



FENTANYL AND CARFENTANIL EXPOSURE IN PARAMEDIC SERVICES

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This fast fact has been developed to protect paramedics from accidental exposure to hazardous drugs such as fentanyl and carfentanil and to support the Canadian Action Plan for better informing Canadians about the risk of opioids.

WHAT ARE FENTANYL AND CARFENTANIL?

Fentanyl is a strong synthetic opioid drug administered to patients to prevent pain following surgery, for the management of chronic pain, and to produce sedation during medical procedures. Although similar in effect to morphine and heroin, fentanyl is 50 to 100 times more potent¹. Carfentanil is an analog of fentanyl, however, it is 100 times more powerful than fentanyl and 10,000 times more powerful than morphine. As it is the most potent commercially used opioid, it is inappropriate for use in humans and is intended to be used as a tranquilizer for large animals². Both fentanyl and

carfentanil are currently listed in Schedule I of the federal Controlled Drugs and Substances Act (1996). Recently, illicit fentanyl and carfentanil have been emerging as recreational drugs used by drug abusers.

WHAT DOES STREET FENTANYL LOOK LIKE?

Street fentanyl can come in many forms including powder form similar to heroin, powder form mixed into other drugs such as cocaine, transdermal fentanyl patches, or (green) tablets resembling fake oxycodone pills³.

HOW CAN PARAMEDICS BE EXPOSED TO FENTANYL OR CARFENTANIL

Front-line paramedics may become exposed to fentanyl when working with a patient who has used or overdosed on the drug or its analogs. Examples of high risk tasks include removing the clothing,

searching, resuscitating, administering drugs to, and transporting of a patient who has used the drug or has the drug in their possession.

WHAT ARE THE ROUTES OF EXPOSURE TO FENTANYL AND CARFENTANIL?

Fentanyl and its analogs can enter the body by inhalation, ingestion, intravenous or intramuscular injection. Skin contact is also thought to be a potential exposure route, but is not likely to lead to overdose unless there is prolonged exposure to large volumes of highly concentrated fentanyl in powder form.¹ Brief skin contact with fentanyl or its analogs is not expected to lead to toxic effects if any visible contamination is immediately removed.¹ It is not yet known whether fentanyl can be absorbed through the eyes.

WHAT ARE THE SIGNS AND SYMPTOMS OF FENTANYL OR CARFENTANIL OVERDOSE

The signs and symptoms of a fentanyl overdose are not distinct from overdoses of other opioids. The symptoms include:^{3, 4, 5}

- Trouble walking or talking
- Severe sleepiness, gurgling or snoring sounds
- Slow, shallow breathing
- Bluish lips and nails
- Person is unresponsive
- Cold and clammy skin
- Tiny 'pinpoint' pupils
- Slow heart rate
- Seizures
- Not responding to noise or sternal rub

WHAT ARE THE HEALTH EFFECTS OF EXPOSURE TO FENTANYL OR CARFENTANIL

Health effects of fentanyl and its analogs include rapid depression of the central nervous system, delayed or reduced respiratory function, respiratory arrest, tightening of chest muscles, rise in blood pressure within the brain, and muscle spasms.¹ Even exposure to small quantities of fentanyl may be fatal as it acts as an incapacitating agent that impairs a person's ability to function.



WHAT CAN BE DONE TO CONTROL EXPOSURE TO FENTANYL AND CARFENTANIL?

ESTABLISHING EFFECTIVE ILLICIT DRUG SEARCH MEASURES AND PROCEDURES:

Employers have an obligation to take every precaution reasonable in the circumstances for the protection of a worker. This includes developing clear guidelines on how to handle situations when workers may encounter illicit drugs while caring for patients who may be suspected of or are known to use the drug or its analogs. Pre-hospital care workers should avoid unnecessary handling of illicit drugs. If workers encounter such substances they should conduct a situational risk assessment (see below), follow safe work practices accordingly, and advise security and/or law enforcement.

SITUATIONAL RISK ASSESSMENTS:

A situational risk assessment should be done to assess the risk of fentanyl exposure to health and community care workers. This risk assessment evaluates:

1. **The quantity and form of the opioid:** Is it in pill form or a large quantity of loose powder?
2. **The type of packaging:** Is it in a sealed baggie or loose powder on the individual's clothing?
3. **The potential for exposure:** Is there a chance of accidental inhalation or prolonged contact with bare skin (which may lead to accidental contamination of mucous membranes from direct contact).

