

Letters

RESEARCH LETTER

Twenty-Year Trends in Drug Overdose Fatalities Among Older Adults in the US

US opioid overdose deaths have been concentrated in the working-age population,¹ but older adults may be at increasing risk as the baby boom generation ages. Approximately 2.0% of Medicare enrollees 65 years or older meet diagnostic criteria



Supplemental content

for a substance use disorder (SUD),² and half of enrollees take 4 or more prescription drugs daily.³ Both factors may raise risk of intentional and unintentional overdose in individuals with and without SUD. We therefore assessed 20-year trends in drug overdose among older adults in the US. Because intentional and unintentional overdoses may warrant different clinical and policy responses,⁴ we characterized both types.

Methods | Using the US Centers for Disease Control and Prevention Wide-ranging Online Data for Epidemiologic Research (WONDER) database,¹ we calculated the annual overdose death rate from 2002 to 2021 for all US adults 65 years or older and contribution of overdose to all-cause mortality. For the most recent year (2021), we compared demographic characteristics, specific drug involvement, and manner of death (unintentional, intentional, or undetermined). The University of California, Los Angeles Institutional Review Board has previously determined that analysis using the WONDER database, a publicly available aggregate database, does not require institutional review board oversight. We assessed temporal trends with the Mann-Kendall test using Stata version 17.0 (StataCorp).

Results | The rate of fatal drug overdoses among people 65 years and older quadrupled from 3.0 per 100 000 population (1060 deaths) in 2002 to 12.0 per 100 000 (6702 deaths) in 2021 ($\tau = 0.98$; $P < .001$), with highest rates among non-Hispanic African American individuals (30.9 per 100 000) (Figure). Concurrently, mortality from alcohol poisoning rose from 10 deaths in 2002 to 279 (0.5 per 100 000) in 2021. The share of all-cause mortality attributable to drug overdose increased 359% from 0.06% to 0.27% during this period ($\tau = 0.98$; $P < .001$). By 2021, 1 in 370 deaths among those 65 years and older was caused by an overdose.

In 2021, 3814 of 6702 overdoses (57%) involved an opioid, 2587 (39%) involved a stimulant, and 1204 (18%) involved both. Female decedents accounted for more than half of intentional overdoses (505 of 882 [57%]) compared with less than one-third of unintentional overdoses (1594 of 5541 [29%]). In 2021, 15 of 1629 overdoses (2%) among non-Hispanic African American adults 65 years and older were intentional compared with 793 of 4350 (18%) among non-Hispanic White older adults and 30 of 78 (38%) among non-Hispanic Asian or Pa-

cific Islander older adults (Table). Most unintentional overdoses (4083 of 5541 [74%]) involved illicitly manufactured drugs (synthetic opioids, heroin, cocaine, and methamphetamine); approximately 1 in 5 (1055 of 5541 [19%]) involved both prescription and illicit drugs. Most intentional overdoses (596 of 882 [68%]) involved prescription opioids, antidepressants, benzodiazepines, or antiepileptics and sedative-hypnotics.

Discussion | Even though drug overdose remains an uncommon cause of death among older adults in the US, the quadrupling of fatal overdoses among older adults should be considered in evolving policies focused on the overdose epidemic. Current proposals to improve mental health and SUD coverage within Medicare,⁵ for example, applying mental health parity rules within Medicare, acquire greater urgency in light of this study's results.

Safer prescribing initiatives (eg, addressing opioids and benzodiazepines⁴) underway in many health care systems may help reduce the risk of overdose among older adults who have a high level of polypharmacy utilization. The Veterans Health Administration approach of developing algorithms to judge when a patient being prescribed an opioid is at high risk of an overdose and to provide that patient and family with the overdose rescue drug naloxone⁶ is a useful strategy that deserves adoption in other health care systems. Differences in drug combinations by intentionality should be interpreted in light of the fact that type of drug may inform medical examiners' manner of death determinations and also that not all examiners consistently test for all drugs. Expansion of nonpharmacological interventions for health problems prevalent among older adults (eg, insomnia and pain) could also lower risk of overdose.

Keith Humphreys, PhD

Chelsea L. Shover, PhD

Author Affiliations: Veterans Affairs Palo Alto Health Care System, Palo Alto, California (Humphreys); Department of Psychiatry and Behavioral Sciences, Stanford University School of Medicine, Palo Alto, California (Humphreys); Division of General Internal Medicine and Health Services Research, David Geffen School of Medicine at University of California, Los Angeles (Shover).

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Corresponding Author: Chelsea L. Shover, PhD, Division of General Internal Medicine and Health Services Research, David Geffen School of Medicine at University of California, Los Angeles, 1100 Glendon Ave, Ste 850-822, Los Angeles, CA 90024 (clshover@mednet.ucla.edu).

