

The Increasing Number of Opioid Overdose Deaths in the United States

A Brief Overview



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The Increasing Number of Opioid Overdose Deaths in the United States

A Brief Overview

National and local media report almost daily the devastation wrought by heroin overdoses, the emergence of extremely potent synthetic opioids and the role of prescription pain medications in the increasing public health challenge of opioid addiction. The problem has many sources and will be very hard to solve, but the numbers are so sobering that it must be of primary importance to all stakeholders, from public policymakers to insurance companies paying claims.

What drugs are included in the statistics?

There are five categories of opioids tracked in national overdose statistics: natural opioid analgesics such as morphine; semi-synthetic opioids such as OxyContin (oxycodone); methadone; synthetic opioids such as fentanyl; and heroin. Often the media reports are for deaths from prescription drugs, a term that usually includes four of the five types of opioids, the exception being heroin and some of the synthetics.

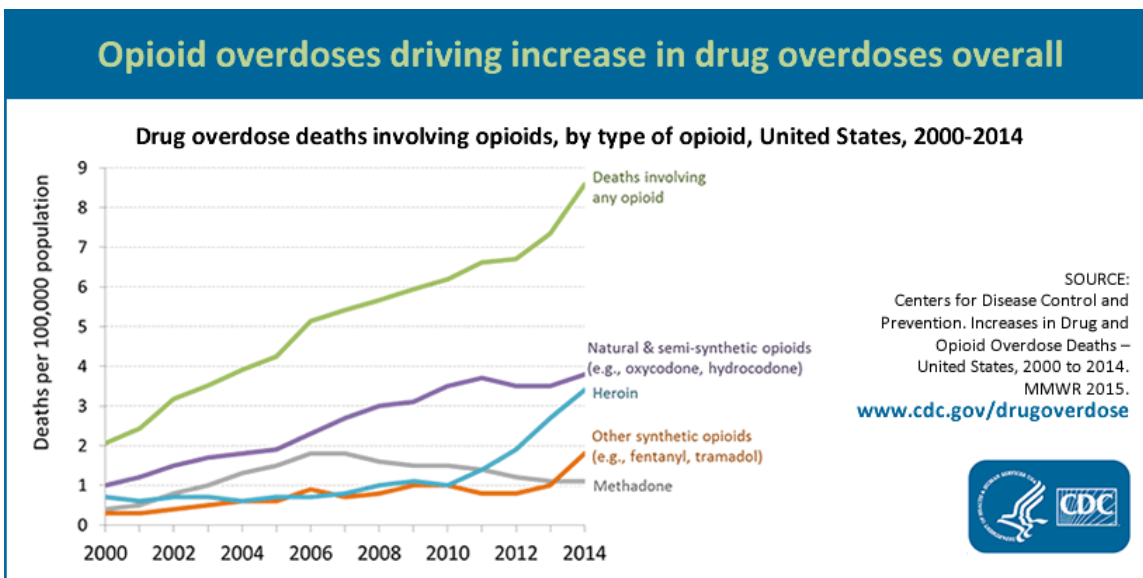
Opioid Death Trends

Overdose deaths by type of opioid

Opioid deaths have increased sharply since 2000, as is shown in Figure 1. Note the particularly stiff rise in deaths from heroin since 2010, a result of a dramatic expansion in the delivery system for the drug in the United States as well as the emergence of very pure heroin from Mexico. A new source of concern is the entire class of synthetic opioids such as fentanyl, which is so potent that overdose can occur by accidental skin contact. Even more worrying is the rapid emergence of new synthetics that are hundreds of times more potent than heroin, whose chemical composition is not on record and whose manufacture can be done anywhere. It is worth noting that Narcan (naloxone HCl), the anti-overdose drug, does not work as well for a fentanyl overdose as it does for heroin and is not at all effective on some of the new synthetics.

