A note on methods

Elizabeth Kneebone and Scott W. Allard

For this analysis, we compiled county-level data from several sources, including:

The National Center for Health Statistics at the Centers for Disease Control and Prevention: Data on drug poisoning mortality in 2000 and 2015 come from the NCHS Data Visualization Gallery. Drug poisoning deaths (also referred to here as overdose deaths) include deaths from unintentional and undetermined intent as well as suicide and homicide. The death rates reported by NCHS are age-adjusted (that is, deaths per 100,000 people adjusted for the standard age distribution of the U.S. population in 2000). Death rates are reported as ranges across 16 categories. In this analysis, we sometimes further group counties in terms of their change in category between 2000 and 2015. The "high to severe increase" designation represents an increase of six or more categories; "moderate increase" represents a move of four or five categories; and "no to slight increase" represents an increase of three categories or fewer. No county experienced a decline in categories from 2000 and 2015. (Note that the modeled county-level estimates "borrow strength" across counties to create stable estimates in more sparsely populated places. The number of categories moved from 2000 and 2015 are suggestive of the magnitude of change in drug poisoning deaths, but do not reflect tests for statistical significance.) (For more detail on the underlying methods and sources used to compile the NCHS data set, see: Rossen, L.M., Bastian, B., Warner, M., Khan, D., and Chong Y (2017). Drug poisoning mortality: United States, 1999–2015. National Center for Health Statistics.)

One reason we rely on these data as opposed to opioid-specific death rates is that not all death certificates mention the type of drug used (or leave the type blank because of multiple drug toxicity). The modeled county-level death rates for all drug poisoning deaths are also subject to less suppression than opioid-specific estimates.

The decennial census and American Community Survey: Poverty estimates in 2000 come from the decennial census. We also use American Community Survey data for more recent poverty estimates. Because of sample size limitations in smaller counties, we use five-year data to produce estimates for all counties. While the five-year data span 2011 to 2015, we refer to "2015 poverty rates" in the text of the analysis for simplicity and to align with the NCHS data.

National Center for Charitable Statistics (NCCS): Substance abuse services in most communities are provided through a mix of governmental, nonprofit, and for-profit agencies or organizations that draw upon a wide array of governmental and nongovernmental funding sources. Apart from national directories provided by the Substance Abuse and Mental Health Services Administration (SAMHSA), there are few detailed data sources about substance abuse programs and providers over time.

The NCCS provides comprehensive longitudinal data about the local presence and capacity of nonprofit substance abuse services, which are critical care providers in many communities. These data are based on Form 990s that tax-exempt nonprofit organizations submit to the Internal Revenue Service (IRS) to report basic organizational and fiscal information. For individual organizations that identify substance abuse as a primary service on the 990 form, we aggregate data on program expenditures to the county level, which aligns with the NCHS data and is the jurisdiction that often bounds nonprofit service activities.

While useful for assessing broad patterns in the national nonprofit sector, data from the NCCS have several limitations:

- These data exclude many nonprofits with budgets under $25,000 and small church-based programs that are not required to file tax-exempt status. Exclusion of these organizations likely means the data miss low- or no-cost self-help programs for individuals dealing with drug and alcohol dependency.
- Many nonprofit organizations may provide substance abuse services but register as having another type of primary substantive focus. For example, many health care and mental health nonprofits also may provide substance abuse services but do not register as such on their 990 forms.
- Nonprofit data from the IRS contain location information only about an organization's administrative headquarters and not separate offices where services may be delivered. IRS data, therefore, may miss many large social service nonprofits that maintain headquarters in a central city area but also operate elsewhere, such as in suburbs. Also, any nonprofit revenue data reported by the IRS is tied to the location of headquarters, rather than where program funds may be spent.
- These NCCS data do not reflect the provision of public services directly through government agencies and departments, nor do they capture the growing presence of for-profit firms in the delivery of local social services.

Nevertheless, we believe these data provide useful insights into the presence and capacity of large, established nonprofit service providers capable of responding to rising drug use and drug-related deaths. These data also are a good proxy for the resources committed locally to provide substance abuse services. Finally, we believe these data reflect the nongovernmental organizations that may be tapped to develop, expand, or lead local initiatives to reduce drug-related deaths and the prevalence of addiction. County-level NCCS data about substance abuse service providers should provide as accurate an impression about the capacity of local nonprofit substance abuse organizations as is possible with available data.

County geographic typology: There is no one statistical definition of "urban," "suburban," or "rural." For this analysis, we begin with the geographic typology developed by Scott W. Allard for his book Places in Need: The Changing Geography of Poverty. The classification scheme uses 2009 metropolitan area boundaries outlined by the U.S. Office of Management and Budget (OMB). Urban and suburban counties are those included in the 100 most populous OMB-defined metropolitan areas. Urban counties are home to the largest city in the metropolitan area or to one of several OMB-defined principal cities in a metro area (such as Minneapolis in Hennepin County and St. Paul in Ramsey County, Minnesota). Suburban counties are defined as those in one of the 100 largest metropolitan areas but not containing a principal city. Consistent with previous Brookings analyses, we then group counties outside of the top 100 metro areas into two categories: Small metro area counties represent all other counties in an OMB-defined metropolitan area, and rural counties are those outside of OMB-defined metropolitan areas.