

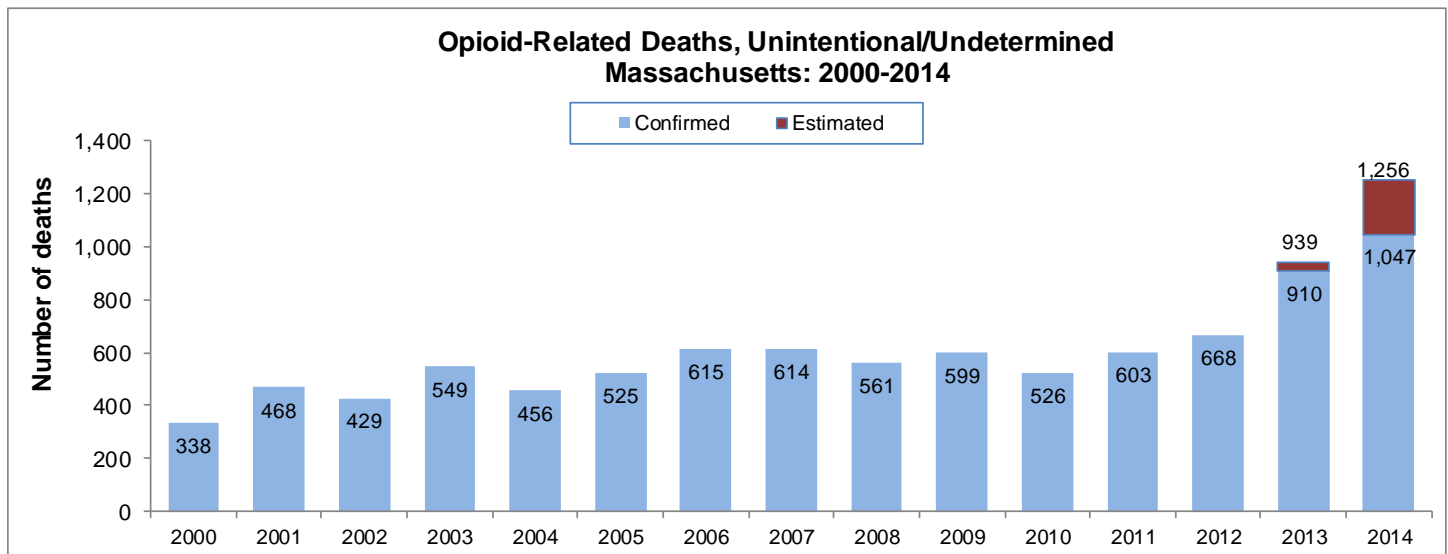


# Data Brief: Fatal Opioid-related Overdoses among Massachusetts Residents

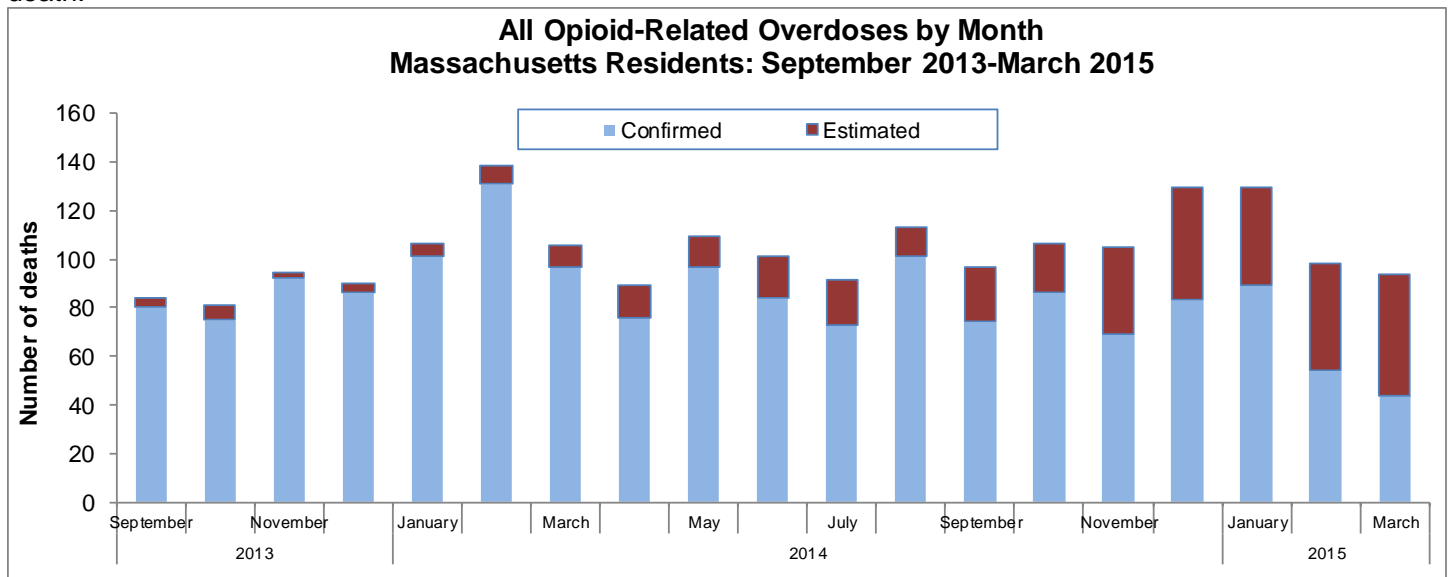
Massachusetts Department of Public Health

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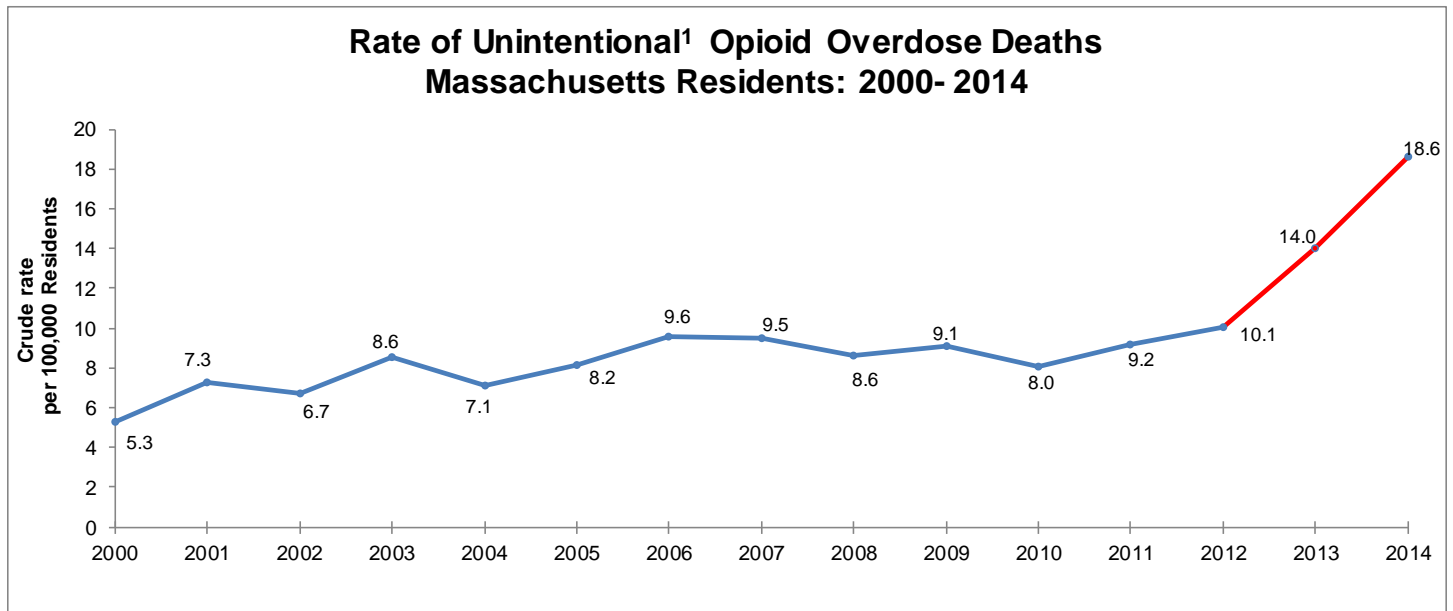
The number of confirmed cases of unintentional opioid overdose deaths for 2014 represents a 57% increase over 2012 (n=668) and a 15% increase over confirmed cases for 2013. In order to obtain timelier estimates of the total number of opioid overdose deaths in Massachusetts, confirmed and probable, DPH analysts used predictive modeling techniques for all cases not yet finalized by the Office of the Chief Medical Examiner. Based on the data available as of 07/01/2015, DPH estimates that there will be an additional 21 to 38 unintentional opioid-related fatal overdoses in 2013 and an additional 168 to 254 deaths in 2014, once these cases are finalized.



