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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 2017. 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 Department of Public Health as required in the Hospital Licensing Act (210 ILCS 85/6.14g(b)).

This semiannual report updates the June 2017 semiannual report, adding more recent data and trends, including EMS data, and updating the results of the coroners' survey performed this year.

The data show an increase in deaths due to all drugs, heroin, and opioid analgesics. Additionally, EMS data show an increase in administrations of multiple doses of naloxone, demonstrating an increasing poisonousness of opioids in Illinois. Finally, ED discharge data show an increase in ED visits related to opioid overdose in 2016 and 2017, while inpatient hospitalization data show an increase into 2016 followed by a leveling off of hospitalizations related to opioid overdose in the State.

Continuing reporting and updates may be found on the IDPH website, specifically at <http://www.dph.illinois.gov/topics-services/prevention-wellness/prescription-opioids-and-heroin>, <http://www.dph.illinois.gov/topics-services/prevention-wellness/prescription-opioids-and-heroin/idph-data> and <http://www.dph.illinois.gov/data-statistics/vital-statistics/death-statistics/more-statistics>.

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

Sincerely,

Nirav Shah, MD, JD
Director
Illinois Department of Public Health

Opioid Overdose Deaths

Background

Opioid overdose deaths are required under the Counties Code (55 ILCS 5/3-3013) to be 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) to assign *International Classification of Disease, Tenth Revision* (ICD-10) codes using their automated SuperMICAR software.

In reporting opioid overdose deaths, IDPH searches death records of Illinois residents for deaths in which 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 the 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>).

The format of the monthly report on the IDPH website is evolving 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 from 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 include suicides, homicides, and accidental deaths. Due to the nature of these death investigations, particularly 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, which may 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.

IDPH has recently completed a survey of coroners across the state designed to inform IDPH about their methods for conducting overdose death investigations and reporting their findings. Thirty-seven coroners' offices responded to the survey. Twenty-two respondents listed finances as a restriction to the number of autopsies and toxicology tests performed in their counties. Almost all (35) screen for fentanyl and fentanyl analogs. All respondents reported listing specific drugs involved in an overdose on the death record.

