"The Opioid Epidemic Was Not Caused by Economic Distress But by Factors that Could be More Rapidly Addressed"

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Abstract

Without the opioid epidemic, American life expectancy would not have declined prior to 2020. The epidemic was sparked by the development and marketing of a new generation of prescription opioids and provider behavior is still helping to drive it. There is little relationship between the opioid crisis and contemporaneous measures of labor market opportunity. Cohorts and areas that experienced poor labor market conditions do show lagged increases in opioid mortality, but the effect is modest relative to the scale of the epidemic. Instead, we argue that there are specific policies and features of the U.S. health care market that led to the current crisis. It will not be possible to quickly reverse depressed economic conditions, but it is possible to implement policies that would reduce the number of new opioid addicts and save the lives of many of those who are already addicted.

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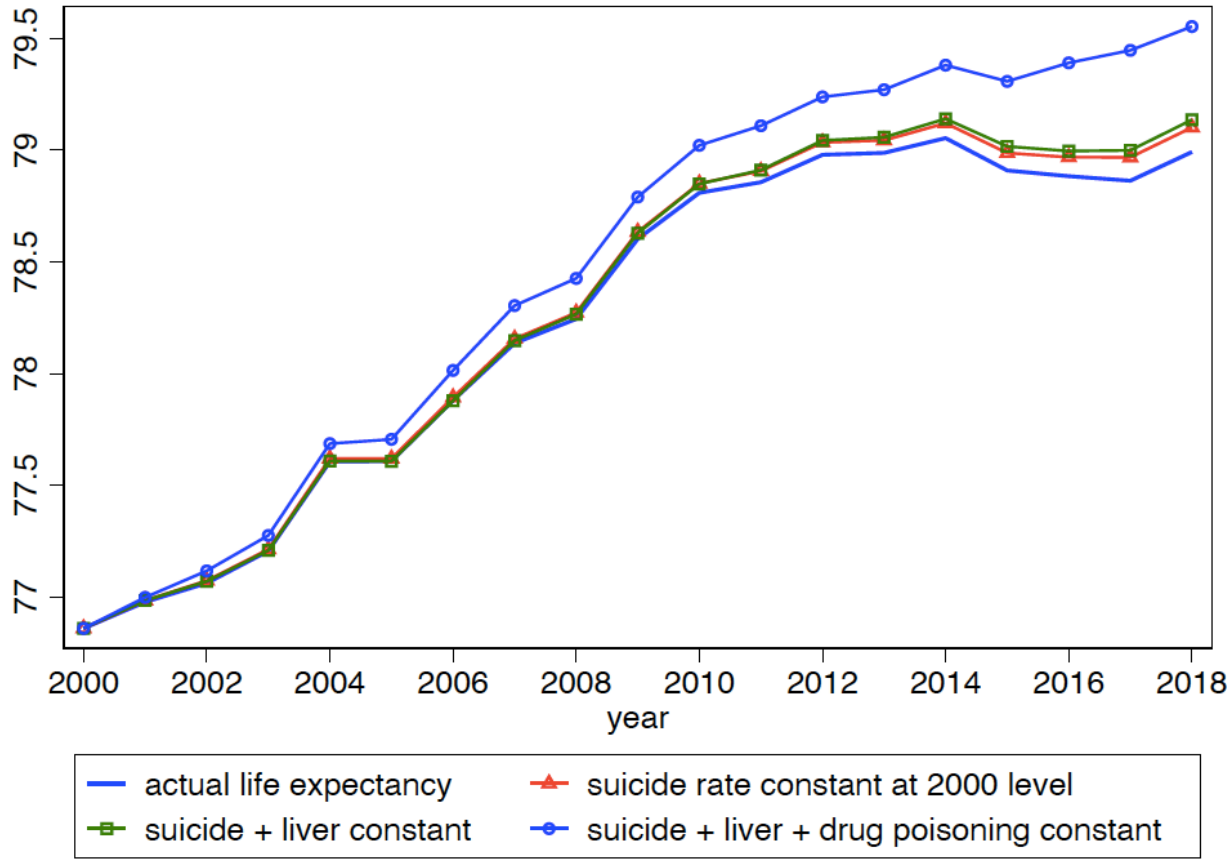
Deaths due to drug overdoses, mainly involving opioids, have more than tripled since 1999, and reached 81,000 in the 12 months ending in May 2020 (CDC, 2020). The U.S. leads the world in consumption of opioids, accounting for 72.9% of sales of Oxycodone and similar drugs (United Nations, 2018). The number of deaths due to opioids dwarfs the toll from previous drug epidemics in the U.S. Figure 1 shows that mortality from opioids is so great, that without these deaths U.S. life expectancy would have continued to rise after 2013 instead of falling. Moreover, Figure 1 shows, perhaps surprisingly in view of the argument that opioid deaths are due to economic conditions, that the Great Recession had a negligible impact on opioid deaths. Deaths were rising prior to 2008-2009 and continued to do so afterwards.

