TOWARD A REAL-TIME DRUG OVERDOSE MONITORING SYSTEM

Using Locally Available Data

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Goals for Today's Presentation

1. Make the case for *real-time* overdose monitoring.

2. Describe the complexity of overdose monitoring.

3. Advocate for greater cross-agency coordination around overdose monitoring and response.

Overview

- Background
  - The vast spectrum of opioids
  - Trends in fatal overdose: nationally>regionally>locally
- Real-time Overdose Data Systems
  - Medical Examiners Office
  - Other sources of real-time OD data.
- Other Relevant (not real-time) Data Sources
- Translating Data into Action!

BACKGROUND

Complementary Goals

Public Health: Reduce Demand.

Law Enforcement: Reduce Supply.

Terminology

Opioid – interacts with the opioid receptor.

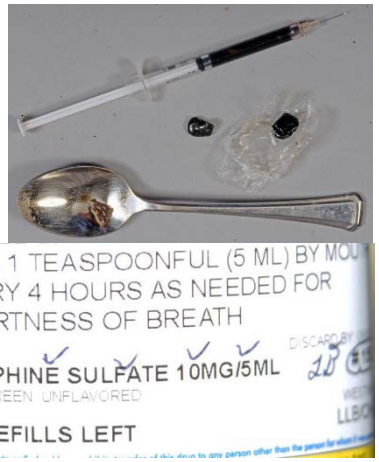
- Naturally occurring opiates and derivatives.
- Prescription and synthetic opioids (pharmaceutical opioids).

Opiate – naturally occurring alkaloid or simple derivative of the opium poppy:

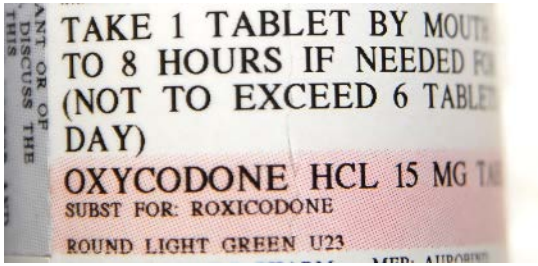
- Heroin
- Morphine

Found at Death Scene Investigations

- Opiate Opioids
  - Heroin
  - Morphine
  - Codeine



- Pharmaceutical Opioids
  - Oxycodone
  - Oxymorphone
  - Hydromorphone
  - Hydrocodone
  - Tramadol



- Therapeutic Opioids
  - Methadone
  - Buprenorphine

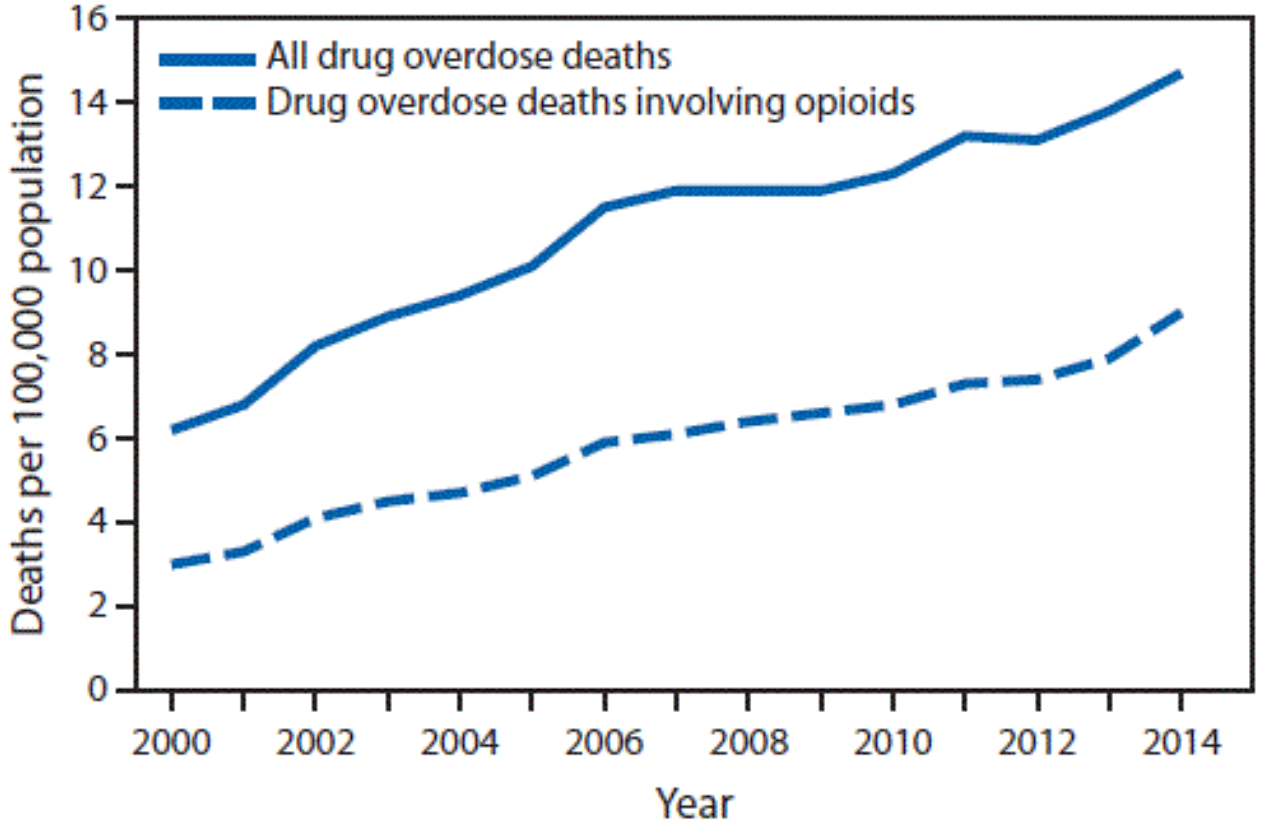
- Fentanyl
  - (& its derivitives)

OVERDOSE TRENDS

Morbidity and Mortality Weekly Report (*MMWR*)

Nationally

Age-adjusted rate* of drug overdose deaths† and drug overdose deaths involving opioids — United States, 2000–2014



Citation: Rudd RA, Aleshire N, Zibbell JE, Gladden MR. Increases in Drug and Opioid Overdose Deaths — United States, 2000–2014. MMWR Morb Mortal Wkly Rep 2016;64(50):1378–82. DOI: https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6450a3.htm?s_cid=mm6450a3_w .

