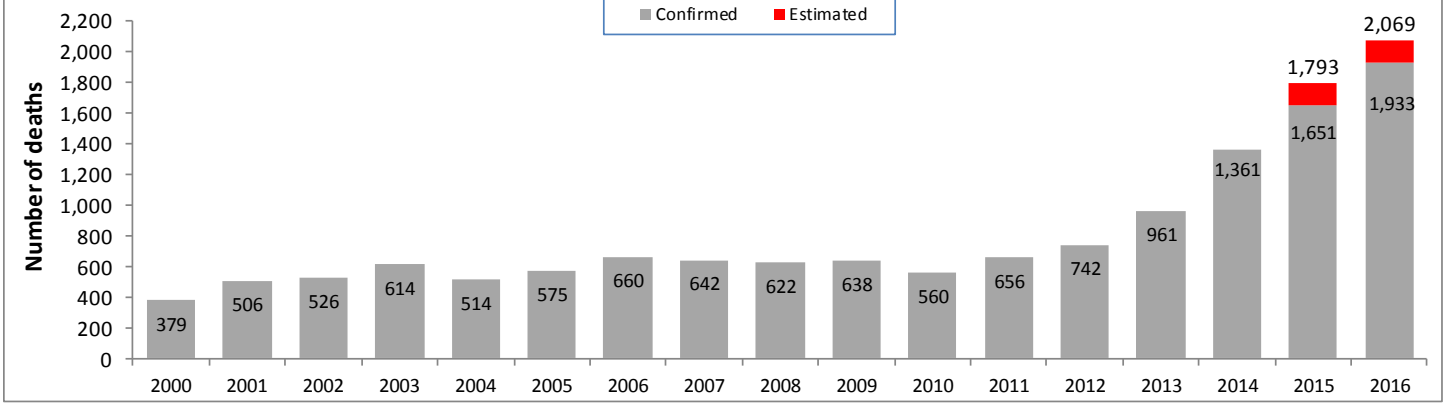
Data Brief: Opioid[1]-Related Overdose Deaths Among Massachusetts Residents

Massachusetts Department of Public Health | POSTED: MAY 2017

Note To Readers: This is the first quarterly report for 2017. Please note that throughout all sections of this report there has been a change in the category of deaths that are included. Death data that were previously reported as "Unintentional/Undetermined" has been updated to include deaths of **"All Intents"**, which means that opioid-related deaths that have been determined by the Office of the Chief Medical Examiner as the result of suicide will now be included in the totals. This will not add significantly to the death totals, however it will allow for consistency in interpretation in the data that are presented.

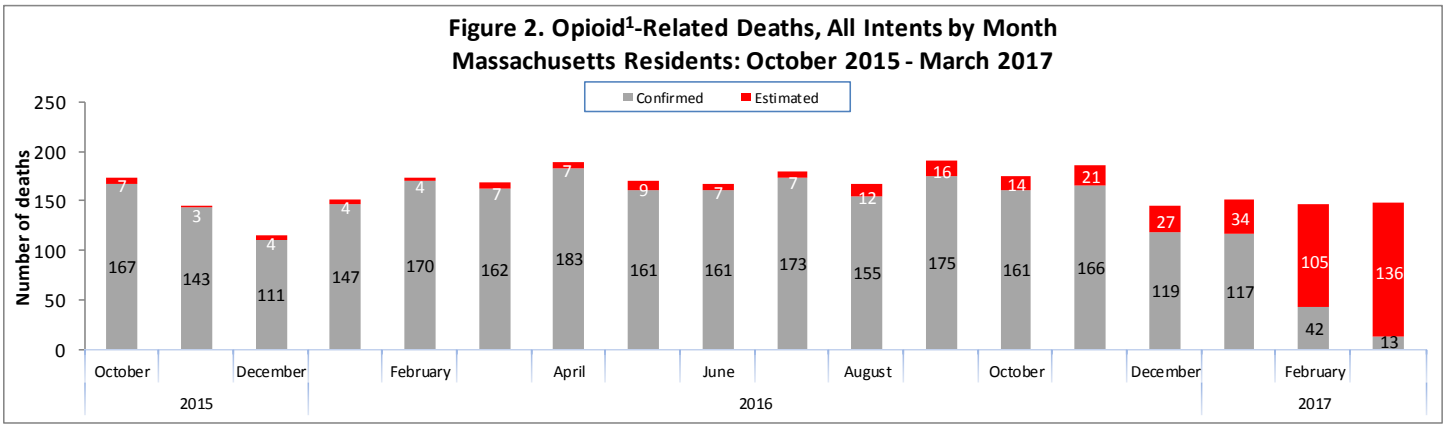
This report contains both confirmed and estimated data through March 2017.

Figure 1. Opioid[1]-Related Deaths, All Intents
Massachusetts Residents: January 2000 - December 2016



Note: Counts for 2000 – 2014 have been updated following a review of cases that did not receive an official cause of death at the time the files were closed.

