Optimizing Safety in People with Addictions

CRIT/FIT program – April 2016

Alex Walley, MD, MSc

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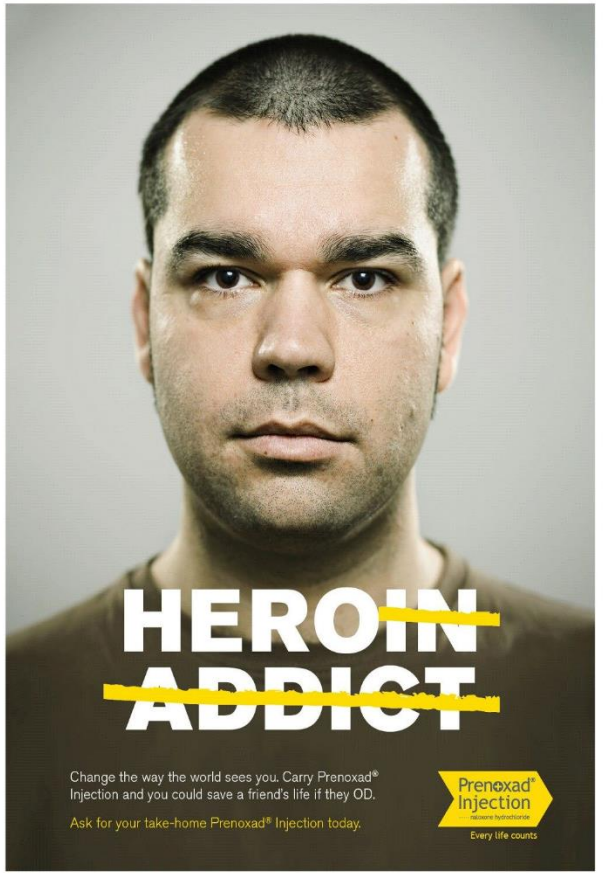
Learning objectives

At the end of this session, you should be able to:

1. Define harm reduction and apply it to patient care
2. Teach overdose prevention strategies
3. Minimize the risk of polypharmacy among patients



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Case

- You are called to admit a 29 yo woman with polydrug overdose, complicated by aspiration, and a left arm cellulitis. She was found unresponsive in the bathroom of a restaurant with a syringe, cooker and filters.
  - Works as a waiter
  - Injecting heroin daily since age 23.
  - Uses cocaine on the weekends and drinks alcohol after work
  - Trades sex for drugs, when money is short
  - Prescribed clonazepam, clonidine and gabapentin for panic disorder and mood stabilization
  - Treated with methadone and buprenorphine in the past when pregnant
  - Intends to use again on discharge

  Despite your best brief intervention and motivational interviewing…
  - ***She is not interested in treatment at this time.***

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How do you optimize safety for people who continue to use (or who may relapse)?

- First assess risks:
  - Infection risk behaviors
    - Injection
      - New needle and syringe every time
      - Filters and Cooking
      - Clean solvent
    - Sex
      - Without a condom?
      - With multiple partners
      - While using drugs
      - In exchange for money or drugs – bad date sheet
  - Overdose risk behaviors
    - Using alone
    - Mixing substances - POLYPHARMACY
    - Abstinence
    - Unknown source
    - Chronic illness
- Second: Make a safety plan

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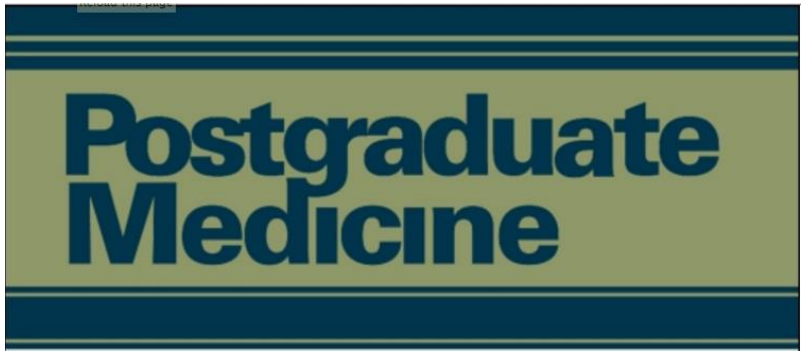
Optimizing safety
(aka Harm Reduction)



Optimising health and safety of people who inject drugs during transition from acute to outpatient care: narrative review with clinical checklist

Kinna Thakarar,[1] Zoe M Weinstein,[2] Alexander Y Walley[2]

