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January 2, 2019

To the Honorable Bruce Rauner, Governor, and Members of the General Assembly:

This report provides details on opioid overdoses in the state of Illinois for the year 2018. Overdose data are also provided from the previous years to allow for comparisons. The Opioid Overdose Semiannual Report consolidates the overdose reporting requirements under the Hospital Licensing Act (210 ILCS 85/6.14g) and the Counties Code (55 ILCS 5/3-3013).

This report includes information on overdose deaths, including heroin and opioid analgesics, by county, sex, age, race, and ethnicity. Additionally, it includes non-fatal overdose information reported by hospitals to the Illinois Department of Public Health (IDPH) as required in the Hospital Licensing Act (210 ILCS 85/6.14g(b)). This semiannual report updates the June 2018 semiannual report, adding more recent data and trends, and provides updates on IDPH activity relating to opioids, including the publicly available opioid data dashboard.

The data continue to show an increase in deaths due to all drugs, including heroin and opioid analgesics. However, the rate of increase has slowed substantially. Additionally, EMS data show an increase in administrations of multiple doses of naloxone, indicative of increasing poisonousness of opioids in Illinois. Finally, hospital emergency department (ED) data show an increase in ED visits related to opioid overdose in 2018 compared to 2017, while inpatient hospitalization data show a slight decrease in the first two quarters of 2018 of hospitalizations related to opioid overdose in Illinois. These recent data show positive movement in curbing Illinois's upward trend in opioid overdoses.

Continuous reporting, updates, and information may be found on the IDPH website, at <http://dph.illinois.gov/opioids/home> and <http://www.dph.illinois.gov/data-statistics/vital-statistics/death-statistics/more-statistics>. Among many materials on the IDPH website are the Illinois Opioid Action Plan and the Illinois Opioid Action Plan Implementation Report (dated May 31, 2018), which are located under "Publications."

I hope you find this report informative and useful as we continue working together to address the opioid crisis facing the state of Illinois.

Sincerely,

Nirav Shah, MD, JD
Director

Opioid Overdose Deaths

Background

Opioid overdose deaths are reported to the Illinois Department of Public Health (IDPH) through the submission of death certificates from coroners, medical examiners, or attending physicians. After the death certificates are submitted to IDPH, they are submitted to the National Center for Health Statistics (NCHS) and assigned *International Classification of Disease, Tenth Revision* (ICD-10) codes using NCHS's SuperMICAR software.

In reporting opioid overdose deaths, IDPH identifies those death records of Illinois residents where drug overdose was reported as the underlying cause of death (ICD-10 codes X40-X44, X60-X64, X85, Y10-Y14). Opioid overdose deaths are considered a subset of drug overdose deaths in which any opioid drug was reported as a contributing cause of death (ICD-10 codes T40.0, T40.1, T40.2, T40.3, T40.4, and T40.6). IDPH reports opioid overdose deaths in three categories: any opioid, heroin, and opioid analgesics. The opioid analgesic category includes drug overdose deaths in which any opioid analgesic was reported as a contributing cause of death (ICD-10 codes T40.2, T40.3, and T40.4). Opioid analgesics include natural (e.g. morphine and codeine) and semi-synthetic opioid analgesics (e.g. oxycodone, hydrocodone, hydromorphone, Oxymorphone), methadone, and synthetic opioid analgesics other than methadone (e.g. fentanyl and tramadol). IDPH does not collect data related to the legality of manufacturing or obtaining opioids used in any given opioid analgesic overdose death.

Status of reporting

IDPH began posting monthly drug overdose reports in January 2016. This report can be found on the Vital Statistics section of the IDPH website (<http://www.dph.illinois.gov/data-statistics/vital-statistics/death-statistics/more-statistics>).

IDPH continues to refine the monthly report to provide the most accurate and useful information for various stakeholders, including law enforcement, local health departments, and the general public. The report breaks down overdose deaths by all drugs, opioids, heroin, and opioid analgesics.

There have been some challenges in the creation of this report. Overdose deaths are a subset of deaths classified as injuries, which includes suicides, homicides, and accidental deaths. Due to the nature of these death investigations, including the determination of intent and the cause of death, reporting can be delayed. Reliable data are not available until a cause of death has been determined by the coroner or medical examiner, and the finalized death certificate is coded by the National Center for Health Statistics. This process can take months. While real-time data would be ideal, the submission of complete and accurate death data necessarily takes time.

Another challenge in reporting opioid overdose deaths is the limitation in testing for specific drugs. Some tests, such as the test for heroin (6-MAM), are only effective for a short period. Often, when an individual has died of a heroin overdose, the toxicology tests come back positive for morphine rather than heroin. This may result in some heroin deaths being misclassified as morphine deaths.

