



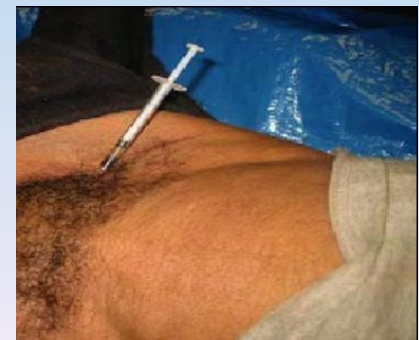
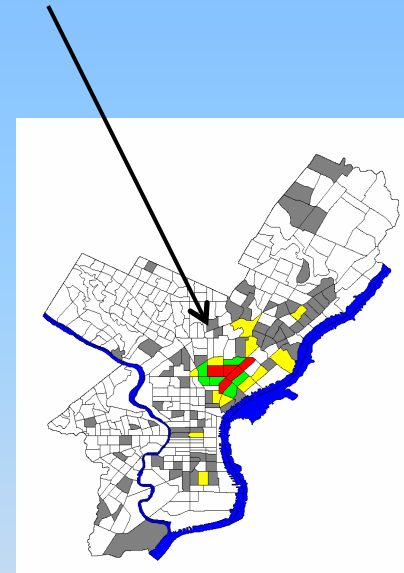
Double-Duty Dopers:

Managing Fentanyl-Laced Heroin Abuse

C. Crawford Mechem, MD
EMS Medical Director
Philadelphia Fire Department
Department of Emergency Medicine
University of Pennsylvania School of Medicine

Some Context

- In 2006, Philadelphia M.E.'s Office reported 252 drug-related deaths from fentanyl
- Most cases in 2 neighborhoods, prompting police to warn users to stay away
 - They flocked there instead

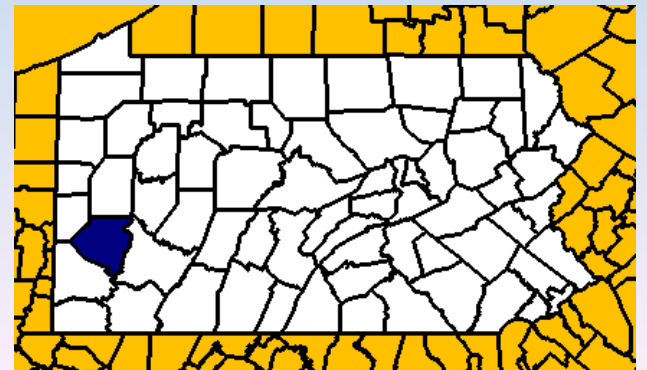


Broader Context

- CDC and DEA identified 1,013 fentanyl-related deaths between 2005-2007
- Made in clan labs in Mexico, CA, elsewhere
- Distinct trafficking patterns/gang ties
- Some regions heavily affected, others not at all

The 2006 Outbreak

1. Cook County, IL (Chicago)
2. Philadelphia
3. Wayne County, MI
 - Detroit (12 deaths in one day)
- Camden, NJ
- Allegheny County, PA
 - Includes Pittsburgh

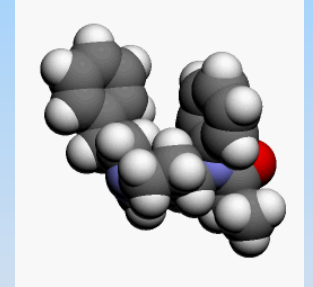


Previous Episodes

1. In 1979, “China White” appeared in California
 - 3-methylfentanyl
 - Killed > 100 over next 5 years
2. Resurfaced in Allegheny County, PA, in 1987-88, killing 18

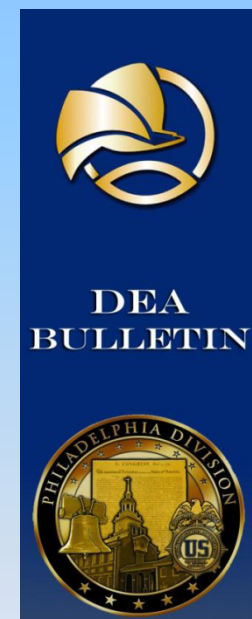
Fentanyl

- 80 times as potent as morphine
- Duration of action ~ 30 min.
- Reversible with naloxone
- Routine lab testing may miss it
 - Detected by ELISA, GC-MS



And Now The Present

- In April 2013, Philadelphia Medical Examiner's Office reported death due to acetyl fentanyl
 - 6 fentanyl-related deaths between May and Sept. 2013
 - Mixed with heroin in packets labeled "Flashback" and "Audi"