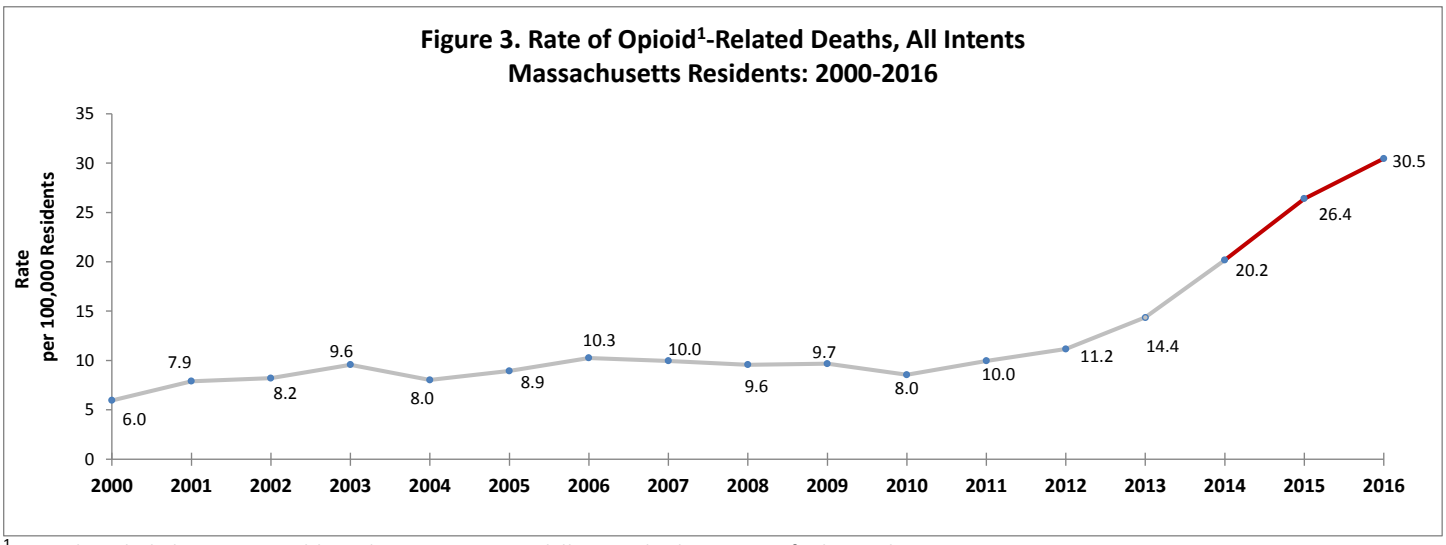
The chart above shows the number of confirmed cases of all intents opioid-related overdose deaths for 2016 (n=1933). This figure represents a 17% increase over confirmed cases in 2015 (n=1651) and a 42% increase over 2014. In order to obtain timelier estimates of the total number of opioid-related overdose deaths in Massachusetts - confirmed and probable - DPH used predictive modeling techniques for all cases not yet finalized by the Office of the Chief Medical Examiner (OCME). Based on the data available as of 04/06/2017, DPH estimates that there will be an additional 132 to 152 deaths in 2015, and an additional 123 to 149 deaths in 2016, once these cases are finalized.



The chart above shows month-by-month estimates for all intents from October 2015 through March 2017. For 2017 Q1, there are 172 confirmed cases of all intents opioid-related overdose deaths and DPH estimates that there will be an additional 242 to 307 deaths.

Rate of All Intents Opioid Deaths

The increase in estimated death rates is slowing year over year: in 2014, there was a 40% increase from the prior year; in 2015, there was a 31% increase from the prior year; and in 2016, there was a 16% from the prior year.



[1] Opioids include heroin, opioid-based prescription painkillers, and other unspecified opioids.
Please note that there is rounding of counts for 2015-2016.

Technical Notes

This report tracks opioid-related overdoses due to difficulties in identifying heroin and prescription opioids separately. The Department regularly reviews projections as more information becomes available. Information from the Office of the Chief Medical Examiner and the Massachusetts State Police are now incorporated into the predictive model. This additional information has improved the accuracy of the models that predict the likelihood that the cause of death for any person was an opioid-related overdose. DPH applied this model to death records for which no official cause of death was listed by the OCME. The model includes information from the death certificate, Medical Examiner's notes, and the determination by the State Police of a suspected heroin death. DPH added this estimate to the number of confirmed cases in order to compute the total number of opioid-related overdoses. Should new information become available that changes the estimates to any significant degree, updates will be posted.