Data Source: National Vital Statistics System, Mortality file.

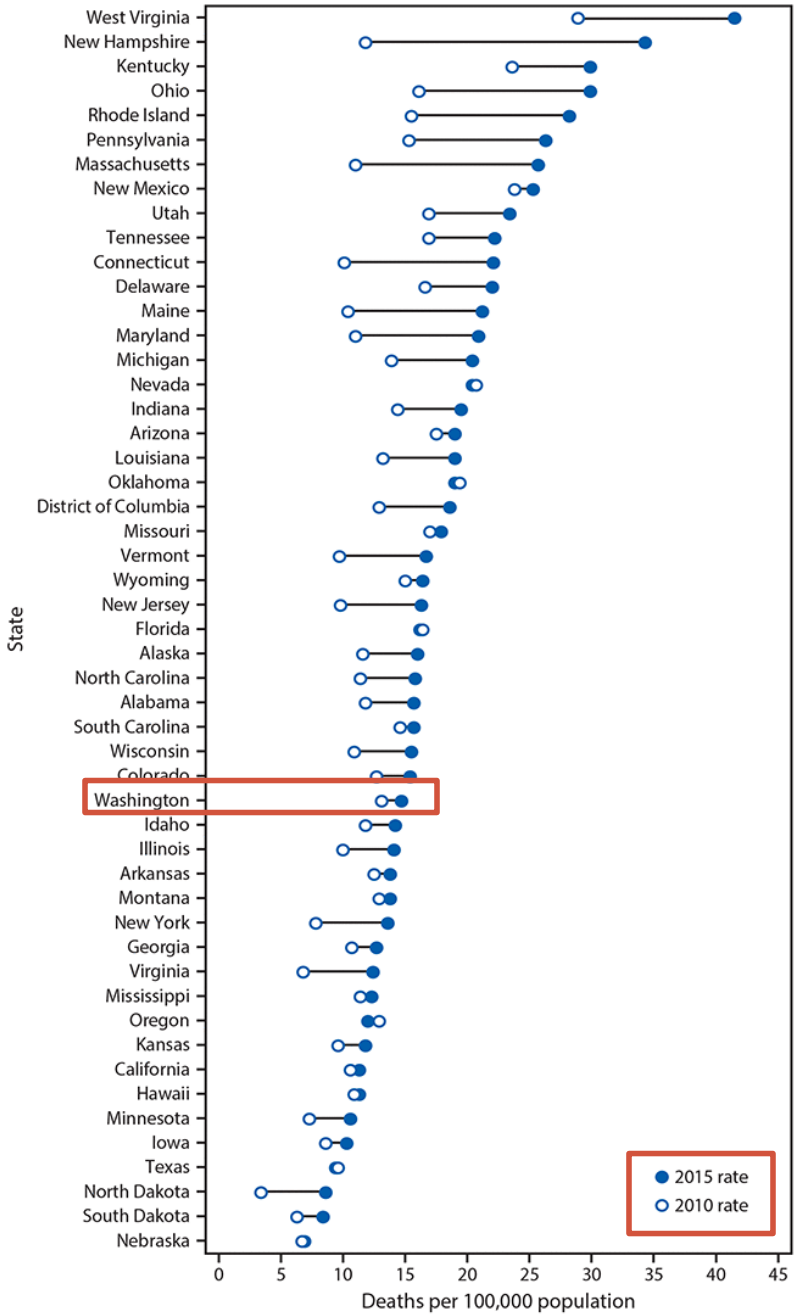
* Age-adjusted death rates were calculated by applying age-specific death rates to the 2000 U.S. standard population age distribution.

† Drug overdose deaths are identified using *International Classification of Diseases, Tenth Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14.

Morbidity and Mortality Weekly Report (*MMWR*)

By State

Age-adjusted rate of drug overdose deaths, 2010 and 2015



Citation: Rudd RA, Seth P, David F, Scholl L. Increases in Drug and Opioid-Involved Overdose Deaths — United States, 2010–2015. MMWR Morb Mortal Wkly Rep 2016;65:1445–1452. DOI: http://dx.doi.org/10.15585/mmwr.mm655051e1.

Data Source: CDC. National Vital Statistics System, Mortality. CDC WONDER. Atlanta, GA: US Department of Health and Human Services, CDC; 2016. https://wonder.cdc.gov/.

Rates shown are the number of deaths per 100,000 population. Age-adjusted death rates were calculated by applying age-specific death rates to the 2000 U.S standard population age distribution.

† Deaths were classified using the *International Classification of Diseases, Tenth Revision* (ICD–10). Drug overdose deaths were identified using underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14.

