Opioid Misuse and Suicide-Related Outcomes: Summary and Recommendations for Intervention and Primary Prevention
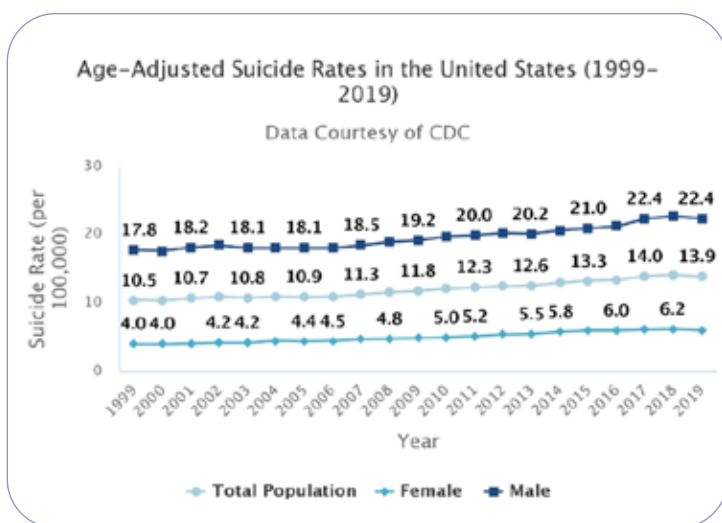
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Suicide-related outcomes (SROs)—consisting of suicidal ideation, plans, attempts, and deaths by suicide—have been on a consistent rise for decades, particularly among adolescents and young adults.[1]
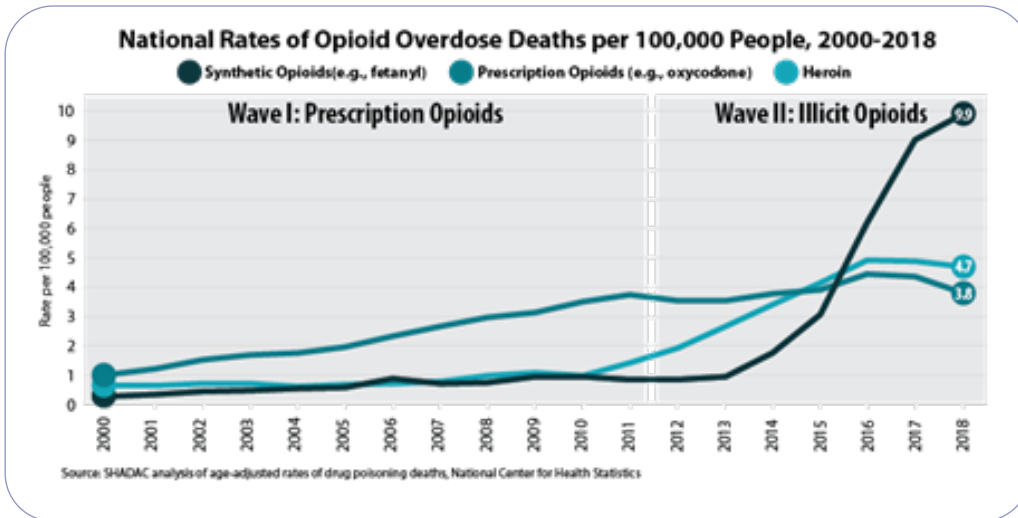
Rising rates are speculated to be a result of economic challenges, increased social isolation, greater prevalence of mental illness, increased use of technology and social media, and the growing opioid crisis in America.[2; 3] Among adolescent populations, increased access to firearms is positively associated with youth suicides; each 10 percent increase in household gun ownership results in a 26.9 percent increase in youth suicide rates.[4] While early research

Age–Adjusted Suicide Rates in the United States (1999–2019)

Data Courtesy of CDC

is notional, the recent COVID-19 pandemic has dramatically increased a number of common suicide risk factors—such as social isolation, economic difficulties, and high-stress environments—that are predictive of a possible rise in suicide rates throughout and after the pandemic.[5; 6]