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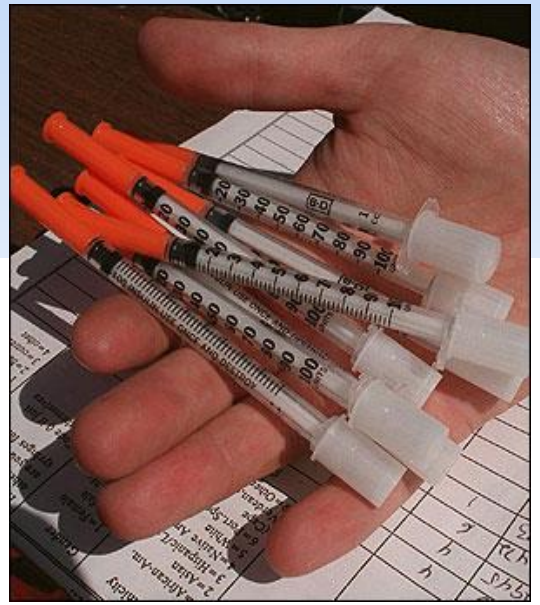
What is Harm Reduction?



- Practical strategies and ideas to reduce substance use consequences
  - A movement for social justice built on a belief in, and respect for, the rights of people who use substances.
    - Harmreduction.org
- Interventions guided by risk-benefit analysis
  - Abstinence is not a prerequisite to care

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Harm Reduction Interventions

- Opioid agonist treatment to reduce HIV and mortality
  - Treatment continuity post-incarceration
- Needle and syringe programs to reduce HIV and injection risk
  - Pharmacy access needles and syringes
- Drug consumption rooms for injection risk and overdose mortality
- Naloxone rescue kits for opioid overdose mortality
- Pre and Post exposure prophylaxis
- Housing first programs
- Shelter-based alcohol administration
- Bad date sheets

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http://www.emcdda.europa.eu/best-practice/harm-reduction

Needle Syringe Access

Slide from Sarah Wakeman

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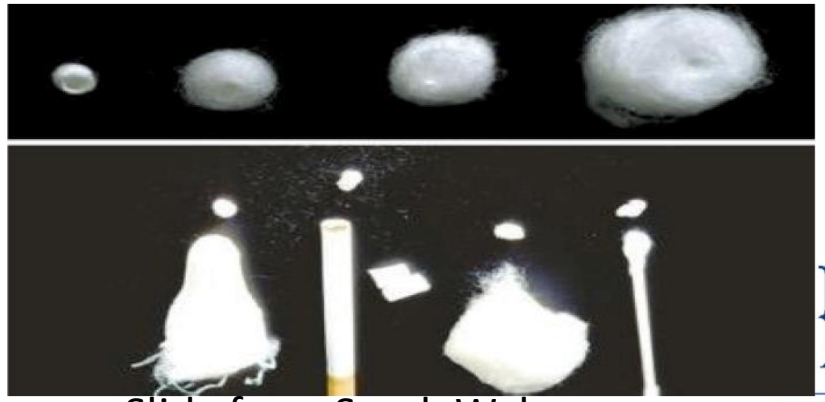
Filters

- Used to trap particulate matter
- Cotton balls, Q tip, tampon, cigarette filter
- Require manipulation with fingers
- Contamination with skin flora
- Ideal filter small, preformed (dental pellet)



