### **WORKING PAPER 19-01**



# PREPARING FIRST RESPONDERS FOR OCCUPATIONAL FENTANYL EXPOSURE: INITIAL EVIDENCE

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#### **About Christian Regenhard**

Christian Michael Otto Regenhard was born on August 25, 1973. He was raised in Co-op City, Bronx, New York. After graduating from the Bronx High School of Science, he served five years in the United States Marine Corps, leaving as a decorated Recon Sergeant. He traveled extensively, often to remote areas of Central and South America, to pursue his love of rock climbing and diverse cultures. After studying language, art and writing at San Francisco State University, he was hired by the Fire Department of New York (FDNY), graduating from probationary school in July 2001. He was assigned to Ladder 131 when he was killed in the collapse of the World Trade Center on September 11, 2001 at age 28.

#### About the Center

The Christian Regenhard Center for Emergency Response Studies (RaCERS) is an applied research center focused on development of a mix of grounded theory and traditional empirical analysis in the areas of emergency response, coordination of first responders, and dynamics of large-scale incident management and response. The Center is unique in its devotion to first responder-defined and actionable research on policy aspects of emergency response and homeland security from a perspective inclusive of police, fire, and emergency medical services. *Tax deductible donations can be made care of the John Jay College Foundation, 524 West 59 Street, New York, NY 10019.* 

#### **About the College**

Since its founding in 1964, John Jay College of Criminal Justice has been a leader in the field of public safety, with a diverse variety of academic programs and research capabilities devoted to the study of emergencies and law enforcement organizations such as the fire service, police departments, emergency management offices, and security concerns unequaled by any other academic institution in the United States.

One of the unique aspects of John Jay is its student body. Our students represent a diverse mix reflecting New York, but also the nation and world. Our in-service students include many mid-career emergency responders from virtually every local, state, and federal law enforcement, security, and emergency response organization. As such, we have a unique and long-standing commitment to educating current and future leaders in the emergency response field. John Jay lost over 60 of its alumni, faculty, and students on 9/11. As such, we are uniquely dedicated to enhanced responder safety and effectiveness.

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# PREPARING FIRST RESPONDERS FOR OCCUPATIONAL FENTANYL EXPOSURE: INITIAL EVIDENCE

#### 1.0 Executive Summary

The movement of fentanyl into the illicit drug supply has increased overdoses and led to misinformation and overreaction to perceived occupational exposure among first responders. Early information warning of the emergence of these drugs may have overstated the danger and led to an excessive response. Despite definitive scientific guidance being issued in 2017, knowledge among first responders varies widely.

Anecdotes from press reports continue to show cases where first responders report ill-defined symptoms of suspected exposure being attributed to fentanyl.

Gaps in knowledge were found, particularly among smaller agencies. While a majority of respondents to a limited-reach national survey knew of appropriate protective behaviors, this knowledge was far from universal.

Continued diligence is needed as new variants emerge into the illicit drug supply. However, guidance on responder self-protection and use of appropriate personal protective equipment should mitigate any risks of casual exposure, as would be encountered during police enforcement activity or response to overdose calls among the public.

Several governmental sources identify the hazards and proper protective actions:

- U.S. Centers for Disease Control Video "Illicit Drugs, Including Fentanyl: Preventing Occupational Exposure to Emergency Responders" https://www.cdc.gov/niosh/topics/fentanyl/risk.html
- White House, Office of National Drug Control Policy "Fentanyl Safety Recommendations for First Responders" (2017) <a href="https://www.whitehouse.gov/ondcp/key-issues/fentanyl/">https://www.whitehouse.gov/ondcp/key-issues/fentanyl/</a>

Exhibits from both sources are included in this document appendix. This information should be promoted more widely among first responders and information included in training across first responder disciplines.

