

There is something in the heroin: responding to a rise in drug related deaths and the emergence of fentanyl and carfentanil in a local illicit drug market

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Thanks to Hull Public Health, Prof. Marks and Paul Smith



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Overview



- Overview of drug-related deaths in England and Wales
- Describe fentanyl, carfentanil and national fentanyl-related deaths
- Describe a cluster of drug-related deaths in our area and action that was taken
- Outline our toxicology report analysis
- Discuss our key findings
- Outline current work on this area
- Highlight our learning points



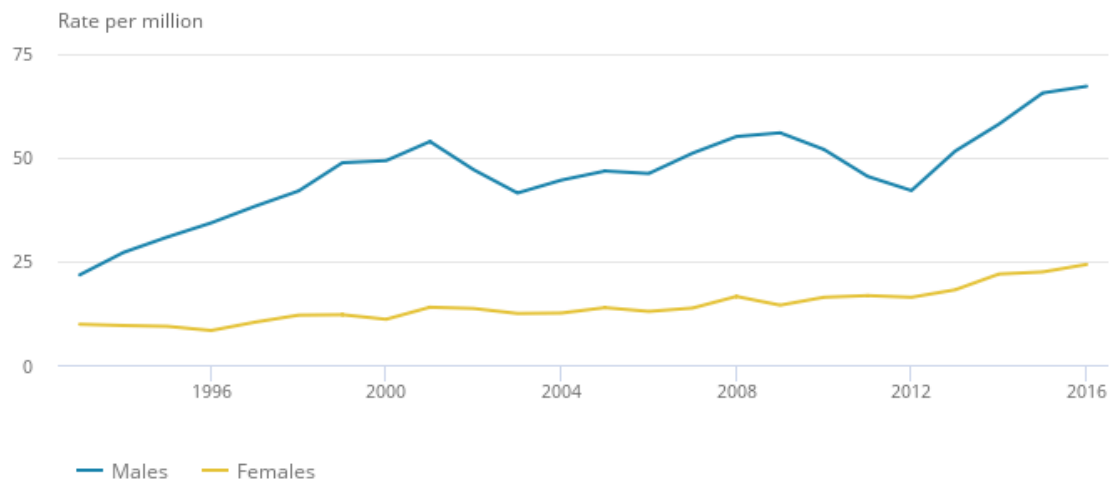
Drug-related deaths in England and Wales

- Drug use, drug dependence and drug poisoning accounted for 16% of deaths among people in their 20s and 30s in 2016
- There were 3744 drug poisoning deaths in 2016 (increase of 2% from the previous year)
- Over half (54%) were related to drug poisoning involving an opiate (mainly heroin and/or morphine)



Figure 1: Age-standardised mortality rates for deaths related to drug misuse, by sex, deaths registered in 1993 to 2016

