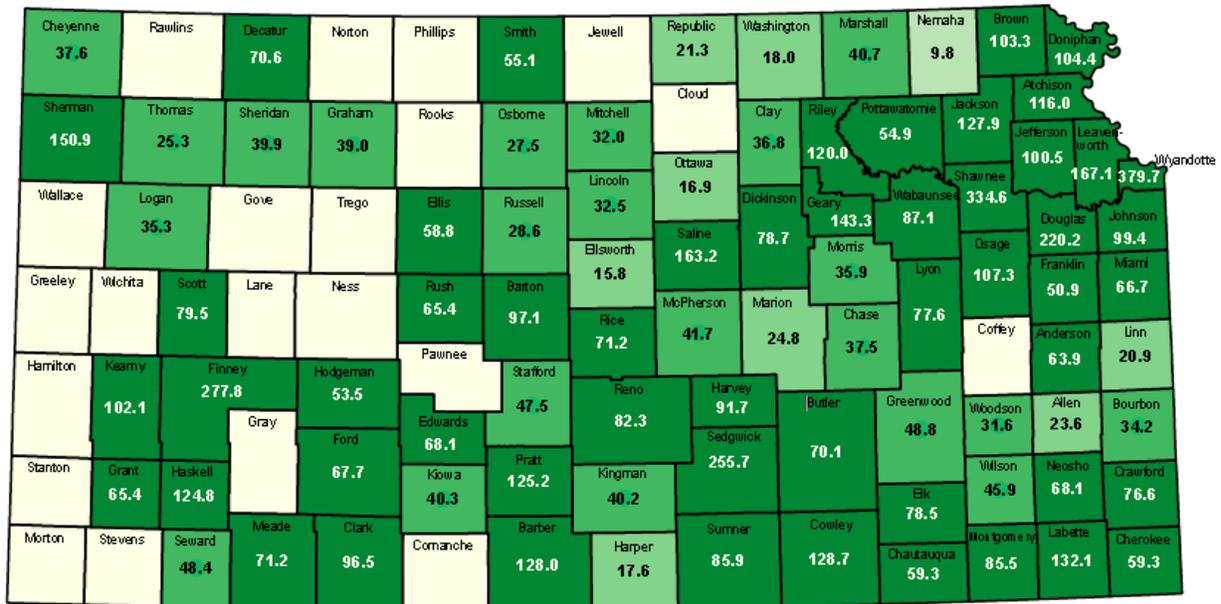
At this time, the modules for Death, Birth, Hospital Discharge – Diagnosis, Hospital Discharge – Procedure, and Population were updated with CY2017 vital statistical information and is ready for querying and reviewing. The KIC query tool can be found at <http://kic.kdheks.gov/> , the module of interest can be selected from the home page.

## Sexually Transmitted Infections Statistics Released

The KDHE- Bureau of Disease Control & Prevention has issued the 2017 sexually transmitted infections (STI) statistics. The publication includes charts on each STI, chlamydia, gonorrhea, and syphilis. The report also includes statistics by county (Figure 1). The report is available at

[http://www.kdheks.gov/sti\\_hiv/download/std\\_reports/Case\\_Rates\\_2007-2017.pdf](http://www.kdheks.gov/sti_hiv/download/std_reports/Case_Rates_2007-2017.pdf).

Figure 1. Gonorrhea Rates by County, Kansas, 2017



Rate (per 100,000 population) Confirmed Case(s):

0.0 < 10.0 10.1 - 25.0 25.1 - 50.0 > 50.0

**Note: The total rate of gonorrhea for Kansas was 156.3 per 100,000 population.**

Data Source: Estimated Population from CV 2016, Kansas Information for Communities and Epi-Track database. Provided by: KS Department of Health and Environment, Bureau of Disease Control and Prevention





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