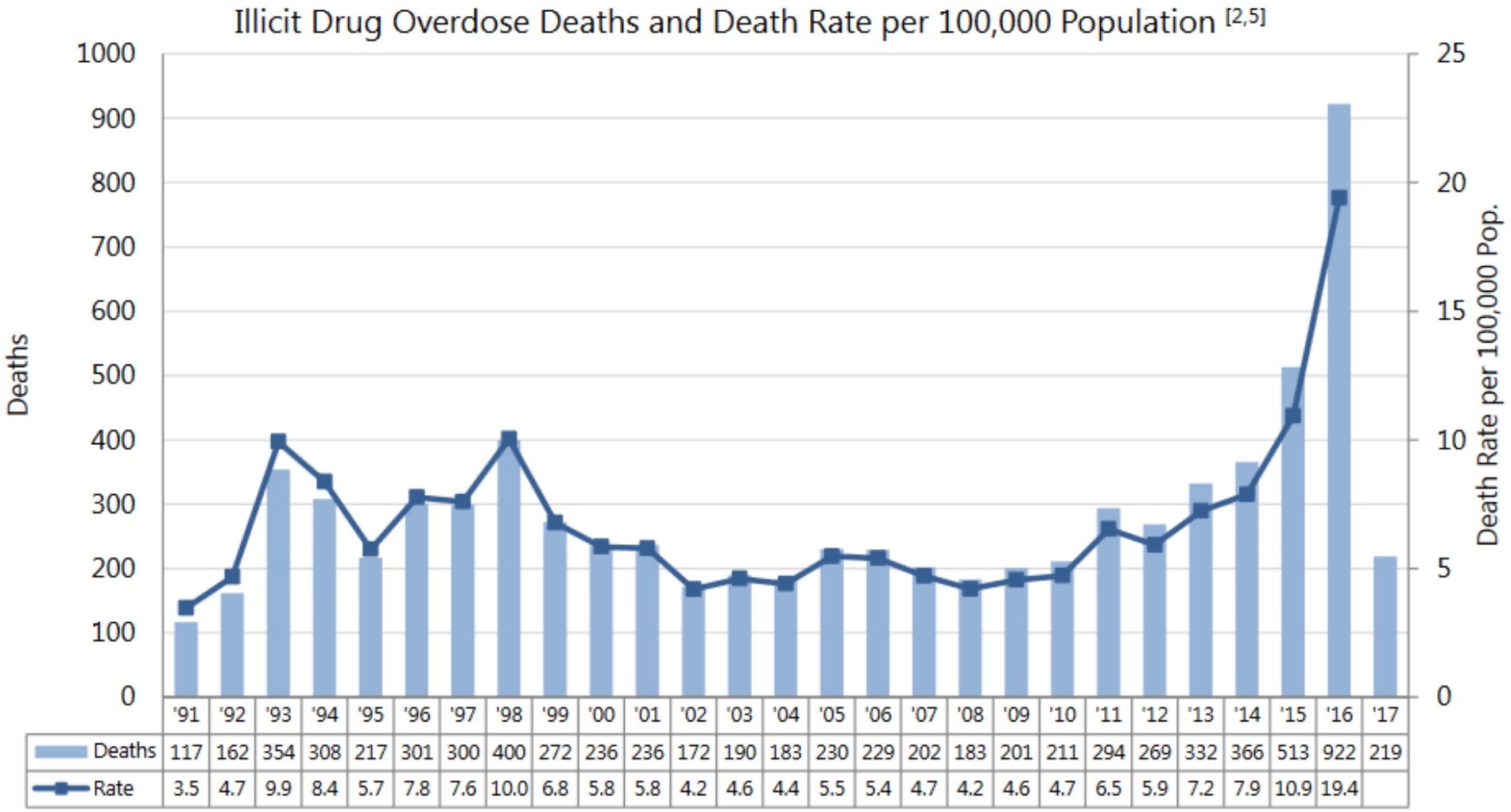
West Virginia's ME Viewpoint:

"My dad is a family doc in my hometown. He regularly has the phone wires to his office cut because they think they are cutting the alarm system. This has been lessening, though, as the focus shifts from oxycodone to injectables."

"When I first started here it was oxycodone, day in and day out. We had a brief run of heroin, but now almost everything is fentanyl, carfentanil, acetyl fentanyl or furanyl fentanyl. Or some combination of those."

Source: Personal Correspondence with Dr. Andrea Orvik (WV ME)