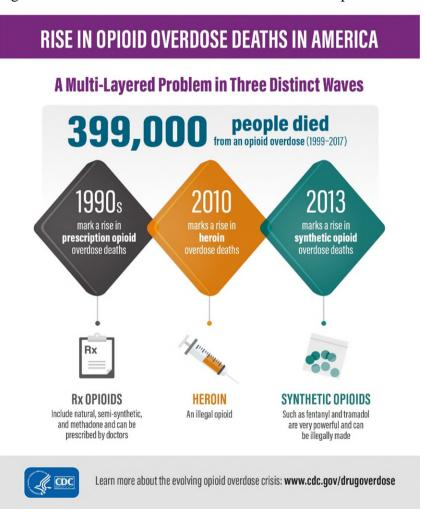


#### 2.0 Background

In 2017, in the United States, 70,237 drug overdose deaths were reported by the CDC. President Trump in 2017 would respond to the opioid epidemic by declaring a public health emergency. Fentanyl was chiefly responsible for the opioid-related deaths, due to its ability to be synthetically made, and be significantly cheaper and have a higher potency than other abusive drugs, such as morphine.

The Centers for Disease Control considers the Opioid problem as three distinct waves – with the most recent wave (beginning in 2013), being attributable to synthetic opioids such as fentanyl entering the drug supply (Figure 1). Among opioid overdose deaths attributed to "opioid pain relievers" which includes illicit fentanyl, New York similarly witnessed a sharp increase in cases in 2015 and 2016.<sup>i</sup>

Figure 1: Centers for Disease Control Model of the Opioid Crisis <sup>1</sup>



<sup>&</sup>lt;sup>1</sup> Center for Disease Control. *Opioid Data Analysis and Resources*. https://www.cdc.gov/drugoverdose/data/analysis.html



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As fentanyl-related deaths are increasing and becoming more commonly seen at crime scenes, first responders are more likely to encounter fentanyl in the field, for example, when they respond to drug overdose arrests and laboratory searches. Proper communication in formal scientific literature does exist and explores routes of exposure and adverse health effects. However, despite the importance of first responders accurately assessing their risk of fentanyl exposure, miscommunication exists in knowledge and safety procedures among first responders.

Assessing the risk perceptions and knowledge regarding fentanyl exposure among first responders can identify gaps in their training that can be used to develop evidence-based interventions, including training programs. An instrument that can evaluate how first responders perceive their level of harm to fentanyl at work can give insight into how training can be improved. This emergent threat has seen a response nationally as the National Institute of Occupational Safety and Health has created a training tool for first responders to opioids and fentanyl analogs. However, while there is literature on the risk perceptions of users to fentanyl exposure, there is no known data (to the authors' knowledge) on how first responders judge such occupational exposure. Developing an instrument to gather insight into these worker beliefs and knowledge can possibly assist in evaluating first responder training programs to fentanyl exposure.

Identifying both the continued spread of fentanyl, and persistent reports of ill effects reported by first responders, the Christian Regenhard Center for Emergency Response Studies (RaCERS) at John Jay College of Criminal Justice (CUNY) undertook a national pilot survey in Spring 2019. This survey was designed as a rapid "first look" to gather this important data.

#### 3.0 Challenges of Fentanyl Detection

Fentanyl is an accepted pharmaceutical used for pain relief. In this form, it can be encountered as a lozenge, tablet, spray, patch or even in an intravenous form in medical settings. Legitimate users are prescribed fentanyl and as such, its use is usually apparent and concentrations are known.

Illicit fentanyl is gaining in popularity as an economical way to enhance the "high" associated with other "known" illicit substances. It is in the area of opioid abuse – both heroin and synthetic opioids such as illicit oxycontin -- are increasingly including unknown amounts of fentanyl or fentanyl analogues. This migration of fentanyl into the illicit drug supply is a contributor to rapidly increasing incidence of overdoses.

For both drug users and first responders, the presence of fentanyl is a possibility when illicit drugs are present, and especially in cases where there is an overdose. Some of the apprehension among first responders, particularly law enforcement, may have come from early warnings that first appeared as fentanyl was increasingly being found in illicit drugs.

Among the first governmental warnings on hazards of fentanyl came from the United States Drug Enforcement Administration in 2016. They bluntly warned "fentanyl exposure kills" (Figure 2).



