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## Commentary: U.S. Mortality, Geography, and the Anti-Social Determinants of Health

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### Brief description:

Drug-related overdoses appear to be a major factor behind an historic pause or even a reversal in the predominant downward trend over time in U.S. mortality rates, a departure that is especially evident among non-Hispanic white females of middle age. The new geography of accidental poisoning deaths and their covariates suggests that we should reassess traditional policies and perspectives in order to combat this threat to public health.

### Key words:

Addiction; Drug Use; Disability; Crime

### Conflict of interest statement:

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It is difficult to ignore group identity and geography in the United States in 2016, and the new contribution by Buchanich et al. (2016) in this journal adds to a growing literature that reveals emerging threats for population health and well-being which are associated with both identity and geography. In an influential study published last fall, Case and Deaton (2015) report that declines in mortality rates among non-Hispanic whites aged 45-54 had stalled or even reversed after 1998, owing to increases in accidental poisonings, suicides, and chronic liver diseases, and ostensibly associated with increased disability, chronic pain and the opioids prescribed to treat it, worsened mental health, and increased alcohol use. Separately, Chetty et al. (2016) illustrate the vast and growing differences in life expectancy at age 40 between rich and poor Americans since 2001, which also vary substantially across region especially at the low end of the income distribution. Ecological analysis reveals that variation in health behaviors appeared most tightly correlated with mortality outcomes. And now Buchanich et al. reveal robust and broadly felt increases in U.S. mortality rates due to accidental drug poisonings since 1979, which increased sharply between 2000 and 2006 and continue to rise, and which do not appear to be geographically limited to traditional High Intensity Drug Trafficking Areas (HIDTA's). All three studies have arrived during a U.S. presidential election cycle in which differences in group identity and geography seem more salient than ever before in determining the political direction of the country, an interesting link in light of the famous quote by Rudolf Virchow recently invoked by Deaton (2016), that "medicine is a social science, and politics is nothing but medicine at a larger scale."

Although not without historical precedent, these developments in U.S. vital statistics are alarming. In April, Arias (2016) reported that life expectancy at birth among

non-Hispanic white females declined from 2013 to 2014, while it was flat for all groups combined. It is not unprecedented for U.S. life expectancy to stagnate for a year or two, and only time will tell if this is a random occurrence or the beginning of a departure from trend. At a time when the gap in life expectancy between black and white Americans has reached an all-time low (NCHS, 2016), we appear to be seeing a widening of a lesser-known health disparity among white non-Hispanic Americans that is accompanying the narrowing in an historic disparity. A widening gradient in mortality by socioeconomic status (SES) such as reported by Chetty et al. (2016) and others (National Academies, 2015) is not at all inconsistent with these pattern, because there is a large SES gradient among blacks as well as among whites. In fact, Case and Deaton (2015) show that the inversion in mortality was primarily driven by increased mortality among low-SES whites.

What are we to make of these developments? In their discussion of the Case-Deaton findings, Meara and Skinner (2015) highlight the clear parallels with Russia following the collapse of communism, which brought on an epidemic of alcohol-related mortality that afflicted males more heavily and may have been associated with the stress of transitioning to a market economy (Brainerd and Cutler, 2005). Among non-Hispanic whites in the U.S. compared to other groups, Meara and Skinner see patterns of elevated mortality across more causes of death beyond those that are directly related to alcohol and drug abuse. Combined with patterns in morbidity, this evidence suggests to them that a broader underlying cause like pessimism, perhaps similar to feelings surrounding the loss of an empire, might be at play.

It may be no shock to find that county-level shares of presidential primary votes for Donald Trump on Super Tuesday, March 1, 2016, could be predicted by the county-level death rate among whites aged 40-64 (Guo, 2016). Presumably rather than deaths actually producing votes, a perennial refrain in the voter ID debate that is usually baseless, what the relationship instead suggests is that there may be a common cause both of elevated premature death among other nearby whites and of votes for a populist candidate who promises to “Make American Great Again,” and that it appears to be linked to group identity and geography.