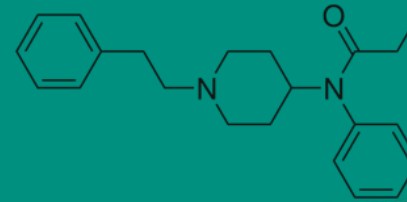
England and Wales



Source: Office for National Statistics



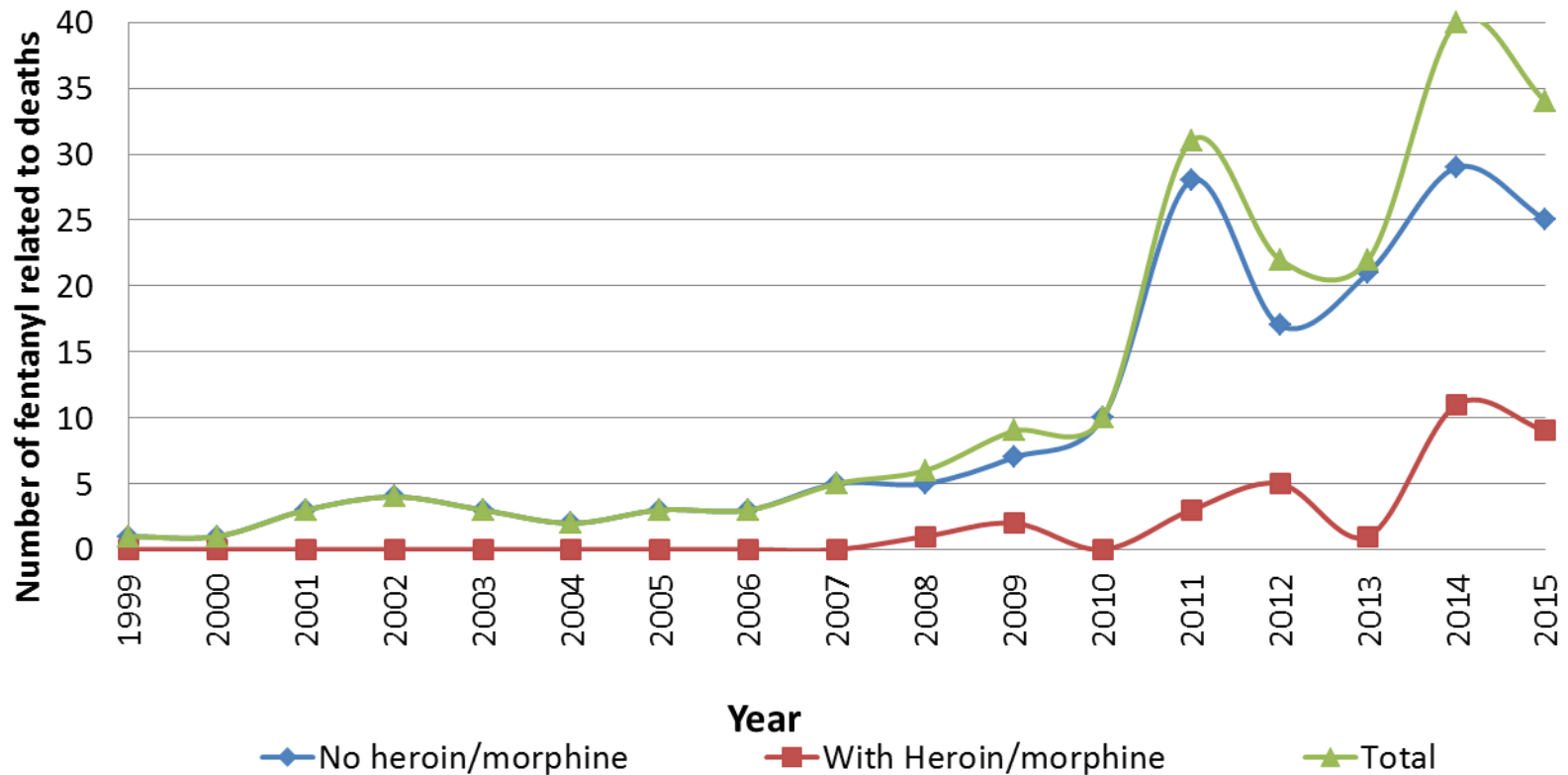
Fentanyl



- Fentanyl is a powerful synthetic and short-acting analgesic that is 50-100 times more potent than morphine
- Has rapid action and multiple routes of administration
- While pharmaceutical fentanyl can be diverted for misuse, cases of fentanyl-related mortality in the USA have been linked to illicitly manufactured fentanyl and a variety of fentanyl analogues
- When a suspected drug-related death occurs, there is no 'standard' toxicology test, laboratories vary according to what tests they have access to/coroner request



Number of deaths where fentanyl was mentioned on the death certificate in England and Wales



Office for National Statistics (April 2017): drug-related deaths involving fentanyl with or without heroin/morphine, 1999 to 2015 registrations



Carfentanil

- Carfentanil is an analogue so powerful it is only licensed for use in animals (e.g. to tranquilise elephants)
- An amount less than 1/2000th of a grain of salt (1 microgram) is biologically active in humans and approximately 1/1000th of a grain of salt (2 micrograms) can be lethal



Cluster of deaths

- At the end of 2016 numbers of suspected drug-related deaths in both Hull and the East Riding started to rise and remained above what might have been expected until the end of May 2017



Action that was taken

- A request for information was sent out (early Feb 2017)
- A drugs worker in HMP Hull reported clients believed the heroin was being cut with fentanyl or a benzodiazepine and witnessed people overdosing as a result
- Needle exchange pharmacists undertaking harm reduction training reported users describing a change in how the heroin felt, getting a quicker stronger hit



Action that was taken

- One pharmacist said ‘they are all saying “there is something in the heroin”’
- A warning was issued (mid Feb 2017) to local treatment services, needle exchanges and prisons, and awareness raised through the local media
- Humberside Police issued a separate additional warning (7th March 2017), National Crime Agency warning (15th April 2017)



Concerns about fentanyl

- Concerns were raised over possible fentanyl/carfentanil causing drug-related deaths based on evidence from the USA
- New psychoactive substances including fentanyl/carfentanil testing began
- The first case of carfentanil in toxicology reports was found in April, and the test used retrospectively where possible for previous post-mortems