Figure 2: Drug Enforcement Administration Warning (2016) <a href="https://www.dea.gov/press-releases/2016/06/10/dea-warning-police-and-public-fentanyl-exposure-kills">https://www.dea.gov/press-releases/2016/06/10/dea-warning-police-and-public-fentanyl-exposure-kills</a>



DEA Headquarters

@DEAHQ

June 10, 2016
Contact: National Media Affairs Office

Phone Number: (202) 307-7977

FOR IMMEDIATE RELEASE

# DEA Warning To Police And Public: Fentanyl Exposure Kills

#### Roll Call Video Advises Law Enforcement to Exercise Extreme Caution

**WASHINGTON** - DEA has released a Roll Call video to all law enforcement nationwide about the dangers of improperly handling fentanyl and its deadly consequences. Acting Deputy

Administrator Jack Riley and two local police detectives from New Jersey appear on the video to urge any law enforcement personnel who come in contact with fentanyl or fentanyl compounds to take the drugs directly to a lab.

"Fentanyl can kill you," Riley said. "Fentanyl is being sold as heroin in virtually every corner of our country. It's produced clandestinely in Mexico, (also) comes directly from China. It is 40 to 50 times stronger than street-level heroin. A very small amount ingested, or absorbed through your skin, can kill you."

Carelessly stated warnings about fentanyl exposure continue to appear in the first responder trade press. The situation has even garnered attention of major press outlets, as an April 2019 New York *Times* editorial even lamented the perceived overreaction to possible casual occupational exposure among first responders, stating:

... police officers in California, Iowa, Missouri, Massachusetts and Vermont have been hospitalized or reported feeling gravely ill after encountering opioids in the course of their work; many of them were given Narcan in response, even when their symptoms were more consistent with a panic attack than with an opioid overdose. Doctors and toxicologists who have studied the issue say that most of the cases reported so far are best explained by the so-called nocebo effect, a phenomenon whereby people who believe they have encountered a toxic substance experience the expected symptoms of that exposure.<sup>2</sup>

In spite of the emergence of "definitive" scientific consensus around occupational hazards of exposure to fentanyl <sup>3</sup> <sup>4</sup>, the reports of adverse outcomes persist.<sup>5</sup>

<sup>&</sup>lt;sup>4</sup> NIOSH [2019]. Illicit Drugs, Including Fentanyl: Preventing Occupational Exposure to Emergency Responders. By Hornsby-Myers J, Headley T, Dowell, C. Atlanta, GA: U.S. Department of Health and Human Services, Centers for



<sup>&</sup>lt;sup>2</sup> "Fear, Loathing and Fentanyl Exposure." *International New York Times*, 6 Apr. 2019. *Gale OneFile: News*, https://link.gale.com/apps/doc/A595671930/STND?u=cuny\_johnjay&sid=STND&xid=5f3ee7ce. Accessed 20 Aug. 2019.

<sup>&</sup>lt;sup>3</sup> Moss, J.M. etc. al. ACMT and AACT Position Statement: Preventing Occupational Fentanyl and Fentanyl Analog Exposure to Emergency Responders. Journal of Medical Toxicology. 2017; 13(4): 347-351.

Alongside these overreactions to the hazards of fentanyl exposure in illicit drugs, is a lack of knowledge on appropriate self-protection measures among some in the first responder community.

#### 4.0 Methodology

A questionnaire was developed by the authors based on a literature review of the main issues in communication and training that are needed within the first responder community towards fentanyl and was validated by experts within the first responder community. The designed instrument was confidential, worked on a 6-point Likert scale of 15 perception items, and took approximately 5 minutes to complete. The questionnaire was provided online using the platform SurveyMonkey<sup>®</sup>, from February 1<sup>st</sup>, 2019 to March 31<sup>st</sup>, 2019. Subsequent analysis of the data was undertaken using SPSS<sup>®</sup> software.<sup>6</sup>

A total of 15 first responder associations were solicited to distribute the survey, and an informal distribution at two health and public safety colleges in New York City were also used for distribution. Ultimately, three state associations or national first responder member groups agreed to publicize the survey's availability to their members.

The sampling was non-random, relying on a voluntary sample. From the 247 responses, 187 were by New York State first responders. The remainder were spread among 26 states and the District of Columbia.

The focus of this paper is to review the key findings from an early 2019 research study by the Christian Regenhard Center for Emergency Response Studies on the risk perceptions and knowledge of fentanyl exposure, and provides guidance and recommendations for policy makers and educators on preparing first responders to fentanyl exposure. The results presented here are not representative of national experience, but do provide initial insights for designing educational outreach.

