

# A Case for Experiential Expertise in Opioid Overdose Surveillance



See also Nesoff et al., p. 507.

We are well into the third decade of a public health event marked by the greatest failure in the modern history of drug safety, sustained lethality of drug use, and epochal changes in the illicit drug market. Decades of work addressing different components of substance use have been at best greatly augmented, or at worst poorly supplanted, by complex policy regimes creating a new infrastructure for supply, demand, and harm reduction. To function well under this new structure, public health programming, including surveillance activities and other research, must explicitly define the domains with which it is concerned and its goals. The most efficient and ethical means to do this remains direct engagement and collaboration with affected communities, in particular people who use drugs.

A new study by Nesoff et al. provides a description of the spatiotemporal clustering of overdose deaths involving fentanyl or its analogs in Cook County, Illinois.<sup>1</sup> The authors employed elegant methods, offered easy-to-understand heat maps, and confirmed that fentanyl-involved overdose clusters nearly mirrored those observed in an analysis of Chicago overdose hot spots performed in 2007.<sup>2</sup> However, it

must be noted that their study did not engage drug users in the Chicago area or long-standing programs serving this population, nor was it performed by local researchers.

## BIG DATA THROUGH A LOCAL LENS

A synthesis of the Nesoff et al. results serves as an important case study in the shortcomings of omitting people who use drugs and local expertise when interpreting findings, a common omission in “big data” opioid surveillance research. The authors’ findings are not a revelation in comparison with the 2007 study. For example, the authors were unable to explain why the communities hardest hit by opioid overdoses in 2002 were nearly the same as those identified in 2014 to 2018 data, whereas a 2017 report by Chicago-area experts revealed underlying disparities and their roots.<sup>3</sup>

Content and experiential expertise among researchers results in discussion sections more robustly oriented toward solutions in research and practice. In large epidemiological studies, the input of people who use drugs may drive analyses considering complex and structural factors that influence disproportionate deaths. When a participatory approach is used, the findings can

be discussed in the context of the effects of racialized drug policies, structural violence, and policing on people who use drugs, particularly people of color.

Equipped with local and experiential expertise, we offer an alternative discussion of the findings. The authors hypothesized that there is a bifurcated drug market wherein drug users in resource-deprived areas may not be able to access a fentanyl-free opioid supply. However, death data are not a suitable proxy for the overall landscape of illicit drug sale and use. In Chicago specifically, overdoses involving any illicit opioid should be considered more similar than different because fentanyl is inconsistently and unpredictably incorporated into the illicit opioid supply. Alternatively, in San Francisco, California, for example, tar heroin is rarely combined with fentanyl and fentanyl is sold separately in powder form, thus making informed consumption considerably more feasible. Thus, in Chicago during the study period as well as the fentanyl overdose spike in 2005,

fentanyl-involved opioid overdoses were largely the result of individuals acquiring substances in an inconsistent heroin market.<sup>4</sup>

We disagree with the notion of a bifurcated market in Chicago through 2018; we instead propose that monitoring fentanyl-involved overdoses is important because the acuity highlights and exacerbates existing vulnerabilities. In advance of pondering a redevelopment- or gentrification-focused variation of “broken windows policing” as an approach to discourage substance use, known risks for opioid overdose should be considered. Structural violence and policing of people who use drugs directly affect overdose deaths.<sup>5</sup> Additional indirect effects of structural violence and policing on overdose risk include chilling effects on naloxone and syringe access program participation; frequent incarceration, creating high-risk postrelease periods of low opioid tolerance; reluctance to call 911 during an overdose emergency; and slower emergency medical service response times in certain neighborhoods. These effects are seen most dramatically among people of color who use drugs and the communities in which they reside. These communities were notably featured by Nesoff

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et al., supporting the hypothesis that fentanyl-involved fatalities highlight existing conditions.

In their discussion, Nesoff et al. suggested investigating targeted infrastructure improvements or other community development options such as park making, building renovation, or vacant lot remediation as overdose prevention strategies. However, people who use drugs and community organizations are currently highly invested in establishing or expanding programs that have an emerging evidence base, such as safer consumption and drug checking sites, and strategies for extending proven, evidence-based interventions (e.g., naloxone access and agonist-based pharmacotherapy for opioid use disorder) to untapped social networks and resource-deprived settings.<sup>6</sup> For example, there are two

residential hotels in Chicago where at least 20 fatal overdoses have occurred in the past five years. These hotels are located within some of the most vulnerable communities identified by Nesoff et al. Their approach and findings could be used to support the siting of safer consumption and drug checking sites near or within the two hotels.

