Age-adjusted death rates due to drug overdose, by specific drugs or drug classes: United States, 2006-Quarter 2, 2017
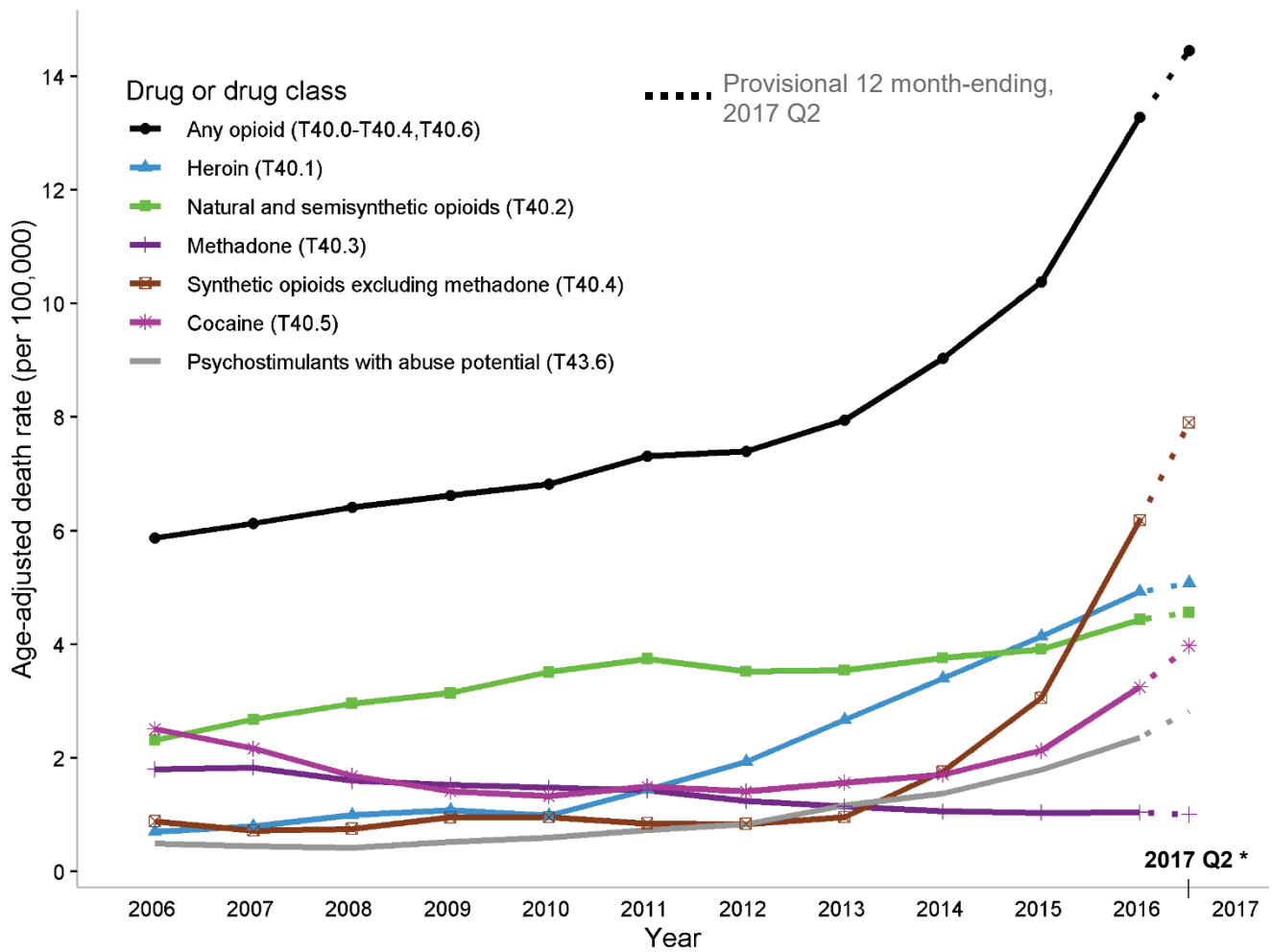
The following table and chart provide age-adjusted death rates due to drug overdose involving specific drugs or drug classes from 2006 through the first half of 2017. Specific drug or drug class categories are consistent with those displayed in the National Vital Statistics System (NVSS) Rapid Release 'Provisional Drug Overdose Death Counts' data visualization (1). Estimates for 2006 through 2016 are annual, based on final data. Estimates for 2017 are for the 12-month period ending with quarter 2, based on provisional data (as of July 1, 2018) from the first two quarters of 2017, and final data from the last two quarters of 2016. This is the most recent 12-month ending period for which death rates due to drug overdose are published (2). Twelve-month ending rates are shown for Q2 2017 to be consistent with other estimates provided in the NVSS Rapid Release Program (1-2) and to ensure stability of estimates. Additionally, 12 month-ending estimates include all seasons of the year and are insensitive to variations by seasonality, similar to annual estimates for prior years.

Table 1. Age-adjusted death rates (per 100,000) due to drug overdose, by specific drug or drug class involved: United States, 2006-2016, and provisional 12 month-ending 2017 Q2.