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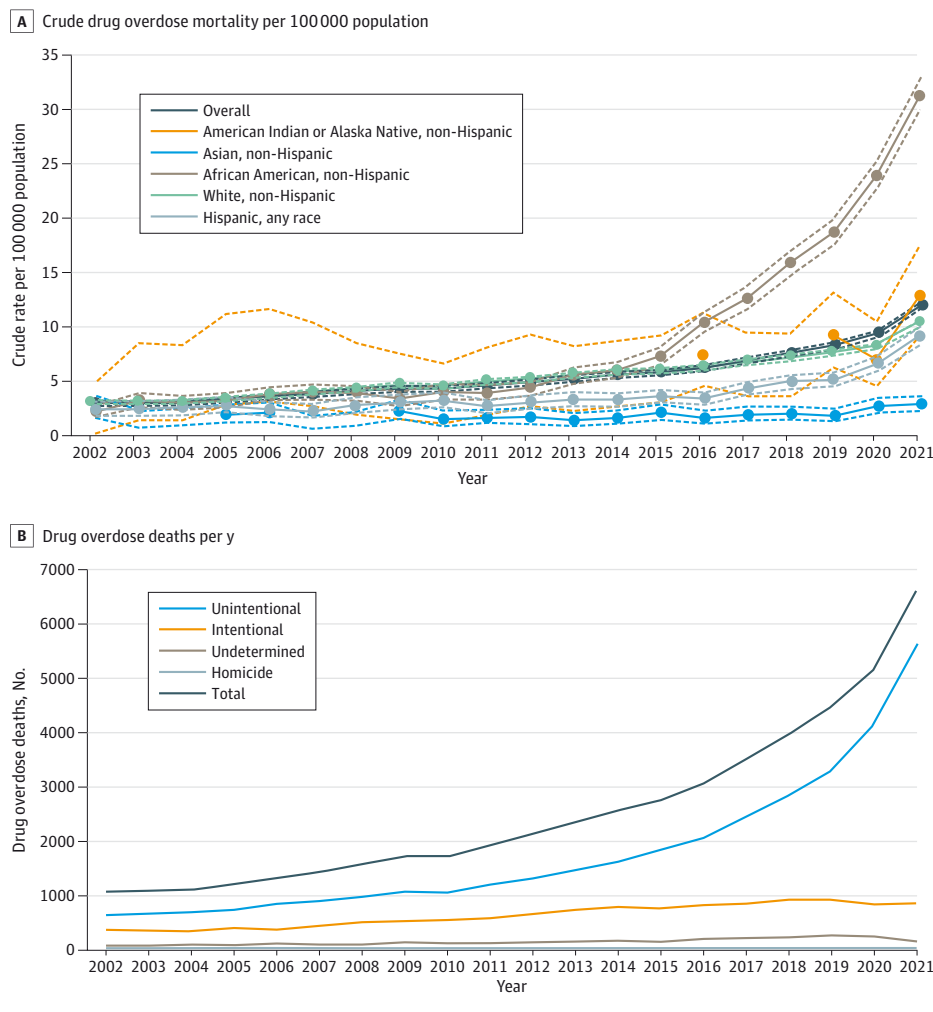
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Figure. Characteristics of Fatal Drug Overdose Among Adults 65 Years and Older in the US, 2002-2021^a



A, Crude drug overdose mortality rate per 100 000 population by overall population and stratified by race and ethnicity. B, Number of drug overdose deaths per year stratified by manner of death. Dotted lines indicate 95% CIs.

^a Data for 2002 to 2020 are considered final. Provisional data for 2021 were downloaded from the US Centers for Disease Control and Prevention Wide-Ranging Online Data for Epidemiologic Research database on October 12, 2022. Additional deaths may be added to database as the 2021 data set is finalized.

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Table. Characteristics of Overdose Deaths by Manner of Death Among US Adults 65 Years and Older, 2021^a

