FENTANYL SAFETY: A GUIDE FOR SAN FRANCISCO'S FIRST RESPONDERS

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FENTANYL SAFETY FOR FIRST RESPONDERS

Nationally, concern over transdermal and airborne exposure to Illicitly Manufactured Fentanyls (IMF) for first responders has resulted in the development of special safety protocols for working with scenes where IMF is present or persons who have ingested IMF.

Opioid toxicity (i.e. "overdose" or respiratory depression) from transdermal and airborne exposure to IMF is a near scientific impossibility. The incidents where responders were treated for exposure have largely been attributed to extreme precautionary measures, or responders experiencing what appear to be symptoms of anxiety such as dizziness, rapid heartbeat, sweating and nervousness (which are not symptoms of fentanyl exposure). There have even been cases where naloxone was administered to first responders who were not exhibiting the signs of opioid toxicity, and when they then felt better, it was attributed to the naloxone, a misinterpretation of the event. To date, none of the reports of first responders experiencing effects of transdermal exposure to fentanyl or airborne IMF have been verified or confirmed by positive toxicology.

People who use drugs and those who provide direct services to them come into contact with fentanyl constantly—handling it, testing it, reversing overdoses from fentanyl, and having contact with persons who have used it—without incident. Fentanyl has been used by the medical system for treatment of pain and anesthesia since 1968. There are some formulations of fentanyl that are specifically designed for transdermal absorption (patches) and there is technology involved in changing the drug to be absorbed this way, and even handling transdermal patches does not cause overdose. The IMF fentanyl in the drug supply is not the same as the transdermal patch formulation. IMF must have direct contact with mucous membranes or the bloodstream via snorting, smoking or injection. IMF is handled with bare skin throughout much of its travels to the end user, and by the end users themselves, causing no adverse reaction until the drug is ingested via the above-mentioned routes.

Below we will review the existing data and make recommendations for universal precautions and scene safety for all first responders working with people who may have used IMF.

The position of the American College of Medical Toxicology (ACMT) and American Academy of Clinical Toxicology (AACT), is as follows:[1]

Fentanyl and its analogs are potent opioid receptor agonists, but the risk of clinically significant exposure to emergency responders is extremely low. To date, we have not seen 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 drug, nitrile gloves provide sufficient dermal protection. In exceptional circumstances where there are drug particles or droplets suspended in the air, an N95 respirator provides sufficient protection. Workers who may encounter fentanyl or fentanyl analogs should be trained to recognize the signs and symptoms of opioid intoxication, have naloxone readily available, and be trained to administer naloxone and provide active medical assistance. In the unlikely event of poisoning, naloxone should be administered to those with objective signs of hypoventilation or a depressed level of consciousness, and not for vague concerns such as dizziness or anxiety. In the absence

[1] ACMT and AACT Position Statement: Preventing Occupational Fentanyl and Fentanyl Analog Exposure to Emergency Responders https://www.acmt.net/_Library/Fentanyl_Position/Fentanyl_PPE_Emergency_Responders_.pdf

of prolonged hypoxia, no persistent effects are expected following fentanyl or fentanyl analog exposures. Those with small subclinical exposures and those who awaken normally following naloxone administration will not experience long-term effects. While individual practitioners may differ, these are the positions of American College of Medical Toxicology and American Academy of Clinical Toxicology at the time written, after a review of the issue and scientific literature.

WHAT YOU NEED TO KNOW[2]

- Fentanyl can be present in a variety of forms (e.g., powders, tablets, capsules, solutions, and rocks) and can be present in multiple different types of drugs (black tar heroin, methamphetamine, rock or powder cocaine, etc.).
- Incidental skin contact may occur during daily activities but is not expected to lead to harmful effects. Use universal precautions, including making sure contaminated skin is promptly washed off with water.
- Personal Protective Equipment (PPE) (i.e. nitrile gloves) is effective in protecting you from skin exposure.
- Significant quantities of airborne fentanyl particulates pose a slightly greater risk of exposure, so follow your department guidelines if the scene involves large amounts of suspected fentanyl (e.g., distribution/storage facility, pill milling operation, clandestine lab, gross contamination, spill or release).
- Do not ingest any suspected fentanyl that you encounter at a scene via mucous membranes or the bloodstream directly (i.e. inhaling/snorting, smoking or injecting).
- Do not touch your eyes, mouth, nose or any skin after touching any potentially contaminated surface.
- Wash skin thoroughly with cool water, and soap if available.
- Wash your hands thoroughly after the incident and before eating, drinking, smoking, or using the restroom.

