Carfentanil Deaths in Europe

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Drug-related Deaths Experts Meeting
What is carfentanil?

- A highly potent synthetic opioid, analogue of fentanyl
- Developed by Paul Janssen and Co in the 70’s
- Significantly higher potency vs. fentanyl and morphine.
- Licenced veterinary medicine in the US; tranquilizing agent for the immobilisation of large animals.

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<th>Analgesic activity in rats (tail-flick assay)</th>
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<td>Morphine</td>
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<td>Fentanyl</td>
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<td>Carfentanil</td>
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Source: Van Bever et al. (1976)
How much pure drug to make 10,000 doses?

- Carfentanil: 0.1 g
- 2-Methylfentanyl: 2.5 g
- 25I-NBOMe: 5 g
- PB-22: 100 g
- Amphetamine: 100 g
- Cocaine: 200 g
- MDMA: 750 g
Health Risks

As with other fentanils, the most serious health risk from carfentanil use is life-threatening respiratory depression.

Has been sold and used as a ‘legal’ replacement for heroin and Rx opioids, and sold as, or in, heroin;

- Difficulties in cutting and dosing properly
- Unfamiliarity with the substance and its properties
- High-risk opioid users may not be aware of using the substance

Fentanils (in general) sold as counterfeit medicines – benzodiazepines, Rx opioids or other analgesics;

- Again, inadvertent ingestion; opioid naïvety (lack of tolerance) and a high risk of accidental poisoning
Health Risks - continued

Poly-drug use;
- Additional and synergistic effects with other CNS-depressants
- Other opioids, ethanol, benzodiazepines frequently detected in PM samples.

Using alone
- Inability to call for help or administer naloxone in case of an overdose

Increased risk of accidental exposure;
- Law enforcement, emergency personnel, custodial, family members, postal workers and laboratory settings.
Detections in Europe

First detection in Europe in 2012, in Latvia, where the substance has been frequently detected, usually in heroin.

To date: detections in 9 countries
- Latvia & Lithuania 2012-2015
- + Finland & Estonia 2016
- + Belgium, Germany, Norway, Sweden & United Kingdom in 2017

Produced and shipped from China, Hong Kong

Confirmed exposure to carfentanil in at least 50 deaths in Europe since November 2016.
Confirmed deaths in Europe

First reported death:
• Finland November 2016

Outbreak in the UK:
• 29 deaths (Feb-May 2017)
• Geographically linked
• High-risk opioid users (heroin injectors)

Other cases:
• Lithuania: Heroin injectors
• Belgium: Apparent suicide
• Norway: 15 year old psychonaut
Epidemiology

13 deaths in 2017 with no date reported

Finland  Estonia  Germany  UK  Lithuania  Belgium  Norway  Sweden
Epidemiology

Raid on supplier in the UK

13 deaths in 2017 with no date reported
Case Study: UK deaths

Geographically linked: Yorkshire, Nottinghamshire and Lincolnshire

High risk opioid users (heroin injectors):
• Heroin metabolites were identified in 79% of the deaths
• Syringes and other paraphernalia found in a number of cases
• Many were known drug users to the police or other services.

Other fentanils:
• Fentanyl – 19 cases (65%)
• Fentanyl, butyrfentanyl and 4F-BF (or -iBF) - 10 cases (34%)
• Other opioids, FU-F, alfentanil, diazepam, THC and other cannabinoids

Carfentanil PM blood concentrations: range 21-4004 pg/mL
• Possibly underreported as sensitive techniques required. Routinely screened?
Summary

Carfentanil poses a high risk of fatal overdose

Used to cut heroin. Likely ingested in some cases unknowingly by high-risk opioid users.

Significant increase in availability from around the end of 2016, and a subsequent increase in deaths.

Risk of outbreaks.

High potency and small doses have implications for its detection; both in terms of trafficking and in biological samples.

Importance of routinely screening for the substance, as it represents a serious threat to individual and public health.
Thank you!

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