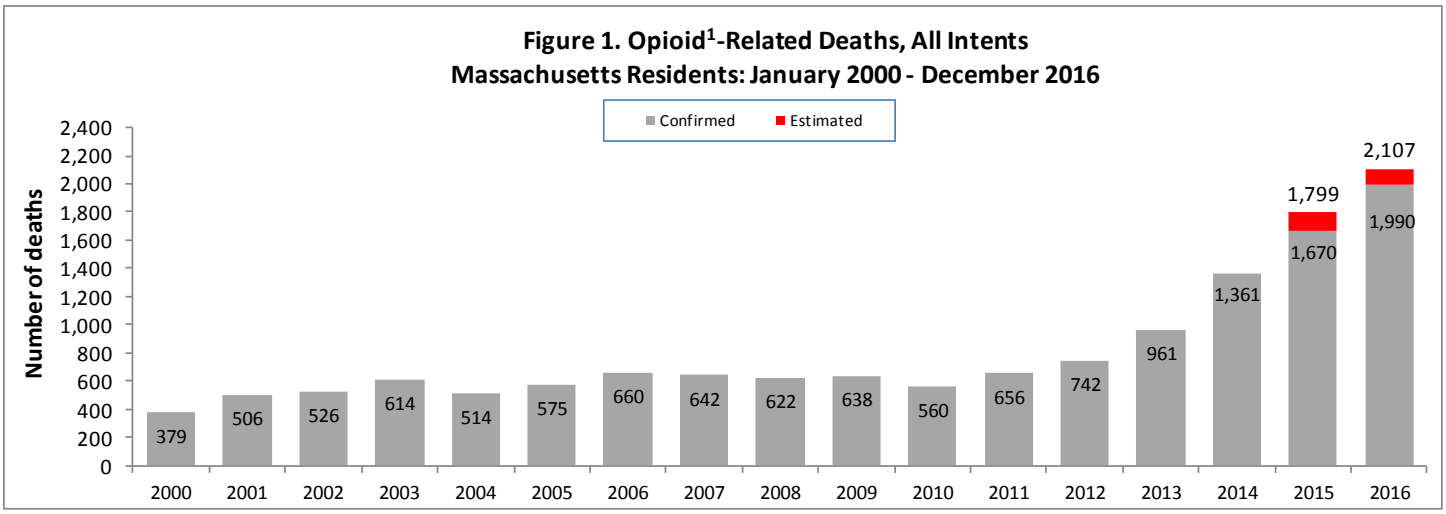
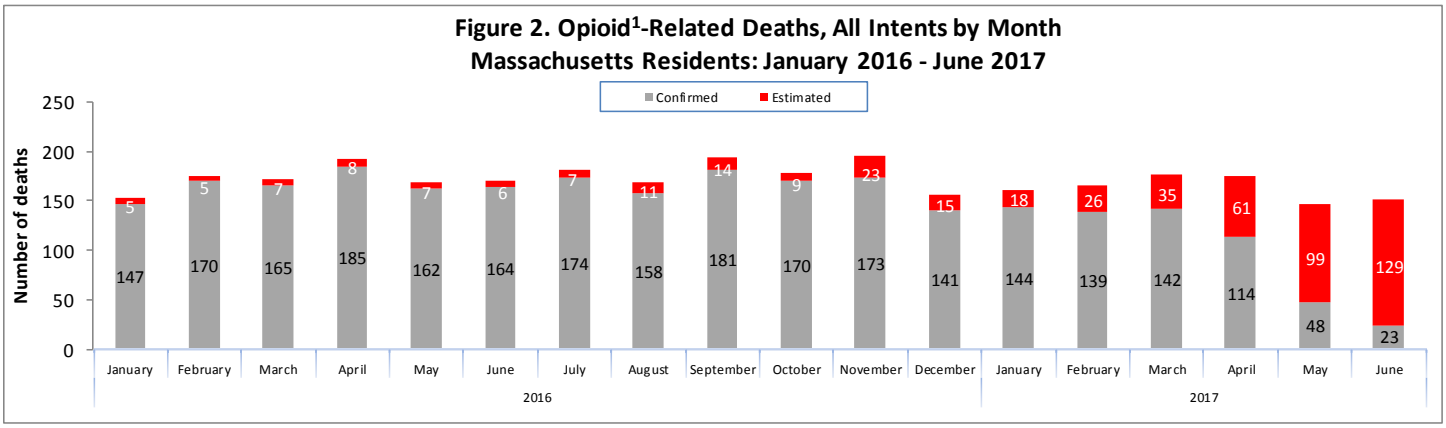
Data Brief: Opioid[1]-Related Overdose Deaths Among Massachusetts Residents

