



Researched Abuse, Diversion and Addiction-Related Surveillance System

QUARTERLY Technical REPORT

First Quarter, 2018

Increases in natural and semi-synthetic opioid deaths coincide with concurrent heroin and illicit fentanyl use

Key Findings

1. Between 2011 and 2016, the percentage of natural and semi-synthetic opioid deaths that included heroin or synthetic opioids other than methadone (including illicit fentanyl) increased from 11.5% to 33.1%.
2. Between 2011 and 2016, the crude rate of deaths involving natural and semi-synthetic opioids increased 19.5%. However, when deaths involving heroin or synthetic opioids are excluded, the rate of deaths involving natural and semi-synthetic opioids decreased 9.7% during this time.
3. Exposures involving natural and semi-synthetic opioids that also involved either heroin or a synthetic opioid reported to poison centers were nearly twice (OR=1.97) as likely to result in death.

Background

In December 2017 the Centers for Disease Control and Prevention released data indicating that deaths involving natural and semi-synthetic opioids, the category that includes most prescription opioids, have doubled since 2006 and increased 13% between 2015 and 2016. These trends are inconsistent with other data sources which show declines in the non-medical use and abuse of prescription opioids. Data from the National Survey on Drug Use and Health shows decreases in prevalence of non-medical use of prescription opioids (Han et al, 2015) and data from the Researched Abuse, Diversion and Addiction-Related Surveillance (RADARS®) System have shown decreases in abuse and diversion since 2010 (Dart et al, 2015). Though increases in prescription opioid use disorders have been observed (Han et al, 2015), we hypothesized that the discrepancies between these trends is due to an increased prevalence of concurrent use of heroin or synthetic opioids with prescription opioids and that use of both substances is more likely to result in death.

Methods

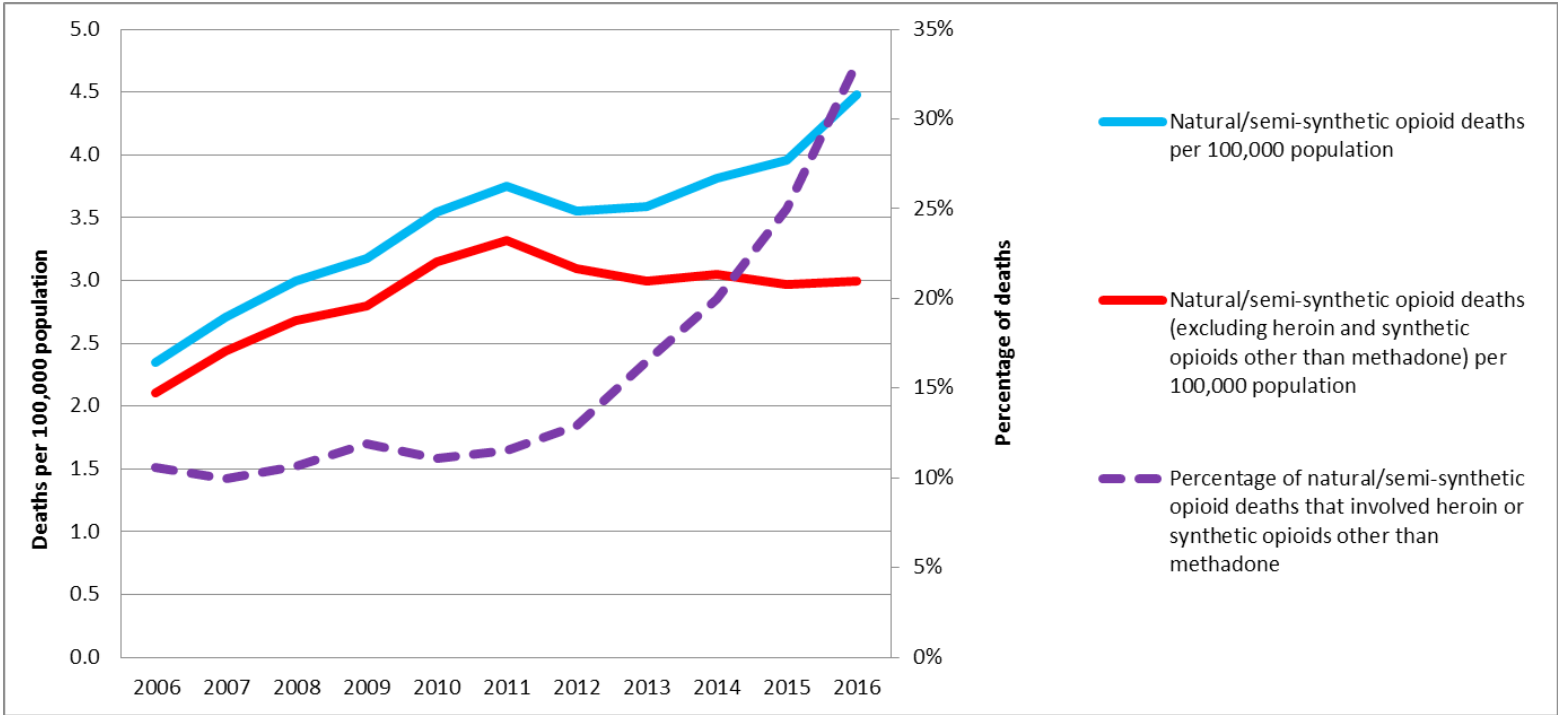
Two data sources were used in these analyses. Data from the National Vital Statistics System (NVSS) multiple cause-of-death mortality data were extracted using the Wide-ranging Online Data for Epidemiologic Research (WONDER) apparatus for 2006 through 2016. These files contain the official national statistics for deaths reported to vital registration systems across the United States. Drug overdose deaths were classified based on International Classification of Disease, Tenth Revision (ICD-10) underlying cause-of-death codes X40–44 (unintentional), X60–64 (suicide), X85 (homicide), or Y10–Y14 (undetermined intent). Among the deaths with drug overdose as the underlying cause, we examined deaths where the type of opioid involved was natural and semisynthetic opioids (ICD-10 multiple cause-of-death code T40.2) which includes hydrocodone, oxycodone, morphine and other commonly used analgesics. Among these cases, we identified deaths that also involved synthetic opioids other than methadone (T40.4), which includes illicitly manufactured fentanyl, and heroin (T40.1).

