Appendix 8: Responding to Opioid Overdose Spates

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Background

The health consequences of opioid misuse are well-known and include the possibility of fatal and non-fatal overdose. Although overdoses are relatively rare, they will sometimes cluster together by time and location—often referred to as a “rash” or a “spate” of overdoses. A common response to these spates is to issue public health warnings to providers and the general public that inform them about the situation and offer guidance and resources (Kerr et al., 2013). This is done despite the fact that little is known about the causes of these spates and the effectiveness of the public health response (Miller, 2007). This brief report was developed to (1) familiarize public health officials and providers with the most current evidence available about clusters of overdoses, (2) provide guidance about how to interpret surveillance data related to opioid overdose events, and (3) offer recommendations for instances in which the local public health authority or others opts to issue a public health warning or alert in response to a spate of overdoses.

Relevant Literature on Opioid Overdose

Although Edward Brecher wrote about overdose spates in the early 1970s, the cause of these events has never been adequately explained. Heroin purity levels (so called “killer batches”) and the presence of adulterants have been implicated, but there has been substantive disagreement among researchers about the role of these factors in explaining overdose spates and isolated overdose events, in general (Miller, 2007).

In a recent editorial in Drug and Alcohol Review, Shane Darke summarizes decades of research related to myths about opioid overdose. Darke (2014) begins the article by stating, “Indeed, it is not stretching truth too far to opine that almost everything that we firmly believed to be the case regarding overdose was subsequently shown to be incorrect. As with many cherished beliefs, it was only in the harsh light of research that this was shown to be the case” (p. 109). Among the myths Darke addresses are (1) it is variation in the purity of illicit opioids that is the major cause of overdose; (2) it is the opioid that is important in overdose, not other drugs being used; and (3) impurities are the major cause of overdose. Regarding purity, Darke reviews a series of studies from the 1970s through the 1990s across multiple countries that consistently find little to no relationship between heroin potency and overdose fatalities. The most liberal estimates suggest that variations in purity may only account for one-quarter of the variance in overdose fatalities. Contrary to the second myth, studies have shown that polydrug toxicity is the major factor in opioid overdose. No fewer than ten prominent studies have found that “the overwhelming majority of opioid overdoses, both fatal and non-fatal, involve multiple central nervous system depressants, most notably alcohol and benzodiazepines” (Darke, 2014, p. 110).
What about adulterants? To date, there has not been any convincing evidence to suggest that adulterants play a substantial role in opioid overdose. Contaminants are rarely detected in blood toxicology screens and in examinations of used syringes, and they tend to be fairly innocuous when they are detected. As Darke notes, “In retrospect, this should not be surprising. At the most prosaic level, for a dealer, killing one’s customers is never good business” (p. 111).

The findings reported in peer-reviewed studies and those summarized by Darke and others do not indicate that that factors such as purity and adulterants do not play any role in overdose, but the causal role of these factors are often inappropriately over-hyped by the media, based on insufficient information (e.g., lack of toxicology results), and more influenced by anecdotal and circumstantial evidence versus hard facts. Miller (2007) recounts a story where three newspapers reported on a very pure batch of heroin circulating around a city that was causing a rash of overdose events. Subsequent interviews with local intravenous drug users (IDUs) revealed that there was no “killer batch” of heroin; those who were overdosing were all recently released from jail and were using the same heroin and the same dose as they were before they went to jail. This is an isolated story, but it illustrates how the media and others can jump to conclusions without having all of the facts.

**Relevant Literature on Overdose-Related Public Health Alerts**

As noted by Kerr and colleagues (2013), public health alerts and warnings are a popular initial response when a spate of overdoses is identified. To date, there have been four studies that have examined the effectiveness of this approach.