#### 5.0 Findings

Of the 247 responses, the majority (81 percent) were career (paid) personnel. Their disciplinary breakdown of respondents is shown in Table 1, below.

Table 1; Discipline of Respondents

Law Enforcement	EMS	Fire	Fire/EMS Dual Role
94	88	24	36

Disease Control and Prevention, National Institute for Occupational Safety and Health. DHHS (NIOSH) Publication No. 2019-126.

https://www.pennlive.com/news/2019/08/harrisburg-officer-falls-ill-after-handling-bag-discarded-by-suspect-but-experts-doubt-fentanyl-overdose.html

<sup>&</sup>lt;sup>6</sup> IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY: IBM Corp.



<sup>&</sup>lt;sup>5</sup> Vendel, Christine. "Harrisburg officer falls ill after handling bag thrown by fleeing suspect, but experts doubt fentanyl overdose." [Harrisburg] Patriot-News/Pennlive August 26, 2019.

In terms of encountering fentanyl or suspected fentanyl, nearly 56 percent of respondents indicated that they encountered suspected (34.4%) or confirmed (21.5%) fentanyl-containing substances in the field (Table 2).

Table 2: Have you ever encountered fentanyl in the field?

Response	Frequency	Percent
Yes, confirmed via	53	21.5
lab test		
Yes, suspected	85	34.4
Unsure	28	11.3
No	81	32.8
Total	247	100.0

#### **General Knowledge**

General knowledge of fentanyl and its properties was examined by asking about "what forms can fentanyl come in." The most popular form known to respondents was powders (87.5 percent); pills (68.5 percent); liquids (63.7 percent); adhesives (53.6 percent); then gels (35.5 percent); and sprays (32.3 percent). "All the above was selected by 55.6 percent of respondents.

Symptoms of overdose were also queried. The "all of the above" was selected most commonly (55.6 percent). Table 3 lists the responses by symptom.

Table 3: Symptoms of Exposure to Fentanyl

Symptom	Frequency	Percent
Drowsiness	128	51.6
Disorientation	119	48.0
Sedation	126	50.8
Pinpoint pupils	113	45.6
Skin rash	29	11.7
Clammy skin	67	27.0
Respiratory distress	131	52.8
All of the above	138	55.6

The use of naloxone to treat fentanyl overdose in the field was known by 94 percent of respondents.

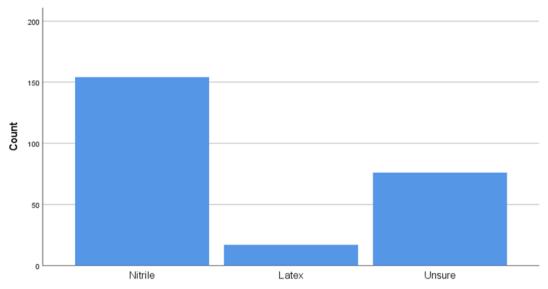
#### **Self-Protection**

Knowledge and attitudes toward self-protection were generally consistent with expert guidance. However, risk assessment of occupational exposure to fentanyl varied considerably.

Most notably, 30 percent of respondents were unsure what type of glove should be used when handling fentanyl or fentanyl containing substances. Although nitrile gloves are preferred, another 6.9 percent selected "latex" as the best choice (Figure 2).



Figure 2: Glove Selection for Fentanyl Self-Protection



Which type of glove is better when handling fentanyl?

With regard to risk assessment, a series of statements were presented, with an opportunity to indicate agreement along a 6-pont Likert scale. The results presented in Table 4 are summarized with categories reduced to "agree" and "disagree." Note that some questions are asked in both negative and positive format as a check on consistency of response.

While knowledge of protective actions was generally consistent with expert beliefs, over 63 percent of respondents indicated that fentanyl in pill form was not safe to handle, and 71 percent agreed with the statement that "briefly touching fentanyl can be deadly."



Table 4: Risk Perception Responses. Agree represents responses of slightly agree, agree, and strongly agree. Disagree represents responses of slightly disagree, disagree, and strongly disagree.