Year*	Any opioid (T40.0-T40.4,T40.6)	Heroin (T40.1)	Natural and semisynthetic opioids (T40.2)	Methadone (T40.3)	Synthetic opioids excluding methadone (T40.4)	Cocaine (T40.5)	Psychostimulants with abuse potential (T43.6)
2006	5.9	0.7	2.3	1.8	0.9	2.5	0.5
2007	6.1	0.8	2.7	1.8	0.7	2.2	0.4
2008	6.4	1.0	3.0	1.6	0.8	1.7	0.4
2009	6.6	1.1	3.1	1.5	1.0	1.4	0.5
2010	6.8	1.0	3.5	1.5	1.0	1.3	0.6
2011	7.3	1.4	3.7	1.4	0.8	1.5	0.7
2012	7.4	1.9	3.5	1.2	0.8	1.4	0.8
2013	7.9	2.7	3.5	1.1	1.0	1.6	1.2
2014	9.0	3.4	3.8	1.1	1.8	1.7	1.4
2015	10.4	4.1	3.9	1.0	3.1	2.1	1.8
2016	13.3	4.9	4.4	1.0	6.2	3.2	2.4
Provisional 12 month-ending 2017 Q2*	14.5	5.1	4.6	1.0	7.9	4.0	2.8

* Estimates for 2006-2016 are annual, based on final data. Provisional 12 month-ending Q2 2017 estimates include provisional data (as of July 1, 2018) for Q1 & Q2 2017 and final data for Q3 & Q4 2016. Drug overdose deaths may involve more than one drug or drug class.

Figure 1. Trends in age-adjusted death rates (per 100,000) due to drug overdose, by specific drug or drug class involved: United States, 2006-2016, and provisional 12 month-ending 2017 Q2.

* Estimates for 2006-2016 are annual, based on final data. Provisional 12 month-ending Q2 2017 estimates include provisional data (as of July 1, 2018) for Q1 & Q2 2017 and final data for Q3 & Q4 2016. Drug overdose deaths may involve more than one drug or drug class.

Data source

Final estimates are based on the National Vital Statistics System (NVSS) multiple-cause-of-death mortality files for years 2016 and earlier. Provisional estimates are based on a current flow of mortality data in the NVSS, as of the date specified. Provisional data are weighted to independent control counts of the number of deaths occurring in a given state and month, in an effort to account for incomplete reporting. Provisional data are often incomplete and causes of death may be pending investigation, resulting in an underestimate of drug overdose death rates relative to final data. Final estimates for the 2017 data year may be higher or lower than the provisional estimates for the 12 months ending with quarter 2, 2017.

Methods

Drug overdose deaths are identified using underlying cause-of-death codes from the Tenth Revision of ICD (ICD–10): X40–X44 (unintentional), X60–X64 (suicide), X85 (homicide), and Y10–Y14 (undetermined). Drug overdose deaths involving selected drug categories are identified by specific multiple cause-of-death codes. Drug categories presented include: heroin (T40.1); natural opioid analgesics, including morphine and codeine, and semisynthetic opioids, including drugs such as oxycodone, hydrocodone, hydromorphone, and oxymorphone (T40.2); methadone, a synthetic opioid (T40.3); synthetic opioid analgesics other than methadone, including drugs such as fentanyl and tramadol (T40.4); cocaine (T40.5); and psychostimulants with abuse potential, which includes methamphetamine (T43.6). Drug overdose deaths involving 'any opioid' are identified by the presence of any of the following MCOD codes: opium (T40.0); heroin (T40.1); natural opioid analgesics (T40.2); methadone (T40.3); synthetic opioid analgesics other than methadone (T40.4); or other and unspecified narcotics (T40.6). This latter category includes drug overdose deaths where 'opioid' or 'opiate' is reported without more specific information to assign a more specific ICD–10 code (T40.0–T40.4).

Several factors related to death investigation and reporting may affect measurement of death rates involving specific drugs. At autopsy, the substances tested for and the circumstances under which the toxicology tests are performed vary by jurisdiction. This variability is likely to affect substance-specific death rates more than the overall drug overdose death rate. The percentage of drug overdose deaths that identified the specific drugs involved increased over time, with ranges of 75%–79% from 1999 to 2013, 81%–85% from 2014 to 2016, and 85-87% for the first quarters of 2017. The increases in death rates involving specific drugs over time may therefore be due, in part, to better reporting of specific drugs or drug classes on the death certificate.

Drug overdose deaths may involve multiple drugs; therefore, a single death might be included in more than one category when describing the number of drug overdose deaths involving specific drugs. For example, a death that involved both heroin and fentanyl would be included in both the number of drug overdose deaths involving heroin and the number of drug overdose deaths involving synthetic opioids other than methadone.

Age-adjusted death rates were calculated using the direct method and adjusted to the 2000 standard population. Monthly population estimates from the US Census Bureau were used to estimate rates for 2017 provisional data, using the mid-point of the 12-month ending reporting period.

References

1. Ahmad FB, Rossen LM, Spencer MR, Warner M, Sutton P. Provisional drug overdose death counts. National Center for Health Statistics. 2018. Available from: https://www.cdc.gov/nchs/nvss/vsrr/drug-overdose-data.htm

2. Ahmad FB, Bastian B. Quarterly provisional estimates for selected indicators of mortality, 2016-Quarter 4, 2017. National Center for Health Statistics. National Vital Statistics System, Vital Statistics Rapid Release Program. 2018. Available from: https://www.cdc.gov/nchs/nvss/vsrr/mortality-dashboard.htm#