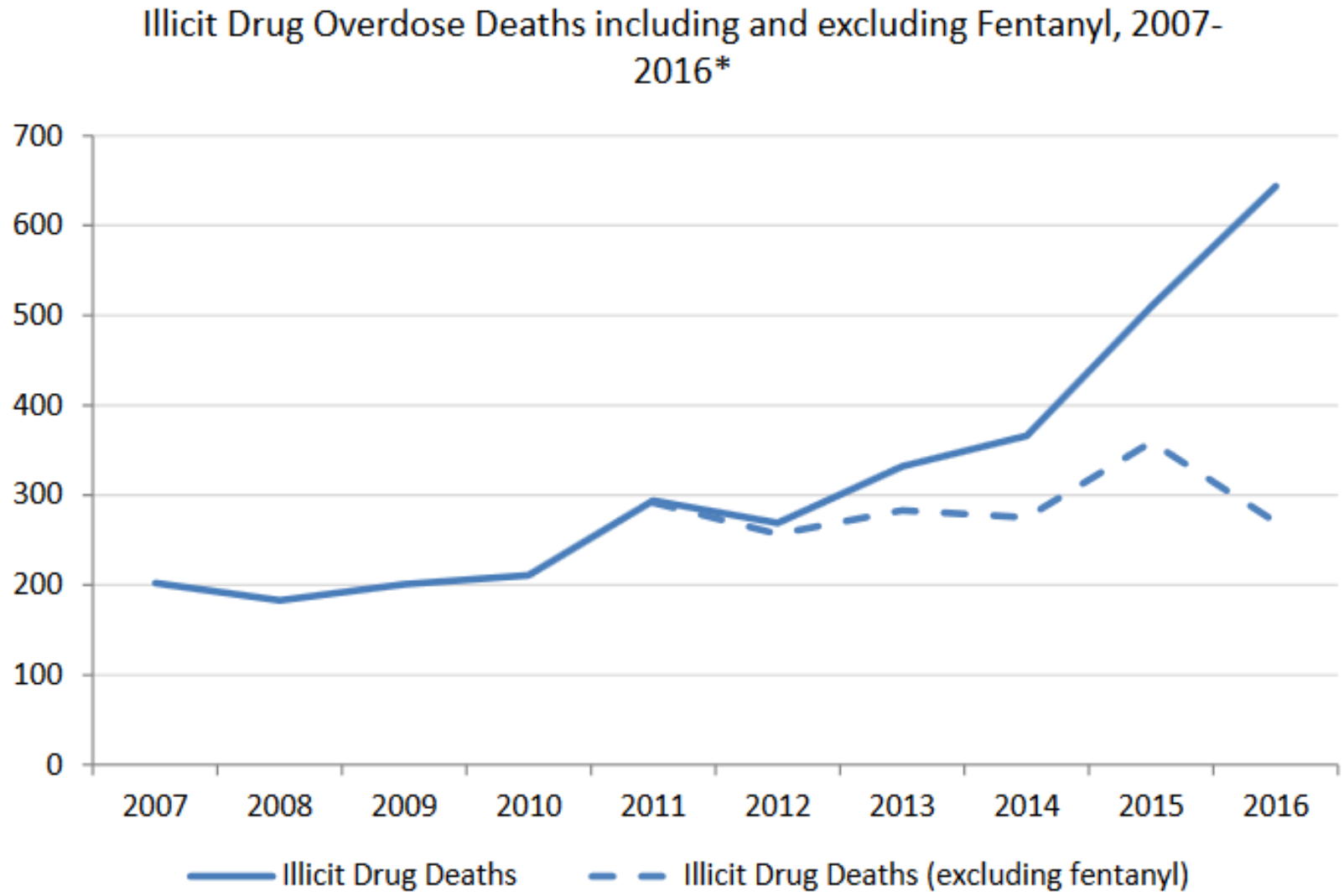
PNW: British Columbia



	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17
Deaths	117	162	354	308	217	301	300	400	272	236	236	172	190	183	230	229	202	183	201	211	294	269	332	366	513	922	219
Rate	3.5	4.7	9.9	8.4	5.7	7.8	7.6	10.0	6.8	5.8	5.8	4.2	4.6	4.4	5.5	5.4	4.7	4.2	4.6	4.7	6.5	5.9	7.2	7.9	10.9	19.4	

Source: B.C. Coroners Service. Illicit Drug Overdose Deaths in BC, 2007-2017. Accessed on 4/13/2017 from http://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/death-investigation/statistical/illicit-drug.pdf

PNW: BRITISH COLUMBIA



*Data to Oct 2016

Source: B.C. Coroners Service. Illicit Drug Overdose Deaths in BC, 2007-2017. Accessed on 4/13/2017 from http://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/death-investigation/statistical/illicit-drug.pdf