Massachusetts Department of Public Health | POSTED: AUGUST 2017

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



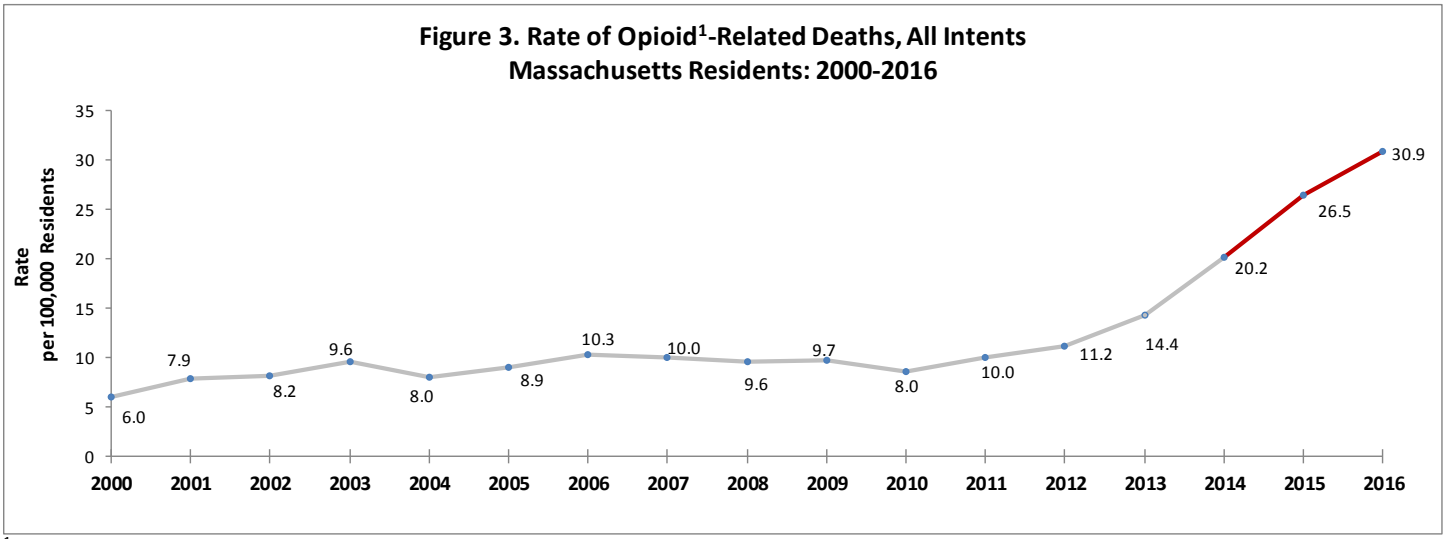
The chart above shows the number of confirmed cases of all intents opioid-related overdose deaths for 2016 (n=1990). This figure represents a 19% increase over confirmed cases in 2015 (n=1670) and a 46% increase over 2014. In order to obtain timelier estimates of the total number of opioid-related overdose 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 07/11/2017, DPH estimates that there will be an additional 120 to 138 deaths in 2015, and an additional 107 to 125 deaths in 2016, once these cases are finalized.



The chart above shows month-by-month estimates for all intents from January 2016 through June 2017. For the first 6 months of 2017, there are 610 confirmed cases of all intents opioid-related overdose deaths and DPH estimates that there will be an additional 330 to 406 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 17% increase from the prior year.



[1] Opioids include heroin, opioid-based prescription painkillers, and other unspecified opioids.