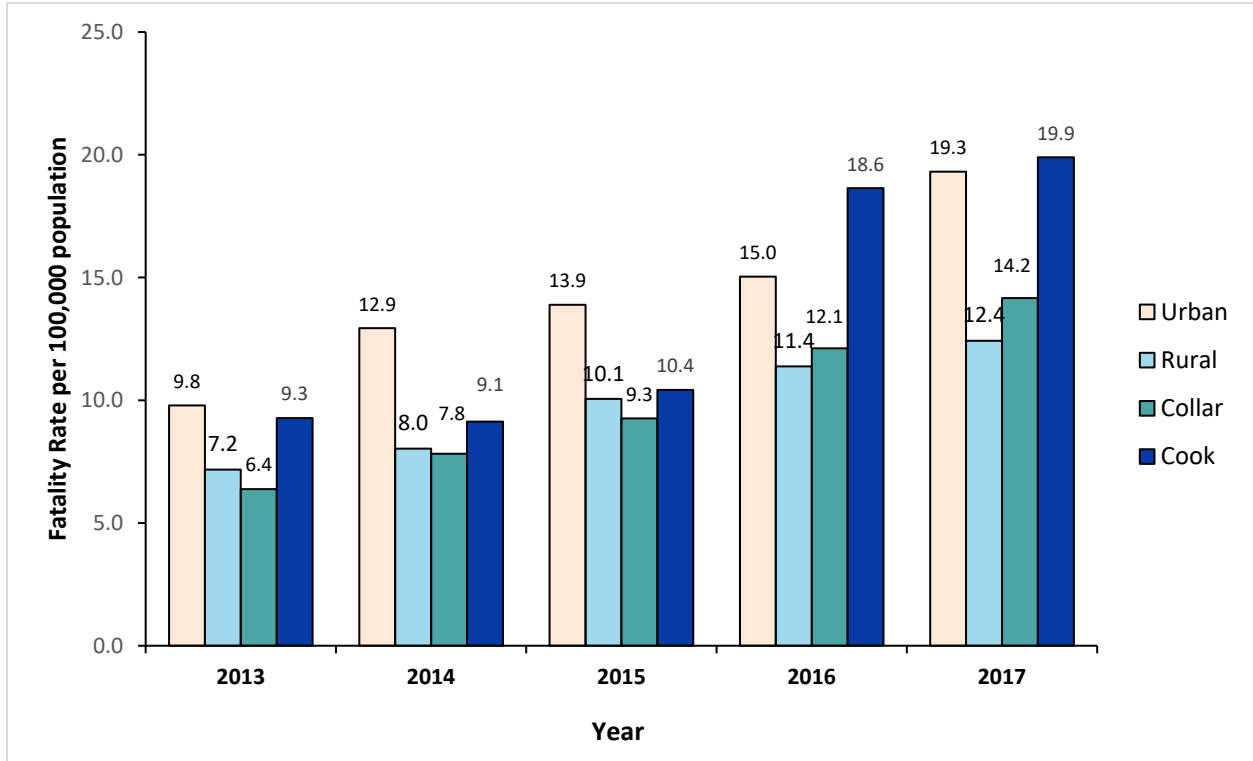
Overall trends

While opioid overdose deaths have been rising dramatically in recent years, 2018 data show that the rate of increase has slowed substantially. During 2017, there were 2,202 opioid overdose deaths in the state of Illinois, a substantial increase over 1,203 in 2014; 1,382 in 2015; and 1,946 in 2016. Much of this increase is due to deaths from opioid analgesics, which include prescription drugs such as oxycodone and hydrocodone, as well as drugs that may be prescribed but are often produced illegally, such as fentanyl.

The city of Chicago has been affected significantly by these overdoses. In 2015, there were 111 deaths due to opioid analgesics overdose in Chicago. In 2016, there were 411 deaths from the same cause, an increase of 270 percent. Although 2017 data show an increase in deaths involving opioid analgesics, the rate of increase has slowed substantially. There were 461 deaths involving opioid analgesics in Chicago in 2017, an increase of 12 percent over 2016.

Prior to 2016, opioid overdose fatality rates were highest in urban counties outside of Cook County, but Cook County's fatalities surged in 2016, overtaking other urban counties. In 2017, the rate in urban counties increased to nearly that of Cook County.

Figure 1. Opioid overdose fatality rates per 100,000 population by resident county classification, Illinois, 2013-2017



