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Using Local Toxicology Data for Drug Overdose Mortality Surveillance

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Objective

To describe the potential impact of using toxicology data to support drug overdose mortality surveillance.

Introduction

Although Marin County ranks as the healthiest county in California, it ranks poorly in substance abuse indicators, including drug overdose mortality.[1] Death certificates do not always include specific detail on the substances involved in a drug overdose.[2] This lack of specificity makes it difficult to identify public health issues related to specific prescription drugs in our community. We analyzed 2013 drug overdose death toxicology reports to determine if they could improve the description of drug overdose deaths in our community and to describe associated data characteristics.

Methods

Toxicology reports were requested from the Office of the Sheriff-Coroner for 37 drug overdose deaths among Marin County residents, comprising 95% of the 39 total drug overdose deaths in 2013. The remaining two deaths were excluded as they were associated with inhalation of therapeutic gases. Select information from toxicology reports was entered into a database for aggregate analyses. Drug overdose deaths were considered "fully detailed" if they included the specific types of drugs involved in the death and did not use any broad language to describe the death (i.e. narcotic, multiple drugs). Student's T-tests (α=0.05) were used to identify significant differences between groups of interest.

Results

Of the 37 drug poisoning deaths analyzed, 34 (92%) had available toxicology information. The remaining three (8%) deaths occurred outside of Marin County and were thus investigated by another jurisdiction. A basic toxicology panel was ordered on 17 (50%) of the 34 drug overdose deaths, while an expanded toxicology panel was ordered on the remaining 17 (50%). Alcohol was identified in the toxicology screen of 15 (44%); Amphetamines were identified in 8 (24%); and opiates were identified in 25 (74%) drug overdose deaths. Among the 25 deaths with at least one opiate identified on the toxicology screen, the majority (52%, n=13) also had alcohol present. The majority of drug overdose deaths, 18 (53%), did not have full information about the type of drug involved. The average number of drugs identified on the toxicology screen of all 34 drug overdose deaths was 6 (SD: 3). The average number of drugs identified in the toxicology screen significantly differed (p=0.0001) between causes of death that were fully detailed (Mean: 4; 95% CI: 3-5) and those that were not fully detailed (Mean: 8; 95% CI: 7-10).

Conclusions

Data from the Sheriff-Coroner's office provided detail on the types of drugs involved in overdose deaths; however, it is difficult for local public health practitioners to make decisions about causality or contributions of these drugs to the death. These data may be useful in understanding the difference between fully detailed and non-detailed drug overdose deaths, and a broader context of drug combinations associated with these deaths. Less drugs were identified in the toxicology screen of deaths that were fully detailed, suggesting that overdose deaths that are not fully detailed may be exceedingly complex, making it difficult for medical examiners and coroners to assess causality. Approximately three-quarters of 2013 drug overdose deaths contained opiates on the toxicology screen, indicating that opiates may be a significant contributor to overdose deaths in our community. Our results are descriptive in nature; therefore, even though alcohol or opiates were identified on the toxicology screen, they may not be responsible for the overdose death. Given that over half of our 2013 overdose deaths were not fully detailed with drug type, local jurisdictions should work closely with their corner and/or medical examiner to fully detail death certificates with drugs involved in overdose deaths.

Keywords

drug overdose surveillance; toxicology; prescription drug

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