DPH analysts have also made month-by-month estimates for each month from September 2013 through March 2015. We only report data for those months in 2015 for which at least 80% of deaths have a recorded final cause of death.



The estimated rate of unintentional opioid-related overdose deaths, which includes deaths related to heroin, reached levels in 2014 previously unseen in Massachusetts. The estimated rate of 18.6 deaths per 100,000 residents for 2014 is the highest ever for unintentional opioid overdoses and represents a 251% increase from the rate of 5.3 deaths per 100,000 residents in 2000.



<sup>1</sup> Unintentional includes unintentional and undetermined intents to account for a change in policies related to assignment of manner of death in overdose deaths that occurred in 2005. Opioids include heroin, opioid-based prescription painkillers, and other unspecified opioids. This report tracks opioid-related overdoses due to difficulties in identifying heroin and prescription opioids separately.

**Technical Notes:**

The figures cited here for 2013 and 2014 are based on estimates. As estimates, the Department will regularly review the projections as more information becomes available. Should the estimates change to any significant degree, updates will be posted. We used the closed analytic files for the years 2008 – 2012 to create and then refine a model to predict the likelihood that the cause of death for any person will be an opioid-related overdose. We later added 2011-2015 data from the Medical Examiner’s Office (OCME) to refine our model for 2011-2015, which improved the model significantly. Finally, we applied this model to the 2013 to 2015 open files to estimate the number of pending cases that will be an opioid-related overdose. Included in the final model are: age, race, education, gender, year of death, place of death, autopsy status, Medical Examiner’s notes, and latent class geography. We added this estimate to the number of confirmed cases in order to estimate the total number of opioid-related overdoses. Due to missing information on intent in the open files, the models predict the total number of fatal opioid-related overdoses. In order to estimate the number that are considered unintentional, we applied the average percentage of total opioid-overdose deaths that were considered unintentional for the previous 5-year period (94%) to the total estimate.



# Number of Unintentional<sup>1</sup> Opioid<sup>2</sup> Overdose Deaths by County, MA Residents, 2000-2014<sup>3</sup>

Massachusetts Department of Public Health, Office of Data Management and Outcomes Assessment • July 2015

