Name: Estimated Drug Poisoning Mortality

Short Description: Number of deaths per 100,000 people related to drug poisoning.

Data Source(s):

- Name: The Centers for Disease Control and Prevention (CDC) Wide-ranging Online Data for Epidemiologic Research (WONDER)
- Link to Source: https://wonder.cdc.gov/Deaths-by-Underlying-Cause.html

Year(s): 2010-2019

Source Geographic Level: County

Stratification: Black populations

Selection Rationale: An estimate of drug-related mortality contributes to an overall understanding of the negative health impacts of substance use in an area. The rate of drug-related death measures the direct effect of substance use on a population's mortality, providing information about the severity of drug use.

Strengths and Limitations

- **Strengths**:
  - [*Importance*] In order to understand the severity of substance use in an area, it is important to consider how frequently drug use leads to death. Drug poisoning deaths are a significant contributor to premature mortality in the United States.[1] Additionally the age-adjusted rate of drug overdose deaths in the country has been increasing, emphasizing the importance of addressing this outcome.[2]
  - [*Relevance and Usability*] Drug poisoning mortality is a preventable outcome, and information about where mortality rates are highest may be used to target actions to reduce drug-related mortality.
  - [*Scientific Soundness*] Mortality data is collected from all death certificates filed in the fifty states and the District of Columbia. [3]

[1] Shiels, M. S., Berrington de González, A., Best, A. F., Chen, Y., Chernyavskiy, P., Hartge, P., Khan, S. Q., Pérez-Stable, E. J., Rodriquez, E. J., Spillane, S., Thomas, D. A., Withrow, D., & Freedman, N. D. (2019). Premature mortality from all causes and drug poisonings in the USA according to socioeconomic status and rurality: an analysis of death certificate data by county from 2000-15. *The Lancet Public Health*, *4*(2), e97–e106. https://doi.org/10.1016/S2468-2667(18)30208-1

[2] Hedegaard, H., Warner, M., & Miniño, A. (2017). Drug Overdose Deaths in the United States, 1999-2016. *NCHS Data Brief*, (294). https://www.cdc.gov/nchs/data/databriefs/db294.pdf

[3] Centers for Disease Control and Prevention. (2021, March 11). *Underlying Cause of Death 1999-2019*. CDC Wonder. https://wonder.cdc.gov/wonder/help/ucd.html#

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- [*Feasibility*] Data are easily downloadable and accessible through CDC WONDER and are updated annually.

- **Limitations**:
  - [*Equity*] Deaths of nonresidents (nonresident aliens, nationals living abroad, Puerto Rico residents, and other territories of the U.S.) are not reported in this measure.
  - [*Feasibility*] Data are captured for a 10-year period from 2010-2019. This may make it difficult to discern mortality trends over shorter timespans. A 10-year period was selected because when this measure is stratified by race for Black populations alone, using a shorter time period would result in significant suppression of data.
  - [*Scientific Soundness*] CDC WONDER uses mortality data that is provided to the National Vital Statistics System by state registries. State registries collect mortality data from death certificates that contain a single underlying cause of death. Drug poisoning mortality may be undercounted if a coroner lists a more proximate cause (such as a heart attack or respiratory failure) as "cause of death" instead of drug poisoning itself.
  - [*Scientific Soundness*] Data representing less than 10 deaths are suppressed, and county-level deaths less than 20 people are marked as "unreliable".[4]
  - [*Scientific Soundness*] The smallest geographic level at which this data is available is the county level, so each Zip Code Tabulation Area (ZCTA) in a given county will have the same value. As a result, ZCTA-level values may be less accurate because it is not possible to differentiate which ZCTAs have higher or lower rates within a county.
  - [*Relevance and Usability*] Measuring drug poisoning deaths does not reflect less severe outcomes of drug use that do not result in death. Additionally, this measure does not differentiate between deaths from different types of drugs.

Calculation:

Overall Population:

$$Estimated\ drug\ poisoning\ mortality_{Overall} = \frac{total\ number\ of\ drug\ poisoning\ related\ deaths}{total\ number\ of\ individuals} x\ 100{,}000\ people$$

Black Populations:

$$Estimated\ drug\ poisoning\ mortality_{Black} = \frac{number\ of\ drug\ poisoning\ related\ deaths\ among\ Black\ populations}{total\ number\ of\ Black\ individuals} x\ 100{,}000\ people$$

[4] Ibid

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