Figure 1: Actual and counterfactual life expectancy without deaths of despair



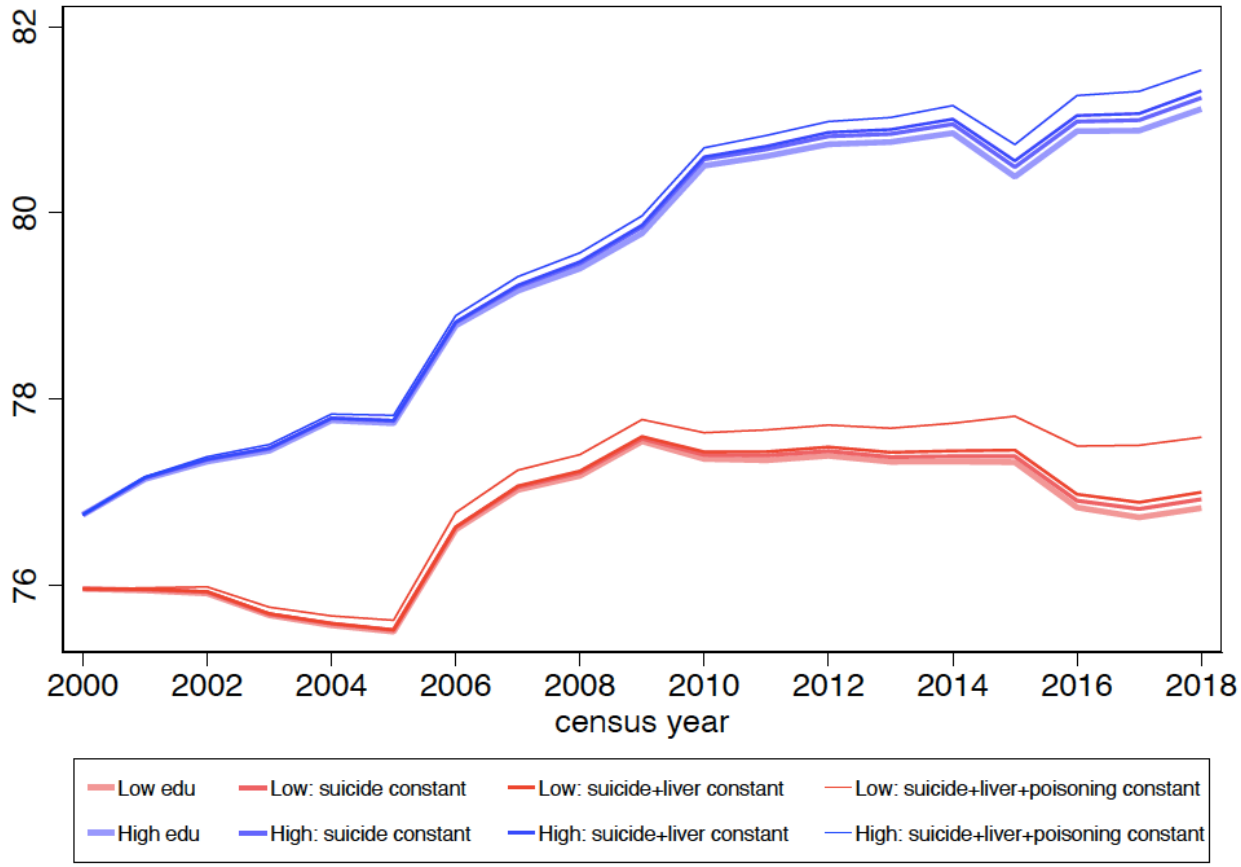
Notes: The blue solid line shows actual life expectancy over time. The three lines with triangle, square, and circle markers show counterfactual life expectancy estimates. The line with triangles assumes constant death rates for suicides at their 2000 level, the line with squares shows constant death rates for suicides and liver disease at their 2000 level, and the line with circles assumes constant death rates for suicides, liver disease and drug poisoning at their 2000 level. Source: Authors' calculations based on Vital Statistics mortality data.

Has the epidemic had a disproportionate effect on the working class? Perhaps the best examination of the relationship between socioeconomic status and overdoses is Altekruse et al. (2020) who examine 4.5 million records from the 2008 American Community Survey that were linked to the National Death Index for 2008-2015. In models that focus on people 10 years and older in 2008 and control for age, race, ethnicity, census division and other variables, they find that people in households with incomes less than 100% of the poverty line are 1.36 times more

likely to overdose. But there is little difference between those at 100-299%, 300-499%, or above 500% of poverty.