Data from the Researched Abuse, Diversion and Addiction-Related Surveillance (RADARS®) System Poison Center Program were also used. These data include information from participating poison centers which manage exposure calls from individuals within the general population and from healthcare providers. Natural and semi-synthetic opioids were defined as exposures involving hydrocodone, hydromorphone, morphine, oxycodone, and oxymorphone. Synthetic opioids were defined as buprenorphine, fentanyl, tapentadol, and tramadol.

Results

In NVSS data, the percentage of overdose deaths involving natural and semi-synthetic opioids that also involved either heroin or synthetic opioids increased from 10.6% in 2006 to 33.1% in 2016 (Figure 1). The increase appears most pronounced between 2011 and 2016. Deaths involving natural and semi-synthetic opioids increase from 2006 (2.4 per 100,000 population) through 2011 (3.8 per 100,000 population), a 60% increase. There is a decrease in 2012 (3.5 per 100,000 population) from 2011 before increasing through 2016 (4.5 per 100,000 population). The largest increase is between 2015 (4.0 per 100,000 population) and 2016 (4.5 per 100,000 population); a 13.2% increase.

When deaths involving heroin or synthetic opioids are excluded, a similar increase is observed in deaths involving natural and semi-synthetic opioids between 2006 (2.1 per 100,000 population) and 2011 (3.3 per 100,000 population); a 58% increase. However, between 2011 and 2016 (3.0 per 100,000 population) the rate of deaths involving natural and semi-synthetic opioids decreased 9.7%.



In the Poison Center Program, the percentage of exposures involving natural and semi-synthetic opioids that also involved heroin or a synthetic opioid increased from 2.1% in 2006 to 4.6% in 2016. Exposures involving natural and semi-synthetic opioids that also involved either heroin or synthetic opioids were 1.97 (95% CI: 1.63 to 2.38, $p < 0.001$) times more likely to result in death than those that did not involve either substance.

Conclusions

Deaths involving prescription opioids continue to be a public health problem. However, recent increases in deaths appear to be largely driven by increased prevalence of heroin and synthetic opioids (likely illicit fentanyl) exposures. Given the increased risk of death with concurrent use, deaths attributable to prescription opioids alone may actually be decreasing. This has important implications for development of public policy. Careful screening of patients for substance use disorders is important prior to prescribing opioid medication. In addition, enhanced law enforcement efforts are needed to reduce distribution networks of heroin and illicit synthetic opioids in addition to curbing diversion of prescription medications. Finally, there is an even greater need for access to treatment for individuals with opioid use disorders.

Suggested Citation

Severtson SG, Iwanicki JL, Margolin, ZR, Dart RC (2018). Increases in natural and semi-synthetic opioid deaths coincide with concurrent heroin and illicit fentanyl use. RADARS® System Technical Report, 2018-Q1.

References

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2. Han B, Compton WM, Jones CM, Cai R. Nonmedical prescription opioid use and use disorders among adults aged 18 through 64 years in the United States, 2003-2013. *JAMA.* 2015;314(14):1468-78.