| County              | Year of Death |            |            |            |            |            |            |            |            |            |            |            |            |                   |                   | Total 2000-2014 |
|---------------------|---------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------------|-------------------|-----------------|
|                     | 2000          | 2001       | 2002       | 2003       | 2004       | 2005       | 2006       | 2007       | 2008       | 2009       | 2010       | 2011       | 2012       | 2013 <sup>3</sup> | 2014 <sup>4</sup> |                 |
| Barnstable          | 12            | 17         | 17         | 14         | 16         | 17         | 19         | 29         | 21         | 20         | 19         | 15         | 22         | 41                | 51                | 330             |
| Berkshire           | 2             | 3          | 0          | 2          | 3          | 9          | 1          | 8          | 3          | 8          | 3          | 6          | 15         | 21                | 26                | 110             |
| Bristol             | 37            | 56         | 60         | 80         | 67         | 75         | 79         | 61         | 78         | 66         | 74         | 76         | 92         | 112               | 138               | 1,151           |
| Dukes               | 1             | 0          | 1          | 0          | 0          | 2          | 0          | 3          | 1          | 1          | 0          | 0          | 0          | <5 <sup>5</sup>   | <5 <sup>5</sup>   | 15              |
| Essex               | 41            | 58         | 44         | 74         | 61         | 73         | 83         | 85         | 52         | 69         | 48         | 54         | 85         | 116               | 190               | 1,133           |
| Franklin            | 5             | 2          | 1          | 5          | 3          | 4          | 6          | 4          | 2          | 2          | 4          | 6          | 8          | 9                 | 11                | 72              |
| Hampden             | 30            | 36         | 34         | 44         | 26         | 33         | 42         | 38         | 43         | 45         | 46         | 42         | 51         | 70                | 60                | 640             |
| Hampshire           | 5             | 5          | 4          | 10         | 8          | 2          | 9          | 12         | 10         | 9          | 10         | 9          | 10         | 28                | 22                | 153             |
| Middlesex           | 56            | 76         | 77         | 102        | 96         | 109        | 106        | 101        | 104        | 113        | 90         | 118        | 106        | 147               | 257               | 1,658           |
| Nantucket           | 0             | 0          | 0          | 0          | 0          | 0          | 0          | 1          | 0          | 1          | 1          | 0          | 0          | <5 <sup>5</sup>   | <5 <sup>5</sup>   | <5 <sup>5</sup> |
| Norfolk             | 24            | 39         | 34         | 36         | 37         | 49         | 46         | 53         | 67         | 64         | 55         | 59         | 65         | 81                | 121               | 830             |
| Plymouth            | 22            | 24         | 27         | 42         | 24         | 35         | 47         | 49         | 45         | 46         | 39         | 60         | 54         | 86                | 106               | 706             |
| Suffolk             | 44            | 79         | 75         | 93         | 73         | 62         | 106        | 101        | 67         | 91         | 60         | 79         | 82         | 110               | 135               | 1,257           |
| Worcester           | 59            | 73         | 55         | 47         | 42         | 55         | 71         | 69         | 68         | 64         | 77         | 79         | 78         | 116               | 133               | 1,086           |
| <b>TOTAL DEATHS</b> | <b>338</b>    | <b>468</b> | <b>429</b> | <b>549</b> | <b>456</b> | <b>525</b> | <b>615</b> | <b>614</b> | <b>561</b> | <b>599</b> | <b>526</b> | <b>603</b> | <b>668</b> | <b>939</b>        | <b>1,256</b>      | <b>9,146</b>    |

1. Unintentional poisoning/overdose deaths combine unintentional and undetermined intents to account for a change in death coding that occurred in 2005. Suicides are excluded from this analysis.
2. Opioids include heroin, opioid-based prescription painkillers, and other unspecified opioids.
3. Please note that 2013 death data are preliminary and subject to updates. Case reviews of deaths are evaluated and updated on an ongoing basis. These counts are based on the estimates rather than confirmed cases. Data updated on **07/01/2015**.
4. Please note that 2014 death data are provisional and are subject to updates. Case reviews of deaths are evaluated and updated on an ongoing basis. A large number of death certificates have yet to be received from the municipalities and some have yet to be assigned cause-of-death codes. These counts are based on the estimates rather than confirmed cases. Data updated on **07/01/2015**.
5. Numbers and calculations based on values less than 5 are suppressed for years in which the death file is not yet closed.

**Please note that there is rounding of counts for 2013 and 2014.**

**Method Notes:**

- Cases were defined using the International Classification of Disease (ICD-10) codes for mortality. The following codes were selected from the underlying cause of death field to identify poisonings/overdoses: X40-X49, Y10-Y19. All multiple cause of death fields were then used to identify an opioid-related death: T40.0, T40.1, T40.2, T40.3, T40.4, and T40.6.
- This report tracks all opioid-related overdoses due to difficulties in reporting heroin-associated overdoses separately. Many deaths related to heroin are not specifically coded as such due to the fast metabolism of heroin into morphine
- To maintain consistency with NCHS reporting, we do not include the ICD-10 code F11.1, which may include opioid-related overdose deaths

**Source: Registry of Vital Records and Statistics, MDPH**