Agree n(%)	Disagree n(%)
68 (28.1)	174 (71.9)
39 (16.1)	203 (83.9)
39 (16.1)	203 (83.9)
52 (21.5)	190 (78.5)
88 (36.3)	154 (63.6)
191 (78.9)	51 (21.1)
199 (82.2)	43 (17.8)
38 (15.7)	204 (84.3)
202 (83.5)	40 (16.5)
6 (2.5)	236 (97.5)
173 (71.5)	69 (28.5)
231 (95.5)	11 (4.5)
224 (92.6)	18 (7.4)
27 (11.2)	215 (88.8)
81 (33.5)	161 (66.5)
	68 (28.1)  39 (16.1)  39 (16.1)  52 (21.5)  88 (36.3)  191 (78.9)  199 (82.2)  38 (15.7)  202 (83.5)  6 (2.5)  173 (71.5)  231 (95.5)  224 (92.6)  27 (11.2)

In spite of knowledge gaps, nearly equal proportions of respondents agreed with that they had appropriate PPE on their unit, while the others said "no" to this question. Just under 10 percent were unsure.



Table 5: Do you have appropriate PPE on your unit

Response	Frequency	Percent
Yes	115	46.6
No	108	43.7
Unsure	24	9.7
Total	247	100.0

Respondents reported that they received information on fentanyl self-protection during seminars and departmental training. Other sources of information included federal agencies, professional or labor organizations. Social media and news media were the least commonly reported, but given the misinformation circulating on this topic, their use should be a concern.

Table 6: Source of Information on Fentanyl Exposure Protection

Source	Percentage of Respondents
Seminars or courses	78.9%
Department Training	77.3 %
Federal agencies	70.9%
Professional or labor organizations	46.6%
Social media or internet pages	21.5%
News Media	13.8%

#### **Discipline-Specific Information**

To understand any differences in knowledge and attitudes between law enforcement and EMS/Fire personnel, we examined results by disciplinary affiliation. These results did show some noteworthy differences (Table 7).



Table 7: Risk Perception Responses by Discipline. Agree represents responses of slightly agree, agree, and strongly agree. Disagree represents responses of slightly disagree, disagree, and strongly disagree.

Questionnaire items	EMS	S/Fire or Dual	Lav	w Enforcement
	Agree n(%)	Disagree n(%)	Agree n(%)	Disagree n(%)
When working with fentanyl, I would <b>not</b> be concerned about needing emergency treatment for exposure	62 (41.9)	86 (58.1)	6 (6.4)	88 (93.6)
When working with fentanyl, I am <b>not</b> worried about protecting my eyes and face	36 (24.3)	112 (75.7)	3 (3.2)	91 (96.8)
Fentanyl has the same strength as morphine	21 (14.2)	127 (85.8)	18 (19.1)	76 (80.9)
When working with fentanyl, I would <b>not</b> be worried about having difficulty breathing	50 (33.8)	98 (66.2)	2 (2.1)	92 (97.9)
Fentanyl in pill form is safe to handle	75 (50.1)	73 (49.9)	13 (13.8)	81 (86.2)
I am concerned about covering my nose and mouth when working with fentanyl	99 (66.9)	49 (33.1)	92 (97.9)	2 (2.1)
I can see the signs and symptoms of an fentanyl overdose	126 (85.1)	22 (14.9)	73 (77.7)	21 (22.3)
It is safe to disturb fentanyl without PPE if you use caution	33 (22.3)	115 (77.7)	5 (5.3)	89 (94.7)
Gloves should be changed regularly when handling fentanyl	120 (81.1)	28 (18.9)	82 (87.2)	12 (12.8)
It is safe to eat, drink, or smoke when handling fentanyl	4 (2.7)	144 (97.3)	2 (2.1)	92 (97.9)
Briefly touching fentanyl could be deadly	85 (57.4)	63 (42.6)	88 (93.6)	6 (6.4)
You should not touch your face after handling fentanyl	138 (93.2)	10 (6.8)	93 (98.9)	1 (1.1)
Breathing airborne fentanyl is dangerous to my health	130 (87.8)	18 (12.2)	94 (100.0)	0 (0)
The only type of fentanyl that is a health risk to me is in the powder form	25 (16.9)	123 (83.1)	2 (2.1)	92 (97.9)
It is safe to use hand sanitizer after handling fentanyl	56 (37.8)	92 (62.2)	25 (26.6)	69 (73.4)



Large differences (>30 percent) were found for the following questions between law enforcement and Fire/EMS personnel.