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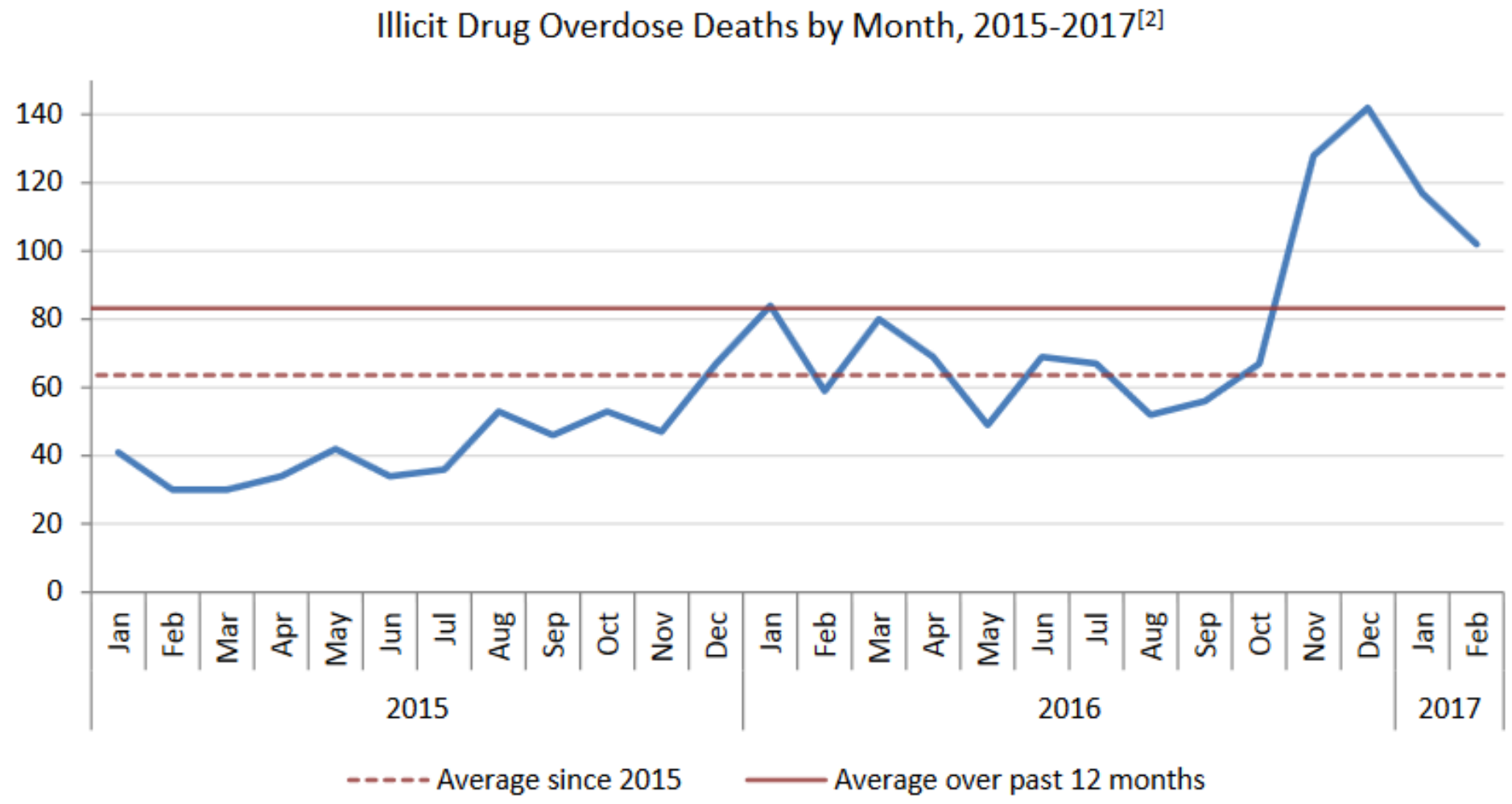
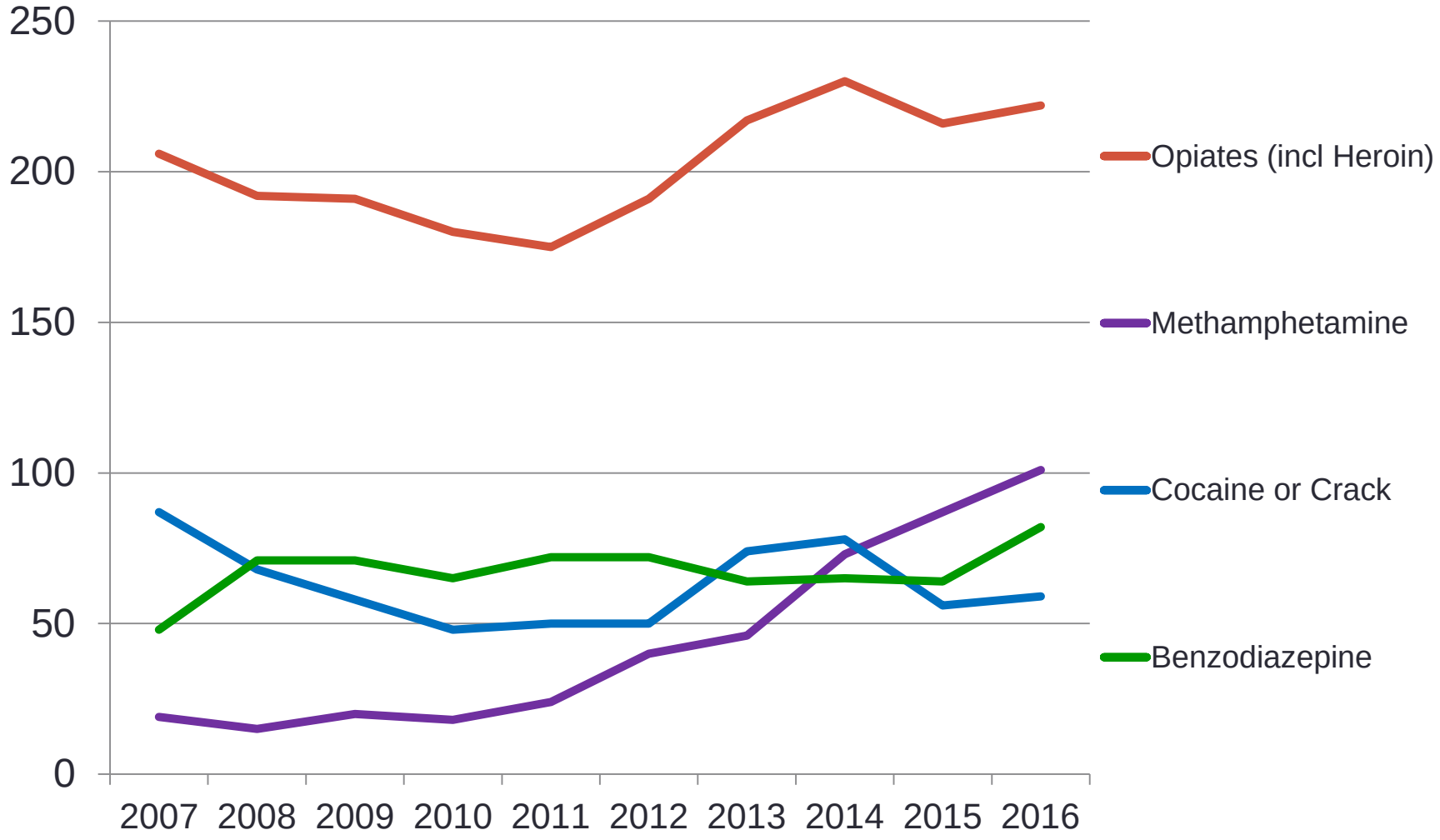
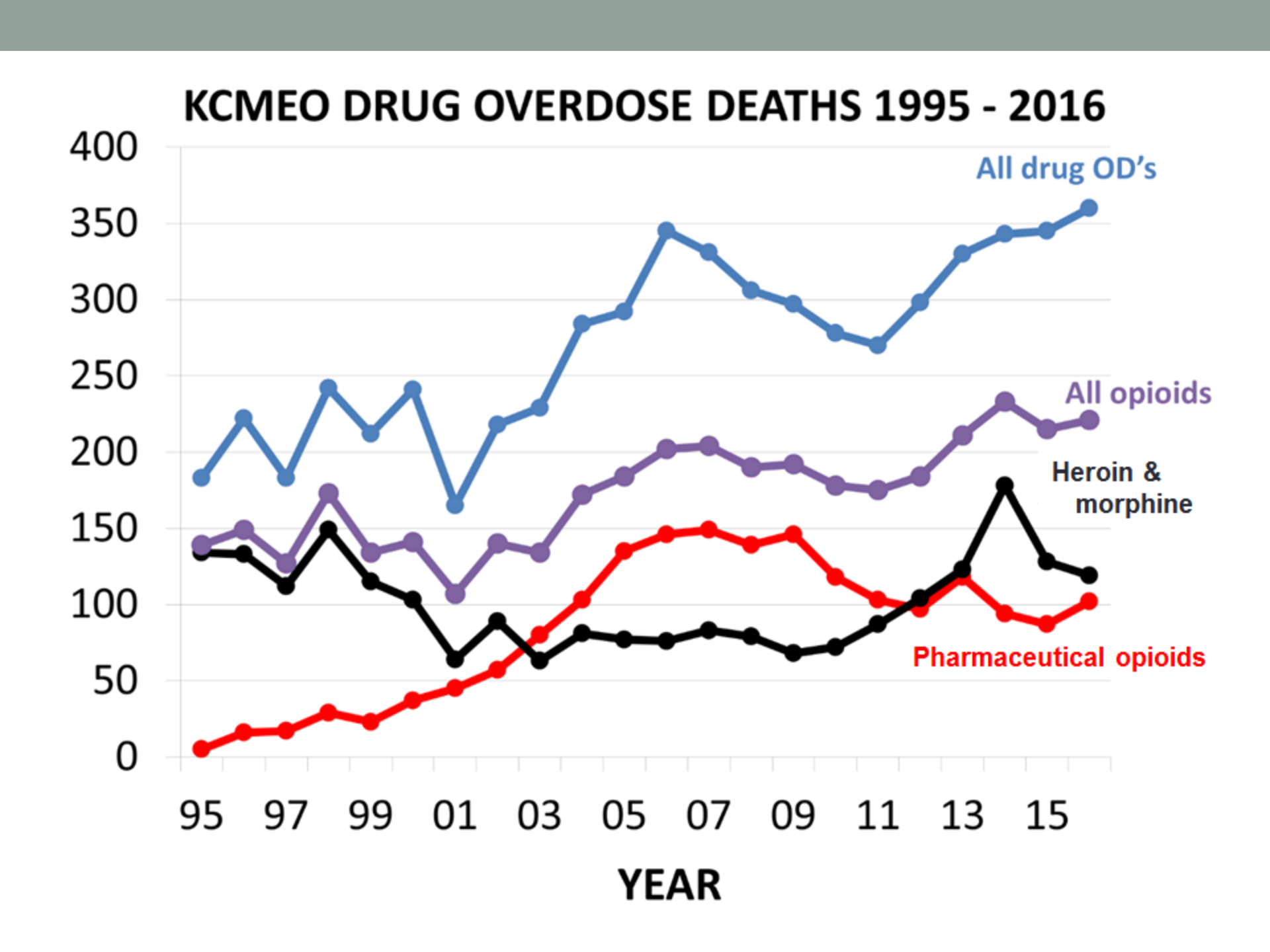