Slide from Sarah Wakeman

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To Cook or not to Cook

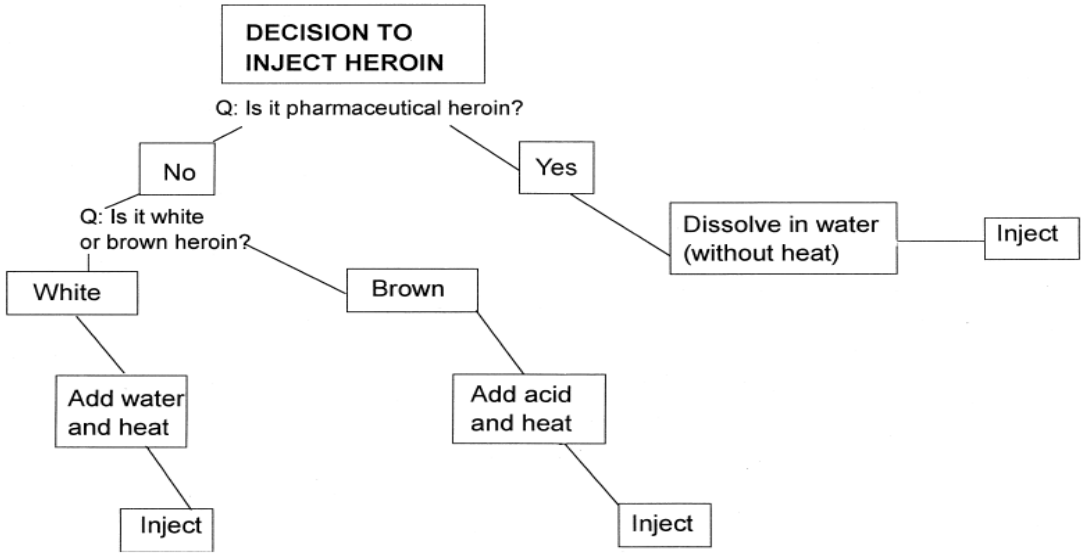

Figure 2. Apparent Decision-making Algorithm to Determine Inclusion or Omission of Use of Acid and/or Heat During Preparation of Heroin for Injection.

Strang J et al. Different forms of heroin and their relationship to cook-up techniques: data on, and explanation of, use of lemon juice and other acids. Subst Use Misuse. 2001 Apr;36(5):573-88.

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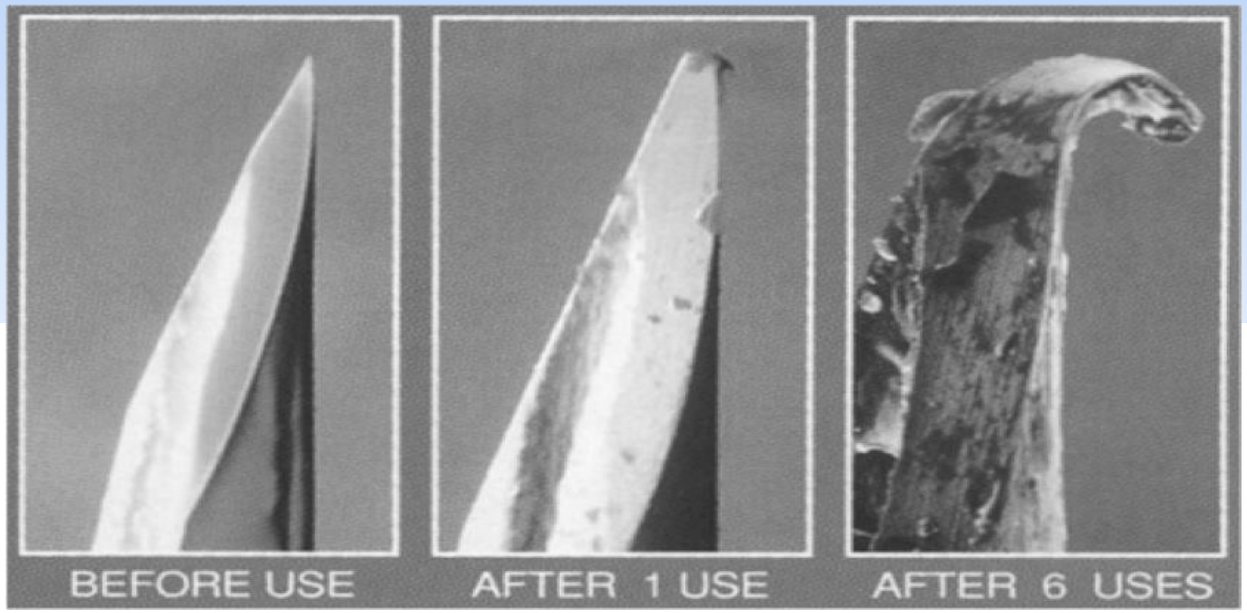
Syringes and needles



- New needle and syringe each injection
- Needle dulls with each use
- Bleach is option
- Don't use syringe to divide dose or mix heroin

Slide from Sarah Wakeman

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Change in HIV seroprevalence with and without needle-syringe programs

	Cities with NSPs	Cities without NSPs
All cities	-5.8% per year	+5.9% per year
Cities with seroprevalence <10%	-1.1% per year	+16.2% per year

Hurley et al. Lancet 1997:349; 1797-1800.
www.unodc.org/documents/hiv-aids/EFA%20effectiveness%20sterile%20needle.pdf

David Satcher, Surgeon General 2000

After reviewing all of the research to date, the senior scientists of the Department and I have unanimously agreed that there is conclusive scientific evidence that **syringe exchange programs**, as part of a comprehensive HIV prevention strategy, **are an effective public health intervention that reduces the transmission of HIV and does not encourage the use of illegal drugs.** In many cases, a **decrease in injection frequency** has been observed among those attending these programs. In addition, when properly structured, syringe exchange programs provide a unique opportunity for communities to reach out to the active drug injecting population and **provide for the referral and retention of individuals in local substance abuse treatment and counseling programs** and other important health services.