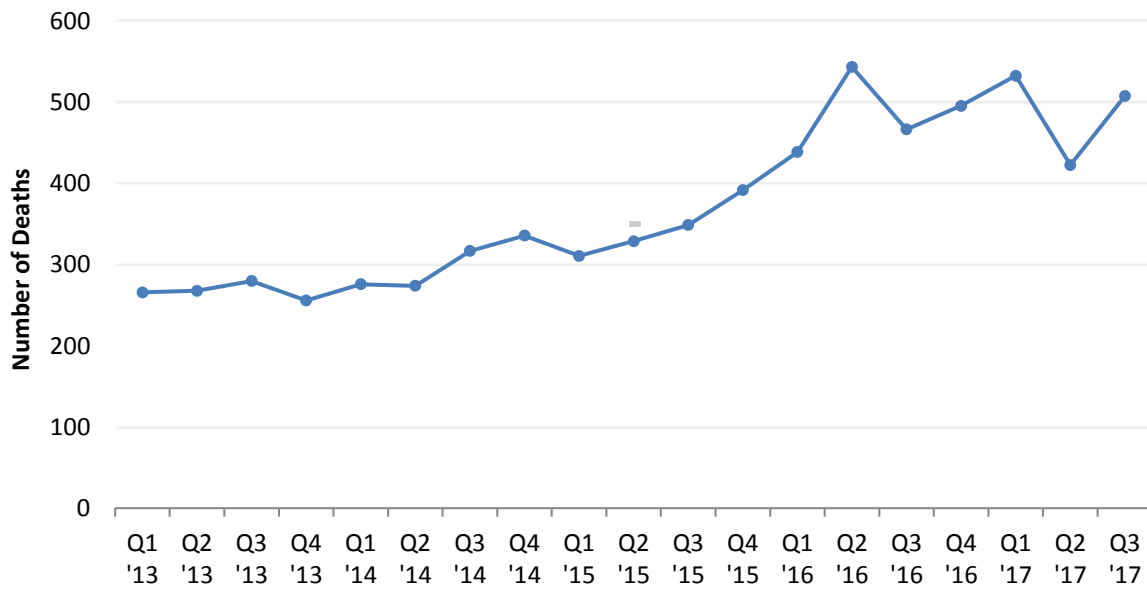
Overall trends

Opioid overdose deaths have been rising dramatically in recent years. According to the 2016 provisional data (as of December 5, 2017), there were 1,946 opioid overdose deaths in the State of Illinois, including heroin and opioid analgesics, a substantial increase over 1,203 in 2014 and 1,382 in 2015. 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 impacted significantly by these overdoses. In 2015, there were 111 deaths due to overdose on opioid analgesics in Chicago. In 2016, there were 411 deaths from the same cause, an increase of 270 percent. Suburban Cook County and all of the Collar Counties also experienced substantial increases in opioid overdoses through 2016. Rural areas have experienced increases in death rates, but Chicago and surrounding areas account for the greatest total number of overdose deaths.

Figure 1 illustrates the growing epidemic of opioid overdoses in Illinois. Clearly, opioid overdose deaths have increased in recent years. Generally, due to the time it takes to finalize and code death records, the numbers change substantially until approximately six months later. However, because it is difficult to determine if and when the numbers will change, until the entire year's data are finalized, the data are subject to change and may be difficult to interpret. For example, Q2 2017 data show a substantial decrease in opioid overdose deaths from the previous quarter. Q3 2017 shows a dramatic increase from Q2 and there is more time for the numbers to change.

Figure 1: Illinois opioid overdose deaths by quarter, 2013-2017



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

Notes: 2016 and 2017 data are provisional

Opioid Overdose Hospitalizations and Emergency Department Visits

Background

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. There are two sources for these data: syndromic surveillance, which are real-time data based on national standards for Meaningful Use and the 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.

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 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 Health and Human Service (HHS) national and 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 began piloting a process in November 2016 to utilize syndromic surveillance to fulfill the 48-hour reporting requirement in the Hospital Licensing Act. The law requires that IDPH promulgate administrative rules to ensure this reporting occurs.

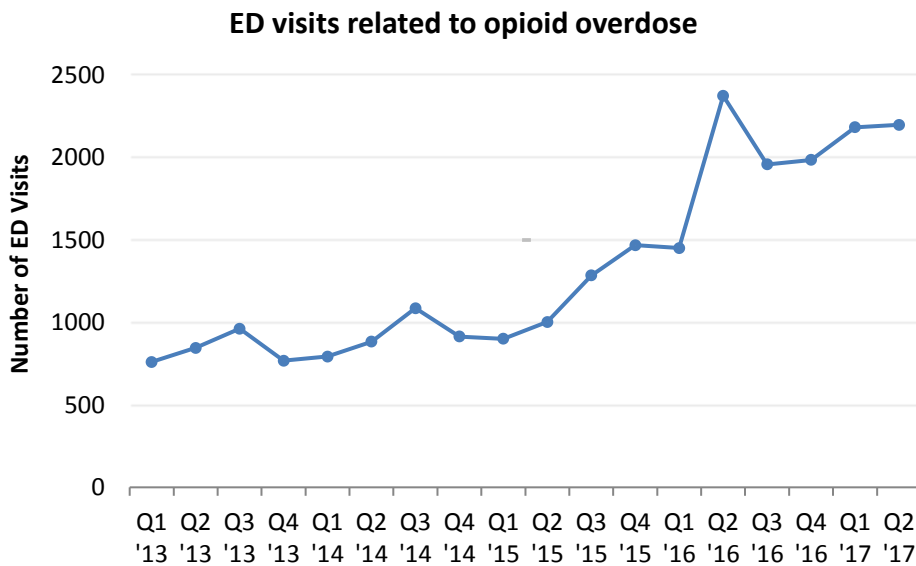
The hospital discharge dataset was used for the analysis in this report because it includes historical data to analyze trends.

Overall trends

ED visits and inpatient hospitalizations related to opioid overdose have continued to increase each year. The most recent full-year data show a 67% increase in ED visits due to opioid overdose from 2015 to 2016. The first two quarters of 2017 show a 14.5% increase in ED visits over the same period in 2016.

Figure 2 shows a continued increase in ED visits from early 2013 through 2017. There was a decrease from Q2 to Q3 2016, but the numbers have trended upwards since.