Signs of fentanyl-related opioid toxicity (i.e. “overdose”) and proper response protocol:

- Slow breathing or no breathing, drowsiness or unresponsiveness, and constricted or pinpoint pupils are the specific signs consistent with fentanyl intoxication.
- Naloxone is an effective medication that rapidly reverses the effects of fentanyl.
- If someone is exhibiting the above symptoms, administer naloxone according to your department protocols.
- If naloxone is not available, rescue breathing can be a lifesaving measure until EMS arrives. Use standard basic life support safety precautions (e.g., pocket mask, gloves) to address the exposure risk.
- If needed, initiate CPR until EMS arrives.
- Other symptoms such as dizziness, tachychardia (rapid heartbeat), rapid breathing, sweating and anxious feelings are not symptoms of opioid toxicity and the affected responder may be experiencing a response to the fear of exposure. If a responder experiences these symptoms they should also be evaluated by EMS or a mental health professional.

[2] Adapted from the White House Fentanyl Safety Recommendations for First Responders: https://www.whitehouse.gov/sites/whitehouse.gov/files/images/Final%20STANDARD%20size%20of%20Fentanyl%20Safety%20Recommendations%20for%20First%20Respond....pdf

BACKGROUND: OVERDOSE & FENTANYL IN SAN FRANCISCO

California has one of the lowest rates of overdose deaths in the nation, with the number of opioid-related overdose deaths hovering around 2,000 over the last few years. However, the California Department of Public Health (CDPH) reports 234 fentanyl-related deaths in 2016 and 373 in 2017, marking a 59% increase over a one year period.[3] While California is not experiencing the dramatic increases in overdose deaths compared with the Eastern part of the U.S., harm reduction programs and public health departments in various parts of the state continue to be proactive in addressing overdose risk by implementing evidence-based interventions like naloxone distribution and access to medication-assisted treatment (MAT).

San Francisco experiences approximately 100 opioid-related deaths per year (see Table 1). San Francisco has been experiencing an influx of IMF products into the drug supply since early 2015. While the presence of IMF in the San Francisco drug supply remains limited and inconsistent (as opposed to other regions of the country)[4] we experienced a doubling of overdose deaths related to fentanyl in a one-year period; 22 deaths in 2016 compared with 11 deaths in 2015.

TABLE 1: OPIOID OVERDOSE DEATHS, SAN FRANCISCO CA 2016 (N=104)[5]

	All Opioid Overdose Deaths			**Heroin-Involved Deaths†**			**Fentanyl-Involved Deaths†**			**Non-Heroin/Non-Fentanyl-Involved Deaths**	
	n	**(%)**		**n**	**(%)**		**n**	**(%)**		**n**	**(%)**
Total	104			35			22			47	
Gender*											
Male	71	(68)		27	(77)		19	(86)		25	(53)
Female	33	(32)		8	(23)		3	(14)		22	(47)
Age, *mean (SD)**	14.8	(14.3)		40.7	(11.7)		41.3	(14.1)		51.8	(14.1)
Race/Ethnicity											
White	69	(66)		25	(71)		13	(59)		31	(66)
Black/African-American	21	(20)		5	(14)		6	(27)		10	(21)

[3] https://discovery.cdph.ca.gov/CDIC/ODdash/
[4] https://www.cdc.gov/drugoverdose/data/fentanyl-le-reports.html
[5] Data provided by OCME to SFDPH's Substance Use Research Unit (SURU) and analyzed by Chris Rowe and Dr. Phillip Coffin.

Other	14	(13)		5	(14)		3	(14)		6	(13)
Other causal substances											
Alcohol	26	(25)		11	(31)		3	(14)		12	(26)
Methamphetamine	30	(29)		10	(29)		10	(45)		10	(21)
Cocaine	38	(37)		15	(43)		6	(27)		17	(36)
Location of Death											
Hospital/Medical Center	10	(10)		3	(9)		2	(9)		5	(11)
Private Residence/Hotel/Motel	70	(67)		21	(60)		13	(59)		36	(77)
Public Space	24	(23)		11	(31)		7	(32)		6	(13)
*p<0.05 using Fisher's exact test or Kruskal-Wallis analysis of variance test											
†Fentanyl-involved deaths include any death that causally involved fentanyl; heroin-involved deaths include any death that causally involved heroin but did not causally involve fentanyl.											