Based on the predicted risks, the following precautions or actions can be taken (see table to the right):⁶

Risk Level	Example Situations	Precaution/Action
Minimal	It is suspected that fentanyl may be present but no fentanyl products are visible	<ul style="list-style-type: none"> Follow organization's standard operating procedures Continuously conduct situation risk assessments to determine further precautions and actions to take
	Small amounts of drugs in pill form are present on an overdosed patient	<ul style="list-style-type: none"> Prevent skin and eye contact by donning proper PPE (see requirements below) Do not handle pills If you must handle the pills, always wear double nitrile gloves
	Minimal quantities of white powder drug is present on an overdosed patient	<ul style="list-style-type: none"> If you encounter any powder – assume it is fentanyl or carfentanil If it is contained in an open baggy, do not attempt to seal the baggy by releasing the air in it as it will become airborne Donn proper PPE immediately (see requirements below) Where there is any signs of powdered carfentanil, exit the site immediately Advise security and law enforcement to attend the scene to assess the situation
Moderate	Large quantities of white powder present in the environment	<ul style="list-style-type: none"> This could be a situations where drugs are being sold or produced. If this level of contamination were present, immediately exit the site and advise law enforcement.
High		

PERSONAL PROTECTIVE EQUIPMENT

Regular personal protective equipment should be worn by paramedics who may encounter fentanyl or carfentanyl. This may include disposable respirators, gowns and (double) nitrile gloves. It is recommended that paramedics, with consultation with their employers and JHSC, develop situational risk assessments to establish PPE requirements. This risk assessment process should be implemented at initial patient contact. As a minimum, fit-tested N95 respirators should be worn for respiratory protection. The US Centers for Disease Control (CDC)⁸ and FentanylSafety.com⁹ can be used as references for examples of additional PPE currently being recommended for law enforcement and emergency medical service (EMS) workers.

NALOXONE:

Naloxone is a safe and effective medication used to temporarily block the effects of opioids overdoses. It is an essential tool in preventing fatal opioid overdoses. Due to its high potency, multiple doses of naloxone may be needed to treat a fentanyl overdose.¹ Naloxone only temporarily blocks the effects of respiratory depression caused by opioids (for 30-90 minutes) so medical attention is still required following its administration. Healthcare workers should also be advised that they may encounter violence and/or aggression from patients experiencing withdrawal symptoms following the intake of Naloxone. **Employers should also ensure workers are protected from workplace violence**

WHERE CAN I FIND MORE INFORMATION

1. Health Canada's Action on Opioid Misuse: <http://healthycanadians.gc.ca/healthy-living-vie-saine/substance-abuse-toxicomanie/misuse-plan-abus-index-eng.php>
2. Get Naloxone Kits for Free: <https://www.ontario.ca/page/get-naloxone-kits-free>
3. BCCDC Decision Support Tool Administration of Naloxone: www.bccdc.ca/resource-gallery/Documents/.../Epid/.../NaloxoneDSTUUseforRN.pdf
4. Canadian Centre on Substance Abuse Drug Alerts and Bulletins: <http://www.ccsa.ca/eng/collaboration/ccendu/ccendu-drug-alerts-and-bulletins/pages/default.aspx>
5. Safety Data Sheets (example): http://www.restek.com/documentation/msds/34082_useng.pdf
6. Fentanyl Safety for First Responders: <https://www.fentanylsafety.com/>
7. National Institute for Occupational Safety and Health (NIOSH). Fentanyl: Preventing Occupational Exposure to Emergency Responders: <https://www.cdc.gov/niosh/topics/fentanyl/risk.html>

Disclaimer:

Please note that all information provided is general in nature and may not be appropriate for particular situations or circumstances and is not a substitute for professional advice. In every case, specific and qualified advice should be sought before applying this information. Under no circumstances shall the Public Services Health and Safety Association be responsible for any damage or other losses resulting from reliance upon the information given to you, and all such liabilities are specifically disclaimed to the full extent permitted by law.

¹ National Institute for Occupational Safety and Health (NIOSH). (2016). Fentanyl: Preventing Occupational Exposure to Emergency Responders. Retrieved from <https://www.cdc.gov/niosh/topics/fentanyl/default.html>

² National Institute for Health (NIH). (n.d.) Carfentanil. Retrieved from <https://pubchem.ncbi.nlm.nih.gov/compound/carfentanil#section=Top>

³ Government of Saskatchewan (2016). Fentanyl: Advisory for Saskatchewan Health Care Providers. Retrieved from https://www.saskatchewan.ca/~/_media/files/health/health%20and%20healthy%20living

⁴ RCMP. (2017). What is fentanyl? Retrieved from <http://www.rcmp-grc.gc.ca/en/what-is-fentanyl>

⁵ Government of Ontario. (2017). Get naloxone kits for free. Retrieved from <https://www.ontario.ca/page/get-naloxone-kits-free>

⁶ Alberta Health Services. (2017). Emergency medical services Opioid Misuse-Interim Guidance for First Responders. Retrieved from https://www.fentanylsafety.com/wp-content/uploads/OPIOID-MISUSE-INTERIM-GUIDANCE_2.pdf

⁷ British Columbia Ministry of Health. (2017). Guidance statement regarding Personal Protective Equipment for Emergency Medical Services and Health Care Workers dealing with overdose victims.

⁸ US Centers for Disease Control <https://www.cdc.gov/>

⁹ Fentanyl Safety. (n.d.). Job-Specific Fentanyl Safety for First Responders - Paramedics. Retrieved from <https://www.fentanylsafety.com/job-specific/>