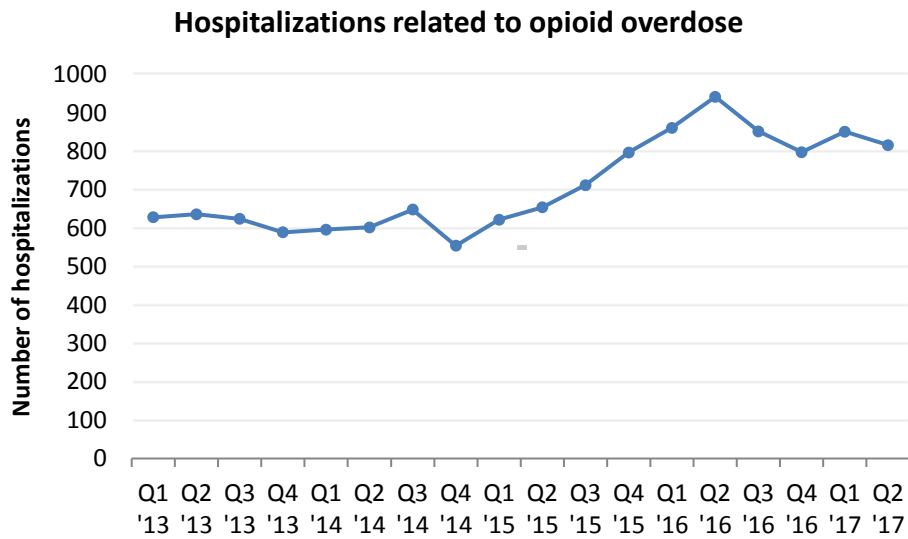
Figure 2. ED Visits related to opioid overdose by quarter, 2013-2017



Source: ED Discharge Dataset, Illinois Department of Public Health

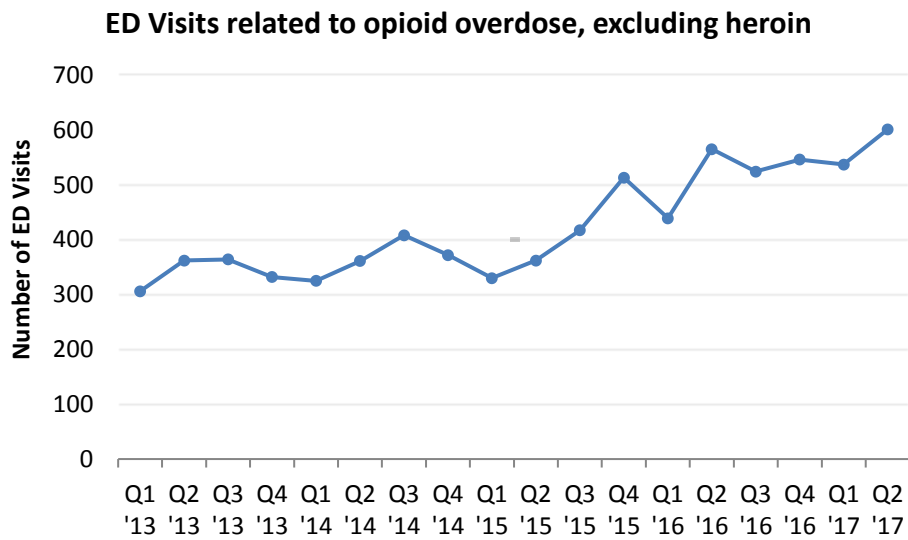
Notes: ED visits resulting in hospitalization are not included in these data

Figure 3. Inpatient hospitalizations due to opioid overdose by quarter, 2013-2017