Source: Illinois Vital Records System, Illinois Department of Public Health

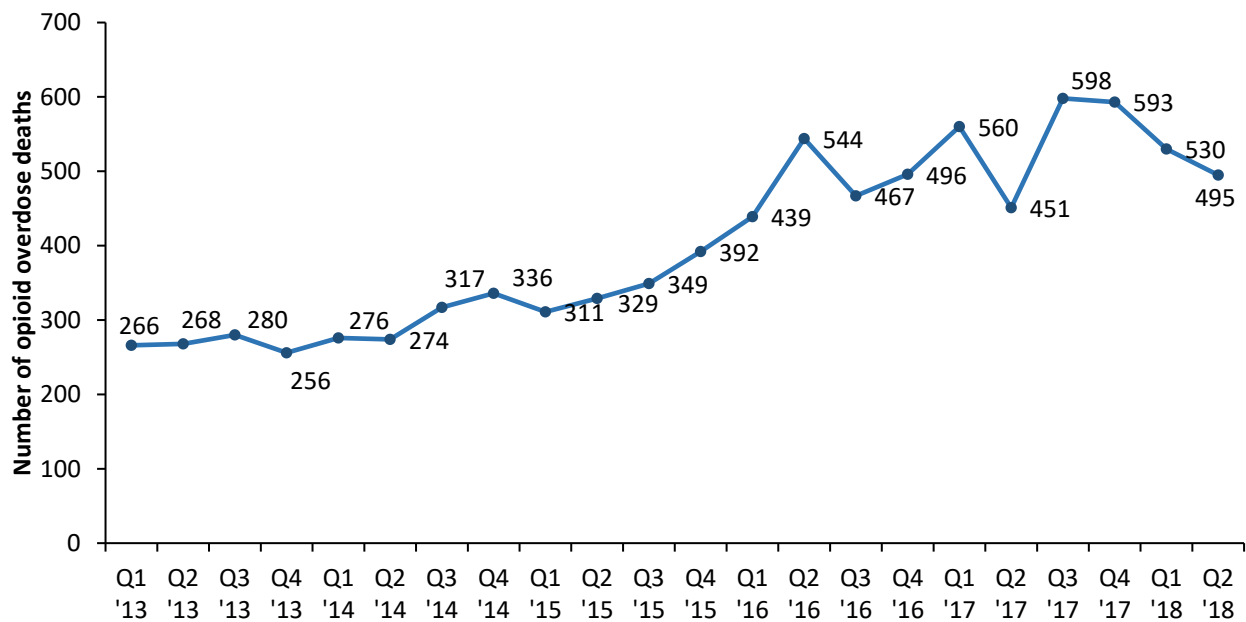
Notes: Collar Counties include DuPage, Kane, Lake, McHenry, and Will counties.

Rural is defined as a county not part of a metropolitan statistical area (MSA), as defined by the U.S. Census Bureau, or a county that is part of an MSA, but has a population less than 60,000.

2017 data are provisional.

Figure 2 illustrates the growing epidemic of opioid overdoses in Illinois. Generally, due to the time it takes to finalize and code death records, the numbers for any quarter (Q) may change substantially until approximately six months after the end of the quarter. However, because determining if and when the numbers will change is difficult until the entire year's data are finalized, the data are subject to change and may be difficult to interpret. For example, provisional data for 2018 show decreases in Q1 and Q2 from 2017. Although 2018 final numbers may ultimately increase from 2017, it is apparent that the upward trend in opioid overdose deaths is slowing.

Figure 2. Illinois opioid overdose deaths by quarter, 2013-2018



Source: Illinois Vital Records System, Illinois Department of Public Health

Notes: 2017 data are provisional

Opioid Overdose Hospitalizations and Emergency Department Visits

Background

IDPH captures opioid overdose morbidity data from two sources: 1) syndromic surveillance, real-time data based on national standards for Meaningful Use and 2) hospital discharge dataset, which is submitted on a quarterly basis and has a five-month reporting delay due to ICD-10 coding and additional review procedures.

Under the Hospital Licensing Act (210 ILCS 85/6.14g(b)), emergency departments (EDs) are required to report cases to IDPH within 48 hours of providing treatment for a drug overdose or after a drug overdose is confirmed. IDPH has established an automated, real-time syndromic surveillance system with all acute care hospitals in Illinois with an ED. This dataset includes free text (unstructured text fields) of the diagnosis, chief complaint, and details of the reason for visit from patient self-report and provider notes. These data are available to local and state health departments to track daily trends, review spatial distribution to the county or ZIP code, and for comparisons with national and Health and Human Service (HHS) regional data. Dashboards are available for hospital and health department staff to view real-time analysis, including detection alerts when cases exceed baseline levels. In collaboration with the Illinois Hospital Association, IDPH piloted a process in November 2016 to utilize syndromic surveillance to fulfill the 48-hour reporting requirement in the Hospital Licensing Act. Administrative rules to effectuate this reporting became effective on May 24, 2018; the rules were published in the Illinois Register on June 8, 2018 {77 IAC 250.1520 (g)}.

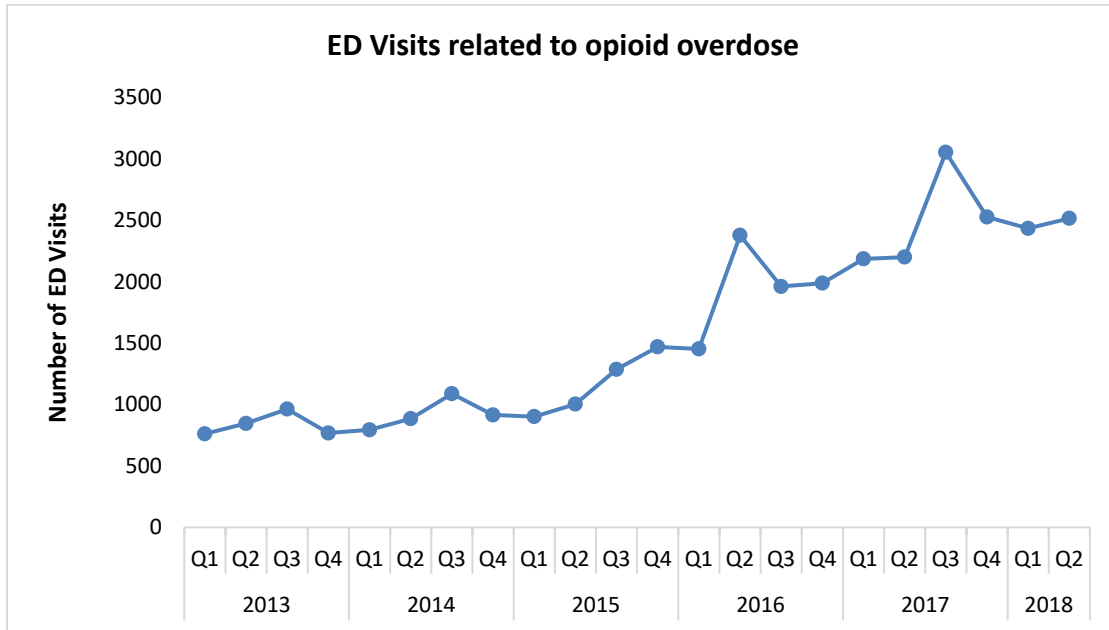
The hospital discharge dataset was used for the analysis in this report because historical data are available to analyze trends.

