

## Keeping the Fentanyl Narrative Accurate

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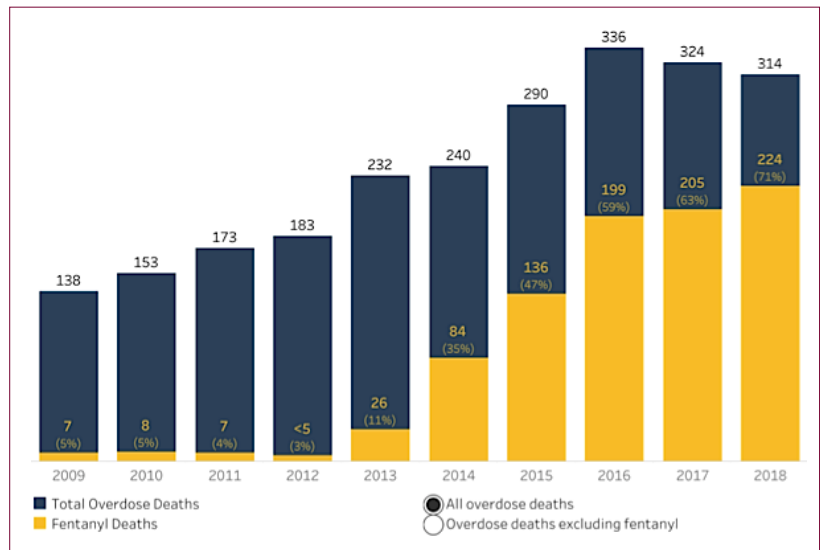
Extensive media coverage of the United States (US) opioid epidemic has increased attention on substance use and its inherent risks. Important conversations and resources have been brought to bear on this issue. While this focus has advantages, there are aspects that are ripe for controversy and misunderstanding. One area of factual ambiguity are reports that first responders (e.g. emergency medicine service providers and police) are being occupationally exposed to white powder – presumed to be fentanyl – and having life threatening “opioid overdoses.”

Fentanyl is a fully synthetic opioid 50–100 times stronger than morphine. This highly potent opioid analgesic was developed for the medical treatment of severe pain. The majority of illicit fentanyl is manufactured in Mexico with precursor chemicals from China and trafficked north into the US and Canada.<sup>1</sup> Experts refer to the intentional fentanyl adulteration of the heroin supply and resulting increased mortality as the opioid epidemic’s “third wave,” with the first wave being increased prescription opioid misuse followed by transition to illicit heroin use as the second wave.

Fentanyl, and even more potent analogs, have become synonymous with “heroin” in Rhode Island (RI) and are making up an increasingly greater proportion of overdose deaths. While overdose deaths in RI have begun a modest decline (peak at 336 in 2016, down to 314 in 2018),<sup>2</sup> the proportion of OD deaths determined to be caused by fentanyl continues to increase. Fentanyl caused 4 deaths (3% of OD deaths) in 2012, which increased to 224 deaths (71%) in 2018.<sup>2</sup>

Because of the high potency and potential lethality of illicit fentanyl in uncontrolled dosage, there has been, understandably, an increase in exposure concerns among health care providers involved in their care. From Vermont to Michigan there have been news stories of “opioid overdoses” from occupational exposure to powder thought to be fentanyl.<sup>3,4</sup> These reports describe variable symptoms ranging from “anxiety” to “unresponsiveness” that occurred seconds to hours after exposure. Symptoms have been reported after nominal exposures (brushing off a small amount of white powder from a sleeve) and sometimes without any

Figure 1. Annual overdose deaths in RI, including proportion due to fentanyl.<sup>2</sup>



clear physical contact. Additionally, what makes these news items less clear has been the variable responses to naloxone with many exposures not responding to the antidote at all. One case described an officer who reported a resolution of his symptoms (“feeling sick”) following self-administration of naloxone.<sup>5</sup> To date, none of these reports has included conformational body fluid testing from the victim which would confirm a true fentanyl exposure.

While these news stories are intended to inform the public of potential risks, they may be based on inaccurate information. A lay person reading these media reports might not recognize that the diverse symptomatology, incongruous time course, and variable responses to naloxone are not consistent with opioid overdoses and become unduly concerned. The risk of significant incidental exposure is extremely low, as fentanyl is not easily absorbed through intact skin. The American College of Medical Toxicology (ACMT) and American Academy of Clinical Toxicology (AACT) released a position statement in late 2017 that stated “the risk of clinically significant exposure to emergency responders is extremely low. To date, there have not been reports of emergency responders developing signs or symptoms consistent with opioid toxicity from incidental contact with opioids. Incidental dermal absorption is unlikely to cause opioid

toxicity. For routine handling of most drugs, nitrile gloves provide sufficient dermal protection.<sup>6</sup> They further reported: “if bilateral palmar surfaces were covered with fentanyl patches, it would take approximately 14 min to receive 100 mcg of fentanyl [using a body surface area of 17,000 cm<sup>2</sup>, palm surface area of 0.5%, and fentanyl absorption of 2.5 mcg/cm<sup>2</sup>/h]. This extreme example illustrates that even a high dose of fentanyl prepared for transdermal administration cannot rapidly deliver a high dose...Therefore, based on our current understanding of the absorption of fentanyl and its analogs, it is very unlikely that small, unintentional skin exposures to tablets or powder would cause significant opioid toxicity, and if toxicity were to occur it would not develop rapidly, allowing time for removal.”<sup>6</sup>

In regards to breathing in aerosolized fentanyl, the ACMT and AACT report states, “at the highest airborne concentration encountered by [industrial fentanyl producers], an unprotected individual would require nearly 200 min of exposure to reach a dose of 100 mcg of fentanyl.”<sup>6</sup> The Office of National Drug Control Policy and the Centers for Disease Control and Prevention have similar positions regarding skin exposure and aerosolization.<sup>7,8</sup>

The ACMT and AACT position statements, coupled with the inconsistent constellation of symptoms of reported exposures, suggest that people are likely not becoming intoxicated by fentanyl with incidental exposure – but are undergoing the “nocebo effect.”<sup>9</sup> This is where negative expectations result in physical and psychological effects; this is in contrast to the positive expectations associate with the placebo effect. Thus, people think they are experiencing deleterious symptoms they understand to be associated with exposure to a substance they believe to be fentanyl. With national and international information sources reporting these cases as overdoses, it may serve to further entrench the public’s misunderstanding and fuel nocebo effects. A careful read of many described cases have symptoms more consistent with panic attack after presumed exposure than opioid overdose.

The potential consequences of inaccurate information are numerous. Regardless of the etiology, first responders have become incapacitated and unable to optimally perform their life-saving duties. Additionally, healthcare professionals and the general population are less likely to render aid if they believe it will put them at risk. This is a particular concern because of the need to administer naloxone to an opioid overdose victim in a timely manner to save their life.

While the ACMT and AACT statements explicitly describe the extremely low risk of OD with incidental fentanyl exposure, distributed information often contains inconsistent and mixed messages that have been repeated in conferences and training videos.<sup>8</sup> Establishing clear case definitions, including clinical examination and confirmatory laboratory

results, would be crucial to disseminating accurate and evidence-based information. The American Medical Association stated they will “work with appropriate stakeholders to develop and disseminate educational materials aimed at dispelling the fear of bystander overdose via inhalation or dermal contact with fentanyl or other synthetic derivatives.”<sup>10</sup> Making certain the information being disseminated is accurate will help avoid potentially dangerous false narratives – within the lay public, first responders, and the community of people at risk for opioid overdose. ❖

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