Source: Hospital Discharge Dataset, Illinois Department of Public Health

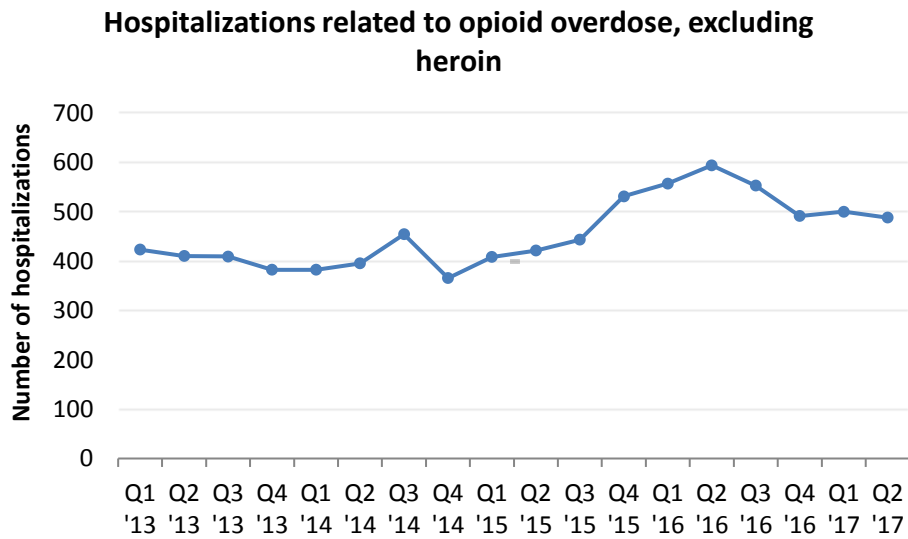
Figure 4. ED visits related to opioid overdose, excluding heroin by quarter, 2014-2016



Source: ED Discharge Dataset, Illinois Department of Public Health

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

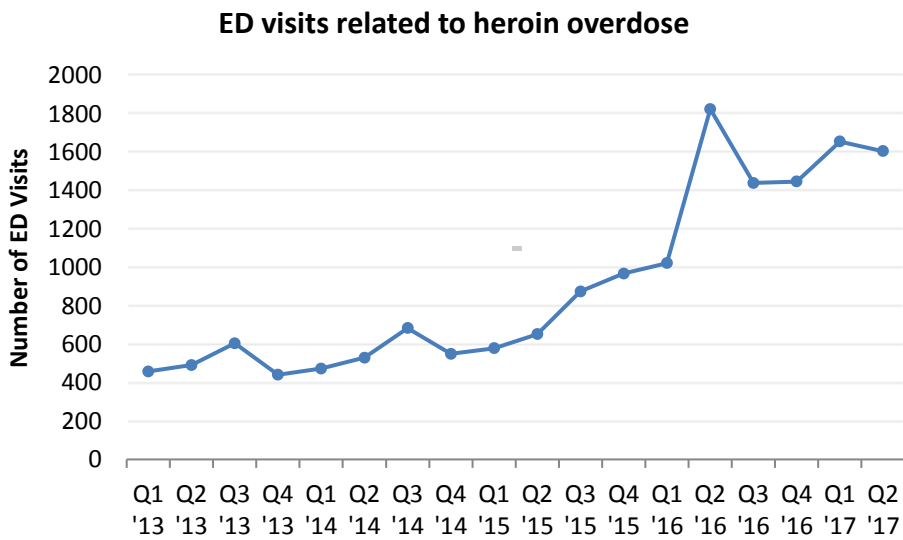
Figure 5. Inpatient hospitalizations due to opioid overdose, excluding heroin by quarter, 2013-2017



Source: Hospital Discharge Dataset, Illinois Department of Public Health

The biggest increase in opioid overdose-related ED visits and hospitalizations is due to heroin overdoses (Figure 6 and Figure 7). These overdoses peaked in Q2 2016, followed by a slight decrease in Q3, and a subsequent increase.

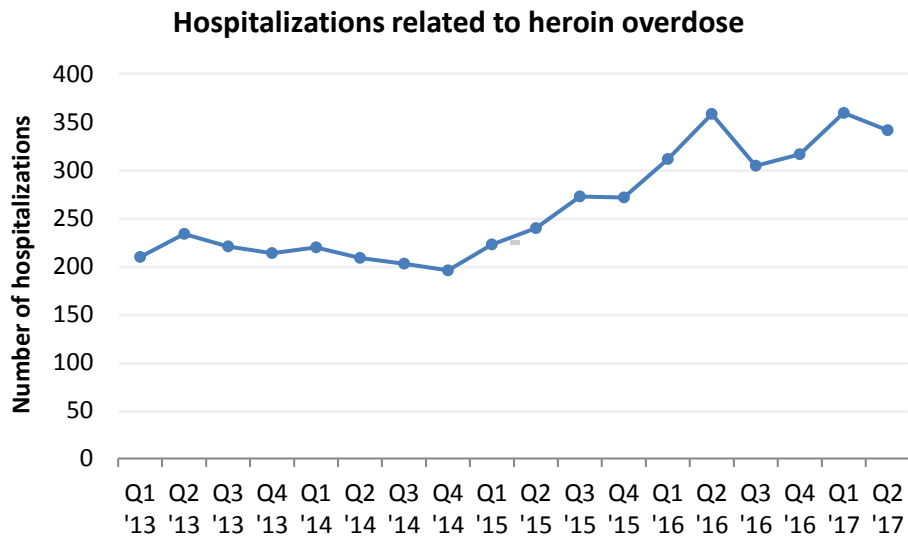
Figure 6. ED visits related to heroin overdose by quarter, 2013-2017.