Overall trends

Below are six figures related to Illinois ED utilization and hospitalizations for all opioid overdoses, opioid overdoses excluding heroin, and heroin overdoses from 2013 to Q2 2018. ED visits related to opioid overdose have continued to increase each year. Figure 3 shows a continued increase in ED visits from early 2013 through 2017. The most recent data show a 67 percent increase in ED visits due to opioid overdose from 2015 to 2016, and a 28 percent increase from 2016 to 2017. ED visits for opioid overdose increased by 11 percent between the first two quarters of 2017 and the first two quarters of 2018. Hospitalizations due to all opioids increased 24 percent from 2015 to 2016, stayed approximately the same from 2016 to 2017 (Figure 4), and decreased by four percent in the first two quarters of 2018. Between 2016 and 2017, hospitalizations due to heroin overdose increased (Figure 8), while hospitalizations due to overdoses involving opioids other than heroin decreased (Figure 5). The same trends were observed between the first two quarters of 2017 and same period in 2018.

The largest increase in opioid overdose-related ED visits and hospitalizations was due to heroin overdoses (Figure 7 and Figure 8). These overdoses have increased steadily since early 2015 and the trend continues upward.

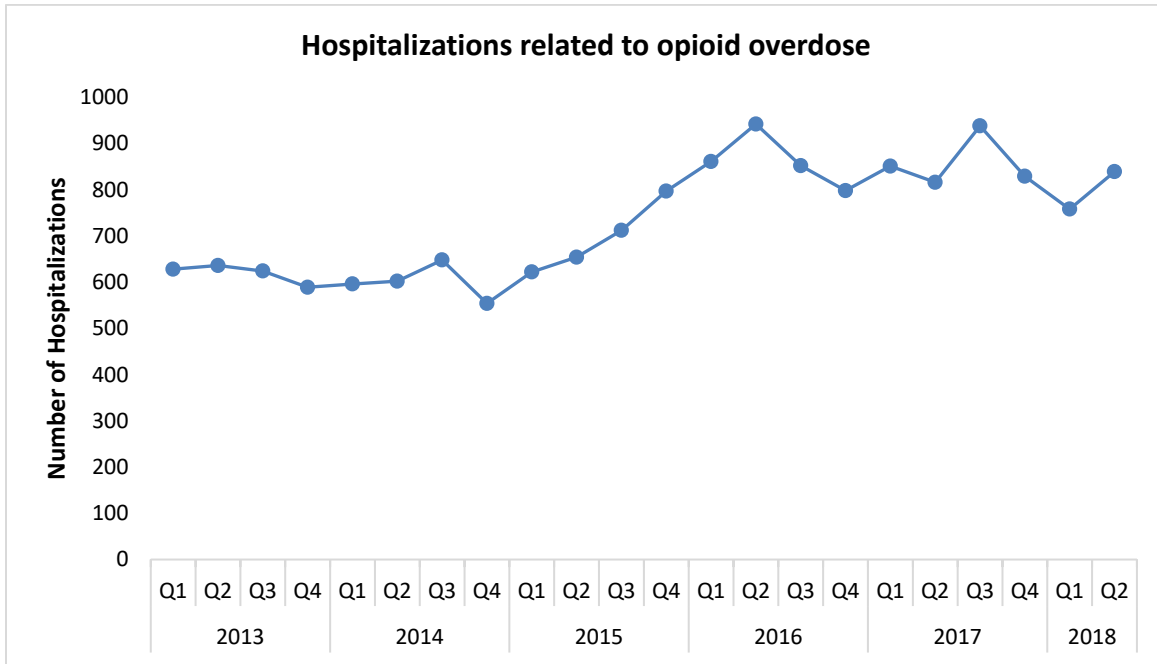
Figure 3. ED Visits related to opioid overdose by quarter, 2013-Q2 2018