Rhode Island: The Present

- CDC reported 14 OD deaths from acetyl fentanyl in RI from March 6-June 20, 2013
- From Jan 1-Feb 20, 2014, 28 fentanyl-related deaths



Pittsburgh: The Present

PITTSBURGH TRIBUNE-REVIEW™
TRIB TOTAL MEDIA

- **New heroin, painkiller mix 'all over Pittsburgh' kills at least 13**
 - The deadliest batch of heroin to hit Western Pennsylvania in more than 25 years killed as many as 13 people during past week
 - Sold under names *Theraflu*, *Bud Light*, *Diesel*
 - Affecting Allegheny County

January 27, 2014

The Present

- Cases reported in:
 - New Orleans area
 - North Carolina
 - Michigan
 - Maryland
 - New Jersey
 - Connecticut
 - Estonia

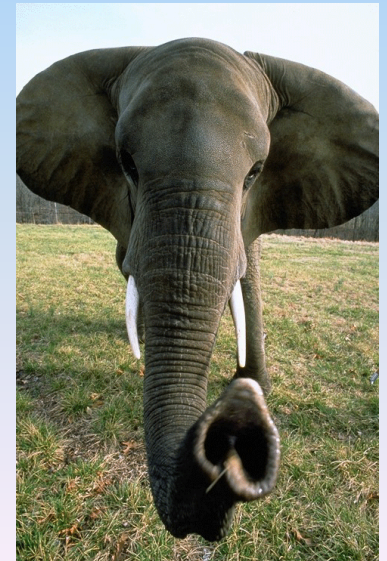


Community and EMS Response

- Robust surveillance capability so fentanyl recognized early
- Collaborate with law enforcement, public health, media
- Partner with substance abuse prevention programs to educate users

Response Options

- Promote community naloxone programs
 - Prevention Point Philadelphia provides to users, families, friends, with training
- Allow EMTs to give naloxone
 - Wisconsin
- Nasal administration by police
 - NM, MA, etc.



Appropriate Naloxone Dose?

- Very little published data
- 0.1, 0.2, and 0.4 mg IV reversed respiratory depression caused by 50 μ g IV fentanyl administered to anesthetized patients in dose-dependent fashion.



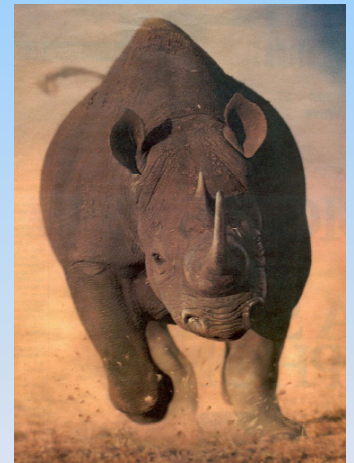
Naloxone: Dose-dependent antagonism of respiratory depression by fentanyl in anaesthetized patients. Br. J. Anaesth 1977; 49:151-4.

Appropriate Naloxone Dose?

- Per PA Statewide ALS Protocols:
 - 0.4 mg IV/IO, repeating to total 2 mg
- Maryland Poison Center (and others)
 - Initial: 0.4-2 mg
 - Repeat dose: 2 mg every 2-3 min. to 10 mg
 - If no response after 10 mg, reconsider diagnosis

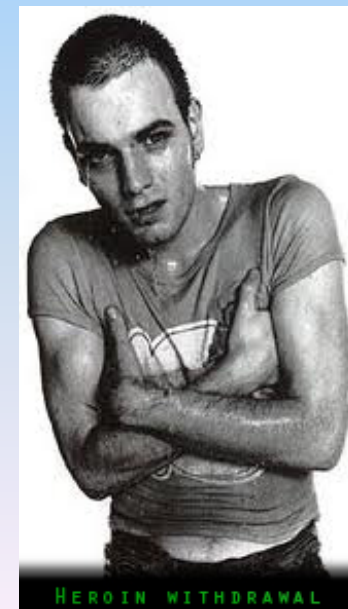
Appropriate Naloxone Dose?

- Dozens of fentanyl analogs
 - Differing potencies, durations
 - Carfentinil 100x as potent as fentanyl
 - Used to tranquilize rhinos and elephants
 - 2002 Moscow theatre hostage crisis?
 - Which analog, in what proportion?



Appropriate Naloxone Dose?

- Give lowest dose needed to restore spontaneous respirations
- *Watch out for withdrawal*



Summary

- Fentanyl-laced heroin is back and is a serious public health threat
- Standard prehospital care probably sufficient
 - Higher doses of naloxone *may* be needed
- Vigilance, public education, collaboration with other agencies key to minimizing deaths

Thank You

