National Opioid-Related Mortality Trends Surrounding the 2016 and 2022 CDC Opioid Prescribing Guideline Updates: A Time-Series Analysis by Opioid Subtype and Region, 2010–2024

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INTRODUCTION

- The CDC's 2016 opioid prescribing guideline and its 2022 revision aimed to reduce opioid-related harm while preserving access to appropriate pain treatment
- Whether national mortality trends shifted meaningfully around either of these guideline updates remains debated within the pain medicine community

STUDY GOAL

- We compared national opioid-involved overdose mortality across three periods defined by the guideline milestones- pre-2016, post-2016/pre-2022, and post-2022 - and assessed whether the trends differed by opioid subtype and U.S. census region.

METHODOLOGY

- We used CDC WONDER Multiple Cause of Death data (2010-2024) to identify opioid-involved overdose deaths (underlying cause ICD-10 X40-X44, X60-X64, X85, Y10-Y14; multiple-cause T40.0-40.4, T40.6)
- Age-adjusted rates were calculated for three periods: pre-2016 (2010-2015), post-2016/pre-2022 (2016-2021), and post-2022 (2022-2024)
- Annual percent change (APC) was estimated for each period overall, by opioid subtype (heroin, natural/semisynthetic, methadone, synthetic/fentanyl-class), and by U.S. census region

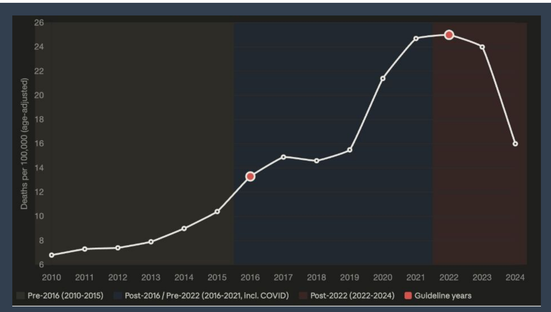


Figure 1: National age-adjusted opioid-involved overdose mortality, 2010-2024, with the three analysis period shaded

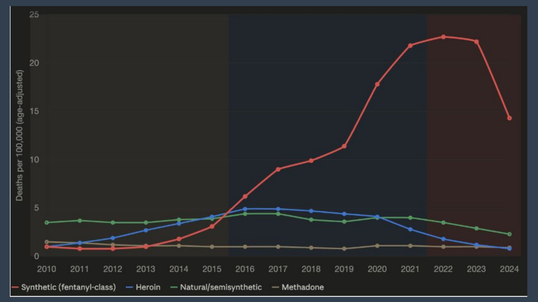


Figure 2. Age-adjusted mortality by opioid subtype, 2010–2024, same period shading.

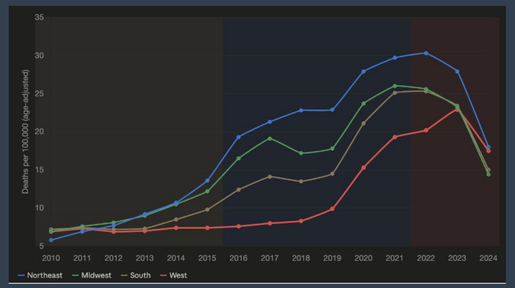


Figure 3. Age-adjusted mortality by census region, 2010–2024, same period shading.

RESULTS

National Mortality trends (Fig 1.):

- National age-adjusted mortality rose from 6.8 to 10.4 per 100,000 in the pre-2016 period and continued rising in the post-2016/pre-2022 period
- After the 2022 CDC Opioid prescribing guideline update, mortality declined in the post-2022 period

Subtype Specific trends (Fig 2.):

- Synthetic/Fentanyl-class: Rose sharply pre- and post-2016, and decelerated post-2022
- Heroin: Rose pre-2016, and declined in both later periods
- Natural/semisynthetic: Roughly flat pre-2016, declined modestly post-2016/pre-2022, and declined more steeply post-2022
- Methadone: Roughly flat through all three time periods
- Synthetic opioids accounted for 14% of subtype-attributable deaths(2010) → 78-81% (2022-2023)

Regional Trends (Fig 3.):

- The Northeast, Midwest, and South each showed deceleration and post-2022 decline consistent with the national pattern
- The west was an exception: lowest mortality of all regions through 2019, then continued rising through the post-2022 period

CONCLUSIO N

- Opioid mortality growth remained high throughout the post-2016/pre-2022 period, a trend driven primarily by accelerating fentanyl-class mortality, before reversing into decline following the 2022 guideline revision
- The post-2022 decline was broad-based across opioid subtypes but not geographically uniform, with the west diverging from the national pattern.

REFERENCES

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