Overlapping with this period of rising SROs, prescription and illicit opioid misuse have increased substantially since the 1990s, leading to the 2017 declaration of a national public health emergency by the Department of Health and Human Services.[7] Studies have indicated an increase of more than 1000 percent in deaths involving synthetic opioids, excluding methadone, from 2013 to 2019.[8] Similar to SROs, the COVID-19 pandemic has further influenced a rise in opioid misuse and overdose.[9; 10]

Together, suicide and overdoses have resulted in a notable 3-year decline in life expectancy among people in the United States.[8] Individuals who use opioids regularly are 75 percent more likely to make a plan for suicide and twice as likely to make a suicide attempt, both strong predictors of future suicide death, than are people who do not regularly use opioids.[11] The concurrent rise of SROs and opioid use and misuse, as well as the shared risk and protective

National Rates of Opioid Overdose Deaths per 100,000 People, 2000-2018

Synthetic Opioids(e.g., fentanyl)　Prescription Opioids (e.g., oxycodone)　Heroin

Wave I: Prescription Opioids　　Wave II: Illicit Opioids

Rate per 100,000 people

9.9

4.7

3.8

Source: SHADAC analysis of age-adjusted rates of drug poisoning deaths, National Center for Health Statistics

factors we will discuss, indicate a correlation that has yet to be fully explored. This article further examines this bidirectional relationship and offers guidance to Comprehensive Opioid, Stimulant, and Substance Abuse Program (COSSAP) grantees and service providers for supporting individuals experiencing opioid use or misuse, SROs, or both.

Association Between Opioid Misuse and SROs

Prior research has highlighted a possible association among opioid use, opioid misuse, and SROs. For example, data from the National Survey on Drug Use and Health (NSDUH) show a greater likelihood of suicidal ideation among individuals with former or persistent nonmedical prescription opioid use. The risk for suicidal ideation among people who misuse prescription opioids was shown to be higher for those with diagnosed opioid use disorder (OUD) than for those without the diagnosed disorder.[12] **The rate of suicide among people with OUD is six times greater—87 per 100,000—than among the general U.S. population.**[13]

NSDUH analyses have shown that although opioid **misuse** is associated with greater odds of suicidal behavior, prescribed use of opioids **without misuse** may not influence SROs.[13] Of those reporting

nonmedical prescription opioid use, adults ages 18 to 34 were most likely to report past-year suicidal thoughts, plans, and attempts, whereas adults 50 years and older had increased odds of reporting past-year suicidal thoughts.[14]

A similar relationship has been identified in U.S. high school students using data from the Youth Risk Behavior Survey (YRBS). Among these students, both past and current prescription opioid misuse were predictive of suicidal ideation, planning, attempts, and feelings of sadness or hopelessness. Suicide plans and attempts, however, were significantly more common among youth reporting current prescription opioid misuse than among those reporting past misuse.[15]

This overlap suggests two realities: **(1) someone at risk of misusing opioids may also be at risk of SROs and vice versa, and (2) the resources that can prevent people from misusing opioids are often the same resources that can protect them from SROs**. Thus, when practitioners and service providers use comprehensive, evidence-based strategies to prevent opioid misuse or SROs in patients, they also make progress in preventing the other problem. Consequently, when such services are neglected, a patient is at greater risk of both opioid misuse and SROs.

Strategies for Preventing Opioid Misuse and SROs

A number of practical measures can have a significant impact on the prevention of opioid misuse and SROs. A few notable ones for COSSAP grantees to consider implementing follow on the next page.