Differences by education are starker: Those with less than a Bachelor's degree have a risk 2.3-2.5 times greater, with little difference between those with less than high school, high school, or some college. Figure 2 repeats that analysis in Figure 1, constructing life expectancy for those with greater than 12 years of education and those with less or equal to 12 years of education. The figure shows that the burden of overdoses has been much higher for the less educated group.

Figure 2: Actual and counterfactual life expectancy without deaths of despair, for those with greater than 12 years of education and those with less than or equal to 12 years of education



Notes: The thick red and blue lines shows actual life expectancy at birth for those with low education (less than 13 years of education) and high education (more than 12 years of education) over time. Life expectancy is calculated based on educational attainment measured at age 25 and above. Below age 25, mortality rates are assumed to be constant across education groups. Counterfactual life expectancy estimates are shown, holding different mortality causes constant at their 2000 level. Source: Authors' calculations based on Vital Statistics mortality data.

Among other groups considered in this volume, overdose risk is 2.8% higher for the disabled (see Bengali et al., this volume), and 2.7 times higher for those who were incarcerated in 2008 (see Finlay and Mueller-Smith, this volume). Perhaps surprisingly though the risk was 2.5 times higher for non-Hispanic Whites than for Hispanics, and 2.7 times higher for non-Hispanic Whites than Blacks. Gaps in overdose deaths between people with and without health insurance

are quite small: Those without health insurance are 1.3 times more likely to overdose. The role of health insurance in paying for opioids is discussed further below.

These time trends and differences across groups suggest that a story in which disadvantage leads to opioid deaths is overly simplistic. We argue instead that the development and marketing of a new generation of prescription opioids sparked the epidemic and that provider behavior is still helping to drive it. We first show that there is little relationship between the opioid crisis and contemporaneous measures of labor market opportunity. We next consider the relationship between opioids and labor market opportunity over the longer term. Cohorts and areas that experienced poor labor market conditions do show lagged increases in opioid mortality, but the effect is modest relative to the overall size of the epidemic. In the third section, we turn to the policies and features of the U.S. health care market that led to the current crisis. Understanding how we got here is extremely important because it shows that there is a lot of hope. It will not be possible to quickly reverse economic circumstances in depressed parts of the country, but it is possible to implement policies that would reduce the number of new opioid addicts and save the lives of many of those who are already addicted.

Part 1: The relationship between opioid use and contemporaneous measures of employment, unemployment, and labor force participation

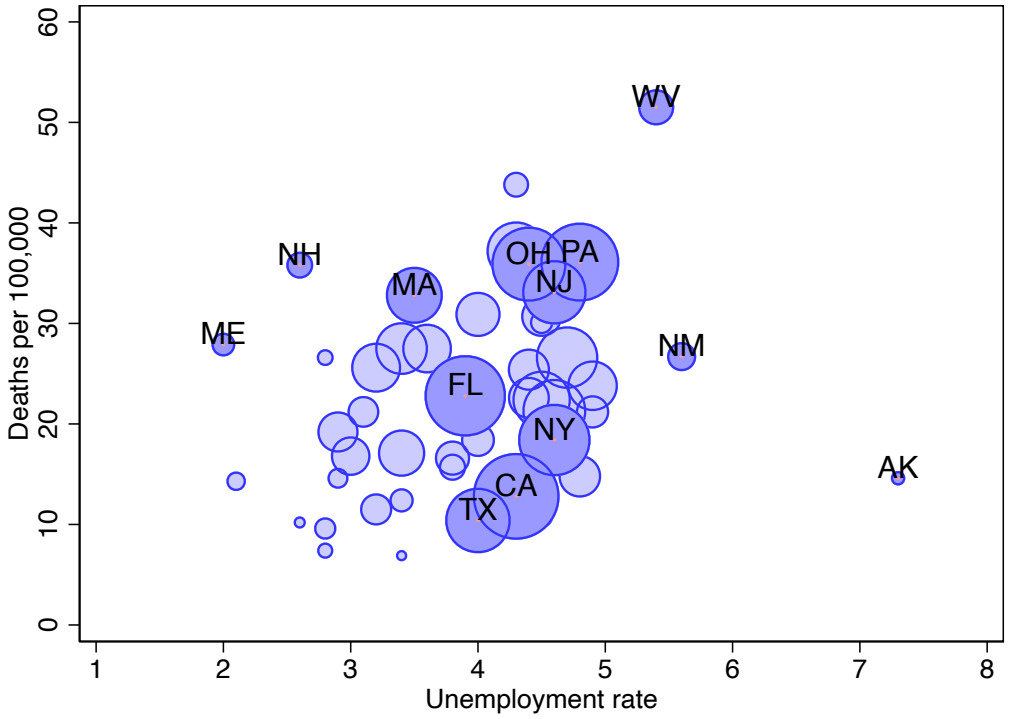
Two ideas about the relationship between opioids and employment have become widely accepted. The first is that unemployment leads directly to opioid abuse. The second is that opioid abuse makes people unemployable. Both of these ideas have a grain of truth in them. For example, in a study of men in New Jersey who were out of the labor force, Krueger (2017) found that over 50% reported taking prescription opioids daily. However, this does not prove that pain medication *causes* people to drop out of the labor force. For example, someone with chronic back pain might drop out of the labor force and then be prescribed opioids. In this case, the patient's back pain rather than opioid use is what caused them to leave the labor force.