Source: ED Discharge Dataset, Illinois Department of Public Health

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

Figure 7. Hospitalizations related to heroin overdose by quarter, 2013-2017



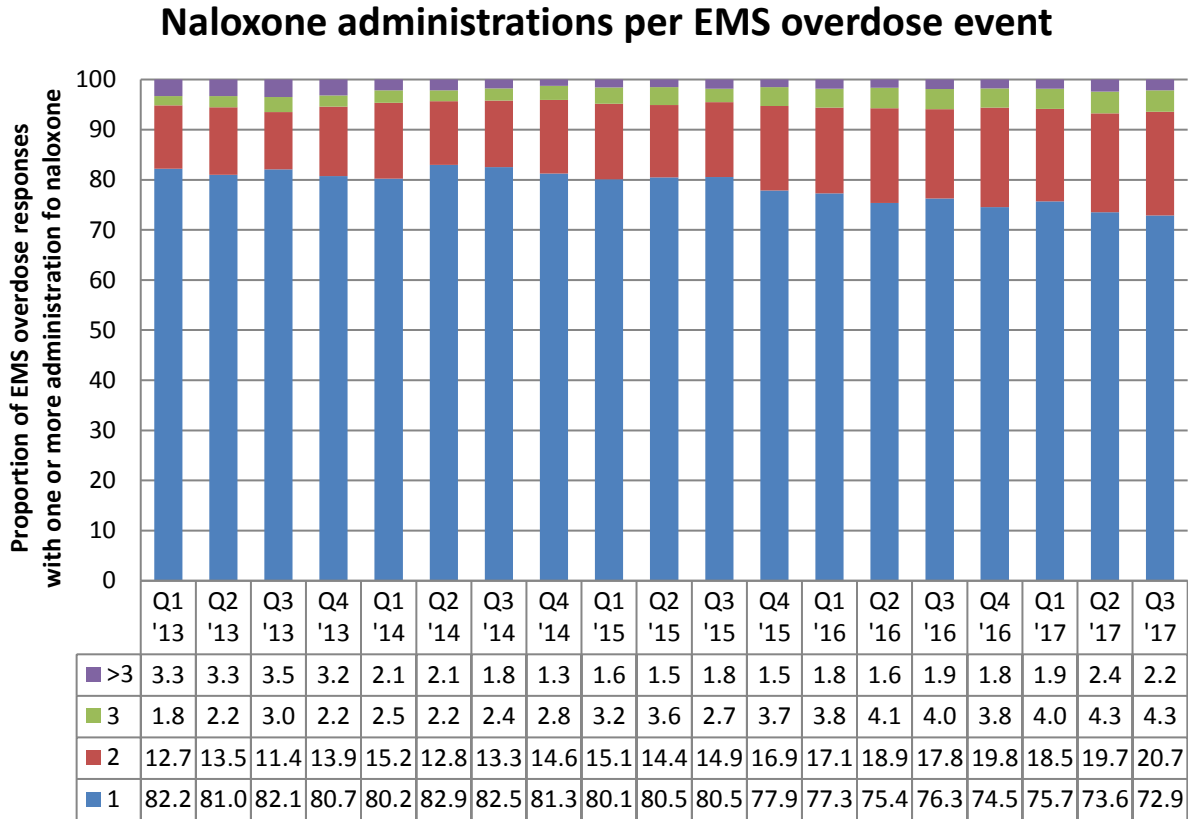
Source: Hospital Discharge Dataset, Illinois Department of Public Health

Emergency Medical Services Naloxone Administration

Emergency Medical Services (EMS) data is reported to IDPH through the National Emergency Medical Services Information System (NEMSIS). EMS systems across the country are upgrading to NEMSIS Version 3, which is expected to improve data quality and decrease the time between data collection and reporting. Illinois spent much of 2017 transitioning to the new version, which approximately 60% of EMS provider agencies are using as of December 2017. All provider agencies in Illinois are expected to transition to version 3 before the end of 2018.