Opioid misuse and SROs have many shared risk and protective factors:[8; 16–20]

Communal and Societal Level

- Inadequate community connectedness
- Stigma associated with help-seeking
- Availability of means
- Unsafe media portrayals
- Barriers to health care

- Availability of physical and behavioral healthcare
- Limited access to means among people at risk

Interpersonal Level

- Sense of isolation; lack of social support environments
- Contact with high-risk people or high-risk environments
- Financial, work, and relational stressors
- Family/loved one's history

- Supportive relationships with institutions and care providers
- Connections to friends, family, and community support

Intrapersonal Level

- History of mental illness and/or substance use
- Genetics and biology
- Impulsivity and thrill seeking behaviors
- Past use/attempt
- History of trauma
- Chronic health conditions

- Personal, family, cultural, or religious beliefs that discourage behavior
- Coping and problem-solving skills

Universal Screening

Universal suicide screening—the practice of screening all patients for suicide in all health settings (e.g., emergency department or dentist)—is becoming a common practice among many providers. Nearly 75 percent of those who attempt suicide had visited a primary care provider within the previous year.[8] Screening may be especially important in behavioral health settings, given the common comorbidity of substance misuse and SROs. Providing universal suicide screening in these settings allows at-risk individuals to be identified and referred to appropriate services.

Without implementing a screening tool, providers may not realize a patient is experiencing SROs, especially if the visit is not for mental health services. One study revealed that 83 percent of those who attempted

suicide were not identified by health care providers as being at risk, even when they attended primary care appointments in the months leading up to their attempt.[21] A standardized screening tool ensures that every individual is assessed for suicide during every visit.

However, for this model to serve clients, it is essential that providers conducting universal suicide screening be equipped to connect individuals to services if those individuals screen as positive for SROs. The Zero Suicide model offers guidance and tools[22] for universal screening in a variety of settings, including primary care, emergency departments, and pediatric care. Zero Suicide's website includes the most common suicide screening tools, such as the Columbia Suicide Screen (CSS), which comprises 11 questions embedded in a broader, general health questionnaire and measures suicidal ideation, lifetime suicide attempts, negative mood, and substance misuse.[21] COSSAP grantees interested in implementing universal screening may visit the Zero Suicide website[22] for setting-specific tools and guidance. Universal opioid use screening in health care settings could also play an integral role in identifying opioid misuse.

Integrated Care

The World Health Organization (WHO) defines integrated care as "an approach to strengthen people-centered health systems through the promotion of the comprehensive delivery of quality services across the life-course, designed according to the multidimensional needs of the population and the individual and delivered by a coordinated multidisciplinary team of providers working across

settings and levels of care."[23] Integrated care recognizes the importance of a patient's overall health and the impact on a patient's health when care providers coordinate to best serve their needs.

Successful care integration can best be accomplished by patient record sharing among authorized providers. Electronic health records (EHRs) are an effective tool for such sharing; they contain all information from all clinicians involved in a patient's care, allowing provider collaboration to diagnose and treat patients more effectively.[24] Notably, behavioral and mental health providers will be able to better assess for possible comorbidity of SROs and substance misuse. WHO offers a technical brief[25] for COSSAP grantees who wish to pursue health systems integration.

Family Support Services

Last, upstream prevention, particularly when focused on the family unit, has a substantial impact on the development of both SROs and substance misuse. Individuals are more likely to experience SROs and substance misuse if they witness such behavior in their households. Exposure to household substance use during childhood doubles an individual's

chances of having an SUD in adulthood.[26] Similarly, families of suicide victims are twice as likely to die by suicide themselves than are members of the general population.[27]

Furthermore, household trauma, regardless of type, increases an individual's chances of both SROs and substance misuse. Experiencing at least 4 of the 10 commonly measured adverse childhood experiences (ACEs; see sidebar) makes someone 12 times more likely to attempt suicide.[28] Experiencing at least 7 ACEs increases the likelihood of child and adolescent suicide attempt 51 times and the chances of adult suicide attempt 30 times.[29] Studies have also found that for each type of violence or abuse experienced, an individual's chances of developing alcohol, cocaine, or opioid dependence—or a combination of these—are nearly doubled.[26]