Opioid use is not the main reason for declining labor force participation over time. Declines in male labor force participation among lower-skilled prime age men began well before the current opioid crisis and reflect falling demand and low wages for less skilled workers combined with the growth of other sources of income support, such as disability payments (Council of Economic Advisors, 2016). Declining labor force participation among women is a more recent phenomenon. After growing from 43% to 78% of prime age women between 1962 and 2000, prime age female labor force participation fell to 75% in 2016, with declines closer to 10 percentage points among women with a high school education or less. These recent declines parallel the ongoing declines in labor force participation among less skilled men, suggesting that similar forces have been at work in recent years (Black and Schanzenbach, 2017).

There is some support for the idea that unemployment can affect opioid use. For example, Venkataramani et al. (2020) found that areas where car plants had shut down experienced increases in opioid overdoses that became statistically significant by five years after the closing. Yet unemployment cannot be the major driver of the opioid epidemic. The fraction employed in manufacturing declined steadily from 26.4% to 14.4% between 1970 and 2000 (U.S. Bureau of

Labor Statistics, 2020) while the epidemic only began after 1997. The opioid epidemic first gained a foothold in the prosperous period prior to the recession of 2008. As the epidemic peaked in 2017-2018, unemployment was at its lowest level in decades. And while a great deal of attention has been focused on opioid deaths in depressed areas with persistently high unemployment, the majority of opioid deaths occurred in large states with low unemployment rates (Currie and Schnell, 2018). A final fact that does not fit the popular narrative is that although African-Americans have persistently high unemployment relative to other Americans, the epidemic seemed to start first among non-Hispanic whites, and had a particularly large impact on white women (Singhal, 2016).

Figure 3: Overdose deaths per 100,000 vs. unemployment rate, by state, 2018



Notes: State-level data on unemployment for March 2018 is available here: https://www.bls.gov/opub/ted/2018/eight-states-at-historically-low-unemployment-rates-in-march-2018.htm. Data on overdose death rates and numbers of deaths in 2018 by state is available here: https://www.cdc.gov/nchs/pressroom/sosmap/drug_poisoning_mortality/drug_poisoning.htm. Larger bubbles indicate more deaths.

Figure 3 plots state opioid death rates in 2018 against the unemployment rate. The size of the bubbles indicates the number of deaths in each state. Seven states, California, Florida, Pennsylvania, Ohio, Texas, and New Jersey (in order of number of deaths) accounted for 42% of all of the opioid deaths in that year. The unemployment rates in all these states were very similar, even though in Ohio, the death rate was 35.9 per 100,000 and in Texas it was 10.4 per 100,000. West Virginia fits the stereotype, with both relatively high unemployment and the highest death rate at 51.5 per 100,000 population. But other states are outliers in the other

direction—for example both Massachusetts and New Hampshire had lower than average unemployment rates but high opioid death rates.

Furthermore, most people taking opioids are working. Currie, Jin, and Schnell (2019) analyze data from all retail pharmacies in the U.S. and find that 85% of the opioids prescribed for working aged people were paid for by private health insurance, which is employer provided. It is important to look at prescription opioids because most people who abuse opioids began with legally prescribed medications (Schnell, 2019). For example, 80% of heroin users began by misusing prescription opioids (National Institute on Drug Abuse, 2020).

Even states with low unemployment have relatively depressed areas, so it is important to look at smaller geographies, like counties. Currie, Jin, and Schnell focus on the relationship between employment and opioid prescribing in the U.S. at the county level between 2006 and 2014. They look at employment rather than unemployment because unemployment rates come from national surveys that do not produce reliable county-level estimates. Employment data come from actual counts of people on the payroll because employers pay payroll taxes. The raw data actually show a positive relationship between employment and opioid prescribing at the county level.

To ask whether changes in opioid prescribing affect employment, they use prescriptions for the elderly as an instrument for prescriptions for working aged adults. The underlying assumption is that higher prescribing for the elderly is correlated with higher prescribing for other groups, but has no direct effect on employment of prime aged adults. To examine the reverse question of whether changes in employment cause changes in opioid prescribing, they instrument employment changes using a shift-share instrument based on the idea that national employment shocks to say, the oil industry, will have a larger impact on oil producing regions.