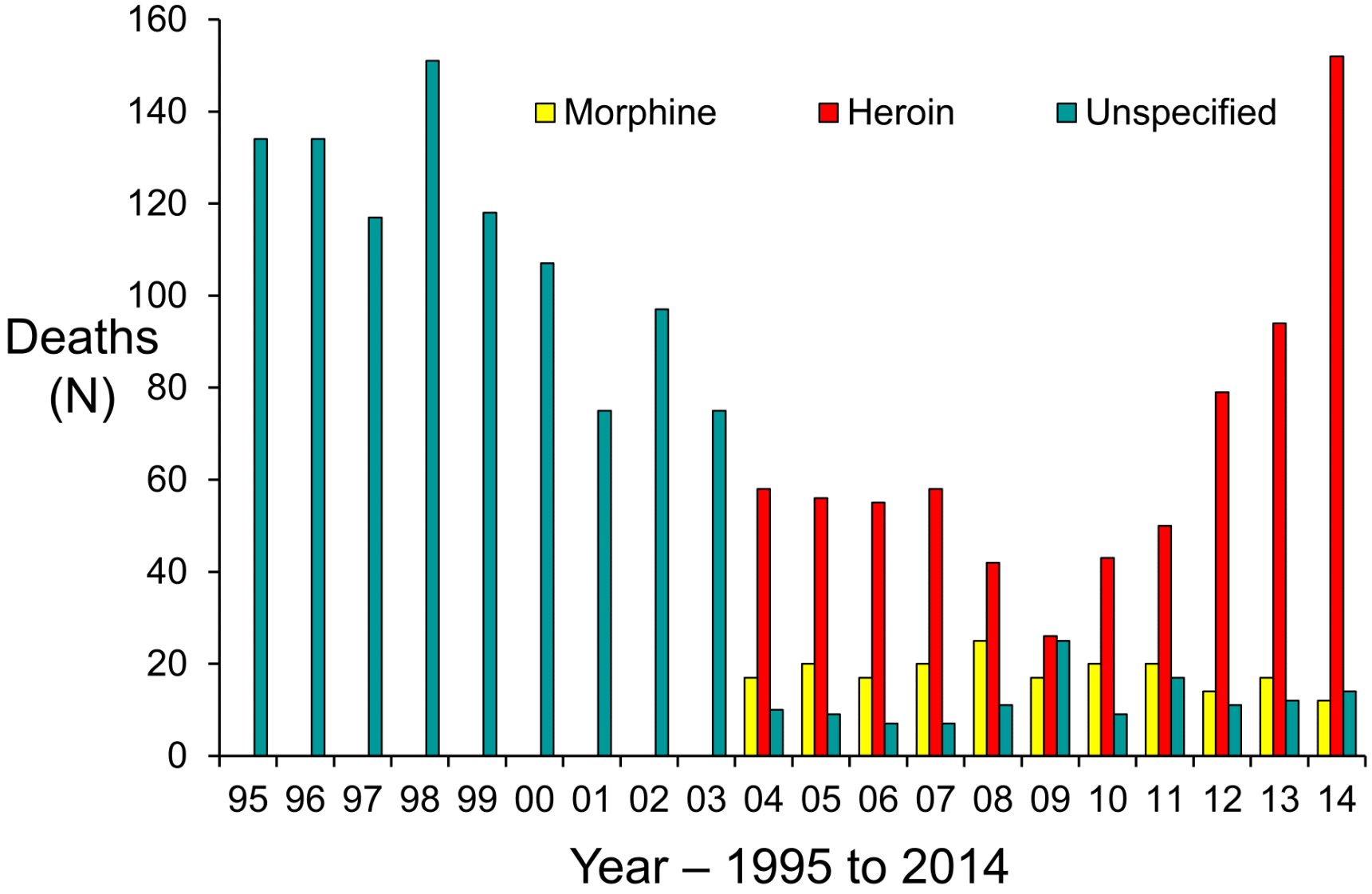
Source: B.C. Coroners Service. Illicit Drug Overdose Deaths in BC, 2007-2017. Accessed on 4/13/2017 from http://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/death-investigation/statistical/illicit-drug.pdf