EMS data show an increase in the number of naloxone administrations per EMS overdose event (Figure 8). An increase in overdoses requiring multiple administrations of naloxone is one indicator of the increasing poisonousness of the opioids involved in these overdoses.

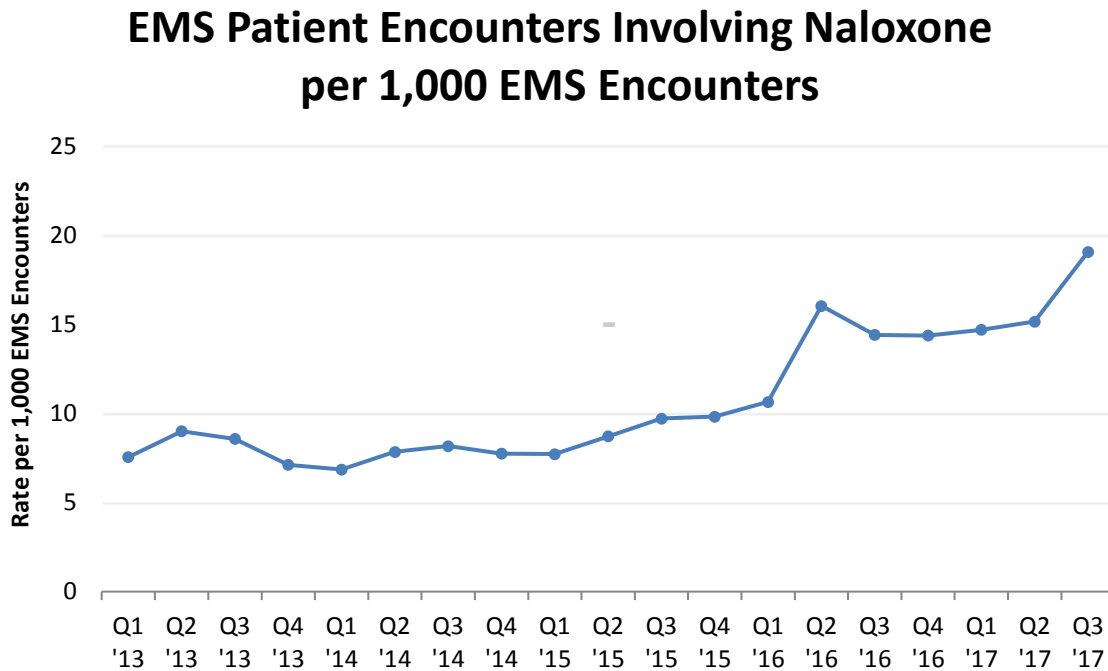
Figure 8. Naloxone administrations per EMS overdose response by quarter, 2013-2017



Source: IDPH Division of EMS and Highway Safety

Figure 9 shows the number of patient encounters involving naloxone per 1,000 patient encounters of any kind. The proportion of EMS events involving naloxone – indicating opioid overdoses – has increased steadily since 2014.

Figure 9. EMS patient encounters involving naloxone per 1,000 EMS encounters by quarter, 2013-2017



Source: IDPH Division of EMS and Highway Safety

Conclusion

Data in this report show that the opioid epidemic is continuing to affect the residents of Illinois. The next semiannual report will include data for the entire year of 2017 and some preliminary 2018 information.

Continuing reporting and updates may be found on the IDPH website, specifically at

<http://www.dph.illinois.gov/topics-services/prevention-wellness/prescription-opioids-and-heroin>,
<http://www.dph.illinois.gov/topics-services/prevention-wellness/prescription-opioids-and-heroin/idph-data> and <http://www.dph.illinois.gov/data-statistics/vital-statistics/death-statistics/more-statistics>.