They find that there is actually a small positive relationship between changes in opioid prescribing and changes in employment for females in areas with low levels of education. And there is no systematic relationship between changes in opioid prescribing and changes in employment rates for men. These results differ from some that have been reported in the literature for several reasons.[1] First, they focus on the more accurate employment data rather than on unemployment. Second, they use a longer time period and include county-level fixed effects to control for fixed long-term differences between counties (e.g. Harlan County is different than San Diego in many ways). Third, they use all states, rather than a small subset. Fourth, they use instrumental variables to account for omitted time-varying third factors that could drive correlations between unemployment and opioid use.

[1] Hollingsworth et al. (2017) report that a one percentage point increase in county unemployment rates is associated with a 3.55% increase in opioid fatalities. Carpenter et al. (2017) find that a one percentage-point increase in the state unemployment rate is associated with a 0.0004 percentage point increase in the probability of having a substance use disorder involving analgesics in the past year. Both studies include fixed effects but neither deals with time varying omitted variables. Harris et al. (2019) find a large negative effect of opioid prescribing on employment-to-population ratios, using data on 10 states but do not include county fixed effects.

Like much of the rest of the literature, Currie, Jin, and Schnell focus on prescription opioids, but in 2014 the number of deaths due to illegal opioids overtook the number of deaths due to prescription opioids. Still, Figure 3 deals with all opioid deaths and tells the same story – the relationship between opioid use and contemporaneous measures of labor force activity is weak.

Part 2: The relationship between longer-term measures of economic prospects and opioid deaths

It might take years or even decades for economic disadvantage and socioeconomic decline to translate into addiction, sickness, and death. Several recent studies have taken a longer-term perspective – either by focusing on structural economic changes from import competition and automatization or by following unlucky cohorts of people who entered the labor market during recessions.

Impacts of structural change

Autor, Dorn, and Hanson (2013) established that import competition originating from China's economic rise led to dramatic declines in U.S. manufacturing jobs. Autor, Dorn, Hanson (2018) find that when measured over decades, these reductions in manufacturing jobs increased mortality due to drug and alcohol poisonings. Pierce and Schott (2020) find similar effects of trade shocks on mortality in the twelve years following the U.S. granting of permanent normal trade relations to China in 2000. These effects are only present for non-Hispanic whites and are stronger for males, who were most impacted by trade-related declines in manufacturing. Adda and Fawaz (forthcoming) confirm these mortality results and document increases in illness and chronic pain. They point out that it is the persistence of these structural economic shocks that makes them deadly.

U.S. manufacturing jobs also declined due to automation and the rise of robotics. Charles, Hurst, and Schwartz (2019) use shift share instruments to analyze the mortality impacts of all of the shocks that affected national manufacturing activity and find positive effects on drug abuse and overdose deaths.

While this literature on structural change finds a relationship between past manufacturing job losses and overdose deaths, economic decline cannot explain the magnitude of the opioid epidemic. For example, Pierce and Schott's (2020) estimates imply that a shift from the 25th to the 75th percentile of trade exposure can explain only up to 11.5% of the overall drug overdose deaths in 2017.[2] Charles, Hurst, and Schwartz (2019) caution that it is difficult to extrapolate their estimates to the aggregate since there may be confounding factors that they do not account for in their estimates. Ruhm (2019) does examine the role of confounding factors in the estimated relationship between economic decline and rising opioid deaths at the county level. He

[2] Pierce and Schott (2020) find that an interquartile shift in trade exposure is associated with an increase of 2.5 drug overdose deaths per year. Overall age-adjusted U.S. drug overdose mortality was 21.7 in 2017.

finds that after adding controls for counties' age and education structure, long-term changes in economic conditions explain at most one-ninth of the growth in overall drug-related mortality rates and very little of the variation in deaths due to prescription opioids. In other words, the epidemic has not been limited to areas experiencing negative structural change, but has raged in many other parts of the country that were not suffering such decline. Bloom et al. (2019) show that the west coast and New England benefitted from Chinese import competition, but New Hampshire and Massachusetts have still been hit hard by opioids (Stopka et al., 2019).

Long-run effects of business cycle fluctuations

Business cycle fluctuations are another important source of economic dislocation. However, downturns are followed by upturns and it can be difficult to distinguish the impact of downturns on future health. New labor market entrants are a group that bear the scars of temporary economic downturns for many years (Oyer, 2006; Kahn, 2010; Oreopoulos et al., 2012; Schwandt and von Wachter, 2019). For every percentage point increase in the local unemployment rate at labor market entry, recession graduates suffer an income loss of about 3% which fades out only after 10 to 15 years.[3]

Schwandt and von Wachter (2020) link mortality rates for cohorts defined by their state and year of birth to the economic conditions these cohorts faced around labor market entry. To account for endogenous graduation timing and migration, the authors predict a cohort's graduation year and location using the average education and migration rates of surrounding cohorts. This setting allows the authors to analyze the causal impact of local recessions at labor market entry on mortality up to age 50.

