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From: Ron Kirschner, MD, Medical Director
To: ALL HEALTH CARE PROFESSIONALS
Subject: Ultra-potent opioid carfentanil linked to heroin fatalities
Date: 5/5/17

- Fentanyl-contaminated or fentanyl-substituted heroin has been associated with clusters of opioid fatalities because it is 50-100 times more potent than morphine.
- The large animal tranquilizer carfentanil (CF) has roughly 100 times the potency of fentanyl. It has not been approved for human treatment.
- CF-related fatalities have been reported in an increasing number of states. Drugs purported to be heroin are now likely to contain more powerful synthetic opioids including CF (Rogers, Gussow).
- The elimination half-life of CF was found to be 5.5 hours in a goat study (Mutlow).
- CF pharmacokinetics have not been fully described in humans.
- As with other opioids, CNS and respiratory depression due to CF can be reversed with naloxone. Larger doses may be required but optimal dosing for human CF toxicity is unknown.
- Due to naloxone's short duration of action, repeat dosing and/or continuous infusion may be necessary. Because CF kinetics are poorly characterized, we recommend observation for at least 4 hours after naloxone treatment before a patient is cleared.
- CF should be suspected if a "heroin" overdose requires larger or more frequent doses of naloxone.
- As with other fentanyl analogs, CF is not detected by standard drug of abuse screens.
- Serum CF concentration can be obtained from specialized reference laboratories such as NMS Labs where it is part of a designer opioid panel, but results won't be available in real time.
- Treatment of suspected CF poisoning should include naloxone and supportive care, with intubation and mechanical ventilation as needed.
- Due to its high potency, accidental inhalation of CF powder or mucous membrane exposure to liquid solution can lead to rapid respiratory depression requiring immediate naloxone treatment (George).

References

George. Carfentanil – an ultra potent opioid. *Am J Emerg Med* 2010; 28: 530.
Gussow, No such thing as a 'heroin' overdose patient. *Emergency Medicine News*, March 2017.
Mutlow. Pharmacokinetics of carfentanil and naltrexone in domestic goats. *J Zoo Wildl Med* 2004; 23: 489.
Rogers K. Elephant tranquilizer linked to a wave of heroin overdoses in the Midwest. *NY Times* 8/26/16.

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