Source: ED Discharge Dataset, Illinois Department of Public Health

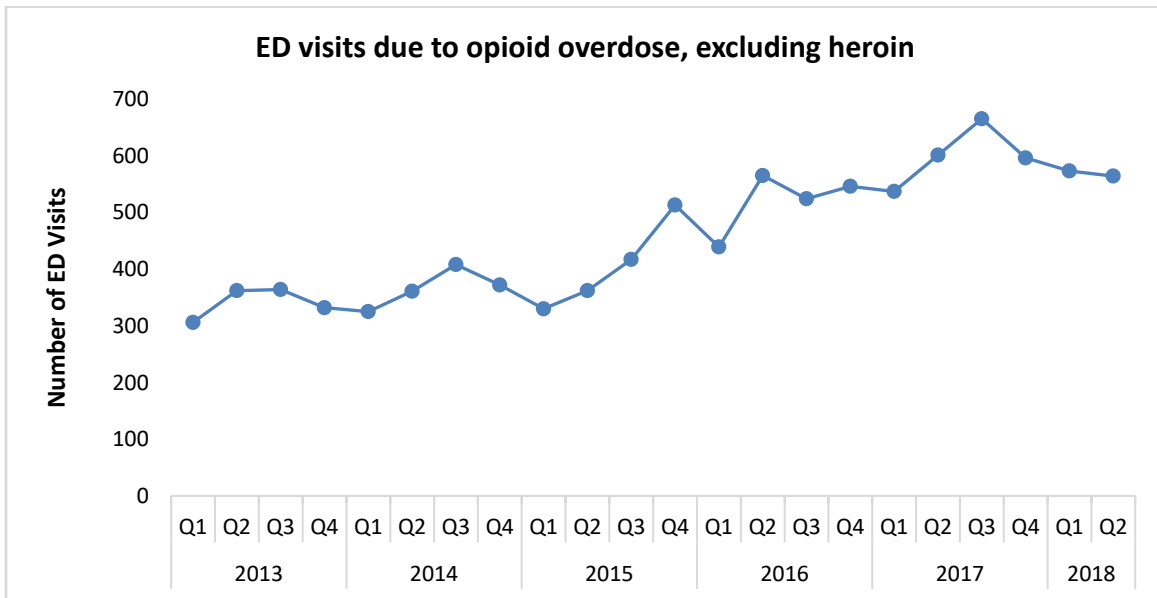
Notes: ED visits resulting in hospitalization are not included in these data

Figure 4. Inpatient hospitalizations due to opioid overdose by quarter, 2013-Q2 2018



Source: Hospital Discharge Dataset, Illinois Department of Public Health

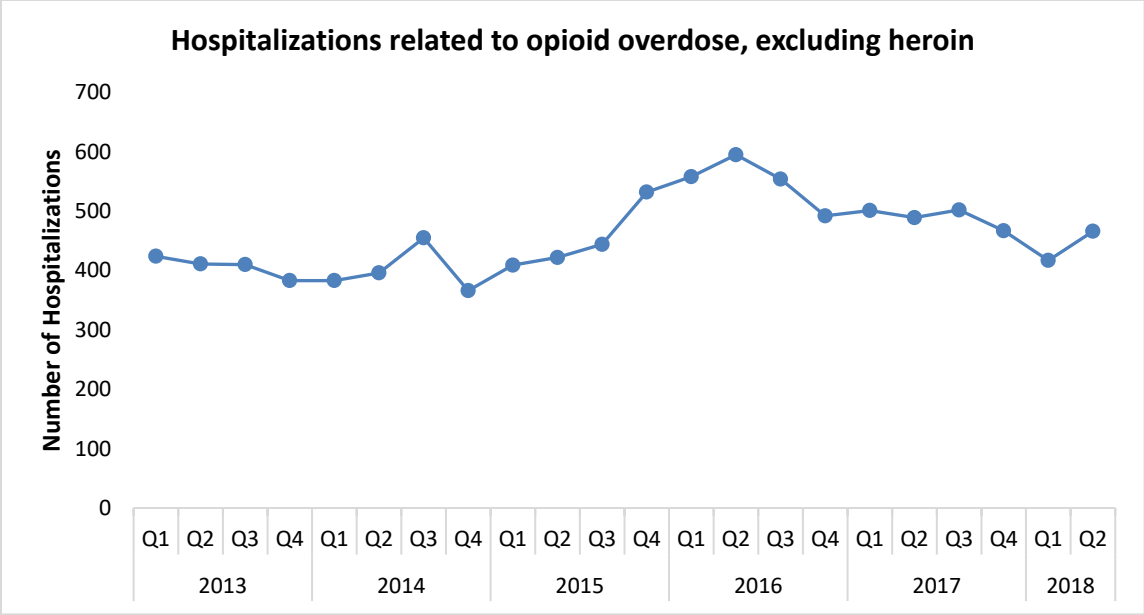
Figure 5. ED visits related to opioid overdose, excluding heroin by quarter, 2013-Q2 2018