They find that affected cohorts initially have lower mortality driven by reductions in traffic and workplace accidents. (See also Ruhm, 2000; Miller et al., 2009; He, 2016; Strumpf et al., 2017). However, increases in mortality start to appear around 15 years after labor market entry and last at least to age 50. Unlucky cohorts are more likely to die of drug overdoses, liver disease, and other causes linked to poor health behaviors, including heart and lung diseases. Each percentage point increase in the unemployment rate at a cohort's labor market entry leads to a 2% increase in overall mortality and in deaths of despair. A moderate recession at labor market entry, increasing the unemployment rate by three percentage points, would therefore increase mortality in midlife by about 6%.

The mortality impacts of entering the labor market during a recession are economically important but explain only a small share of the overall increases in drug overdose deaths. Only a small number of cohorts were hit by a recession at labor market entry. And even in the hypothetical case that all cohorts experienced a strong recession at graduation, the implied

[3] Recessions typically affect hiring more than firing. Those who enter the labor market in a downturn tend to start at lower-quality firms and take many years and repeated movements across firms to climb the job quality ladder and close the payment gap (Oreopoulos et al., 2012).

increase in opioid mortality would only amount to one-eighth of the overall opioid mortality increase observed in the past two decades (Schwandt and von Wachter, 2020, p.16).

Part 3: The real causes of the opioid epidemic and policy responses

As we have described, neither contemporaneous or long-term economic conditions can explain the severity of the U.S. opioid epidemic. This tragic situation is due to three factors. First, beginning in the late 1970s, new ideas about pain began circulating: Physicians began to believe that many patients suffered needlessly and that physicians had a duty to monitor and treat pain as "the fifth vital sign" (Wailoo, 2014). These changes were reflected in the rise of pain medicine as a specialty.

Second, companies like Purdue Pharma began aggressively marketing a new generation of opioids as a safe, non-addictive way to treat pain. Purdue spent hundreds of millions of dollars targeting doctors, hospitals, medical schools, and sponsored continuing medical education seminars which doctors take to maintain their accreditation (Van Zee, 2009). OxyContin, which was approved in 1995, was specifically promoted as safe for chronic pain as well as for conditions like wisdom tooth extraction. We now know that despite Purdue's claims, drugs like OxyContin are extremely addictive. For example, Barnett et al. (2017) showed that emergency room patients treated by doctors who were high prescribers of opioids were more likely to be taking opioids six months later than patients treated by low prescribers in the same hospitals, indicating that many people became addicted through a one-time exposure to opioids.

Prior to the marketing push, most doctors believed that opioids were too addictive and dangerous for anyone except terminally ill patients. Aggressive marketing by pharmaceutical companies changed those perceptions: Sales of opioid pain killers quadrupled between 1999 and 2013 (Paulozzi et al., 2011), fueling the rise in overdose deaths. Alpert et al. (2019) show that deaths rose faster in states where OxyContin was marketed more aggressively.[4] Deiana et al. (2020) show that companies marketed opioids more aggressively in years when raw material prices were lower (so that profit margins were higher) and that prescriptions rose more in places with more health care suppliers per capita.

Third, the U.S. is unusual in having little public oversight of medical prescribing in general, and of opioids in particular. Any doctor or dentist can prescribe opioids, and the maximum allowable dose is higher than in most other countries. Other countries require special training to prescribe opioids (Japan); require patients to register to use opioids (France, Italy, and Portugal); or require doctors to use special prescription pads for opioids (many countries) (Ho, 2019).

[4] They exploit cross-state variation in the triplicate prescribing regulations that initially limited prescribing of OxyContin more in some states than others. Court documents that have come to light as a result of the lawsuit against Purdue show that less marketing was targeted to states with these programs, and that these states saw slower growth in overdoses even twenty years after the introduction of OxyContin.

Some countries with centralized health insurance systems do not cover opioids for non-cancer care, or to require pre-authorization for such uses. Countries with centralized health insurance systems may also cover alternative therapies, such as physical therapy for back problems, as a first line treatment. In the U.S. alternative therapies are often more expensive than prescription opioids and may not be covered by insurance. Many European countries have universal health insurance systems in which opioids are effectively free, but they do not have opioid epidemics. There have been attempts to blame the U.S. epidemic on the creation of Medicare Part D which covers drugs for seniors (e.g. Mulligan, 2020) or on expansions of Medicaid following the Affordable Care Act. However, it seems illogical to imply that the solution to the epidemic is to reduce health insurance coverage for millions of Americans. Moreover, recent research suggests that Medicaid expansions under the ACA reduced deaths from overdoses (Kravitz-Wirtz et al., 2020).