Action that was taken

- The coroner in Hull held a meeting with Hull and East Riding Public Health, the Police, and the toxicologist
- Toxicology reports for both areas were released to East Riding who conducted an analysis of the deaths
- Opportunity to do detailed analysis due to FY2 placement
- Public Health England issued a warning regarding evidence of harm from fentanyl-contaminated heroin



Toxicology report analysis

- Toxicology reports from 38 suspected drug-related deaths across Hull and East Riding were collated and analysed from 01 September 2016 to 31 May 2017
- 31 deaths likely due to accidental opiate-related deaths
- Brief past medical history was provided in 27 reports
- A list of prescription medications was provided in 21 reports

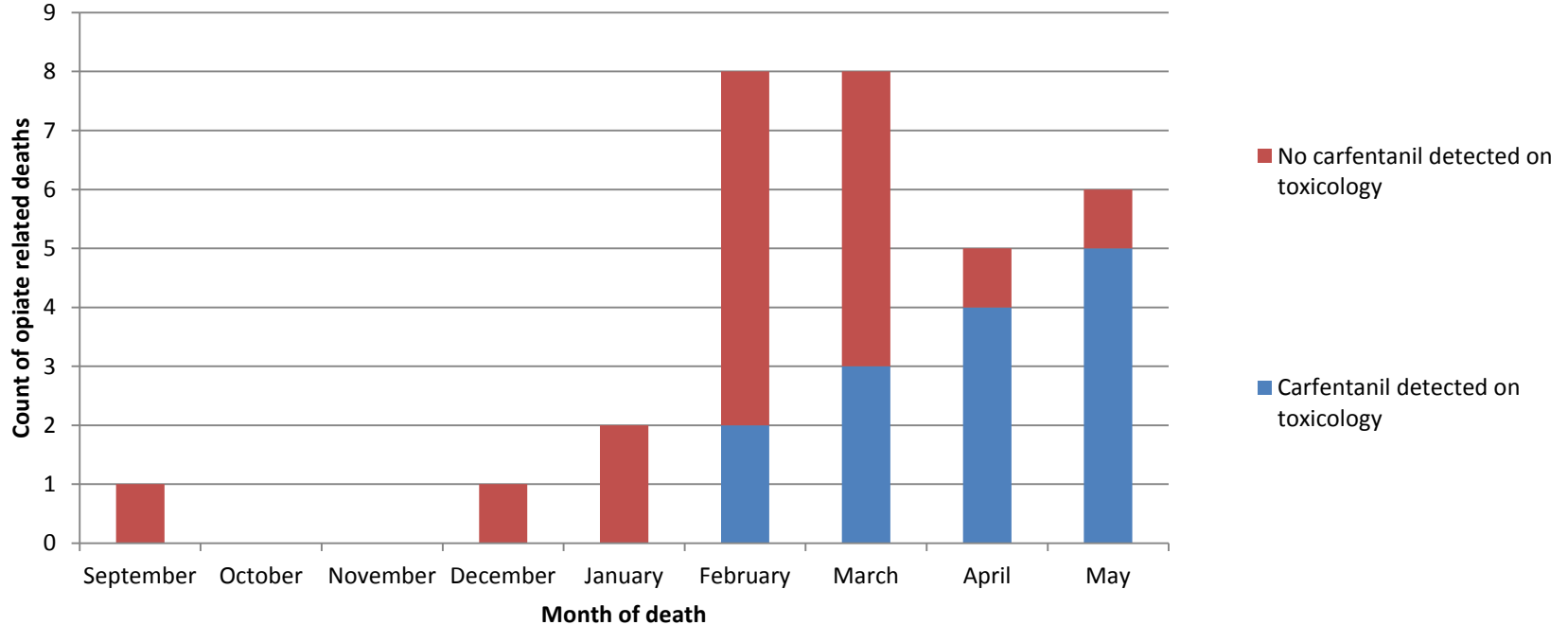


Demographics

- 30 males: 1 female
- Age range 25 to 53, median age 39
- At least 9 were homeless or living in sheltered accommodation
- 2 had returned from police custody within the 48 hours prior to death
- People most at risk: men, mean age 39, long-term users, using alone



Opiate related deaths in Hull and the East Riding between September 2016 - May 2017



Rapid nature of their deaths

- 27/31 (87%) were dead at the scene
- 4/31 showed no response to naloxone and required ventilation and intubation, all had unsurvivable hypoxic brain injury
- Many had specific clues suggesting a rapid death e.g. 'found holding a phone', or 'needle in hand'
- Low free total morphine:free morphine ratios (average 1.5) and morphine levels at the lower end of the lethal range