Law enforcement personnel had much stronger (more risk averse) reactions to:

- When working with fentanyl, I would **not** be concerned about needing emergency treatment for exposure
- Fentanyl in pill form is safe to handle
- I am concerned about covering my nose and mouth when working with fentanyl
- When working with fentanyl, I would **not** be worried about having difficulty breathing
- Briefly touching fentanyl could be deadly

These attitudes reflect a significant divergence between law enforcement and non-law enforcement responders in their attitudes.

#### **Agency Population Served**

The final characteristic studied is the difference in answers across agency population served. The agency population served can be considered analogous to the size of the agency.

When asked about the best glove to use for protection, there was a roughly 30 percent drop in selecting "nitrile" when agency population served dropped below 125,000 people.

Table 8: Which	glove is better	when handling	fentanyl v	, agency po	pulation served.
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Population Served	Nitrile	Latex	Unsure	Total
Less than 25,000	46	5	30	81
	56.8%	6.2%	37.0%	100%
26,000 – 75,000	28	6	18	52
	53.8%	11.5%	34.6%	100%
76,000-125,000	15	0	14	29
	51.7%	0.0%	48.3%	100%
126,000-249,000	19	1	2	22
	86.4%	4.5%	9.1%	100%
More than 250,000	44	5	9	58
	75.9%	8.6%	15.5%	100%
Total	152	17	73	242
	62.8%	7.0%	30.2%	100%

When asked about availability of appropriate protective equipment on their unit, there was a clear effect for small agencies, where those serving population of less than 25,000 people indicated only 29.6 percent agreement, versus over 45 percent for all others. The highest agreement came with agencies serving populations of 126,000-250,000.



Table 9: Availability of PPE on Unit v. Agency Population Served

Population Served	Yes	No	Unsure	Total
Less than	24	45	12	81
25,000	29.6%	55.6%	14.8%	100%
26,000 –	25	25	2	52
75,000	48.1%	48.1%	3.8%	100%
76,000-	15	10	4	29
125,000	51.7%	34.5%	13.8%	100%
126,000-	15	6	1	22
249,000	68.2%	27.3%	4.5%	100%
More than	33	21	4	56
250,000	56.9%	36.2%	6.9%	100%
Total	112	107	23	242
	46.3%	44.2%	9.5%	100%

#### **Review of Appropriate Protective Measures**

Generally, first responders agreed with expert perceptions on fentanyl exposure risk. However, a number of findings express concern among the population and need further investigation and guidance for policy makers and educators to make evidence based decisions.

- Over 70 percent of respondents agreed with the statement that "briefly touching fentanyl could be deadly." Research has shown that briefly touching fentanyl is in fact not deadly. Washing your hands with soap and water after contact greatly reduces any harm from brief dermal contact exposure.
- 37.8 percent of EMS/Fire service workers and 26.1% of law enforcement personnel in the study agreed that it is safe to use hand sanitizer after handling fentanyl. The use of hand sanitizer following contact with fentanyl may lead to spreading the fentanyl and increasing absorption into the skin, increasing exposure to the responder.
- Lack of knowledge of glove selection may increase the risk of fentanyl exposure among first responders.

#### Protective Measures and Behavior:

Based on the findings, educators and policy makers can use this information to better inform first responders on the risks in the field and modify training to address potential gaps. Training and policy makers should follow evidence based sources of information to guide responders who may be seeking out informal sources of information. Department training or seminars should use the below in their key points:

• Protect your eyes, nose, and mouth when working with fentanyl.



- Understand that fentanyl and analogues are significantly more potent than other opioids like morphine.
- ❖ Inhalation of fentanyl may lead to difficulty breathing.
- ❖ Touching fentanyl in pill form is not deadly and should be handled with appropriate gloves, such as nitrile.
- \* Recognizing a fentanyl or opioid overdose:
  - Not responsive
  - You can hear a gurgling or snoring from the victim
  - Not breathing or not consistently breathing
  - Pulse rate has declined
  - Blue or gray lips and fingertips
  - Clammy skin
- ❖ It is not safe to handle fentanyl without the appropriate PPE.
- Gloves should be changed regularly when handling fentanyl.
- **&** Briefly touching is not deadly.
- ❖ Do not touch your face after handling fentanyl.
- ❖ Do not eat, drink, smoke, or use the restroom while handling fentanyl or in the area of a suspected fentanyl scene.
- Fentanyl can come in many different forms other than powder.
- ❖ Hand sanitizer is not a safe way to clean off fentanyl from your skin. Soap and water provide adequate safety.