- www.csam-asam.org/evidence-based-findings-efficacy-syringe-exchange-programs-analysis-scientific-research-completed-ap

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Community Outbreak of HIV Infection Linked to Injection Drug Use of Oxymorphone — Indiana, 2015

Caitlin Conrad[1], Heather M. Bradley[2], Dita Broz[2], Swamy Buddha[1], Erika L. Chapman[1], Romeo R. Galang[2,3], Daniel Hillman[1], John Hon[1], Karen W. Hoover[2], Monita R. Patel[2,3], Andrea Perez[1], Philip J. Peters[2], Pam Pontones[1], Jeremy C. Roseberry[1], Michelle Sandoval[2,3], Jessica Shields[4], Jennifer Walthall[1], Dorothy Waterhouse[4], Paul J. Weidle[2], Hsiu Wu[2,3], Joan M. Duwve[1,5] (Author affiliations at end of text)

MMWR / May 1, 2015 / Vol. 64 / No. 16

-> Jan 2016 federal funding ban ended

- 135 (129 confirmed, 6 prelim) infections in community of 4200 – Jan-April 2015
- 55% male, age range 18-57
- 80% acknowledge IDU, 3% deny IDU
  - All PWIDs report oxymorphone tablets as drug of choice
  - Other injection drugs include methamphetamine and heroin
- 84% co-infected with HCV
- Up to three generations injecting together
- Crushing and cooking 40mg tablets with frequent sharing of injection equipment
- Number of injections per day range from 4-15
- Injection partners range from 1 to 6