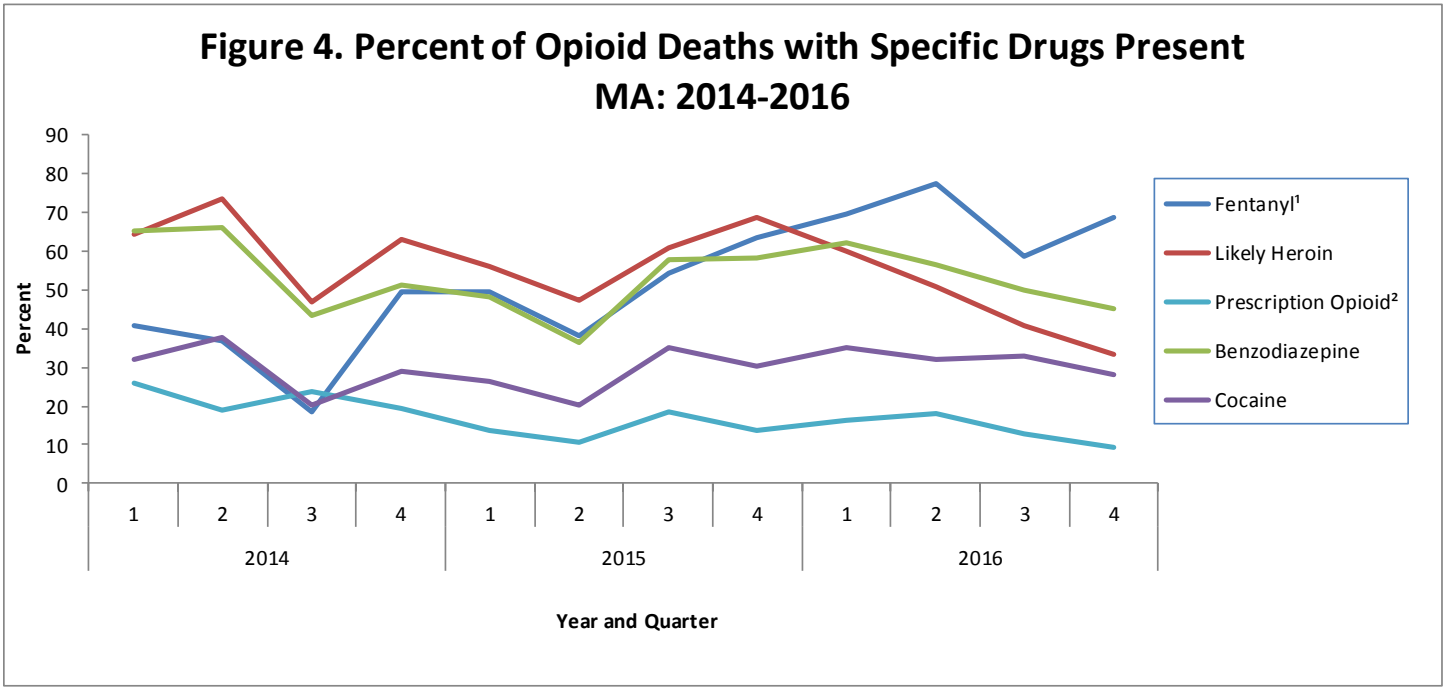
Toxicology Analysis: Fentanyl and Other Drugs

Fentanyl is a synthetic opioid that has effects similar to heroin. It can be prescribed for severe pain. According to the U.S. Department of Justice, Drug Enforcement Administration's 2015 Investigative Reporting, while pharmaceutical

fentanyl (from transdermal patches or lozenges) is diverted for abuse in the United States at small levels, much of the fentanyl in Massachusetts is due to illicitly-produced fentanyl, not diverted pharmaceutical fentanyl[1].

The standard toxicology screen ordered by the Office of the Chief Medical Examiner includes a test for the presence of fentanyl. In 2016, the number of fentanyl-related deaths continued to increase. Among the 1899 individuals whose deaths were opioid-related in 2016 where a toxicology screen was also available, 1302 of them (69%) had a positive screen result for fentanyl. In the fourth quarter of 2016, heroin or likely heroin was present in approximately one-third of opioid-related deaths that had a toxicology screen.

While screening tests can be used to note the rate at which certain drugs are detected in toxicology reports, they are insufficient to determine the final cause of death without additional information. The cause of death is a clinical judgement made within the Office of the Chief Medical Examiner.



1. This is most likely illicitly produced and sold, **not** prescription fentanyl
2. Prescription opioids include: hydrocodone, hydromorphone, oxycodone, oxymorphone, and tramadol

The percentage of opioid-related overdose deaths where prescription drugs were present has been decreasing since the beginning of 2014, when approximately a quarter of deaths with a toxicology screen showed evidence of a prescription opioid. In the fourth quarter of 2016, prescription opioids were present in 9% of opioid-related overdose deaths where a toxicology result was available. Also notable, the rate of heroin or likely heroin present in opioid-related deaths has been decreasing while the presence of fentanyl is still trending upward.

[1] U.S. Department of Justice, Drug Enforcement Administration, DEA Investigative Reporting, January 2015.

Please note that previous estimates may change slightly as DPH routinely receives updated toxicology data from the Office of the Chief Medical Examiner and the Massachusetts State Police.