In addition, a 2018 study focusing on a safety net emergency department in Chicago revealed that only 22% of people using opioids and 2% of noninjecting opioid users had access to naloxone.<sup>7</sup> In that study, needle exchange programs were the primary naloxone source. Geographic methods can also assist in planning where needle exchanges are sited, determining where people who use drugs via noninjection routes are located,

and learning how to engage with noninjection opioid users.

### REVISITING THE CHICAGO SCHOOL

One framework that allows these diverse approaches to be well differentiated also has its roots in Chicago: the social ecological model. Under this framework, interventions acknowledge the interconnectedness of factors at all levels and include components that act at each of the levels. The proposals suggested by Nesoff et al. target the community and the different levels of public policy (Figure 1). Other harm reduction strategies that have been aggressively pursued by policymakers and community stakeholders have tended toward the middle and lower levels of the social

ecological model. Although some higher-level interventions have been widely adopted (e.g., Good Samaritan laws), engagement with law enforcement-oriented programs present obvious barriers to people who use drugs.

Expanding prevention paradigms to include environmental interventions, as proposed by Nesoff et al., may provide benefits as part of a grander approach to demand reduction than has typically been considered. Ongoing psychological research is establishing the role of opioids in human social connections, building on earlier animal models. This research suggests a significant long-term role for programs profoundly altering the built and social environment, in parallel with the immediate considerations of the harm reduction movement. Such an



Note. MAT = medication-assisted treatment. Boldface, italicized interventions have an established evidence base.

FIGURE 1—Social Ecological Model Diagram of Selected Interventions Designed to Reduce Opioid Overdoses

expansive demand reduction approach may transcend the typically perceived boundaries of public health and will undoubtedly require the engagement, efforts, and leadership of individual drug users and communities. *AJPH*

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developed specific examples of events in Chicago.

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#### CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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## Nesoff et al. Comment

 See also Alexandridis et al., p. 505.

In this issue of *AJPH*, we thank Alexandridis et al. (p. 505) for their thoughtful comments on our work. They assert that “fentanyl-involved opioid overdoses were largely the result of individuals acquiring substances in an inconsistent heroin market,” dissenting with our study's conclusions. However, our study did not examine the concentration of fentanyl-involved overdoses in isolation; rather, we compared the geographic distribution of fentanyl-involved overdoses relative to the distribution of opioid and polydrug overdoses not involving fentanyl.<sup>1</sup> We identified specific neighborhoods where the likelihood that a fatal overdose involving fentanyl was significantly elevated compared with fatal overdoses that included other drugs commonly combined with fentanyl (e.g., heroin, cocaine). Heroin was involved in 55% of fentanyl-involved overdoses and 60% of non-fentanyl-involved overdoses. If fentanyl were randomly distributed throughout

the heroin supply, then we would presumably expect to find no difference in the geographic distributions of the two groups (as demonstrated by the difference in K-functions and the maps of kernel intensity ratio estimates). Our results were consistent across study years (2014–2018), supporting our hypothesis that fentanyl-adulterated drugs may not be randomly distributed.

Although our study results may be similar to those of studies by Scott et al.<sup>2</sup> and Denton et al.<sup>3</sup> cited by the authors, the evolving nature of the opioid overdose epidemic requires researchers to update data sources and analyses. To base current public health practice and intervention strategies on research findings from decades-old data is suboptimal.

We agree with Alexandridis et al. that including people who use drugs in research to identify effective overdose prevention strategies is useful and important, but we do not agree that every epidemiological study must involve such participation to be

a meaningful contribution.

Identifying a community of people who use drugs who truly represent the myriad experiences and patterns of drug use reflected among people who use drugs is inherently difficult because drug use is a stigmatized and often hidden behavior. Treatment facilities or harm reduction services such as needle exchange that have traditionally served as points of contact for engaging people who use drugs in research are not without limitations.

One should keep in mind that most people who use drugs do not meet *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (Washington, DC; American Psychiatric Association; 2013), criteria for substance use disorder and may not need treatment,<sup>4</sup> and people who use drugs

but do not inject drugs will not be represented in needle-exchange populations. Consequently, a potentially large contingent of people who use drugs at risk for fentanyl-involved overdose from fentanyl-adulterated cocaine; counterfeit medications including benzodiazepines; ketamine; methamphetamine; and noninjection heroin use<sup>5</sup> may not be present in much of the research intended to represent their voices.

If researchers identify a community by geographic boundaries instead of behaviors, encouraging participation and commitment from a representative group of residents engaged in drug use behavior—as opposed to soliciting community members who are conveniently available and who claim to have witnessed drug use behaviors—much information will be gained. This is unfortunately often not the case with so many “participatory” public health research studies that draw their

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