The first, reported in 1992 by Sorensen and colleagues, examined a spate of 50 non-fatal and 3 fatal overdoses that occurred over one weekend in 1989 in San Francisco. The purpose of this study was to examine whether and how drug users learned about these overdose events. One-hundred and fifteen patients in outpatient heroin detox, methadone maintenance, and a multimodality outpatient clinic were interviewed within two weeks of the overdose spate. Importantly, almost all of those interviewed (96%) were aware of the overdoses by the time of the interview. The most popular sources of information were television (54%), information from the street (46%), newspapers (40%), and friends (37%). The authors warn that their findings suggest that public health messages could have the unintended effect of increasing some drug users’ interest in acquiring dangerously potent heroin, but that mass media—especially TV—may serve as a vital source of information when OD events do occur in a short period of time. The authors recommend that public health planners collaborate with the media, and that emergency room administrators notify both the media and drug treatment programs when spates occur as part of standard procedure.

Freeman and French (1995) report on 12 fatal overdose deaths that occurred in a short period of time during 1991 in New Jersey that were attributed to fentanyl. The New Jersey Department of Health used community outreach workers to interview 160 IDUs across three municipalities to assess their awareness of the outbreak and their response. All but one of the interviewees had heard about the outbreak, but their sources varied widely—including television, radio, newspapers, other addicts, friends, relatives, and the police. The investigators also examined who IDUs trusted most for information about good and bad drugs. Friends and other addicts were the most trusted source of information among this sample of IDUs; no respondents regarded television, radio reports, or police as reliable sources. Interestingly, many IDUs in the study did
not regard the warnings as being personally relevant. As noted by the authors, “Because it is an article of faith among many addicts that drug effects can be controlled by altering dosage levels, reports of bad dope are often regarded as evidence of a potent substance that may be harmful only when insufficient care is taken in its administration” (p. 623). On average, 21% of those interviewed reported that they actively searched for the drug after hearing about the ODs (the highest percentage was 45% in one of the three cities). The authors conclude that collaboration between public health planners and the media might be effective in limiting adverse consequences from such incidents, but more research is needed to delineate the networks through which health messages reach drug users.

Miller (2007) examined heroin-user perceptions of television, radio, and print media reports of spates of heroin overdoses not tied to a specific event. Sixty heroin users were interviewed over a six week period in April/May 2000. Almost all of the interviewees had encountered public health warning messages about overdose spates, but none of those interviewed reported using less often or taking more precautions because of these messages. Overall, two themes emerged from the interviews: (1) users did not believe the messages and (2) a sizeable proportion of interviewees attempted to gain access to the drugs in question. Miller writes, “Messages concerning killer batches of heroin either go unheeded or can actually encourage risky behavior. It would appear that media reports of a killer batch have little value as a public health measure. Well-intentioned measures may have unintended consequences when they do not consider the lived reality of their target audience” (p. 119).

Kerr and colleagues (2013) attempted to assess heroin injectors’ perceptions of and responses to a warning issues by public health officials in Vancouver regarding high-potency heroin and increases in fatal overdoses. Eighteen IDUs were interviewed approximately two weeks after the warning was issued. Consistent with earlier studies, nearly all of the participants were aware of the warning but none reported changes in their overdose risk behaviors and many reported actively seeking out the high potency heroin. The authors noted that, “Warnings were obscured by ongoing social interactions within the drug scene that focused on heroin quality—discussions focused primarily on quality of heroin that was available and where it could be purchased rather than the elevated risk of OD it presented” (p. 1274).

These studies indicate that those most at risk during an overdose spate are aware of the spate either through public health warnings or other sources. None of the studies, however, found evidence to support the effectiveness of this approach in changing overdose risk factors among the drug using community. Users’ reported low levels of trust in information from these sources, and the warnings often resulted in unintended consequences—i.e., increase in drug-seeking behavior. Dietz (2013) suggests that information on overdose spates is important for public health officials, providers, users, and members of the general public to understand so that there can be a response and subsequent preventative action, but that such warnings should be carefully planned and executed as discussed at the end of this report.
Recommendations for Understanding and Interpreting Overdose Data

Given the severity of ODs, the urge to intervene immediately with a cluster of these events is understandable. As noted earlier, a danger in reacting quickly is that it is sometimes based on insufficient information (e.g., lack of toxicology results), and more influenced by anecdotal and circumstantial evidence than hard facts. In the face of a suspected overdose spate, the first step is to carefully assess the data and information available. Recommendations for doing this include the following:

1. It is important to assess current changes in light of several previous years of data. This will reveal whether current overdoses represent a substantive increase over previous years, or reflects year-to-year volatility in OD data.

