Chasing the Data:

Monroe County Opioid-Related Data

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Introduction

The opioid epidemic is affecting communities of all sizes and Monroe County is no exception. In an effort to describe the local opioid epidemic, we conducted a search for local opioid-related overdose data. The goal was to identify data and to present it in an easily interpretable way. Instead, we discovered that the publicly available data are not straightforward and consistent. Health data is particularly difficult to measure due to issues such as the length of time that it takes for toxicology results to come in, medical coding protocols, and a lack of systematic documentation of naloxone administration. However, it is hard to understand a problem without reliable, accurate data. From community conversations and even supporting material provided by the data sources, we have good reason to believe that the confusing data that is available is still vastly underreporting the extent of the crisis. There is a need for clear and consistent data to understand the problem and identify possible interventions.

This paper includes data provided by New York State Department of Health[1], the Monroe County Office of the Medical Examiner[2], and the Monroe-Livingston Regional Emergency Medical Services Council[3]. The New York State Department of Health developed data collection protocols to measure and compare across the state on key opioid-related variables. This new practice came out of recommendations from the New York State Heroin and Opioid Task Force and subsequent legislation in 2016. Other agencies interfacing with the crisis have also compiled and shared their own data, and these include the Monroe County Office of the Medical Examiner and Monroe-Livingston Regional Emergency Medical Services Council.

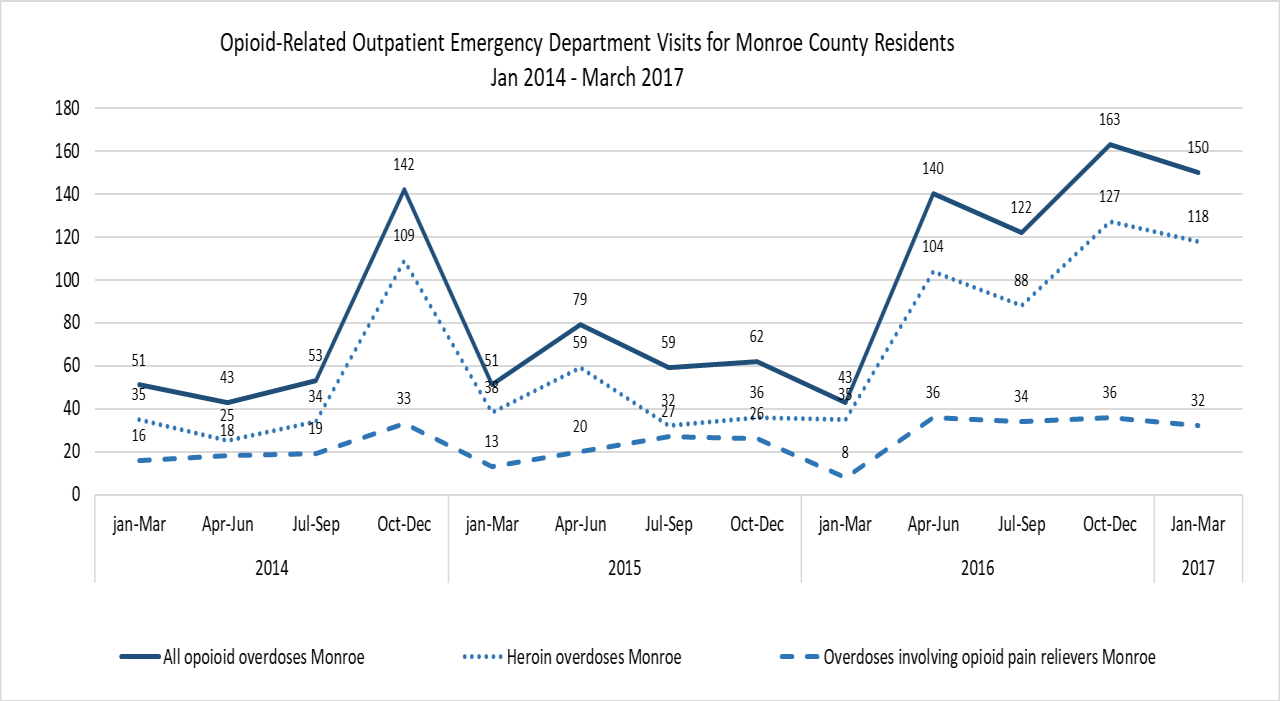
[1] Accessed here: https://www.health.ny.gov/statistics/opioid/#i_one
[2] Accessed here: http://www.whec.com/whecimages/repository/cs/files/Overdose_data-Monroe_County.pdf
[3] Accessed here: https://www.mlrems.org/news/ , *Spring 2017 Newsletter*

