Minnesota’s Growing and Evolving Opioid Crisis

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Background

What are opioids?
- A family of addictive drugs that act on the opioid receptors in pleasure centers of the brain

What are their effects?
- Can relieve pain and cause euphoria

Types of opioids:
- Natural opioids, derived from opium poppy (e.g., morphine)
- Semi-synthetic opioids, synthesized from natural opioids (e.g., oxycodone, heroin)
- Synthetic opioids, synthesized from non-opioid compounds to mimic opioid effects (e.g., fentanyl)
Opioid overdose death records

Natural and semi-synthetic opioids
- i.e., prescription opioid painkillers

Heroin
- Illicit opioid with no legal medical use

Synthetic opioids
- e.g., fentanyl
- Some have legal medical uses, but deaths dominated by illegally manufactured and trafficked fentanyl
U.S. Trends

*Prescription Opioid, Synthetic Opioid, and Heroin Overdose Deaths*
U.S. Opioid Deaths
Rates per 100,000 People, by Opioid Type

Wave I: Prescription Opioids
- Heroin
- Prescription Opioids
- Synthetic Opioids (e.g., fentanyl)

Wave II: Illicit Opioids
- Synthetic: 9.0
- Heroin: 4.9
- Prescription: 4.4

Source: SHADAC analysis of age-adjusted rates of drug poisoning deaths, National Center for Health Statistics
State Trends and Variation

Opioid Overdose Deaths
Prescription Opioid Deaths
Rates per 100,000 People, 2017

Source: SHADAC analysis of vital statistics data from the CDC WONDER system.
Prescription Opioid Deaths
Rates per 100,000 People, 2017

Source: SHADAC analysis of vital statistics data from the CDC WONDER system.
Heroin Deaths
Rates per 100,000 People, 2017

Source: SHADAC analysis of vital statistics data from the CDC WONDER system.
Heroin Deaths
*Rates per 100,000 People, 2017*

Source: SHADAC analysis of vital statistics data from the CDC WONDER system.
Synthetic Opioid Deaths
Rates per 100,000 People, 2017

U.S. RATE: 9.0 DEATHS

Source: SHADAC analysis of vital statistics data from the CDC WONDER system.
Synthetic Opioid Deaths
Rates per 100,000 People, 2017

Source: SHADAC analysis of vital statistics data from the CDC WONDER system.
Minnesota and U.S. Opioid Deaths
Rates per 100,000 People by Type, 2017

* Statistically significant difference from U.S. rate at 95% level.

Source: SHADAC analysis of age-adjusted rates of drug poisoning deaths, National Center for Health Statistics
Minnesota Trends

Opioid Overdose Deaths
Number of Opioid Deaths in Minnesota, 2000-2017

Source: Minnesota Department of Health
Number of Opioid Deaths in Minnesota, 2000-2017

Source: Minnesota Department of Health
### Number of Opioid Overdose Deaths by Minnesota Counties, 2016

#### Top 5 Counties in Minnesota with the Highest Number of Opioid Overdose Deaths

<table>
<thead>
<tr>
<th>County</th>
<th># of opioid deaths</th>
<th>Rate per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hennepin (Minneapolis)</td>
<td>146</td>
<td>11.2</td>
</tr>
<tr>
<td>Ramsey (St. Paul)</td>
<td>34</td>
<td>6.3</td>
</tr>
<tr>
<td>Anoka (Blaine)</td>
<td>26</td>
<td>7.5</td>
</tr>
<tr>
<td>Dakota (Eagan)</td>
<td>26</td>
<td>6.2</td>
</tr>
<tr>
<td>St. Louis (Duluth)</td>
<td>23</td>
<td>11.5</td>
</tr>
</tbody>
</table>

Source: SHADAC analysis of Minnesota Department of Health
Opioid Overdose Deaths by Minnesota Counties
Rates per 100,000 people, 2000-2002 and 2014-2016

Source: SHADAC analysis of Minnesota Department of Health data
Minnesota Opioid Overdose Deaths
Rates per 100,000 People by Race, 2014-2016

Source: Minnesota Department of Health
Number of Minnesota Drug Overdose Deaths, 2000-2018 (preliminary)

Source: Minnesota Department of Health
State Trends

Non-opioid Illicit Drug Overdose Deaths
Non-opioid illicit drugs

Cocaine
- Limited legal medical uses in U.S. (e.g., topical anesthetic) but also is trafficked illicitly