2. Community-level data should be examined in the context of data for all of the state. If OD rates are rising in your community this may reflect changes in the state as a whole. That would not mean that the rise in ODs isn’t a problem for your community, but it suggests that its cause and strategies for addressing it are more general than community specific.

3. When possible, examine changes in OD (over several years) by gender, age, race/ethnicity, and their geographic distribution in your community. It may be that changes in the OD rate are due to changes in a sub-population of opiate users, rather than the whole population of users. Knowing this may lead you to consider different strategies to address the change. For example, learning that ODs are clustered in a small geographic area, may help direct scare resources (e.g., community health outreach workers) to address the problem.

4. When possible, examine data on the types of substances involved in ODs. It may be, for example, that an increase in ODs is due to an increase in the purity of heroin, or its adulteration with Fentanyl or another substance—in combination with other factors. Knowing this may lead you to different prevention strategies than you might adopt without the information, such as an information campaign to inform users that heroin has become more dangerous.

5. Since the number of ODs in most communities is small, presenting data about the change in overdoses using percentages may be misleading with fewer than 50 cases (at 50, each case would represent 2% of the total cases).

6. Track both fatal and non-fatal ODs, with an eye to changes in the ratio between the two. The number of ODs may increase due to factors not readily controlled by communities, such as increases in the availability of heroin or changes in its potency. If ODs increase but the ratio of non-fatal to fatal overdoses rises, this may reflect success in implementing prevention strategies, such as improved access to first responders.

7. It may be helpful to obtain assistance from an epidemiologist, evaluator, or other researcher familiar with OD data. To identify them, consult with Colleges/universities, the Massachusetts Department of Public Health, and/or local hospitals and departments of public health.
Recommendations on Issuing Public Health Alerts

Despite the lack of evidence to support their effectiveness in modifying risk behavior among active users and the potential for unintended consequences, public health alerts and warnings may have utility for other purposes (e.g., informing providers, bystanders, and other members of the general public). As described by Dietz (2013), these messages often contain the following type of information:

- Limited information on the increase in fatal and non-fatal overdoses
- Basic advice to drug users and the broader public about overdose avoidance
- Proactive steps that users can take to minimize the risk of overdose (do not use alone, know your source, titrate your dose)
- Reactive steps that bystanders can take during an overdose event (call 911; administer naloxone)
- Resources and contact information for public health, treatment, and support systems.

When preparing a public health warning, communities may wish to consider the following:

1. Is there sufficient statistical evidence to conclude that an overdose spate is actually occurring (versus a random fluctuation in ODs as mentioned above)?
2. Is there good evidence about the specific factors that may be contributing to the spate in overdoses?
3. Is an official public health response warranted—weighing the risks and benefits of initiating such a response?
4. Is there an understanding of the networks and sources through which health messages reach drug users and how such messages are interpreted?
5. Have members of the drug using community been consulted to ensure that messaging is appropriate and that planners have as much information as possible about the factors that may be contributing to the suspected spate? Do such messages consider the lived-reality of their target audience (i.e., do they take into account the context in which use occurs)?
6. Collaboration between public health planners, media, emergency room administrators, community providers, treatment providers, and law enforcement may help limit adverse or unintended consequences such as increases in drug-seeking behavior.
7. Does the message unintentionally serve as a heroin or other opioid market advertisement? Does it provide too much information or information that might facilitate the acquisition of bad batches?
8. Dietz (2013) suggests that it may be wise to simply report on deaths, the need for ongoing investigation, and effective responses to overdose to inform the public of this urgent public health issue—without mentioning potency or other factors that may be contributing to the spate. While this approach may or may not lead to changes in key target behaviors it may at least avoid the unintended consequences.
9. Contact the state Department of Public Health to determine whether state epidemiologists have also identified the issue, to seek guidance on how to address the issue, and to assist in the development of appropriate messaging and language if such an approach is warranted.

MassTAPP hosted a webinar with Scott Formica that can be viewed here: http://masstapp.edc.org/virtual-meeting-responding-cluster-overdoses-your-community

References and Recommended Readings