Number of Fatal Overdoses* in King County, 2007-2016

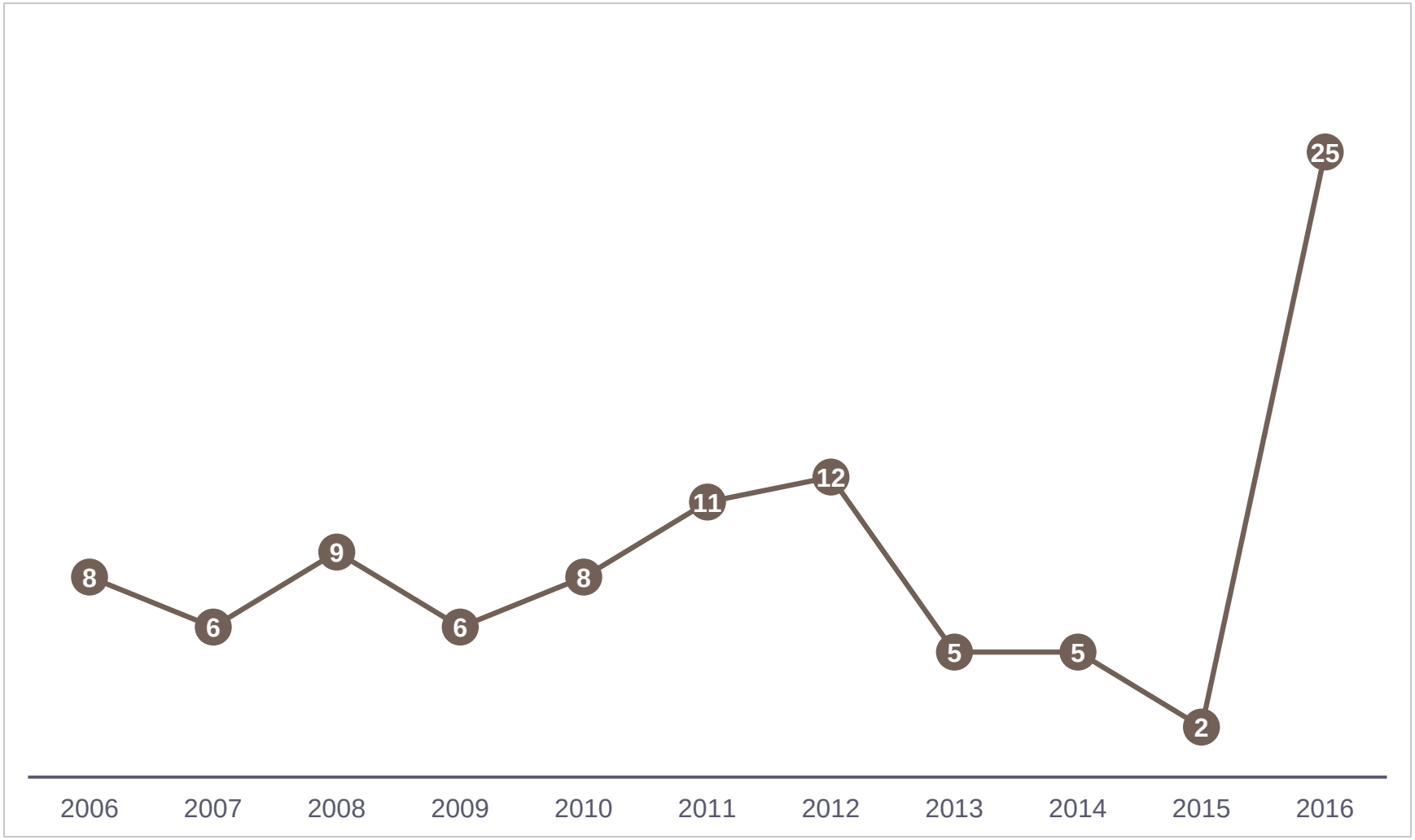


Data source: King County Medical Examiner's Office (2007 – 2016)
*A single death can be attributed to multiple drug types


KCMEO DRUG OVERDOSE DEATHS 1995 - 2016
400
350
300
250
200
150
100
50
0
All drug OD's
All opioids
Heroin & morphine
Pharmaceutical opioids
95
97
99
01
03
05
07
09
11
13
15
YEAR


Deaths (N)
160
140
120
100
80
60
40
20
0
Morphine
Heroin
Unspecified
95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14
Year – 1995 to 2014

Fentanyl Type Drug OD Deaths



REAL-TIME MONITORING OF DRUG OVERDOSE

Goals of Real-Time Monitoring

1. Identify potential overdose clusters.
2. Timely and targeted response to emergent threats.
3. Inform law enforcement investigations.

FATAL OVERDOSE

Medical Examiners Office

Challenges to Monitoring Drug Overdoses through Death Records

- Limited resources
- Limited investigation
- No or poor witnesses
- Limited ability to identify drug or source
- Delay in toxicology analysis
- Delay in death certification

"Because drug deaths take a long time to certify, the Centers for Disease Control and Prevention will not be able to calculate final [2016] numbers until December [2017]." **Drug Deaths in America Are Rising Faster Than Ever – NYT 6/5/2017**

Developing Real-Time Monitoring of Fatal Drug Overdoses

- Expend resources to enhance fatal drug overdose investigation.
- Utilize family/friends to assist in identifying source of drug.
- Improve efforts to identify drugs recovered from scene.
- Recognize similar drugs found at different scenes and clusters of related drug overdose deaths.
- Recognize potential novel or counterfeit drugs and request chemical analysis.
- Request expedited toxicology analysis and utilize screening kits for potential novel or counterfeit drugs.
- Develop rapid reporting system for drug overdose deaths to inform local law enforcement, DEA, HIDTA.

OTHER REAL-TIME DATA SOURCES

Emergency Medical Services

Emergency Department Visits

Emergency Medicine Services

- Centralized repository of data collected by first responders (e.g. firefighters and paramedics).
- Captures:
  - Responding agency
  - Date/time/location of incident
  - Demographics of patient
  - Chief complaint
  - Narrative
  - Whether naloxone was distributed
  - Whether case transported to ED/hospital

Emergency Department Visit Data

- PHSKC Syndromic Surveillance System:
  - Automated system.
  - Hosted by PHSKC Communicable Disease Epi Program.
  - Captures all ED visits in last 24 hours.
  - 21 of 22 King County EDs participating.
  - Captures: hospital name, date & time of visit, age, sex, home zip, chief complaint, disposition, diagnosis, patient/visit key.
  - Free text fields queried for key terms.
  - Weaknesses: limited data elements and granularity; data quality

- Other Systems:
  - EDIE/PreManage
  - ESSENCE ~ managed by DOH

OTHER RELEVANT DATA SOURCES

(Not available in real-time)

Other Key Data Sources

- Overdose:
  - WA State Death Certificate Data
  - Hospitalization data ("CHARS")
- Prescribing patterns:
  - Prescription Monitoring Program
- Toxicology Results:
  - WA State Patrol Toxicology and Crime Laboratories
  - Hospital Toxicology Laboratories
- Surveys:

Data Source	Who?	Drugs Used	Survived Overdose	Harm-Reduction
Healthy Youth Survey	Middle & High School Students	X		
Behavioral Risk Factor Surveillance System	Adults in general population.	X		
Needle Exchange Survey	Clients of KC Needle Exchange	X	X	X
National HIV Behavioral Surveillance	Injection Drug Users	X	X	X
HIV Surveillance	People with diagnosed HIV	X		