Psychostimulants with abuse potential
- Broader category of substances including prescription stimulants (e.g., Ritalin, Adderall) and illicit drugs (e.g., methamphetamine, MDMA)
  - Most common cause of psychostimulant death is methamphetamine, according to CDC research
U.S. Drug Overdose Deaths
Rates per 100,000 People, by Drug Type, 2012-2017

Wave II: Rise of Non-Opioid Illicit Substances

Source: SHADAC analysis of age-adjusted rates of drug poisoning deaths, National Center for Health Statistics
Cocaine Deaths
Rates per 100,000 People, 2017

U.S. RATE: 4.3 DEATHS

Source: SHADAC analysis of vital statistics data from the CDC WONDER system.
Cocaine Deaths
Rates per 100,000 People, 2017

Source: SHADAC analysis of vital statistics data from the CDC WONDER system.
Number of Minnesota Cocaine Deaths, 2000-2017

Source: Minnesota Department of Health
Psychostimulant Deaths
Rates per 100,000 People, 2017

U.S. RATE: 3.2 DEATHS

Source: SHADAC analysis of vital statistics data from the CDC WONDER system.
Psychostimulant Deaths
Rates per 100,000 People, 2017

Source: SHADAC analysis of vital statistics data from the CDC WONDER system.
Number of Minnesota Psychostimulant Deaths, 2000-2017

Source: Minnesota Department of Health
Number of Minnesota Drug Overdose Deaths, 2000-2018 (preliminary)

Source: Minnesota Department of Health
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The Opioid Epidemic: National Trends in Opioid-Related Overdose Deaths from 2000 to 2017

INTRODUCTION

Over the last two decades, the United States has experienced a growing crisis of substance abuse and addiction that is illustrated most starkly by the rise in deaths from drug overdoses. Since 2000, the annual number of drug overdose deaths has quadrupled from 17,320 to 50,000 in 2017.1 Most of these deaths involved opioids, including heroin, prescription painkillers, and synthetic opioids such as fentanyl.2 In the years since the U.S. Centers for Disease Control and Prevention (CDC) declared overdoses from prescription painkillers an “epidemic” in 2011, the opioid overdose crisis has evolved rapidly from a problem that mainly impacted prescription painkillers to a crisis that impacts other illicit drugs such as heroin and synthetic opioids.3 More recently, early evidence suggests that the problem also may be spreading beyond opioids to other illicit drugs, such as cocaine and methamphetamine.4 This brief provides high-level information about opioids and opioid addiction, presents the historical context for the epidemic of opioid and related addictions and mortality in the United States, and examines trends in opioid-related mortality across the country and among subgroups.

SUMMARY

This brief examines the United States opioid epidemic, a rapidly evolving crisis that has impacted both illicit and licit opioids. The escalating use of opioids and the increase in opioid-related deaths are largely due to the prescription of opioid painkillers.1 To date, the opioid epidemic has seen a steady increase in deaths related to prescription painkillers, with its most recent peak seen in 2016.5

Background

Adverse properties of opioids

To better understand the development of the opioid crisis, it is important to recognize the adverse properties of opioids and how they differ between different opioid types. Generally, there are two classes of opioids: natural and synthetic. Natural opioids, which are made from the opium poppy plant, 2) semi-synthetic opioids, like hydrocodone and oxycodone, which are chemically derived from natural opioids, and 3) fully synthetic opioids, like fentanyl, which are chemically created to mimic natural opioids but are typically much more potent. In addition, opioids can be segmented into illicit opioids (such as heroin) and legal opioids (such as painkillers including codeine and hydrocodone).1 First and legal opioids are chemically similar, stimulating the same opioid receptors in the reward centers of the brain and creating similar feelings of euphoria and addiction. However, this similarity is only superficial. Legal opioids are generally used medically to treat pain and are usually obtained through prescriptions. Illicit opioids are often used recreationally or non-medically, and are obtained through the illegal drug trade or by diversion from legal supplies. Because all opioids act similarly in the same parts of the brain, someone who is chemically dependent on a prescription opioid will have difficulty in switching to an illicit opioid, such as heroin, to relieve their cravings or withdraw symptoms. In fact, studies have shown that patients who transition from a prescription opioid to heroin are more likely to experience an opioid overdose or die within the first year of switching. Thus, if a person wants to reduce their opioid use, they should stop using it entirely and enroll in a medication-assisted treatment program.6

CONCLUSION

To read SHADAC’s analysis of state-level data on opioid overdose deaths and trends, visit opioid.shadac.org.
Thank you

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