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Overdose prevention

Patient education videos and materials at prescribetoprevent.org

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The Addiction Crisis

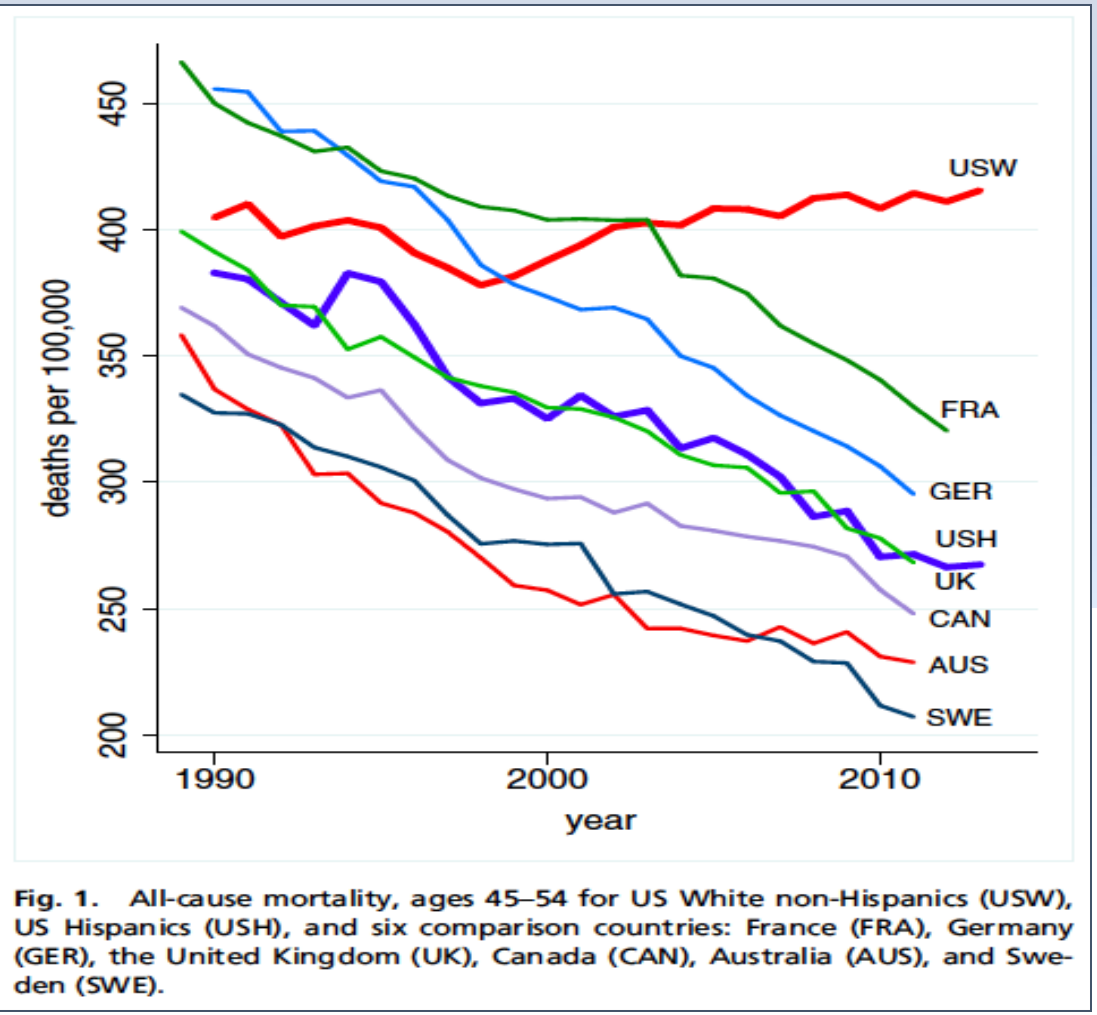

Fig. 1. All-cause mortality, ages 45–54 for US White non-Hispanics (USW), US Hispanics (USH), and six comparison countries: France (FRA), Germany (GER), the United Kingdom (UK), Canada (CAN), Australia (AUS), and Sweden (SWE).

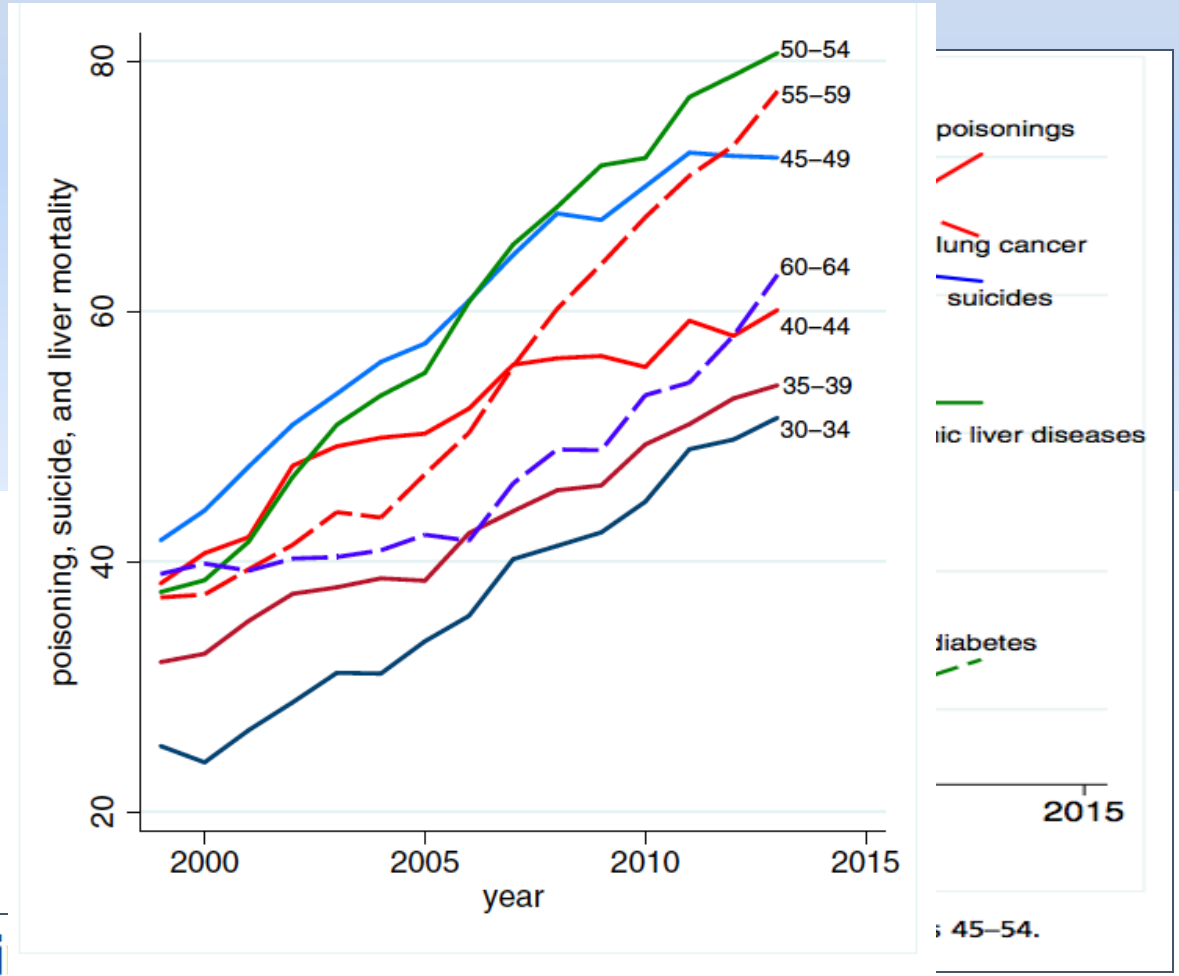

Fig. 4. Mortality by poisoning, suicide, chronic liver disease, and cirrhosis, white non-Hispanics by 5-y age group.