Drug addiction among family members, neighbors, or even among community members more broadly defined certainly could be a proximate cause, and it seems to fit with the results of Buchanich et al. (2016) and Case and Deaton (2015). But stopping there, without understanding the causes of what are presumably rising rates of drug addiction, would seem premature even if it were shown that variation in addiction overwhelmingly explained these outcomes. Unfortunately, as highlighted by Meara and Skinner (2015), the Centers for Medicare and Medicaid Services has recently begun to delete systematically all hospital and physician records related to drugs or alcohol, ostensibly owing to concerns about privacy. A somewhat less blinding policy change is underway at the National Institutes of Health, where funding can no longer support studies of socioeconomic status in isolation of its implications for health (Deaton, 2016), even though the implications of SES for health, such as overdose mortality, seem to be clearer than the determinants of SES. Given these limitations, what insights can we glean with the information we currently have?

My reading of the new paper by Buchanich et al. is that it gently implies that drug law enforcement may be insufficiently focused on the emerging geography of addiction and overdose, which is not relegated to HIDTA's. Misallocation of law enforcement resources is a plausible mechanism behind increased drug use and addiction. But it is difficult to draw solid conclusions about the effects of designating certain areas as HIDTA's and others not, since we do not know whether those policies changed during the sample period and if so how. To be fair, the authors have not attempted to elucidate such policy implications. Recent activity by the Obama Administration in expanding funding and partnerships for HIDTA's in August 2015 and then adding 14 new counties to the ranks of HIDTA's, including 3 in Appalachia, seems to support the notion that they had not been optimally configured for the new landscape (White House, 2016).

Another line of inquiry mentioned by Case and Deaton (2015) and others and is one of a health economist's favorite bailiwicks: the price of heroin and other illicit drugs. Although addiction and brain chemistry surely change decision making ability, a vast literature shows that consumption of nicotine, drugs, and alcohol still react to prices. Dave (2008) shows this is true even among heavy users of cocaine and heroin. Signs point to significant declines in the street prices of narcotics during the period in question across several major U.S. cities (Fries et al., 2008), although there are concerns about data quality. Better focused drug interdiction efforts may be the only solution here, given how evidence suggests legalization might reduce market prices (Miron, 2003). But with the interplay between demands for legal highs from alcohol and nicotine and demands for illegal highs, and all of their after-tax prices (Grossman, 2005), it is worth exploring whether tax policies meant to promote good health might have unintended consequences.

Other potential explanations are further afield. Economists and psychologists have recently reopened inquiry into understanding happiness or subjective well-being. Sacks, Stevenson, and Wolfers (2012) report that the absolute amount of income appears in fact to raise happiness absolutely, contrary to a prevailing view based on earlier work. If happiness and fulfillment are protective against drug use and addiction, a possible implication of such work is that cash transfers might help. An interesting paper by Corman et al. (2013) showed that the 1990s welfare reform, also a focal point during the U.S. presidential primary season but on the Democratic side, was associated with reduced use of illicit drugs among eligible women. Part of this was mechanical due to the nature of the reform, which banned convicted drug felons from receiving benefits and allowed states to test recipients for drug use, but Corman et al. also report evidence that work incentives may also have reduced drug use. Welfare recipients tend disproportionately to be minorities; a provocative question is whether the U.S. might need “welfare reform” for non-Hispanic whites of low SES.

There are many questions that remain open, and many are worrisome. One of the interesting insights that Buchanich et al. (2016) provide seems to be more hopeful, however. Deaton (2016) has written that the period life expectancies reported by Chetty et al. (2016) may paint a rosier view of inequalities because the birth cohorts currently aged 45-54, who are suffering higher mortality now, could also suffer higher mortality in the future. In theory the effect on survival of belonging to a “blighted” cohort could be good or bad, depending on whether the excess risks were shared, perhaps through physical or psychological contagion, or concentrated among early exits. Buchanich et al. report that overdose deaths were highest in 1979 among those aged 25-34, who were born

in 1945-1954; while in 2014, overdose deaths were highest among those aged 45-54, born in 1960-1969. A lot can happen to a birth cohort over time, but this evidence at least seems to reassure that past mistakes may not always be predictive of later mistakes.

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