San Francisco has a well-coordinated monitoring and response system in place to ensure up-to-date information and access to naloxone is widespread. The Department of Public Health (SFDPH), the Office of the Chief Medical Examiner (OCME) and the Drug Overdose Prevention and Education (DOPE) Project, San Francisco's overdose prevention and naloxone distribution program operated by the Harm Reduction Coalition, work in tandem to prevent fatal overdose. OCME provides data to SFDPH and DOPE immediately when there are clusters of overdoses that appear to be fentanyl-related. SFDPH and DOPE then issue communications to harm reduction programs and other city departments and programs who provide services and care to PWUD.

According to data obtained from OCME and analyzed by SFDPH's Substance Use Research Unit (SURU), we have some basic information about San Franciscans who have died from fentanyl-related overdose (see Table 2). Upon close review of the fentanyl-related deaths in San Francisco in 2016, we see that 14 of the 22 deaths had no evidence of injection, that 64% were discovered in a private residence or single room occupancy (SRO) hotel, and that 10 of the deaths also revealed the presence of methamphetamine, and 6 revealed the presence of cocaine. While this data does not tell us the whole story—for example, we do not know if the six individuals used fentanyl and cocaine separately and intentionally, or whether the cocaine contained fentanyl without their knowledge—it gives us a general picture of who is being affected by fentanyl-involved deaths in San Francisco.

This data shows us that, in addition to focusing on people experiencing homelessness and people who inject drugs, it is important to engage with individuals who are living in SROs and other congregate housing, and with

individuals that are non-injectors, i.e. smoking or snorting fentanyl. Providing people who use multiple substances with information about fentanyl and overdose risk has always been a focus for SFDPH-funded programs like the DOPE Project and is crucial based on a review of this data.

TABLE 2: FENTANYL-INVOLVED DEATHS, SAN FRANCISCO CA, 2016 (N=22) *

	All Fentanyl-Involved Deaths			**Fentanyl-Involved Deaths with Evidence of Injection**			**Fentanyl-Involved Deaths with No Evidence of Injection**	
	n	**(%)**		**n**	**(%)**		**n**	**(%)**
Total	22			8			14	
Age, *mean (SD)*	41.3	(14.1)		46.5	(15.1)		38.4	(13.1)
Race/Ethnicity								
White	13	(59)		3	(38)		10	(71)
Other	9	(41)		5	(63)		4	(29)
Other causal substances								
Any other opioid	9	(41)		5	(63)		4	(29)
Heroin	7	(32)		4	(50)		3	(21)
Methadone	1	(5)		1	(13)		0	(0)
Oxycodone	1	(5)		0	(0)		1	(7)
Methamphetamine	10	(45)		5	(63)		5	(36)
Cocaine	6	(27)		3	(38)		3	(21)
Alcohol	3	(14)		1	(13)		2	(14)
Location Found								
Private Residence or SRO	14	(64)		4	(50)		10	(71)
Public Space	8	(36)		4	(50)		4	(29)
Who Found Victim								
Cohabitant	3	(14)		0	(0)		3	(21)
Non-cohabitant layperson	5	(23)		1	(13)		4	(29)
Residence staff/social worker/bldg manager	3	(14)		2	(25)		1	(7)
Passerby	6	(27)		2	(25)		4	(29)
Unknown	5	(23)		3	(38)		2	(14)

*There were no statistically significant differences between groups using Fisher's exact of Kruskal-Wallis tests.

SAN FRANCISCO'S RESPONSE TO FENTANYL AND FENTANYL-INVOLVED OVERDOSE

The SFDPH-funded Drug Overdose Prevention and Education (DOPE) Project has been managing the multi-sectoral, coordinated response to the gradually increasing presence of fentanyl in San Francisco since 2015[6]. The DOPE Project distributes materials through all collaborative partner programs has developed targeted messaging around fentanyl. Collaborative partner programs include; San Francisco AIDS Foundation Syringe Access Services, Glide Harm Reduction Services, Homeless Youth Alliance, SF Drug Users Union, St. James Infirmary, San Francisco County Jail Health Services, San Francisco Community Health Center, SF HOT, UCSF's UFO/VIP/Hero Studies, Mission Neighborhood Resource Center, Martin De Porres, Shanti HIV Services, At the Crossroads and SFDPH Community Health Response Team and Substance Use Research Unit.

In 2017, the DOPE Project distributed nearly 20,000 doses of naloxone primarily to people who use drugs and service providers in San Francisco and documented 1,266 overdose reversals.