PNAS

Rising morbidity and mortality i
non-Hispanic Americans in the 2

Anne Case[1] **and Angus Deaton**[1]

Woodrow Wilson School of Public and International Affairs and Department of Economics, Princeton University, Princeton, NJ 08544

Contributed by Angus Deaton, September 17, 2015 (sent for review August 22, 2015; reviewed by David Cutler, Jon Skinner, and David Weir)

This paper documents a marked increase in the all-cause mortality of middle-aged white non-Hispanic men and women in the United States between 1999 and 2013. This change reversed decades of progress in

the United Kingdom (UK), Canada (CAN), Australia (AUS), and Sweden (SWE). The comparison is similar for other Organisation for Economic Co-operation and Development countries.

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DEA Official Blames Fentanyl-Heroin Mixture from Mexico for Recent Fatal Overdoses

The fentanyl-laced dope plaguing the northeastern United States is being made south of the border, according to officials.

Increases in Fentanyl Drug Confiscations and Fentanyl-related Overdose Fatalities

This is an official
CDC HEALTH ADVISORY

HAN
HEALTH ALERT NETWORK

Distributed via the CDC Health Alert Network
October 26, 2015, 0815 EDT (08:15 AM EDT)
CDCHAN-00384

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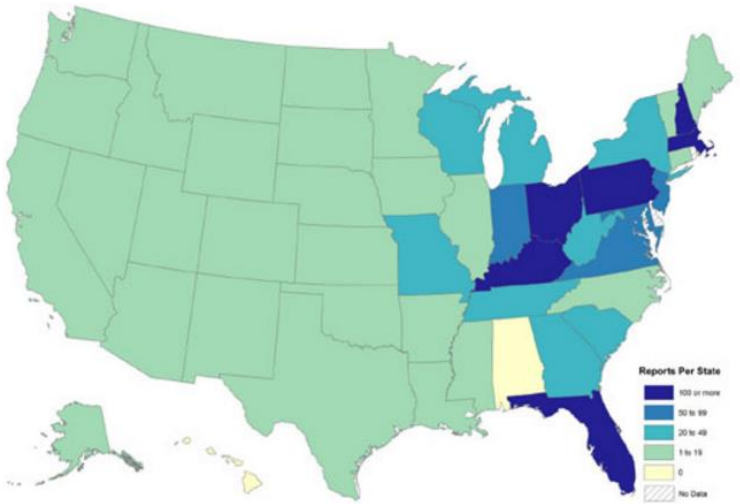
Fentanyl reports in NFLIS, by State
July – December 2014



Drug Enforcement Administration, Office of Diversion Control, Drug and Chemical Evaluation Section, Data Analysis Unit 09-15-2015

Table 1: Top 10 states by total Fentanyl Seizures, 2014, unpublished NFLIS data

Rank	State	Number of Fentanyl seizures
1	Ohio	1245
2	Massachusetts	630
3	Pennsylvania	419
4	Maryland	311
5	New Jersey	238
6	Kentucky	232
7	Virginia	222
8	Florida	183
9	New Hampshire	177
10	Indiana	133

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Why a surge in overdoses?

Massachusetts Avenue
May 2015

- Prescription opioids for pain
- Transitioning to heroin
- Erratic and more deadly heroin supply
- Polysubstance use (including polypharmacy)