This paper is a compilation of the publicly available data from these reports (which can be accessed via the footnotes below). Data related to overdoses including hospitalizations, outpatient visits, deaths, and naloxone administrations are presented. The goal of this paper is to make sense of the data when possible, but to also highlight confusing and inconsistent data.

Outpatient Emergency Department Visits for Opioids

Source: *NYS DOH Quarterly Opioid Report, October*

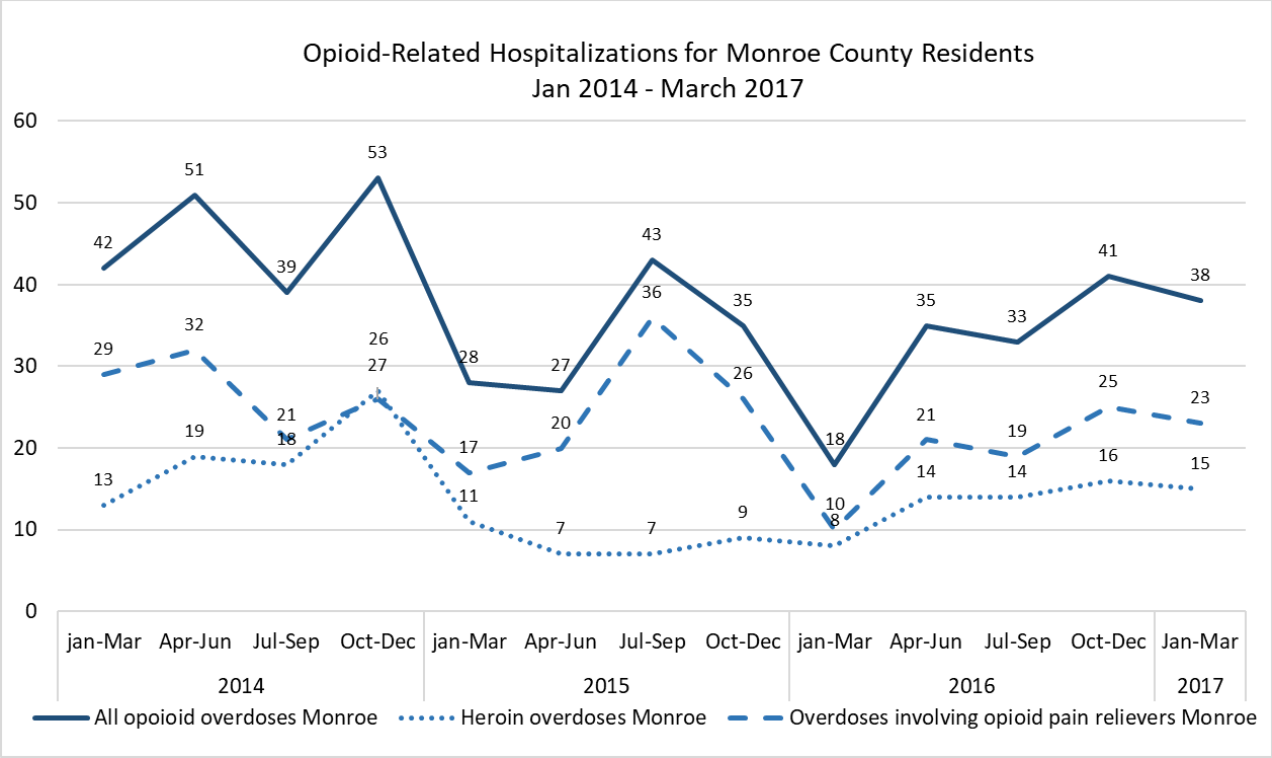
The chart below shows all emergency department visits by Monroe County residents treated for an opioid overdose. The solid line is the total opioid related emergency department visits and the two dashed lines are subsets of the total. Language in the NYS DOH Opioid Report states, "The reported cases are based on the county of residence. Opioids include both prescription opioid pain relievers, such as hydrocodone, oxycodone, and morphine, as well as heroin and opium." These are not mutually exclusive categories, which means that someone can have an overdose related to both heroin and opioid pain relievers. They would then count as one case in all opioid overdoses, but counted as a case in both heroin overdose and opioid pain reliever overdose. In the data below, peaks occurred in Oct-Dec 2014, Apr-Jun 2015, and Oct-Dec 2016. The highest peak occurred in Oct-Dec 2016 with 163 emergency department visits for opioids; 78% (127) were for heroin. Heroin overdoses consistently contributed a higher proportion of the total visits for opioids than opioid pain relievers did. In 2014, there were 289 visits, in 2015, there were 251, and in 2016, there were 468 visits. This is an 86% increase in visits from 2015 to 2016.