Support services for families, especially those who may be at increased risk of trauma due to socioeconomic or racial/ethnic background, can have a multigenerational effect. Interrupting the cycle of SROs or substance misuse in a family affects not only the family unit but also future generations of that family. The Centers for Disease Control and Prevention (CDC) has identified a number of key strategies for preventing ACEs, including strengthening economic support for families, teaching and supporting positive parenting, providing quality care and education for children, and intervening when necessary to lessen harm and prevent future risk.[30] These community efforts, along with offering trauma-informed behavioral health care for adults and children, are the most effective strategies for interrupting the intergenerational cycle of trauma, including SROs and substance misuse.[31; 32] COSSAP grantees who would like resources on implementing evidence-based practices to prevent ACEs may wish to look at CDC-developed material, including a review of the evidence,[33] a technical package for policies and programmatic activities,[30]

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10 Commonly Measured Adverse Childhood Experiences

1. Emotional abuse
2. Physical abuse
3. Sexual abuse
4. Emotional neglect
5. Physical neglect
6. Mother treated violently
7. Household substance use
8. Household mental illness
9. Parental separation/divorce
10. Incarcerated household member(s)

and an overview of their current plan for preventing ACEs.[34]

Adopting universal suicide and opioid use screening practices, integrating health care services across physicians and data platforms, and providing support services to families—particularly those with children most at risk for ACEs—are the first major steps in curbing the concurrent suicide and opioid epidemics. While efforts should not end here, these practices should each be assumed as standard procedure moving forward. This article provides resources for COSSAP grantees interested in taking the recommended actions. Notably, the websites for Zero Suicide,[22] the WHO,[25] and the CDC[30, 33–34] contain a wealth of material to guide COSSAP grantees through the process of affecting universal screening, health care integration, and family support services.

Endnotes

1. Twenge, J. M., Cooper, A. B., Joiner, T. E., Duffy, M. E., & Binau, S. G., 2019, "Age, Period, and Cohort Trends in Mood Disorder Indicators and Suicide-Related Outcomes in a Nationally Representative Dataset, 2005-2017," *Journal of Abnormal Psychology*, 128(3), 185-199, retrieved from https://doi.org/10.1037/abn0000410.

2. Ducharme, J, June 2019, "U.S. Suicide Rates Are the Highest They've Been Since World War II," *Time*.

3. Ducharme, J., October 2018, "More Than 90% of Generation Z is Stressed Out. And Gun Violence is Partly to Blame," *Time*.

4. Knopov, A., Sherman, R. J., Raifman, J. R., Larson, E., & Siegel, M. B., 2019, "Household Gun Ownership and Youth Suicide Rates at the State Level," 2005–2015, *American Journal of Preventive Medicine*, 56(3), 335-342, retrieved from https://doi.org/10.1016/j.amepre.2018.10.027.

5. Sher, L., 2020, "The Impact of the COVID-19 Pandemic on Suicide Rates." *QJM: An International Journal of Medicine*, 113(10), 707-712, retrieved from https://doi.org/10.1093/qjmed/hcaa202.

6. Courtet, P., Olie, E., Debien, C., & Vaiva, G., 2020, "Keep Socially (but not Physically) Connected and Carry on: Preventing Suicide in the Age of COVID-19," *Journal of Clinical Psychiatry*, 81(3), retrieved from https://doi.org/10.4088/JCP.20com13370.

7. U.S. Department of Health & Human Services, October 2017, *HHS Acting Secretary Declares Public Health Emergency to Address National Opioid Crisis*, U.S. Department of Health & Human Services, retrieved December 3, 2021, from https://public3.pagefreezer.com/browse/HHS.gov/31-12-2020T08:51/https://www.hhs.gov/about/news/2017/10/26/hhs-acting-secretary-declares-public-health-emergency-address-national-opioid-crisis.html.