Characteristic	Unintentional death		Intentional death		Total deaths	
	No. (%)	Rate per 100 000 (95% CI)	No. (%)	Rate per 100 000 (95% CI)	No. (%)	Rate per 100 000 (95% CI)
Total	5541 (100)	9.9 (9.7-10.2)	882 (100)	1.6 (1.5-1.7)	6702 (100)	12.0 (11.7-12.3)
Sex						
Male	3947 (71)	15.7 (15.2-16.1)	377 (43)	1.5 (1.3-1.6)	4479 (67)	17.8 (17.2-18.3)
Female	1594 (29)	5.2 (4.9-5.5)	505 (57)	1.6 (1.5-1.8)	2223 (33)	7.3 (7.0-7.6)
Race and ethnicity ^b						
African American, non-Hispanic	1542 (28)	29.2 (27.8-30.7)	15 (2)	NA	1629 (24)	30.9 (29.4-32.4)
American Indian or Alaska Native, non-Hispanic	35 (1)	10.7 (7.4-14.8)	NA	NA	41 (1)	12.5 (9.0-16.9)
Asian or Pacific Islander, non-Hispanic	47 (1)	1.7 (1.2-2.3)	30 (3)	1.1 (0.7-1.5)	78 (1)	2.8 (2.2-3.5)
Hispanic, any race	396 (7)	8.0 (7.2-8.8)	35 (4)	0.7 (0.5-1.0)	439 (7)	8.8 (8.0, 9.7)
Multiracial	50 (1)	8.9 (6.6-11.7)	NA	NA	55 (1)	9.8 (7.4-12.8)
White, non-Hispanic	3366 (61)	8.0 (7.8-8.3)	793 (90)	1.9 (1.8-2.0)	4350 (65)	10.4 (10.1-10.7)
Drug (ICD-10 code)						
Any opioid (T40.0-4, T40.6)	3248 (59)	5.8 (5.6-6.0)	382 (43)	0.7 (0.6-0.8)	3814 (57)	6.8 (6.6-7.0)
Synthetic opioids other than methadone (T40.4)	2418 (44)	4.3 (4.2-4.5)	82 (9)	0.1 (0.1-0.2)	2620 (39)	4.7 (4.5-4.9)
Prescription opioids, including methadone (T40.2-3)	1135 (20)	2.0 (1.9-2.2)	326 (37)	0.6 (0.5-0.6)	1542 (23)	2.8 (2.6-2.9)
Heroin (T40.1)	521 (9)	0.9 (0.9-0.1)	NA	NA	526 (8)	0.9 (0.9-1.0)
Any stimulant (T40.5, T43.6)	2535 (46)	4.5 (4.4-4.7)	13 (1)	NA	2587 (39)	4.6 (4.5-4.8)
Cocaine (T40.5)	1333 (24)	2.4 (2.3-2.5)	NA	NA	1359 (20)	2.4 (2.3-2.6)
Methamphetamine (T43.6)	1305 (24)	2.3 (2.2-2.5)	10 (1)	NA	1331 (20)	2.4 (2.3-2.5)
Benzodiazepines (T42.4)	477 (9)	0.9 (0.8-0.9)	213 (24)	0.4 (0.3-0.4)	725 (11)	1.3 (1.2-1.4)
Antidepressants (T43.0-2)	336 (6)	0.6 (0.5-0.7)	248 (28)	0.4 (0.4-0.5)	630 (9)	1.1 (1.0-1.2)
Antiepileptic and sedative-hypnotics (T42.6-7)	426 (8)	0.8 (0.7-0.8)	135 (15)	0.2 (0.2-0.3)	583 (9)	1.0 (1.0-1.1)
Prescription drugs (prescription opioids, benzodiazepines, antidepressants, or antiepileptic and sedative-hypnotics)	1719 (31)	3.1 (2.9-3.2)	596 (68)	1.1 (1.0-1.2)	2451 (37)	4.4 (4.2-4.6)
Illicitly manufactured drugs (synthetic opioids, heroin, cocaine, or methamphetamine)	4083 (74)	7.3 (7.1-7.5)	94 (11)	0.2 (0.1-0.2)	4312 (64)	7.7 (7.5-8.0)
Drug combinations						
Opioid and stimulant	1171 (21)	2.1 (2.0-2.2)	NA	NA	1204 (18)	2.2 (2.0-2.3)
Opioid and benzodiazepine	395 (7)	0.7 (0.6-0.8)	119 (13)	0.2 (0.2-0.3)	539 (8)	1.0 (0.9-1.0)
Prescription drugs and illicitly manufactured drugs	1055 (19)	1.9 (1.8-2.0)	68 (7)	0.1 (0.1-0.2)	1168 (17)	2.1 (2.0-2.2)

Abbreviation: ICD-10, *International Statistical Classification of Diseases and Related Health Problems, Tenth Revision*.

^a Final 2021 data were downloaded from the US Centers for Disease Control and Prevention Wide-Ranging Online Data for Epidemiologic Research on February 14, 2023. Cells with fewer than 10 observations were suppressed, and rates based on 20 or fewer observations are considered unreliable. Five overdose deaths were classified as homicide (ICD-10 code X85). The illicit vs prescription dichotomy is an approximation. For example, the ICD-10 code T40.4 includes fentanyl (which can be prescribed, though illicitly manufactured fentanyl accounts for the vast majority of overdose deaths

involving fentanyl) as well as several synthetic prescription opioids (eg, buprenorphine, tramadol).

^b Race and ethnicity values were not available for 110 decedents, including 80 individuals with White race and no value specified for Hispanic ethnicity, 23 individuals with African American race and no value specified for Hispanic ethnicity, and 7 individuals with no value specified for either race or ethnicity. The multiracial category includes decedents coded as more than 1 race regardless of Hispanic ethnicity. Percentages for race and ethnicity rows are calculated from the total with available values in each column.