Hospitalizations for Opioids

Source: *NYS DOH Quarterly Opioid Report*

The chart below shows all hospitalizations due to an opioid overdose by Monroe County residents. Again, the categories are not mutually exclusive. There are fewer hospitalizations for opioids than emergency department visits, with a total of 185 in 2014, 133 in 2015, and 127 in 2016. The overall hospitalization numbers have been declining since 2014. Unlike emergency department visits, overdoses involving opioid pain relievers comprise a higher proportion of hospitalizations than heroin.

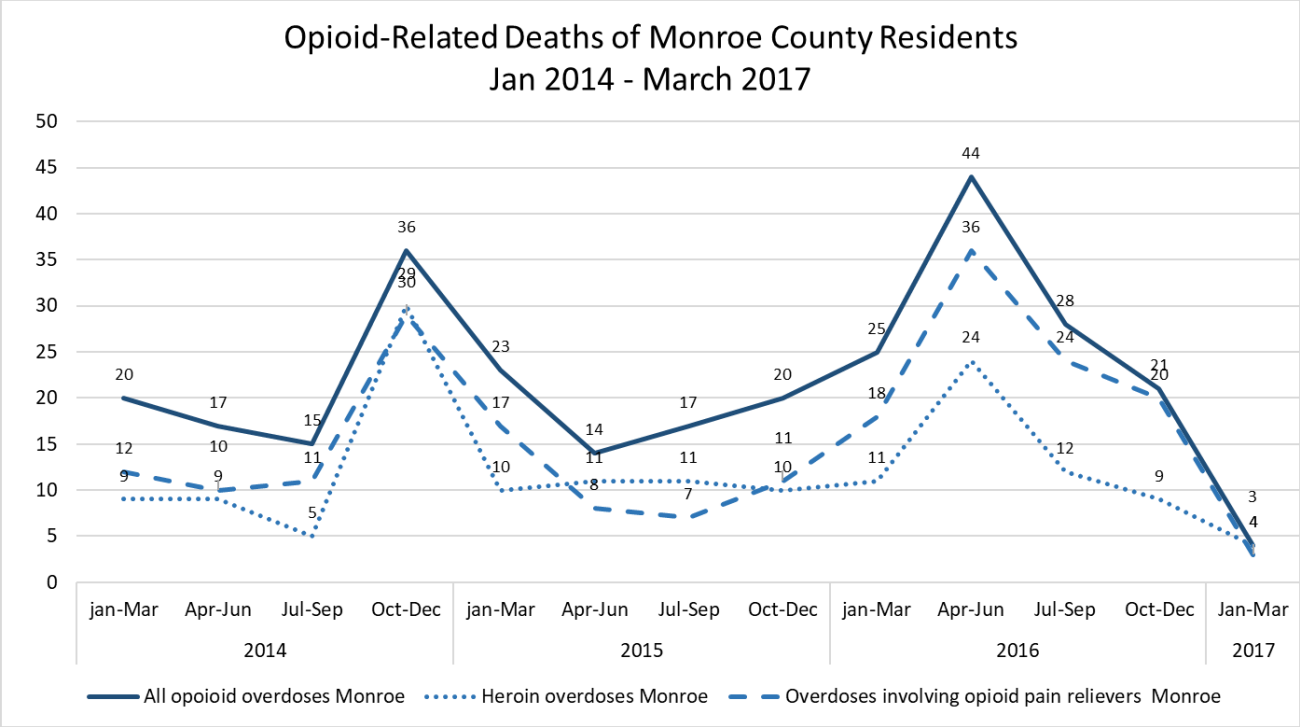


Opioid Deaths

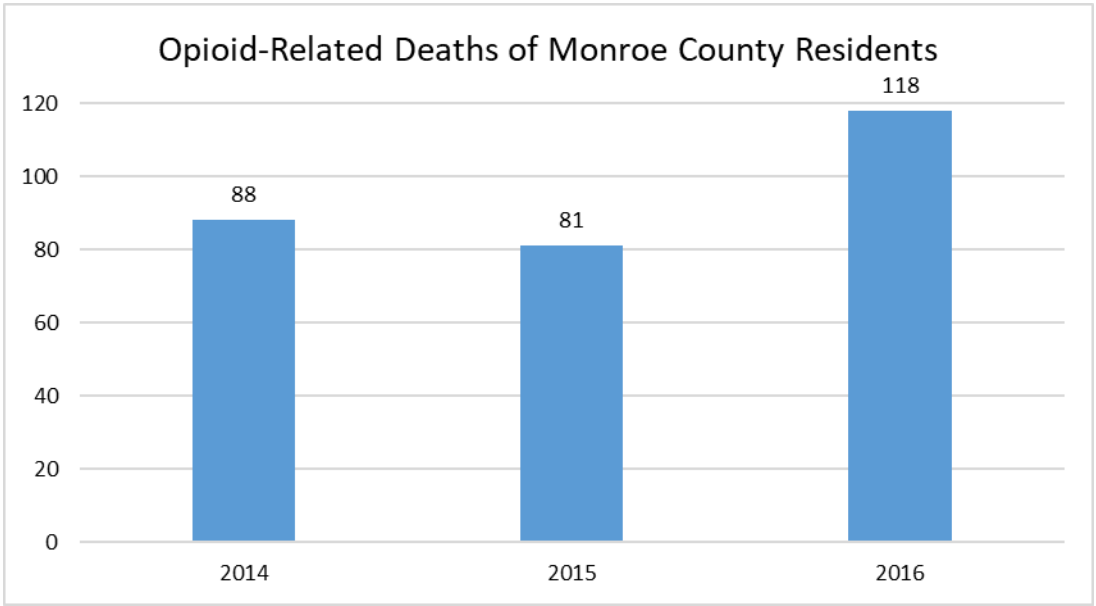
Source: *NYS DOH Quarterly Opioid Report*

The chart below shows Monroe County resident deaths due to opioid overdose. Again, the categories are not mutually exclusive. Notice the steady increase from April-June 2015 to a peak in April-June 2016 followed by a steady decrease to the present. The NYS DOH report notes the following, "Significant time lag in confirming and reporting the causes of death and patient information to the NYSDOH impact data completeness. Overdose mortalities take time to be confirmed because of factors such as toxicology tests. As a result, the mortality numbers in this report may not reflect all deaths that have occurred within a given quarter or year. Therefore, data in this report. . . should be used and interpreted with caution." The lag issue may explain the low numbers in the most recent quarter. In 2016, there were 118 deaths due to opioid overdose. Except for two quarters, opioid pain relievers comprised a higher proportion of opioid deaths

than heroin.