WINDOW OF OPPORTUNITY

Political Will

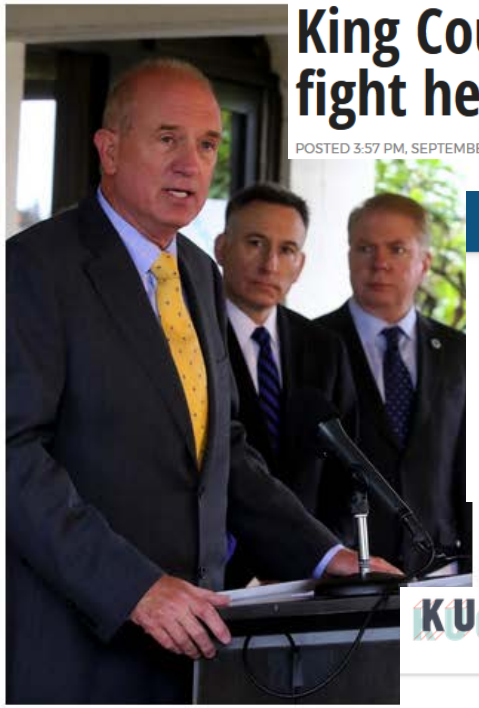
The Seattle Times

New task force to tackle heroin epidemic in Seattle, King County

Originally published March 1, 2016 at 8:28 pm | *Updated*

Q13 FOX HERE WE STAND

NEWS | THIS MORNING | SPORTS | TRAFFIC | WASHINGTON'S MOST WANTED | PICK MY PET | ON-AIR | EVENTS | WEATHER 51°



King County task force unveils three-tiered plan to fight heroin, opiate problem

POSTED 3:57 PM, SEPTEMBER 15, 2016, BY ANDREW PADULA, *UPDATED AT 04:42PM, SEPTEMBER 15, 2016*

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Local News

Leaders take action against heroin crisis in Seattle, King County

KUOW Sound stories. Sound voices. DONATE

1 of 2

Speaking at a gathering with elected officials announcing a t heroin use, King County Sheriff John Urquhart said, "We can' thing over and over again and... (Greg Gilbert/The Seattle Ti

Seattle could be first U.S. city with safe injection site

By RUBY DE LUNA • SEP 15, 2016

Additional Financial Resources

- State Targeted Response to Opioid Crisis Grant

- Medicaid Demonstration Project

TRANSLATING

DATA INTO ACTION

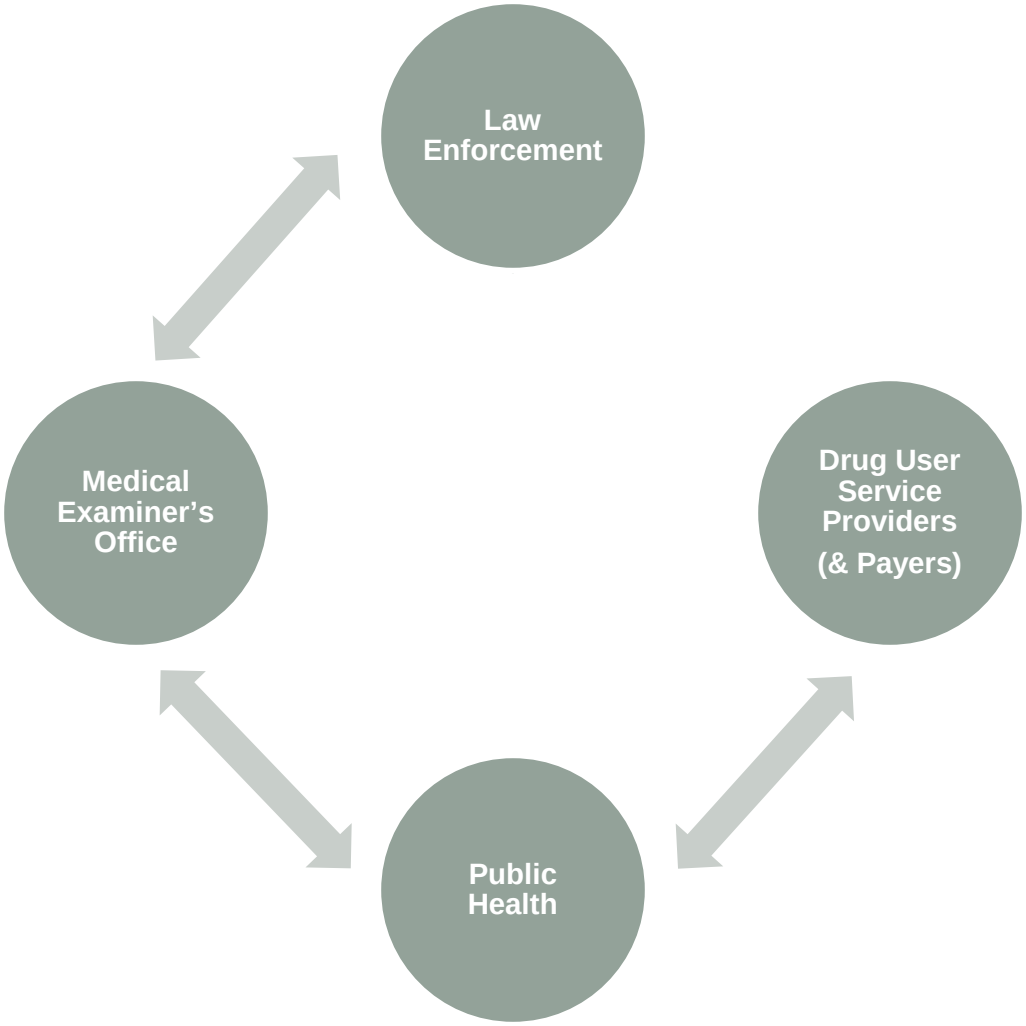
What information do agencies need?

When do they need it?

Will they use it?

Can it be shared?

Forging New (& Strengthening Old) Partnerships



Strategies to Enhance Cross-Agency Collaboration…

- Communication Coordinator
- Periodic Meetings
  - Presentation
  - “Round Robin” – Agency report of overdose related activities
- Listservs
- Newsletters

QUESTIONS? COMMENTS?

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