Figure 1

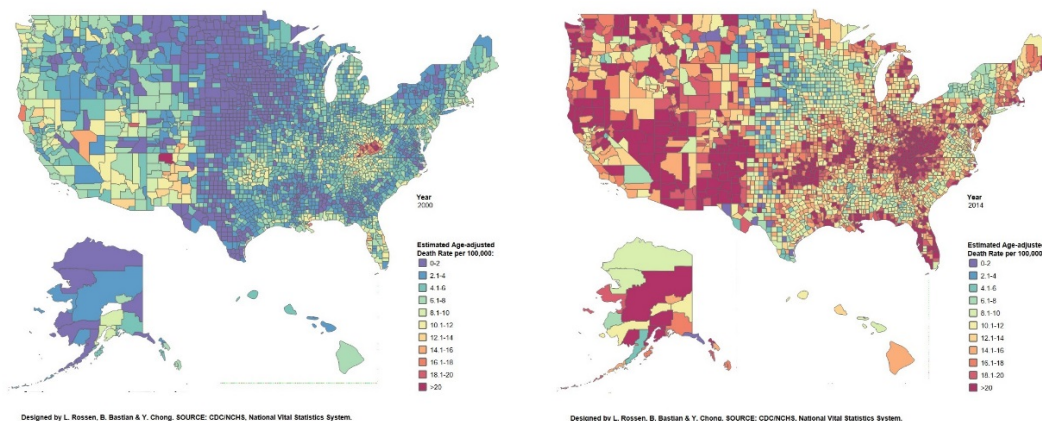
Opioid Overdoses Driving Increase in Drug Overdoses Overall



Drug mortality is widespread

The increase in drug mortalities is evident everywhere in the United States, as the graphs in Figure 2 show. On the left is a map of U.S. overdose deaths in 2000. Very few areas are colored dark red (more than 20 deaths per 100,000) in this graph. In 2000, these seemed to be outliers, but in reality, they were the early signs of a terrible trend. By 2014, the dark red had seeped into all but a few areas of the United States. These graphs are constructed by county and it is very clear that the problem of opioid overdose deaths is not an urban phenomenon, but blights rural areas as well.

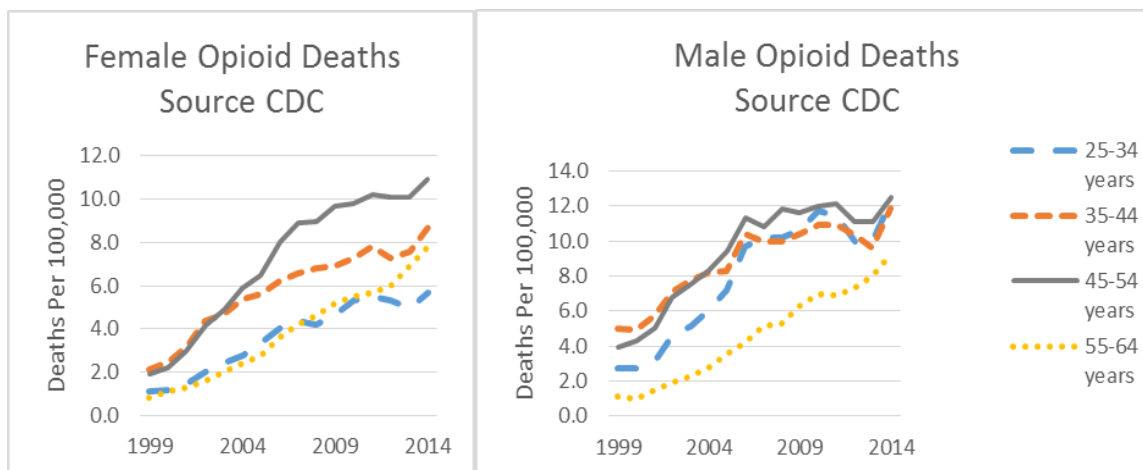
Figure 2
Comparison of U.S. Drug Overdose Death Rates, 2000 vs. 2014



The demographics of opioid mortality

Both women and men are impacted by these trends (Figure 3), but it is most noticeable in the middle years. It is particularly shocking to see the extent of the increase in overdose deaths in people aged 45-54. These people are not stereotypical young heroin addicts in a sleazy shooting gallery in a bad part of town, as portrayed a TV series, but a wide spectrum of people, such as those who have struggled with pain and pain relief while under medical care.

Figure 3
Opioid Deaths in the United States, by Age and Sex (1999-2014)



Source: Centers for Disease Control and Prevention.

Mortality studies also show that this trend is most pronounced in people with lower income and less education. They are often not able to work due to pain and are beset with mental health issues. It is not unreasonable to conclude this is a large issue in Medicaid and Affordable Care Act exchange populations.

Opioid deaths are not the primary source of mortality for people 35 and over. Chronic disease such as heart disease or acute diseases such as cancers are still the primary causes of death, opioid deaths play a significant role (Table 2). Other causes of death, such as suicide, which is also on the rise, may have underlying opioid issues as a silent contributing factor, especially for the younger age groups. Heroin plays a larger part in overdose statistics for the younger age groups, while prescription drugs factor more heavily in the statistics for older age groups.

Table 2
Cause of death per thousand by age/group

Age Group	Heart Disease	Malignant Neoplasm	Opioid Poisoning
25-34	7.7	8.3	23.1
35-44	25.6	27.8	25.0
45-54	80.1	103.2	28.2
55-64	185.8	287.6	20.3

Source: Centers for Disease Control and Prevention.