#### **6.0 Further Study**

This study should be repeated with a larger sample. Although our sample was primary drawn from New York State, results appeared comparable in the entire sample versus New York State only.

Differences between law enforcement and other first responder attitudes should be studied further.

Law enforcement, and small agencies both exhibit knowledge gaps that could be addressed through better training.

Agencies should provide PPE for use by personnel during suspected fentanyl events. Further, guidance for use of the equipment should be provided, along with training.

#### Recommendations:

It is recommended that agencies and training providers use evidence based findings to inform first responders of fentanyl exposure. Credible sources include the National Institute of Occupational Safety and Health, the Drug Enforcement Administration, and the National Institute of Environmental Health Sciences (NIEHS) Worker Training Program (WTP). The NIEHS WTP provides a training tool online on the prevention of occupational exposure to fentanyl and other opioids <a href="https://tools.niehs.nih.gov/wetp/public/hasl\_get\_blob.cfm?ID=11206">https://tools.niehs.nih.gov/wetp/public/hasl\_get\_blob.cfm?ID=11206</a>.

Training in departments should not strictly focus on fentanyl in their first responder training. Including other opioids can best prepare workers for other types of opioid related emergencies. The opioid epidemic is apparently not going away anytime soon, and the next advent opioid may end up being more potent than fentanyl and carrying physical or chemical properties not being taught in preparedness. By modeling training to be "all-opioid" based can allow educators to prepare workers ahead of the next epidemic. Similar to an "all hazards" model, an "all-opioids" based approach would focus on educating occupational exposure in a manner that zeros in on key protective measures that can be translated to any opioid response. Maintaining an "all-opioid" approach can help effectively prepare responders to an opioid they may not be familiar with prior to potential exposure.

Within a given unit it is critical to educate workers on the four key findings in case they may be prevalent to that department. Training on PPE selection, proper hygiene, and routes of exposure should be offered to units who may be exposed to fentanyl or other opioids in their line of work.

#### Conclusion:

As the opioid epidemic continues to take lives, it will also endanger the health and safety of those who respond to these emergencies. It is the responsibility of experts in the field, agency leaders, educators, and policy makers to use credible, scientifically-based information to prepare first responders. Following a model in training that addresses knowledge and perception gaps within units to target prevalent beliefs can inform and prepare first responders.



Using an "all-opioid" based approach would teach workers how to handle fentanyl and other opioids by emphasizing fundamental protective measures. Instilling training that can improve protective behaviors can help prepare first responders for incidents they may not have prior experience with beforehand. It is our hope that this working paper can drive policy makers and educators in improving training and emergency preparedness to first responders in EMS, fire services, and law enforcement.



#### 7.0 Acknowledgements:

The Christian Regenhard Center for Emergency Response Studies (RaCERS) was conceived as lessons learned organization working across traditional public safety disciplines. Inspired by the World Trade Center response, the coordination of police, fire, and EMS personnel at large scale events was envisioned as a primary research focus. This project was funded by donations from the public and corporations.

We also wish to acknowledge the New York State Chiefs of Police Association and International Association of EMS Chiefs for their support in recruiting participants for the survey.



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# 9.0 Appendix

Centers for Disease Control Fentanyl PPE Guidance https://www.cdc.gov/niosh/topics/fentanyl/risk.html