Physician prescribing practices as a key driver of the epidemic

The result of these factors is that U.S. physicians prescribe too many opioids.[5] Opioids are commonly prescribed in situations where other safer alternatives are available and where opioids are ineffective over the long term. For example, given that people build up tolerance to opioids, they are not suitable for non-terminal chronic pain, such as from back problems. According to the National Institute on Drug Abuse (2020) 21 to 29% of patients prescribed opioids for chronic pain misuse them, between 8 and 12% develop an opioid use disorder, and 4 to 6% of those who misuse prescription opioids start taking heroin. Patients still frequently receive a 30-day supply of opioids when a 3-day supply would likely suffice, creating a risk of both addiction and diversion to the secondary market. In 2016 the Centers for Disease Control belatedly issued guidelines in an attempt to curb these practices (Dowell et al., 2016). But these guidelines are not binding on U.S. physicians.

Why do physicians overprescribe? Some may simply be unaware of the dangers. Schnell and Currie (2018) show that physicians from higher-ranked medical schools prescribe fewer opioids, and that this effect is greater in specialties such as family medicine where doctors would be expected to have less training in pain management.[6] In some cases, physician pay may be directly linked to patient satisfaction which in turn could be linked to successful pain management (Van Zee, 2009). It is possible that patients are influenced by direct-to-consumer advertising and ask for opioid pain medications – the U.S. is one of only three countries in the world that allow such advertising (Ventola, 2011). Some physicians may also use opioids as a way to compete for patients; taken to an extreme, this could lead to the "pill-mills" that became a feature of the American addiction landscape in the 2000s (Temple, 2015).

Policies to curb overprescribing

[5] U.S. physicians also over-prescribe addictive benzodiazepines relative to doctors in other countries. Taking benzodiazepines with opioids increases the probability of a fatal overdose (Sun et al., 2017).

[6] Doctors with little specialized training in pain medicine prescribe the majority of opioids in the U.S.

The most concrete step so far towards reducing the abuse of prescription opioids is the development of state prescription drug monitoring programs (PDMPs). A PDMP is a statewide electronic database with information about the dispensing of all "scheduled" drugs including opioids. Dispensers must report information about patients, prescribers, and the drugs prescribed. PDMPs are meant to prevent "doctor shopping" by patients who collect multiple prescriptions from different doctors either for their own use or for resale. Initially doctors were only encouraged rather than required to use PDMPs. Meara et al. (2016) found no effect of having a PDMP per se on opioid use (although this study focused on the disabled elderly rather than all opioid users).[7] Buchmueller and Carey (2018), Anca et al. (2019), and Kaestner and Ziedan (2019) show that making PDMPs mandatory for doctors reduced opioid prescribing in states where this was done, though it has been more difficult to demonstrate reductions in deaths using a difference-in-differences framework. One should not expect changes in opioid prescribing behavior to instantaneously change the frequency of overdose deaths. Those who are already addicted to prescription pain medications may be driven to consume illegal opioids if legal opioids become harder to obtain, and it takes time for people to spiral from initial addiction to overdoses and death. So the benefits of preventing addiction will only become clear over time. Still, PDMPs may be having an impact: opioid prescriptions peaked in 2012 at 81.3 per 100 people, and had fallen to 51.4 per 100 people by 2018 (Centers for Disease Control and Prevention, 2020).

PDMPs could potentially be used to identify physicians with improper prescribing behavior, in order to intervene to change their behavior, but this has rarely been done. Doctor et al. (2018) study a program in San Diego that linked death records to the PDMP in order to identify physicians who had prescribed opioids to patients who later overdosed. They show that informing physicians about these overdoses was effective in getting doctors to reduce their prescribing.

Schnell (2017) points out that it is important to not only crack down on the "secondary market" for pain pills that has sprung up (by implementing measures like the PDMPs), but to get doctors to reduce unnecessary prescribing to legitimate patients as well. She shows that well-intentioned doctors may actually prescribe more opioids if they become less worried about pain pills being diverted to other users.

Treatment of existing addiction

Simply reducing prescriptions without addressing treatment could harm people who are already addicted to prescription opioids. In 2010, OxyContin was reformulated to make it harder to abuse. Alpert et al. (2018) and Evans et al. (2019) demonstrate that many OxyContin users switched to illegal opioids, and that as much as 80% of the increase in deaths due to heroin overdoses since 2010 could be due to this reformulation. More recently, the U.S. market has

[7] Horwitz et al. (forthcoming) also point out some issues in the literature on PDMPs, notably that it is difficult to determine exactly when the laws became effective, and that the laws differ considerably in their scope, not only with respect to whether use is mandatory (and for whom it is mandatory).

been flooded with fentanyl, much of it made in China and Mexico and simply mailed to the U.S. in small packages, or smuggled as counterfeit pills. Fentanyl is much deadlier than heroin, since even tiny quantities kill (Jones et al., 2018). Mulligan (2020) emphasizes the role of prices and the fact that as fentanyl has entered the market, illegal opioids have gone from being more expensive than prescription opioids to being less expensive, spurring addicted users to switch to cheaper but more dangerous drugs. Prices are likely to respond to drug interdiction and enforcement activity, but it will be very difficult to stop the flow of fentanyl into the country without the cooperation of Chinese and Mexican authorities working to stop the production of the drug.