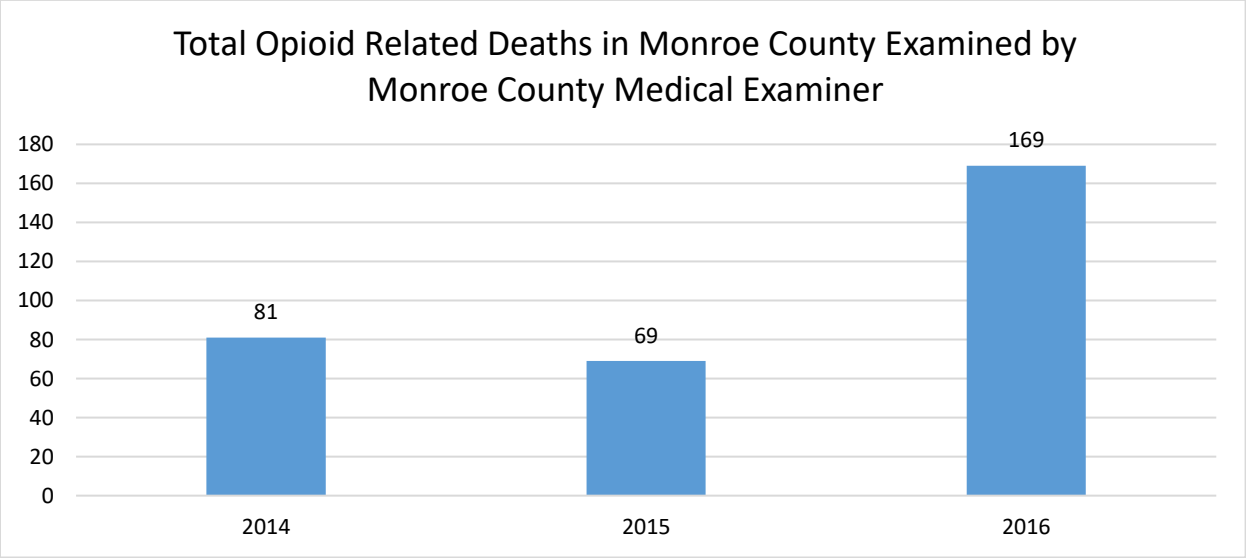
According to the same data source (NYS DOH), there were 88 deaths from opioids in 2014, 81 in 2015, and 118 in 2016.



However, the NYS DOH data displayed in the above chart are inconsistent with the data provided by the Monroe County Medical Examiner's Office, which is described in the next section.