Opioid Mortality is a Health Issue

Mortality is not usually of key interest to health actuaries, other than those whose practice is in retiree and Medicare plans. However, consider that not every person who has troubling opioid use suffers a fatal overdose. The actuary may be sure that these mortality measures represent only a small portion of the people struggling with drug addiction, with many more nonfatal cases within our insured population. The human and financial costs of increased drug use are part of the force of health cost trend and may be especially important for certain demographics. CDC National Center for Health Statistics data show that heroin use in the uninsured population in 2013 was five times the rate in the insured population. For the years 2007 to 2014, the relative use of prescription opioids for women below 200 percent of the poverty threshold was double that of women above 400 percent.

The phenomenon of switching from the abuse of prescription drugs to using heroin is well documented; the National Survey on Drug Use and Health reports that 79.5 percent of new heroin initiates began their drug use with prescription opiates. However, merely restricting access to prescription drugs will not be sufficient to quell the tide. Illicit markets are ready to fill the need with inexpensive, powerful alternatives to prescription pain medications—primarily heroin but also fentanyl. The White House Office of National Drug Control Policy reported in May 2016 that the production of pure Mexican heroin, which unlike black tar can be smoked or snorted as well as injected by entry-level users, rose from 26 metric tons in 2013 to 70 metric tons in 2015. At the same time, prices plummeted and the supply system became more consumer-friendly, featuring delivery service and customer satisfaction. Recent CDC studies report that heroin use increased by 63 percent from 2002 to 2013.

Treatment is needed, but successful treatment is rare and there is not enough capacity in addiction and recovery services to handle this kind of growth. The substance abuse workforce is not adequate to meet the needs, and medical providers such as primary care physicians and hospitals are not well trained in substance abuse care. The surgeon general's report *Facing Addiction in America*, a weighty 428-page study released in November 2016, notes that only one in five people who need treatment for opioid use disorder are receiving treatment. Further, a successful course of rehabilitation treatment is often not enough to cure addiction, in that it may be effective for the course of treatment, but not adequate for a subsequent substance-free life. Relapse rates are high, and returning to a community and way of life that fostered drug dependence without changes in the social fabric hampers success.

In *Facing Addiction in America* the authors note that statistics “emphasize the importance of implementing evidence-based public-health-focused strategies to prevent and treat alcohol and drug problems in the United States. A public health approach seeks to improve the health and safety of the population by addressing underlying social, environmental, and economic determinants of substance misuse and its consequences, to improve the health, safety, and well-being of the entire population.”

There will not be one solution to the problem of opioid addiction. The array of impacted communities, with their varying resources and needs, will require different strategies. Insurance carriers will be a part of the solution, but they will not be able to address the entire scope of the problem of substance abuse. Actuaries will need to use all of their abilities to synthesize workable solutions using the resources and approaches from all of the stakeholders.

Data Sources

The Centers for Disease Control (CDC) has publically available information about mortality in the United States. The National Center for Health Statistics (NCHS) has both publications and query ready data on demographic, geographic and cause-of-death information, as well as information about other demographic information.

The NCHS site is accessible here: <https://www.cdc.gov/nchs/nvss/deaths.htm>

For more summarized information about deaths and mortality, as well as other topics of interest, the NCHS has a website called FastStats with publication ready material.

The FastStats site is accessible here: <https://www.cdc.gov/nchs/fastats/deaths.htm>

Information about opioid overdoses is available at the CDC through the opioid overdose site which was the source of the maps in this article. The site is updated frequently and includes information about prevention and treatment programs as well as statistics.

The Opioid Overdose site is accessible here: <https://www.cdc.gov/drugoverdose/index.html>

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The Society of Actuaries (SOA), formed in 1949, is one of the largest actuarial professional organizations in the world dedicated to serving more than 27,000 actuarial members and the public in the United States, Canada and worldwide. In line with the SOA Vision Statement, actuaries act as business leaders who develop and use mathematical models to measure and manage risk in support of financial security for individuals, organizations and the public.

The SOA supports actuaries and advances knowledge through research and education. As part of its work, the SOA seeks to inform public policy development and public understanding through research. The SOA aspires to be a trusted source of objective, data-driven research and analysis with an actuarial perspective for its members, industry, policymakers and the public. This distinct perspective comes from the SOA as an association of actuaries, who have a rigorous formal education and direct experience as practitioners as they perform applied research. The SOA also welcomes the opportunity to partner with other organizations in our work where appropriate.

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