Personal Protective Equipment	Pre-Ho	Pre-Hospital Patient Care	Care	Law Enfor	Law Enforcement Routine Duties	e Duties	Investigations	Investigations and Evidence Collection	e Collection	Spec	Special Operations and Decontamination	and
Exposure Level Mi	Minimal	Moderate	High	Minimal	Moderate	High	Mnimal	Moderate	High	Minimal	Moderate	High
Respiratory Protection												
Disposable N100, R100, or P100 FFR <sup>1</sup>		>			, .			,			1	
Elastomeric APR <sup>2</sup>		illilli.						•	,		•	1
PAPR <sup>3</sup>		inne.							•		•	•
SCBA*		in i				p			•			-
Face and Eye Protection		illilli.	pe			əŗ						
Safety goggles/glasses*		>	pu		, .	ue		,	1		1	1
Hand Protection			əw			u						
Nanie gloves <sup>o</sup>	,	>	w	,	, mm	ш	,	,		,	1	
Nitrile gloves, double or use of thicker gloves		•	ooe		•	20		•	•		•	1
Dermal Protection		annu a	u 1			9.1						
Wrist/arm protection?		<i>&gt;</i>	οN		, mm	10		,			1	
Particulate hazards protective ensemble (i.e., MFPA 1999 Single or Multi-Use or MFPA 1994 Class 4 Ensemble)						N			>			`
Chemical hazards protective ensemble (i.e., NFPA 1994 Class 3 Ensemble or Higher)									•			•



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# F E N T A N Y L

# SAFETY RECOMMENDATIONS FOR FIRST RESPONDERS

- † For the purposes of this document, fentanyl, related substances, and synthetic opioids (herein after referred to as fentanyl†) includes fentanyl analogues (e.g., acetylfentanyl, acrylfentanyl, carfentanil, furanylfentanyl), novel synthetic opioids (e.g., U-47700), and other drugs that may be laced with these substances.
- ▶ The abuse of drugs containing fentanyl† is killing Americans. Misinformation and inconsistent recommendations regarding fentanyl† have resulted in confusion in the first responder community.
- ▶ You as a first responder (law enforcement, fire, rescue, and emergency medical services (EMS) personnel) are increasingly likely to encounter fentanyl $^{\dagger}$  in your daily activities (e.g., responding to overdose calls, conducting traffic stops, arrests, and searches).
- ▶ This document provides scientific, evidence-based recommendations to protect yourself from exposure.

## WHAT YOU NEED TO KNOW

- ► Fentanyl<sup>†</sup> can be present in a variety of forms (e.g., powder, tablets, capsules, solutions, and rocks).
- ▶ Inhalation of airborne powder is MOST LIKELY to lead to harmful effects, but is less likely to occur than skin contact.
- Incidental skin contact may occur during daily activities but is not expected to lead to harmful effects if the contaminated skin is promptly washed off with water.
- ▶ Personal Protective Equipment (PPE) is effective in protecting you from exposure.
- ▶ 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<sup>†</sup>.

# To protect yourself from exposure

- ▶ Wear **gloves** when the presence of fentanyl† is suspected.
- AVOID actions that may cause powder to become airborne.
- ▶ Use a properly-fitted, NIOSHapproved respirator ("mask"), wear **eye protection**, and minimize skin contact when responding to a situation where small amounts of suspected fentanyl† are visible and may become airborne.
- ▶ 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).

## When exposure occurs

- ▶ Prevent further contamination and notify other first responders and dispatch.
- ▶ 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. Do NOT use hand sanitizers as they may enhance absorption.
- ▶ Wash your hands thoroughly after the incident and before eating, drinking, smoking, or using the restroom.
- ▶ If you suspect your clothing, shoes, and PPE may be contaminated, follow your department guidelines for decontamination.

# If you or other first responders exhibit

- Slow Breathing or No Breathing
- Drowsiness or Unresponsiveness
- Constricted or Pinpoint Pupils
- Move away from the source of exposure and call EMS.
- Administer naloxone according to your department protocols. Multiple doses may be required.
- 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.





















- Collaborative American College of Emergency Physicians
- American College of Medical Toxicologists Support From: • American Industrial Hygiene Association
  - Association of State and Territorial Health
  - · Association of State Criminal Investigative
  - Agencies
  - Fraternal Order of Police
- International Association of Chiefs of Police
- International Association of Fire Chiefs · International Association of Fire Fighters
- Major Cities Chiefs Association Major County Sheriffs of America
- National Alliance of State Drug **Enforcement Agencies**
- National Association of Counties
- · National Association of County and City Health Officials
- National Association of Emergency Medical
- Technicians
- National Association of EMS Physicians
- National Governor's Association
- · National HIDTA Directors Association
- · National Narcotic Officers' Associations' Coalition
- · National Sheriffs' Association
- · National Volunteer Fire Council
- Police Executive Research Forum · Police Foundation
- · National Association of State EMS Officials