Source: *Monroe County Medical Examiner's Office*

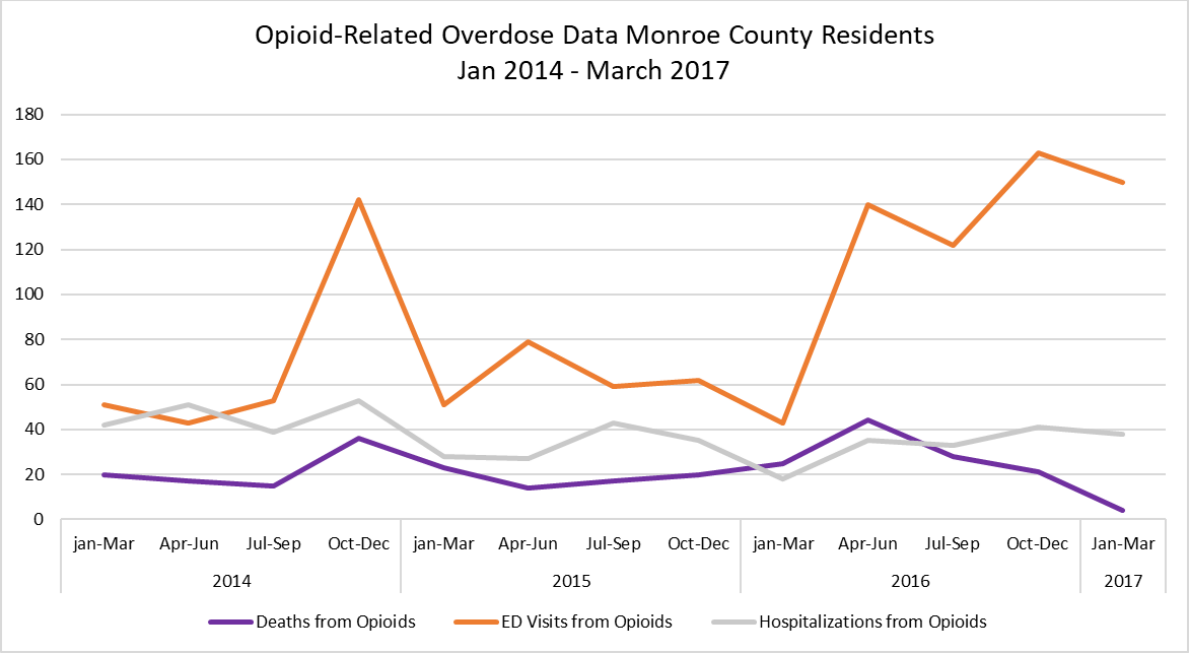
The chart below reflects the "number of deaths that occurred in Monroe County related solely to overdose from heroin, opioids, fentanyl, and/or related substances." The medical examiner's office provides overdose death data by county that death occurred, while the NYS DOH chart above provides data by person's residence. In other words, the data below demonstrate how many deaths from opioids occurred in Monroe County, while the NYS DOH data illustrate how many Monroe County residents died from an opioid overdose (the death could have occurred in another county). There were 169 opioid-related deaths that occurred in Monroe County in 2016; this is a 144% increase in deaths from the previous year. The 2016 data include an additional 51 deaths in Monroe County from opioids from the NYS DOH data. It is unclear if the discrepancy is explained solely by the different definitions, and that 51 people who died from an overdose did not reside in Monroe County.



Comparison of Deaths, ED Treatment, and Hospitalizations

Source: *NYS DOH Quarterly Opioid Report*

The chart below compares the data described in the above sections. Emergency Department Visits occur much more frequently than hospitalizations and deaths, but they have also increased beginning in January 2016. In general, deaths, hospitalizations, and ED visits follow similar patterns, with increases and decreases occurring mostly simultaneously. For example in Oct-Dec 2014 there were increases in all categories, similar to April-June 2016. It is surprising that there were two quarters in which more deaths occurred than hospitalizations.