8. Harris, B. R., 2021, "Suicide as a Hidden Contributor to the Opioid Crisis and the Role That Primary Care and Emergency Medicine Play in Addressing It," *Preventive Medicine*, 148, retrieved from https://doi.org/https://doi.org/10.1016/j.ypmed.2021.106572.

9. Haley, D. F., & Saitz, R., 2020, "The Opioid Epidemic During the COVID-19 Pandemic," *JAMA*, 324(16), 1615-1617, retrieved from https://doi.org/10.1001/jama.2020.18543.

10. Slavova, S., Rock, P., Bush, H. M., Quesinberry, D., & Walsh, S. L., 2020, "Signal of Increased Opioid Overdose During Covid-19 From Emergency Medical Services Data," *Drug and Alcohol Dependence*, 214, retrieved from https://doi.org/10.1016/j.drugalcdep.2020.108176.

11. Oquendo, Maria A., & Nora D. Volkow, 2018, "Suicide: A Silent Contributor to Opioid-Overdose Deaths," *New England Journal of Medicine*, 378(17), 1567–1569, retrieved from https://doi.org/10.1056/NEJMp1801417.

12. Kuramoto, Janet S., Howard D. Chilcoat, Jean Ko, & Silva S. Martins, 2012, Suicidal Ideation and Suicide Attempt Across Stages of Nonmedical Prescription Opioid Use and Presence of Prescription Opioid Disorders Among U.S. Adults, *J Stud Alcohol Drugs*, 73(2), 178–184, retrieved from https://doi.org/10.15288/jsad.2012.73.178.

13. Samples, Hilary, Elizabeth A. Stuart, & Mark Olfson, 2019, "Opioid Use and Misuse and Suicidal Behaviors in a Nationally Representative Sample of U.S. Adults," *American Journal of Epidemiology*, 188(7), 1245–1253, retrieved from https://doi.org/10.1093/aje/kwz061.

14. Chan, Keith T., Priya Winston, Rubin Jennings, Jeffery Trant, & Mary Moller, 2019, "Age Differences in the Association of Nonmedical Prescription Opioid Use and Suicidality," *Journal of Opioid Management*, 15(1), 5–10, retrieved from https://doi.org/10.5055/jom.2019.0480.

15. Wilkins, Natalie J., Heather Clayton, Christopher M. Jones, & Melissa Brown, 2021, "Current Prescription Opioid Misuse and Suicide Risk Behaviors Among High School Students, *Pediatrics*, 147(4), retrieved from https://doi.org/10.1542/peds.2020-030601.

16. Stone, Deb, Kristin Holland, Brad Bartholow, Alex Crosby, Shane Davis,& Natalie Wilkins, 2017, *Preventing Suicide: A Technical Package of Policy, Programs, and Practices*, retrieved from https://www.cdc.gov/violenceprevention/pdf/suicidetechnicalpackage.pdf

17. Office of the Chief Medical Examiner, 2020, *Opioid Fatality Review Board 2019 Annual Report*, retrieved from https://ocme.dc.gov/sites/default/files/dc/sites/ocme/publication/attachments/OFRB%202019%20Annual%20Report_Web%20version_single%20page.pdf.

18. National Center for Injury Prevention and Control, 2021, *Suicide Prevention: Risk and Protective Factors*, retrieved

December 3, 2021 from https://www.cdc.gov/suicide/factors/index.html.

19. O'Connell, M. E., Boat, T., & Warner, K. E. (Eds.), 2009, *Preventing Mental, Emotional, and Behavioral Disorders Among Young People: Progress and Possibilities* (ed.), The National Academies Press.

20. National Institute on Drug Abuse, February 2002, *Risk and Protective Factors in Drug Abuse Prevention*, National Institute on Drug Abuse, retrieved December 3, 2021 from https://archives.drugabuse.gov/news-events/nida-notes/2002/02/risk-protective-factors-in-drug-abuse-prevention

21. Horowitz, Lisa M., Elizabeth D. Ballard, & Maryland Pao, October 2009, "Suicide Screening in Schools, Primary Care and Emergency Departments," *Current Opinion in Pediatrics*, 21(5), 620-627, retrieved from https://doi.org/10.1097/MOP.0b013e3283307a89.