FIGURE 2: DOPE PROJECT INTERVENTIONS: NALOXONE, FENTANYL TEST STRIPS AND FENTANYL COMIC

Fentanyl Test Strips

Part of the DOPE Project's coordinated response has been to introduce point-of-use fentanyl drug testing for people who use drugs to identify whether fentanyl or a fentanyl analog is present in their drug supply. In early 2017, the DOPE Project partnered with the Syringe Access Collaborative (SAC) to pilot the distribution of fentanyl test strips. The SAC includes the San Francisco AIDS Foundation's Syringe Access Services, Glide Harm Reduction Services, St. James Infirmary, SF Drug Users Union and the Homeless Youth Alliance—all of which are DOPE Project naloxone distribution sites in addition to syringe access service providers. In August 2017, the strips became available to syringe access programs through the California Supply Clearinghouse, supported by the California Department of Public Health.

All five syringe access programs in San Francisco who are participating in this initiative (coordinated by DOPE and financially supported by the California Department of Public Health) are distributing the test strips to

[6] Rowe C, Wheeler E, Stephen Jones T, Yeh C, Coffin PO. Community-Based Response to Fentanyl Overdose Outbreak, San Francisco, 2015. Journal of urban health: bulletin of the New York Academy of Medicine. 2018;

people who use drugs and completing surveys that they return to the DOPE Project monthly. The DOPE Project analyzes the results of the surveys, and issues quarterly reports to all SAC programs.

SAC programs are reporting that a significant proportion of their drugs are testing positive for fentanyl, including white powders, black tar heroin, methamphetamine, crack and powder cocaine and some pills. Participants tend to report positive test results to SAC programs more frequently than negative results, so it is difficult to determine accurately what percentage of the San Francisco drug supply contains fentanyl from these surveys alone.

In response to the presence of fentanyl in the San Francisco drug supply, the DOPE Project's messaging has focused on *Universal Precautions,* and encouraging an overall change in the way that people are approaching using drugs in a market where fentanyl is inconsistently present. We have found that if we focus too heavily on intermittent alerts when there is a cluster of overdoses, people start to believe that during the "in between" times, there is less fentanyl. We want people to begin to cultivate an awareness about the constant possibility of fentanyl in their drugs, and to change the way they approach drug-taking in the era of fentanyl. We work with our collaborative partners in San Francisco to help PWUD develop strategies for identifying, anticipating and using fentanyl in the face of a drug supply that is inconsistent and constantly changing.

Harm reduction strategies developed by PWUD and disseminated by DOPE partners include:

- adjusting dosage,
- staggering use when in groups so someone is alert enough to react if there is an overdose,
- switching mode of administration (i.e. from injecting to smoking),
- learning how to anticipate and recognize fentanyl based on sensation, taste and appearance, and
- making sure that at least one person in any group has naloxone and understands that they need to use it immediately if people go into rapid respiratory depression.

STIMULANTS AND OTHER DRUGS CONTAINING FENTANYL

As San Francisco's experience with fentanyl has evolved over the last three years, we have seen changes in how it is sold and made available to PWUD in the drug supply. When fentanyl first arrived in San Francisco in 2015, it was sold as a white powder that PWUD referred to as "china white," or pressed into counterfeit Xanax and Norco pills. We continue to see intermittent waves of fentanyl sold in counterfeit pill form and showing up in stimulants and other drugs like methamphetamine, cocaine and ketamine. Since 2017, fentanyl has been available in powder and solid form, sold as fentanyl to individuals intentionally purchasing it (Figure 3).

FIGURE 3: PHOTOS OF POWDER AND SOLID FORM FENTANYL SOLD IN SAN FRANCISCO AS FENTANYL, OBTAINED BY DOPE PROJECT, 2017

Recent Fentanyl & Overdose Clusters in San Francisco

Since 2015 San Francisco has experienced several clusters of overdose related to fentanyl and an uptick in fentanyl contamination. The emergence of fentanyl in non-opioid drug supplies (cocaine, methamphetamine) and the intermittent presence of counterfeit pills that contain fentanyl has generated concern and questions about how to promote overdose prevention among non-opioid users, non-injectors and others who may not be accessing harm reduction services in San Francisco.

As discussed above, the first wave of fentanyl came to San Francisco in early spring of 2015 in the form of white powder sold as "china white," and later in the fall of that year, pressed into counterfeit Xanax. San Francisco's community response was swift and effective, driven largely by the DOPE Project and partner agencies serving PWUD.[7] It was apparent however, that harm reduction programs had an easier time reaching PWUD who were purchasing and using the "china white", who were largely injecting and accessing harm reduction services. When the counterfeit pills emerged in the fall, harm reduction programs expressed challenges reaching the pill-using population with information.