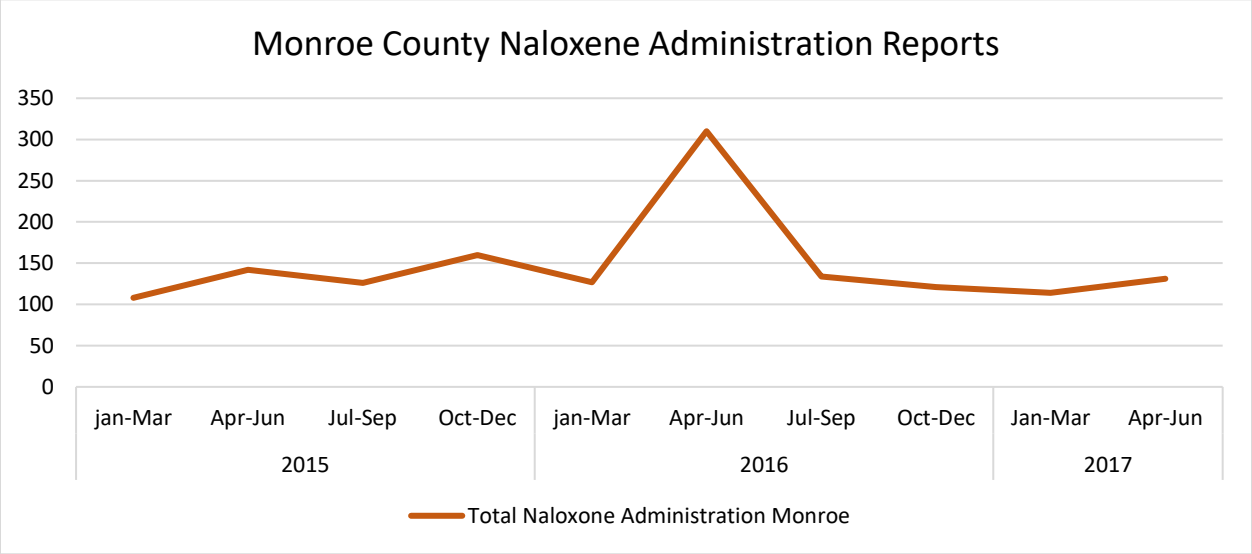


Naloxone Administration

Source: *NYS DOH Quarterly Opioid Report*

Naloxone reverses opioid overdose by temporarily binding to the opioid receptors in the brain and thereby knocking off the opioids and counteracting the effects of overdose. Historically, emergency responders administered naloxone, but in recent years, efforts have been made to train community members and others to administer naloxone, making it more readily available. The chart below shows Monroe County administrations of naloxone. There is a peak in naloxone

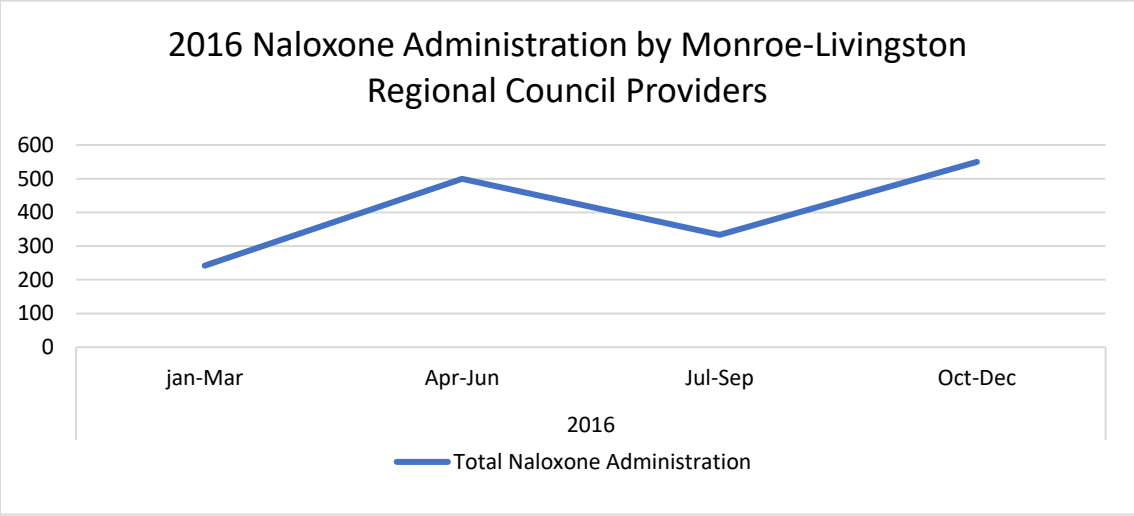
administration April-June 2016, which coincides with the peak in deaths from overdose. This was a 144% increase in naloxone administration than the previous quarter. One possible explanation is that more potent heroin was available during this time period, perhaps cut with fentanyl. During 2016, there were 537 administrations of naloxone. The NYS DOH report explains, "Most EMS naloxone administration results in this report were generated from electronically submitted pre-hospital care reports (e-PCR). . . Approximately 90% of EMS care provided throughout New York State is reported through e-PCR; however, that should not be interpreted as 90% of care provided and documented in each county. Use of e-PCR is not uniformly distributed across the State."