Technical Notes

Beginning with the May 2017 report, DPH started reporting opioid-related deaths for all intents, which includes unintentional/undetermined and suicide. 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

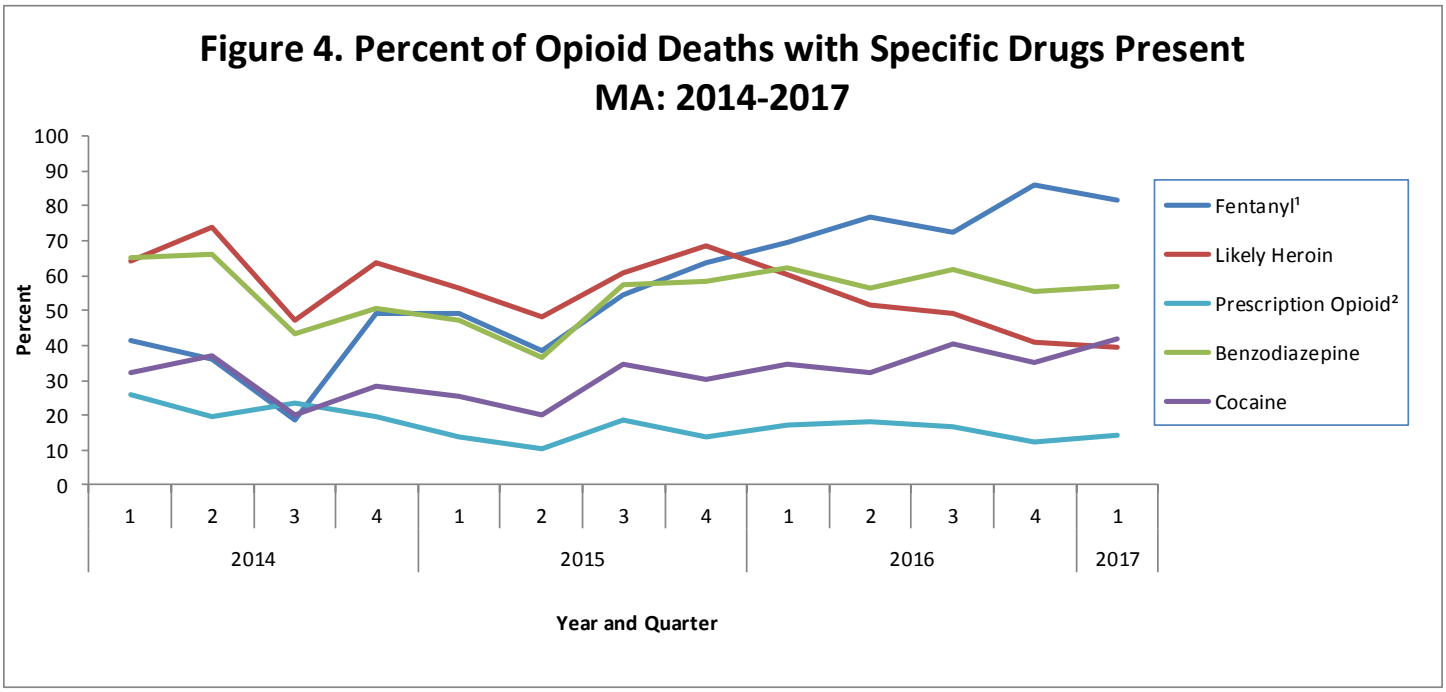
overdoses. Should new information become available that changes the estimates to any significant degree, updates will be posted. Please note that there is rounding of counts for 2015-2016.

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.

The standard toxicology screen ordered by the Office of the Chief Medical Examiner includes a test for the presence of fentanyl. Among the 387 individuals whose deaths were opioid-related in 2017 where a toxicology screen was also available, 315 of them (81%) had a positive screen result for fentanyl. In the first quarter of 2017, heroin or likely heroin was present in approximately 39% of opioid-related deaths that had a toxicology screen. Cocaine was present in approximately 42% of these deaths; and benzodiazepines were present in approximately 57%.

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

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.

The percentage of opioid-related overdose deaths where prescription drugs were present has trended downward since the beginning of 2014, when approximately a quarter of deaths with a toxicology screen showed evidence of a prescription opioid. In the first quarter of 2017, prescription opioids were present in approximately 15% 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.