Source: ED Discharge Dataset, Illinois Department of Public Health

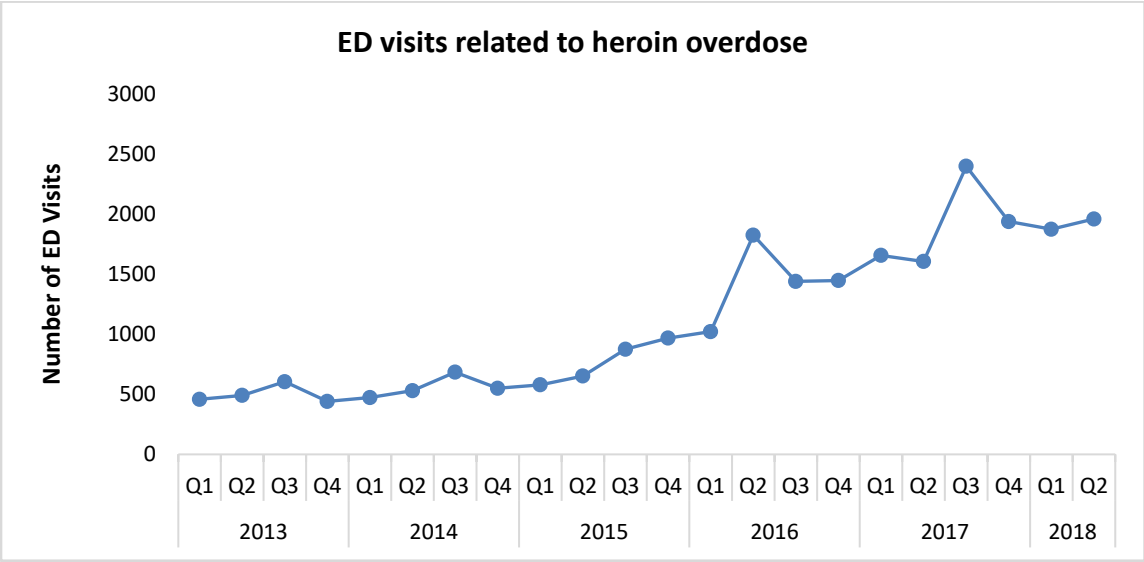
Notes: ED visits resulting in hospitalization are not included in these data

Figure 6. Inpatient hospitalizations due to opioid overdose, excluding heroin by quarter, 2013-Q2 2018



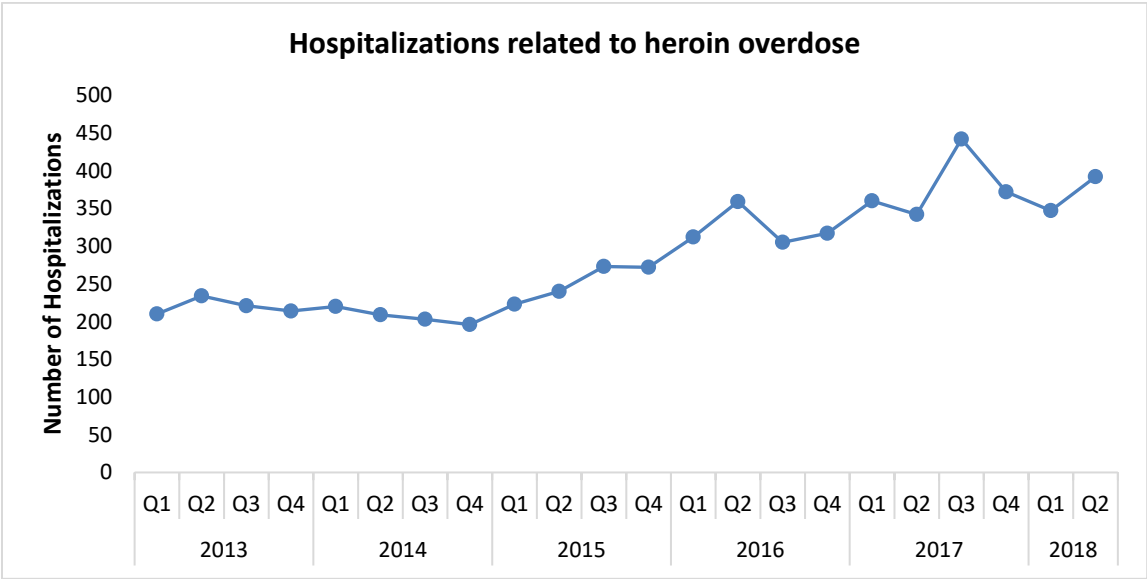
Source: Hospital Discharge Dataset, Illinois Department of Public Health

Figure 7. ED visits related to heroin overdose by quarter, 2013-Q2 2018.



Source: ED Discharge Dataset, Illinois Department of Public Health
 Notes: ED visits resulting in hospitalization are not included in these data