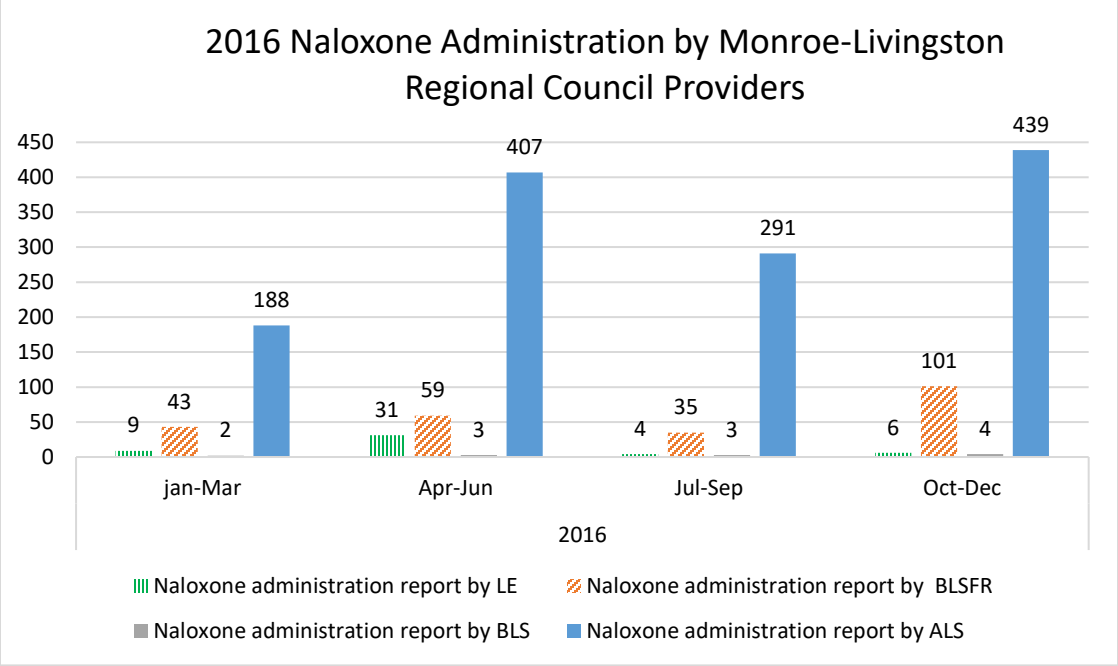


Source: *MLREMS Spring 2017 Newsletter*

The Monroe-Livingston Regional EMS (Emergency Medical Services) Council publishes a quarterly newsletter on their website, https://www.mlrems.org. The chart below includes data reported in the newsletter on naloxone administration. According to the newsletter, the data are for prehospital administration of naloxone by EMS providers, which includes law enforcement, basic life support trained, advanced life support trained, and basic life support first response trained. For all of 2016, there were 1,625 administrations of naloxone. This is more than twice

what is reported by the NYS DOH. However, if Livingston County naloxone administration data for 2016 from NYS DOH is included, then this increases the 692 total above by 42 to 734 administrations, but this number is still significantly lower than the 1,625 reported by MLREMS. Further, the law enforcement administration data reported below do not match the NYS DOH law enforcement administration data for Monroe and Livingston counties combined: the number reported my MLREMS is higher. It is unclear how reliable either data source is.





Conclusion

The data show that there are steady increases in opioid-related overdoses and that heroin is a significant contributor to outpatient visits and deaths. The data also indicate that deaths related to opioids may be declining in 2017, but as noted in the NYS DOH report, toxicology tests take longer and the numbers reported may increase over time. Questions still remain as to the reliability of the naloxone administration data.

Accurately capturing and reporting data related to the opioid epidemic is critical in order to understand the incidence and nature of the problem. With more data sources becoming available to the public, it is important that we understand the data and what is measured. Other cities and states are identifying unique ways to track the epidemic. For example, the Washington/Baltimore High Density Trafficking Area (HIDTA), has developed a map that provides real-time overdose data to emergency responders[4]. The data is being used to inform responders when a particularly potent dose of heroin has hit the streets, so that they can prepare for an increase in overdoses and respond accordingly. The availability of local measures to track the epidemic will be useful to understand the problem and identify hot spots within communities. The data presented here is at the county level and while it is helpful to compare to other counties and get a sense of the problem locally, drilling down to neighborhood-level (e.g., zip code or census tract) will help to develop focused, targeted interventions that save lives.

[4] http://www.hidta.org/odmap-gives-responders-real-time-overdose-data/