These considerations make effective treatment for opioid addiction an urgent public health priority. Unfortunately, less than 30% of people with a substance abuse problem receive treatment (Center for Behavioral Health Statistics and Quality, 2016). Moreover, many U.S. programs emphasize an "abstinence-only" approach, whereas medication-assisted treatment (MAT) with drugs such as buprenorphine is much more effective in terms of saving lives. Patients in abstinence-only treatment often overdose if they relapse, since they lose their tolerance for opioids. Ironically, while any U.S. doctor can prescribe opioids without any special training or oversight, doctors must obtain special licenses to prescribe MAT and are restricted in the number of patients they can treat (University of Michigan Behavioral Health Workforce Research Center, 2019). On January 14, 2021, the Department of Health and Human Services announced a waiver of these requirements which will allow most physicians to treat up to 30 patients with MAT. This is a promising development that may save many lives (U.S. DHHS, 2021).

Another bright spot in terms of drug treatment policy in recent years has been the adoption of Naloxone Access Laws. These laws permit naloxone, an overdose-reversing drug, to be prescribed to "third parties," or make it available without a prescription. Rees et al. (2019) show that these laws reduced opioid deaths by 9 to 11%, with the largest reduction coming from deaths due to prescription drugs. Moreover, the laws did not increase the use of opioids as some had feared.

What this means is that we must look at the opioid epidemic for what it is: A perfect storm that arose from a combination of newly available opioids, new attitudes about the importance of pain management, aggressive marketing, loose and decentralized prescribing practices, and lack of access to effective treatment. The solution to the problem must lie in addressing these root causes.

Conclusions

The idea that economic decline caused the opioid epidemic remains popular but doesn't fit the evidence in terms of timing. The epidemic began before the Great Recession, continued during the downturn, and became much worse during the long economic recovery after the Great Recession. There is a grain of good news in this realization because it suggests that it is not necessary to reverse economic decline in groups or areas before we can begin to make a dent on the epidemic.

The implementation of mandatory PDMPs, new guidelines for opioid prescribing, and laws promoting naloxone had already had some effect. In fact, naloxone policies alone are estimated to have reduced opioid deaths by approximately the same amount that long-term economic decline may have increased them. The number of overdoses fell 4.1% in 2018 relative to 2017 and continued flat in the early months of 2019 (Hedegaard et al., 2020), which was enough to cause life expectancy to have resumed its rising trend before the COVID-19 pandemic hit. However, in 2018, the prescribing rate was still 51.4 prescriptions per 100 persons (more than 168 million total opioid prescriptions). If 8-12% of those treated with opioids go on to develop an opioid use disorder, then our medical system is still generating many new addicts. Policies that would address these problems include reducing opioid prescriptions to "opioid naïve" patients, increasing access to non-addictive pain treatment, expanding the use of overdose-reversing drugs, and improving access to medication assisted treatment by removing barriers to its use.

The overdose crisis has clearly worsened during the pandemic: As of this writing (February 2021) the latest available data from the CDC shows a large spike in deaths in April and May 2020 relative to June 2019 (CDC, 2020). Many commentators will seize on these spikes as proof that unemployment causes opioid abuse. Yet a closer look at the numbers does not support this inference. The states with the largest increases in opioid deaths were Louisiana, Iowa, Wyoming and Maine and the simple average of the May 2020 unemployment rates in those states was 10.4%. However, four states, New Hampshire, Idaho, Nevada, and Utah, saw declines in overdose deaths and the average May 2020 unemployment rates in those states was 14.3%. There may be other factors associated with the pandemic such as inability to access treatment, social isolation, and higher anxiety levels that are actually responsible for the link between opioid deaths and the pandemic. Or, the pandemic may happen to have coincided with an upswing in the availability of fentanyl. Commenting on the increase in opioid deaths, Farida Ahmad of the CDC notes that the increase in deaths in April and May 2020 was mainly due to fentanyl and that the increase in these deaths began in the middle of 2019 (CDC, 2020).

It took more than 20 years to get to where we are and the problem will not go away overnight. The pandemic will complicate efforts to stem the tide. Yet, the available evidence suggests that opioid overdose deaths are not an inevitable consequence of economic and social forces but a scourge that common-sense, evidence-based policies aimed at the opioid epidemic itself could address.

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