22. Zero Suicide, n.d., "*Screening and Assessment*," retrieved December 3, 2021 from https://zerosuicide.edc.org/toolkit-taxonomy/screening-and-assessment?page=1.

23. Health Services Delivery Programme, Division of Health Systems and Public Health, October 2016, *Integrated Care Models: An Overview (Working Document)*, retrieved from https://www.euro.who.int/__data/assets/pdf_file/0005/322475/Integrated-care-models-overview.pdf.

24. HealthIT.gov, May 2019, *Advantages of Electronic Health Records?* HealthIT.gov, retrieved December 3, 2021 from https://www.healthit.gov/faq/what-are-advantages-electronic-health-records.

25. Waddington, C., & Egger, D., May 2008, *Integrated Health Services—What and Why? (Technical Brief No. 1)*, retrieved from https://studylib.net/doc/18113241/integrated-health-services---world-health-organization.

26. Douglas, Kara R., Grace Chan, Joel Gelernter, Albert J. Arias, Raymond F. Anton, Roger D. Weiss, Kathleen Brady, James Poling, Lindsay Farrer & Henry R. Kranzler, 2010, "Adverse Childhood Events as Risk Factors for Substance Dependence: Partial Mediation by Mood and Anxiety Disorders," *Addictive Behaviors*, 35(1), 7–13, retrieved from https://doi.org/10.1016/j.addbeh.2009.07.004.

27. Runeson, Bo, & Marie Asberg, 2003, "Family History of Suicide Among Suicide Victims," *American Journal of Psychiatry*, 160(8), 1525-1526, retrieved from https://doi.org/10.1176/appi.ajp.160.8.1525.

28. Van Niel, Cornelius, Lee M. Pachter, Roy Wade, Jr., Vincent J. Felitti, & Martin T. Stein, 2014, "Adverse Events in Children: Predictors of Adult Physical and Mental Conditions," *Journal of Developmental and Behavioral Pediatrics*, 35(8), 549-551, retrieved from https://doi.org/10.1097/DBP.0000000000000102.

29. Dube, Shanta R., Robert F. Anda, Vincent J. Felitti, Daniel P. Chapman, David F. Williamson & Wayne H. Giles, 2001, "Childhood Abuse, Household Dysfunction, and the Risk of Attempted Suicide Throughout The Life Span: Findings from the Adverse Childhood Experiences Study," *JAMA*, 286(24), 3089–3096, retrieved from https://doi.org/10.1001/jama.286.24.3089.

30. Fortson , B. L., Klevens, J., Merrick, M. T., Gilbert, L. K., & Alexander, S. P., 2016, *Preventing Child Abuse and Neglect: A Technical Package for Policy, Norm, and Programmatic Activities*, Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, retrieved from https://www.cdc.gov/violenceprevention/aces/resources.html.

31. Hairgrove, S., 2021, "*Substance Use & ACES Across the Lifespan: Part I – Infancy, Childhood, and Adolescence,*" *What's New in COSSAP*, COSSAP.

32. COSSAP Resources, *Substance Use and ACEs Across the Lifespan—Part II: Adulthood and Elderly Years.*

33. Centers for Disease Control and Prevention, 2019, *Preventing Adverse Childhood Experiences: Leveraging the Best Available Evidence*, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, retrieved March 30, 2021 from https://www.cdc.gov/violenceprevention/pdf/preventingACES.pdf.

34. National Center for Injury Prevention and Control, September 2020, *Adverse Childhood Experiences Prevention Strategy*, FY2021–FY2024, National Center for Injury Prevention and Control, retrieved December 3, 2021 from https://www.cdc.gov/injury/pdfs/priority/ACEs-Strategic-Plan_Final_508.pdf.

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