Figure 8. Hospitalizations related to heroin overdose by quarter, 2013-Q2 2018



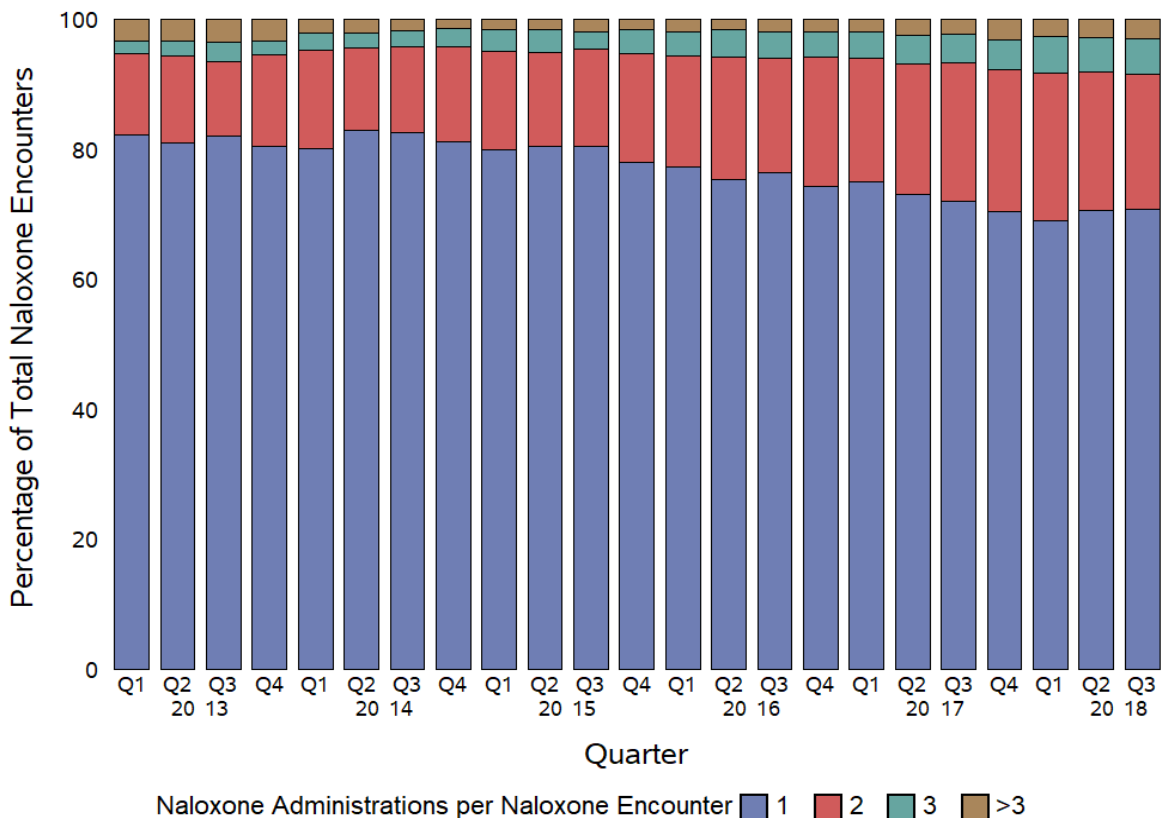
Source: Hospital Discharge Dataset, Illinois Department of Public Health

Emergency Medical Services Naloxone Administration

The Illinois Emergency Medical Services (EMS) dataset conforms to the national standard for EMS data, known as NEMSIS (National Emergency Medical Services Information System). Across the country, states have been upgrading to Version 3 of this standard, which improves data quality and decreases the time from data collection to reporting. Illinois spent much of 2017 and 2018 transitioning to the new version and, as of the end of 2018, all but a small handful of the approximately 610 agencies required to report this type of data remain at the previous version.

EMS data show that although the percentage of patient encounters involving naloxone with exactly two administrations per encounter and with more than three administrations per encounter have stabilized over the past year, quarterly percentages in the three-administrations-per-encounter category have grown slightly larger over this span of time (Figure 9). An increase in overdoses requiring multiple administrations of naloxone is one indicator of the increasing poisonousness of opioids involved in these overdoses.

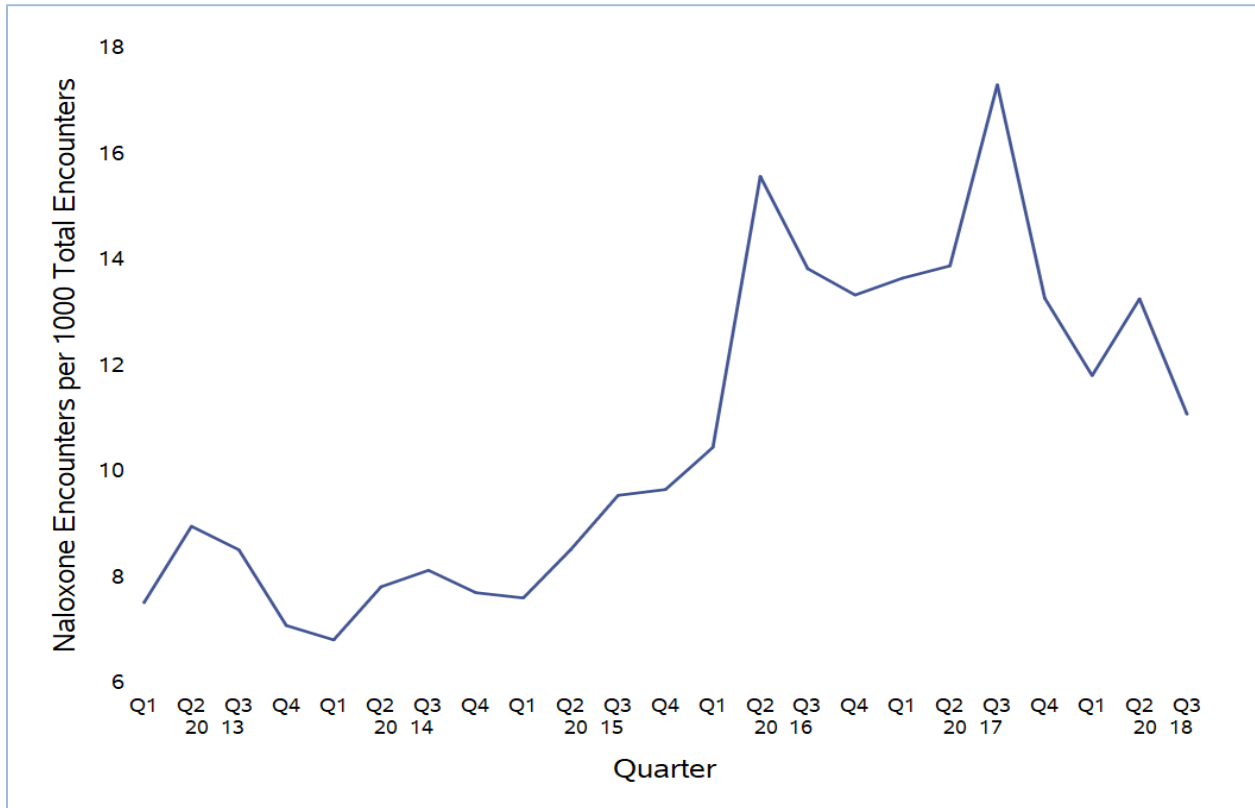
Figure 9. Naloxone administrations per EMS overdose response by quarter, 2013-2018