In April 2017, San Francisco experienced a wave of 9 non-fatal overdoses and one fatal overdose from crack cocaine contaminated with fentanyl. Toxicology on the one decedent from OCME and results of samples tested by the toxicology lab at Zuckerberg San Francisco General Hospital (ZSFGH) confirmed that the crack cocaine was contaminated by fentanyl. Upon receipt of toxicological confirmation, the DOPE Project and SDPH launched a coordinated response to the overdoses and there were no further incidents after the initial several days. The response included targeted outreach by DOPE partners with naloxone to people using crack and SFDPH alerts to all SUD treatment and public health programs. It is believed by DOPE Project and our partners that this was an accidental contamination, and that once the supplier and using community realized that it was causing overdoses, the situation was corrected.

In late 2017, the fentanyl test strip pilot began showing a high percentage of stimulants testing positive for fentanyl. Surveys collected from SAC partners between August and December 2017 showed 78 percent of the speed/crystal meth samples tested came back positive, as did 67 percent of the crack cocaine samples. However, aside from the contaminated crack in April, we have not seen significant numbers of deaths among non-opioid using methamphetamine and cocaine users. This indicates that those drugs were not necessarily cut with a substantial amount of fentanyl, but possibly contaminated, or containing small amounts of the drug that are posing minimal or insignificant risk to people using them.

In February 2018, there was a tragic incident in the Haight Ashbury district of San Francisco where three non-opioid using young people overdosed simultaneously overnight and were found deceased in a doorway in the morning. Samples of drugs and paraphernalia found at the scene were tested immediately by OCME, and data from these samples and from the decedents revealed methamphetamine, ketamine, fentanyl and acetyl fentanyl. From discussions with their peers in the Haight, it was determined that the three individuals ingested the drug thinking it was ketamine, and it caused the fatal overdoses.

The DOPE Project and our community partners responded immediately, along with alerts issued by SFDPH and media coverage. The information disseminated about the three overdoses raised awareness about the

[7] Rowe, C. Ibid.

possibility of contaminated stimulants city-wide, and throughout California. Despite the earlier outbreak of crack cocaine containing fentanyl in April 2017, this incident caused significantly more alarm and there was more media coverage. As a result, large numbers of PWUD who had not been accessing harm reduction services in San Francisco had more widespread awareness of the possibility of fentanyl in other drugs other than opioids.

In April 2018, DOPE was alerted by our partners at the ZSFGH toxicology lab that we were possibly receiving false positives with the fentanyl test strips when testing MDMA and methamphetamine. In collaboration with the lab, we developed a new testing procedure with the strips to include the proper dilution of drug residue to avoid false positives and communicated with all SAC partners distributing test strips. This indicates that while there are certainly drugs contaminated with fentanyl (evidenced by the fentanyl/crack overdoses and the three Haight methamphetamine/ketamine/fentanyl overdoses), the amount of methamphetamine that was contaminated with fentanyl was likely highly overestimated.

CURRENT EFFORTS TO ADDRESS STIMULANTS AND OTHER DRUGS CONTAMINATED WITH FENTANYL

In addition to the efforts described above including monitoring data, disseminating education materials, naloxone and fentanyl test strips, the DOPE Project and partner programs have also been conducting focused outreach to non-opioid users to increase awareness about fentanyl and naloxone. SFDPH has issued several alerts to Substance Use Disorder (SUD) programs and SFDPH safety net clinics in San Francisco to encourage them to include information about naloxone and overdose with anyone engaging in SUD programming. BAART Market and Turk, Fort Help, Bayview Hunter's Point Foundation, the Latino Commission, and Health Right 360's medical detox began distributing naloxone to opioid agonist and SUD treatment patients in spring 2018. The CBHS Pharmacy at 1380 Howard has been providing naloxone directly without prescription to individuals who are not accessing Syringe Access Services and other DOPE sites.

DOPE Project has been working with the Entertainment Commission to reach clubs, bars and entertainment venues in San Francisco with information about naloxone and possible fentanyl contamination of stimulants and other drugs and are equipping these businesses with a supply of naloxone for emergency use. To date, DOPE has conducted 18 separate trainings, reaching over 100 bartenders and entertainment services workers in San Francisco who can now respond to an overdose if one should occur in their establishment.

CONTACT INFORMATION AND ADDITIONAL RESOURCES

If you would like more information on IMF, overdose response and prevention or training resources, please contact Eliza Wheeler, Overdose Response Strategist at the Harm Reduction Coalition, wheeler@harmreduction.org or Kristen Marshall, DOPE Project Manager at marshall@harmreduction.org