Co-morbidities

Comorbidity	Frequency (%)
Known previous drug use	22 (81.4)
Mental health illness or depression	13(41.9)
Alcohol abuse/dependence	8 (29.6)
Hepatitis C	6 (22.2)
COPD/bronchiectasis	4 (14.8)
Deep vein thrombosis	4 (14.8)
Epilepsy	2 (7.4)
Cerebro/cardiovascular disease	2 (7.4)
Learning difficulties	1 (3.7)



Prescription medication detection

Medication	Number with medication detected (n=31)	Number with medication prescribed (n=21)	Number in toxic or lethal range (n=31)
Diazepam (or metabolites)	25	4	0**
Codeine*	20	2	0
Methadone	13	9 ⁺	1
Pregabalin	13	6	3
Olanzapine	4	3 ⁺⁺	2
Gabapentin	2	0	0

*common contaminant of street heroin

⁺of which 2 had no detectable methadone

**toxic range quoted as >1500ng/mL; one case had level of 1487ng/mL

⁺⁺ of which one had no detectable olanzapine



Other substances found

Substance	Frequency (%)
Alcohol	10 (32.2)
6-MAM*	20 (64.5)
Carfentanil	14 (45.2)
Cocaine**	16 (51.6)
Cannabis	6 (19.4)
“Spice”	3 (9.7)
MDMA	0 (0)

*6-MAM; 6-monoacetylmorphine, confirms ‘street heroin’ rather than morphine
** Although cocaine was present in this many, levels were often very low on full toxicology reports




Discussion

- IV drug use, mental health issues, depression, alcohol abuse/dependence, hepatitis C were the most common listed co-morbidities
- Diazepam detected in 80% of cases, of which at least 16% were prescribed. Pregabalin detected in 42%, of which at least 46% had it prescribed
- Most common illicit drugs: street heroin (58%), carfentanil (45%) cocaine (52%) and spice (10%)
- Carfentanil is approximately 10,000 times stronger than morphine. It was the most likely cause of the rise in the deaths and those affected appeared to be younger, male and die very quickly
- This is one of the first clusters of drug-related deaths where carfentanil has been present in the UK and has important findings for managing future clusters
- National Crime Agency reported in August 2017 there had been 60 people in the UK that have died after taking fentanyl or one of its analogues



Current work

- Share findings locally and in an academic paper
- Findings published nationally 
- Coroner held further meeting with Humberside Police, Hull and East Riding Public Health – no cases since May 2017
- Dark web being utilised to import fentanyl, often from China to Europe then UK
- East Riding have performed drug-related deaths review panel
- Concerns around role of prescription medications
- Public Health England issued warning about the festive risks for opioid users, fentanyl and beyond (Dec 2017)



Learning points

- Watch out for features that suggest fentanyl and carfentanil and consider testing for it at post-mortem: sudden death, unusual spike in deaths, high total: free morphine ratios, lower morphine toxic levels than you might expect
- Work with your partners: Coroner's Court, Humberside Police, treatment services, prisons, pharmacists and Public Health
- Listen to current drug users e.g. from prisons and needle exchanges
- Be alert to changes in the drugs market - police intelligence and treatment services reported a greater availability of heroin, at a lower price and higher strength during this cluster
- The very high potency of carfentanil has implications for emergency services, who may need to take extra precautions to avoid contact with the substance
- Consider availability of naloxone and need for higher doses



Summary



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Questions?

www.eastriding.gov.uk



There is something in the heroin...

The East Riding, along with other places in the UK has had a lot more overdose deaths recently and it looks like a drug called fentanyl is being mixed into the heroin.

Fentanyl is a bit like heroin but you need less to get a hit and it gets into your system quicker. This makes an overdose more likely.

It is never safe to inject drugs but here are some tips that might keep you alive:

- ➔ Do not use alone
- ➔ Take it in turns to inject and make sure your friends are OK before you inject yourself
- ➔ Don't mix your drugs as they gang up on you, alcohol, benzos and pregabalin make a heroin or heroin and fentanyl overdose more dangerous
- ➔ Try a small amount of the drug first, to get an idea of strength
- ➔ Inject very slowly and stop if the hit seems really strong or fast. Often a fentanyl overdose will happen in the first minute of use. Injecting slowly will not alter the 'Hit'
- ➔ If someone overdoses ring for an ambulance straight away because fentanyl works so fast you might not have much time
- ➔ Use naloxone if you have any. Naloxone reverses the effects of heroin and similar drugs and some treatment services including the East Riding are issuing naloxone and teaching people how to use it.



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