Source: IDPH Division of EMS and Highway Safety

Figure 10 shows the number of patient encounters involving naloxone—indicating possible opioid overdoses—per 1,000 patient encounters of any kind. This rate rose from about 8 per 1,000 to more than 17 per 1,000 over the three-year period ending the third quarter of 2017. Since that peak, the rate has dropped and is currently at 11 per 1,000

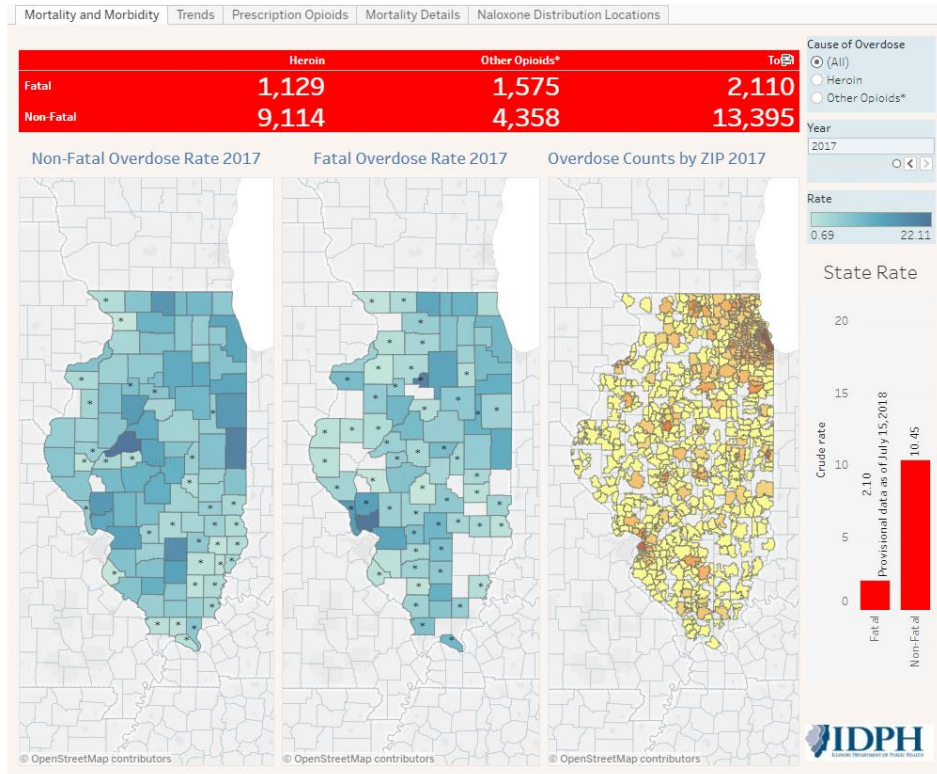
Figure 10. EMS patient encounters involving naloxone per 1,000 EMS encounters by quarter, 2013-2017



Source: IDPH Division of EMS and Highway Safety

Opioid Data Dashboard

IDPH developed and launched an opioid data dashboard in early 2018. Data on the dashboard include fatal and nonfatal overdoses by county, overdoses by ZIP code where available, opioid prescribing information from the Prescription Monitoring Program by county, and a map of all locations where naloxone is distributed, whether from a pharmacy or an opioid overdose education and naloxone distribution (OEND) program. This data dashboard is continuously updated and may be found at <http://idph.illinois.gov/opioiddatadashboard>.



Summary

The number of opioid overdoses – both fatal and nonfatal – continues to rise in Illinois. However, the increase in overdose fatalities, ED visits, and hospitalizations, is occurring at a slower rate. As activities in the State Opioid Action Plan progress, the rate of increase should continue to slow and more lives will be saved. For more information about the opioid crisis in Illinois, including the Illinois Opioid Action Plan and the recent Illinois Opioid Action Plan Implementation Report, please see <http://dph.illinois.gov/opioids/home>.