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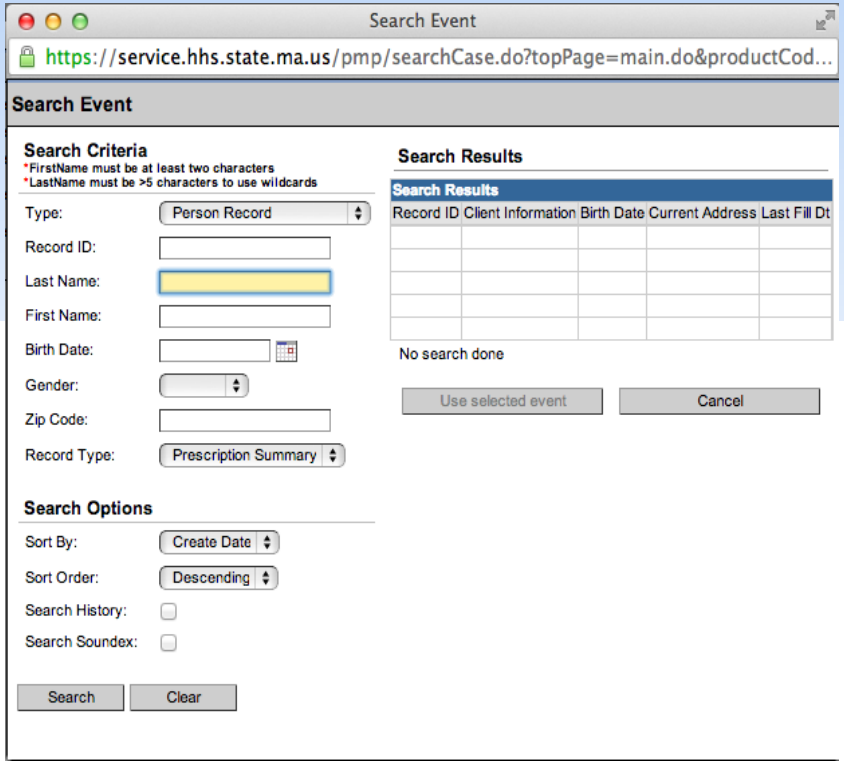
Strategies to address overdose

- **Prescription monitoring programs**
  - Paulozzi et al. Pain Medicine 2011
- Prescription drug take back events
  - Gray et al. Arch Intern Med 2012; 172: 1186-87
- Safe opioid prescribing education
  - Albert et al. Pain Medicine 2011; 12: S77-S85
- Opioid agonist treatment
  - Clausen et al. Addiction 2009:104;1356-62
- Supervised injection facilities
  - Marshall et al. Lancet 2011:377;1429-37
- Overdose Education and Naloxone Distribution



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SCOPE of Pain
Safe and Competent Opioid Prescribing Education

www.scopeofpain.com
www.opioidprescribing.com
www.pcss-o.org

PCSS-O Training
Prescribers' Clinical Support System for Opioid Therapies

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MEDICAL NEWS
& PERSPECTIVES

Methadone Treatment Marks 40 Years

Bridget M. Kuehn

FORTY YEARS AND COUNTLESS POlitical firestorms after it was first introduced, methadone maintenance for the treatment of opioid addiction remains a standard therapy in the field of addiction treatment.

The publication on August 23, 1965, of positive results from a small clinical trial of methadone as a treatment for heroin addiction in *JAMA* marked a sea change in the treatment of addiction (Dole and Nyswander. *JAMA*. 1965; 193:646-650). The study, conducted at Rockefeller University in New York City by Vincent P. Dole, MD, and the late Marie E. Nyswander, MD, suggested that a medication could be used to control the cravings and withdrawal that often lead to relapse in individuals with opioid addiction who attempt to quit.

The work, along with subsequent research by Dole, an endocrinologist, Nyswander, a psychiatrist, and colleagues established the concept of opioid addiction as a chronic disease, similar to diabetes, that as such required

now head of the Laboratory of the Biology of Addictive Diseases at Rockefeller University, explained that work conducted by the group in 1964 and published in 1966 established that methadone blocked the effects of heroin and stabilized patients, who prior to treatment oscillated between feeling

Ingbert Grüttner/The Rockefeller University

done treatment, the ap
always struggled for accep
the forces of public opini
tics. "There is a stigma a
tions, addicts, and—sadly
providers," said Kreek, a
supporter of the methado

"THE FARM"

Methadone maintenance
resented a reversal of the t
approach to treating dru
said David F. Musto, MD
turer at Yale and expert
policy. A 1919 Supreme
sion had established tha
alone did not justify phys
ing addicts with opioids. B
cision, some physicians ha
acting opioids to treat indi
opioid addiction.

The Drug Enforcement
tion, in fact, considered D
illegal and had threatened
him prior to the 1965 pub
defy the US government wa
litical courage," said Jeron
who became the first natio

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Boston Globe – December 27, 2015

EDITORIAL | CRISIS PROPORTIONS

Massachusetts needs safe injection sites

AFP/GETTY IMAGES

A client of the Insite supervised injection Center in Vancouver, Canada, collected her kit in 2011.

