Neighborhood matters for fentanyl-involved overdose deaths

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Fentanyl overdoses cluster geographically more than non-fentanyl overdoses, according to a study just released by Columbia University Mailman School of Public Health. The findings suggest that fentanyl-involved overdoses are concentrated in resource deprived neighborhoods over and above what data show for opioid and polydrug overdoses. This is one of few studies to examine the local geographic distribution of drug overdoses and associated neighborhood-level risk factors. The results are published online in the *American Journal of Public Health*.

The researchers examined geographic trends in the distribution of fentanyl-involved overdose deaths in Cook County, Ill, the second most populous county in the U.S. Data were collected from 2014 to 2018 through the County Medical Examiner's office, which includes Chicago and the surrounding suburbs. The Medical Examiner's Office began routinely testing for fentanyl in June 2015.

"Much of the work to date has used large geographic units such as zip codes or counties on a national scale, noted Elizabeth Nesoff, Ph.D., postdoctoral fellow in the Department of Epidemiology and first author. "Our research using census block group-level data provides a window into the broader neighborhood context not fully explained by demographics."

The odds of a fentanyl-involved overdose were significantly increased for men, Blacks, Latinos, and younger individuals as well as resource deprived neighborhoods. For example, a larger proportion of non-

fentanyl overdoses were White, 53% vs. fentanyl: 43.0%), while a larger proportion of fentanyl overdoses were men (78% vs. non-fentanyl, 73%). These findings echo prior studies of risk for crack-cocaine use, which identified socioeconomic disadvantage as a fundamental cause of racial disparities in crack use.

According to Drug Enforcement Administration data, the number of seized drug samples testing positive for fentanyl more than doubled from 2015 to 2016, rising from 14,440 to 34,119; this increase continued into 2017. Potency of fentanyl—which is increasingly found in counterfeit medications—has also increased.

While some people who use drugs seek out fentanyl and fentanyl-adulterated drugs, there is evidence that many people who consume fentanyl may be unaware they are consuming fentanyl, the authors note. One theory is that fentanyl is significantly cheaper to produce than heroin.

"Our study provides a unique perspective on overdose locations, and shows that fentanyl does not follow the same geographic distribution as that of the general drug-using population," said Silvia Martins, MD, Ph.D., associate professor of epidemiology and director of PHIOS (Policies and Health Initiatives on Opioids and Other Substances) at Columbia Mailman School, and senior author. "This finding was supported by the fact that population density was not a significant factor." One area in particular showed notably elevated risk for fentanyl overdoses located in two specific neighborhoods of Chicago.

Earlier research by Department of Epidemiology Chair Charles Branas, Ph.D., Gelman Endowed Professor, and a study co-author, showed that neighborhood risk factors for drug use could be modified through targeted infrastructure improvements or other community development strategies, such as park-making or building renovation, but this research

has not been extended to overdose prevention. "For example, vacant lot remediation has been shown to significantly reduce gun violence and improve residents' mental health in cities; this presents a possible strategy for reducing drug use in resource deprived neighborhoods. We believe that further inquiry into specific aspects of neighborhood deprivation which can be used to create actionable policy and interventions for harm reduction and overdose prevention is warranted."

More information: Elizabeth D. Nesoff et al, The Geographic Distribution of Fentanyl-Involved Overdose Deaths in Cook County, Illinois, *American Journal of Public Health* (2019). DOI: 10.2105/AJPH.2019.305368

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