



The Opioid Epidemic: A Geography in Two Phases

David A. McGranahan and Timothy S. Parker

What Is the Issue?

Since the late 1990s, an opioid epidemic has afflicted the U.S. population, particularly people in prime working ages of 25-54. Driven by the opioid epidemic, the age-adjusted overall mortality rate from drug overdoses rose from 6.1 per 100,000 people in 1999 to 21.7 per 100,000 in 2017, before dropping to 20.7 per 100,000 in 2018. The drug overdose mortality rate among the prime working age population was 36.5 deaths per 100,000 people in 2018. Among major causes of death in this population, this rate was exceeded only by cancer (40.5 deaths per 100,000) in 2018.

What caused this epidemic, and who has been most affected? One view is that economic misfortune has driven many working-age people to self-destructive behavior—marked by increasing drug and alcohol abuse and suicide. However, another line of research shows that local economic downturns have been a small factor in the geography of the drug overdose epidemic. A second view faults the widespread introduction of new opioid prescription painkillers, succeeded in recent years by the spread of heroin and powerful synthetics such as fentanyl. This view, which has received less research attention, is the focus of this study.

What Did the Study Find?

The study found evidence that the introduction and supply of new opioid drugs, whether through prescription painkillers in the 2000s or illicit opioids such as fentanyl in the 2010s, were major drivers of the opioid epidemic. These two drivers involved such different demographic groups and geographic areas that, in many ways, they comprise distinct phases of the epidemic. Mortality data indicate that the earlier “prescription opioid phase,” from about 2000 to 2011, most affected adults in the age range of 25-54, Native American/Alaskan Natives and Whites, and rural more than urban populations. In this phase, the epidemic was most severe in areas of high physical disability rates, which, following epidemiological research, we use as an indicator of physical pain. We found little evidence that local economic misfortune accounted for the substantial geographic differences in the severity of this phase across State rural areas or counties.

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A later “illicit opioid phase,” involving primarily heroin and extremely powerful synthetic opioids such as fentanyl, was concentrated in the northeastern United States at least through the 2014-18 period, affecting mostly young-adult (ages 25-39) urban and rural males. This phase has involved members of all the racial/ethnic groups studied—Hispanics, Blacks, American Indian/Alaskan Natives, and Whites.

Fentanyl and its analogs are often used to spike other addictive drugs, including other opioids and cocaine, creating powerful combinations of often unknown, sometimes deadly, strength. The arrival of these synthetics tended to make existing drug addictions more lethal.

In the Northeast, greater economic misfortune in certain counties in the 2010s, as measured by lower net migration rates or employment loss, was associated with greater increases in drug overdose mortality over much of the decade. While the evidence indicates that economic misfortune was an important factor in the rise of drug overdose mortality in the illicit opioid phase, it also seems likely that drug problems created economic misfortune by reducing employability and causing fewer people to move to the area.

We found economic misfortunes in the 2000s, however, just as relevant as misfortunes in the 2010s in accounting for drug overdose mortality gains in the 2010s. Our explanation is that while prescription opioids for populations with physical disability drove the rise in opioid mortality in the 2000s, the recessions of the late 2000s likely also resulted in higher addiction rates, addictions that became more fatal with the arrival of fentanyl and related drugs. Supporting this explanation is the finding that, outside the fentanyl-plagued Northeast, economic decline over the 2000s and 2010s continued to have little bearing on rising drug overdose mortality during the study period.

How Was the Study Conducted?

This study drew on two primary sources of geographic data: county and State rural area mortality rates made available by the Centers for Disease Control and Prevention (CDC) and county physical disability rates and socioeconomic characteristics from the U.S. Census Bureau.

The study comprises three sets of analyses:

The first set uses graphical analyses of State rural areas to show both the strong relationship between area opioid prescriptions and physical disability rates at the 2010-12 peak of the epidemic’s prescription phase and the strengthening links between area physical disability rates and drug overdose mortality in the 2000s, as well as the subsequent dissipation of those links in the 2010s as increases in overdose mortality shifted to State rural areas in the Northeast.

The second set of descriptive analyses examines racial and ethnic differences in rural and urban drug overdose mortality trends in the 2000s and 2010s.

The last section uses individual mortality records from the CDC to compile county drug overdose mortality rates for prime-working-age White non-Hispanics. These county data are used in regression analyses to compare factors associated with gains in drug overdose mortality in the Northeast with those responsible for gains elsewhere in the country, both in the 2000s and the 2010s.