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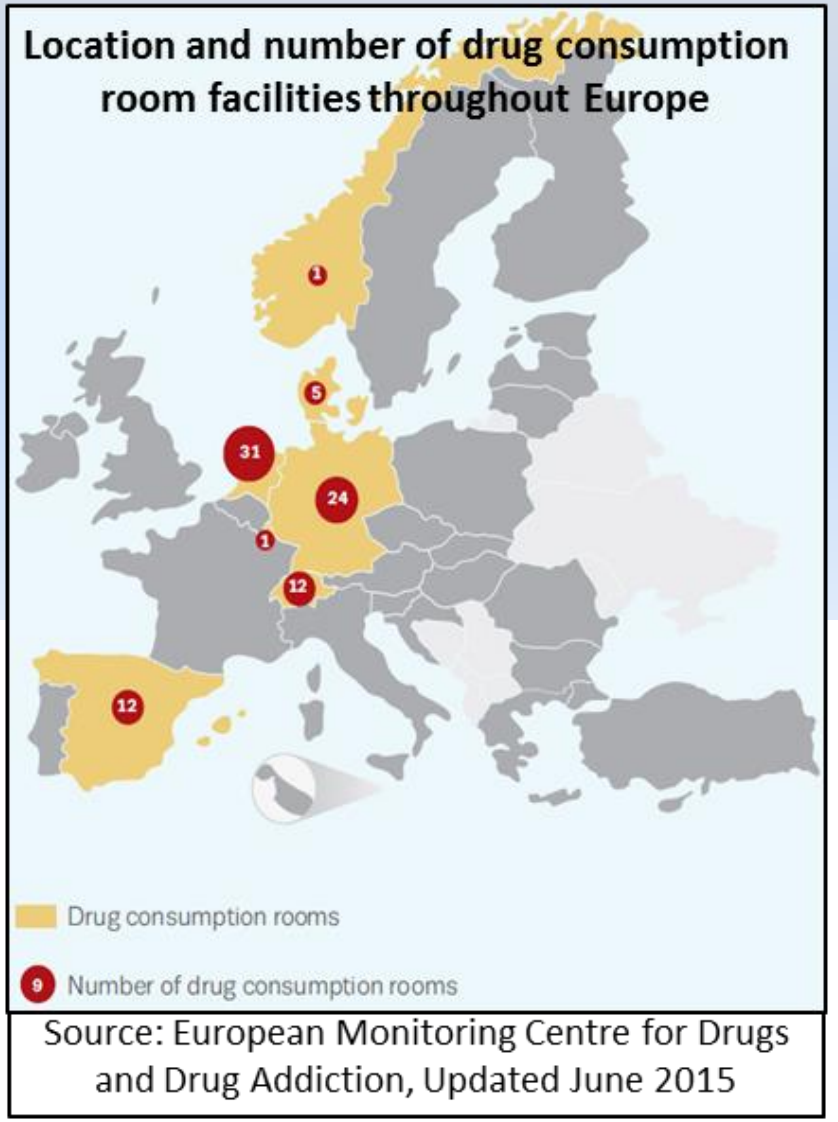
Supervised Injection Facilities

- Definition: Legally sanctioned facilities where people who use injection drugs can inject pre-obtained drugs under medical supervision
  - Supervised injection facilities are designed to reduce the health and societal problems associated with injection drug use
- Objectives: Public Health + Public Safety
  - Reduce incidence of overdose
  - Reduce incidence of HIV, hepatitis C, and other injection-related infections
  - Improve access to substance use disorder treatment
  - Improve access to harm reduction and health care for high-utilizing, high-risk populations
  - Improve access to wraparound health, social services
  - Improve syringe and needle disposal
  - Reduce public drug use
  - Improve neighborhood security
  - Improve public safety-public health collaboration



Source: European Monitoring Centre for Drugs and Drug Addiction, Updated June 2015

- Existing Facilities
- 86 facilities throughout Europe
- Vancouver, Canada
- Sydney, Australia

Slide courtesy of Jessie Gaeta

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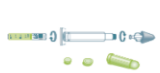
- **Overdose Education and Naloxone Distribution**

	Injectable (and intranasal- IN) generic[1]	Intranasal branded[2]	Injectable generic[3]	Injectable generic	Auto-injector branded
Brand name		Narcan Nasal Spray			Evzio Auto-Injector
Product comparison					
					
FDA approved Labeling includes instructions for layperson use	X (for IV, IM, SC)	X X	X	X	X X
Layperson experience	X		X		X
Assembly required	X		X	X	
Fragile	X				
Can titrate dose	X		X	X	
Strength	1 mg/mL	4 mg/0.1 mL	0.4 mg/mL OR 4 mg/10 mL	0.4 mg/mL	0.4 mg/0.4mL
Total volume of kit/package	4 mg/4 mL	8 mg/ 0.2 mL	0.8 mg/2 mL OR 4 mg/10 mL	0.8 mg/2 mL	0.8 mg/0.8 mL
Storage requirements (All protect from light)	Store at 59-86 °F Fragile: Glass.	Store at 59-77 °F Excursions from 39-104 °F	Store at 68-77 °F Breakable: Glass.	Store at 68-77 °F Breakable: Glass.	Store at 59-77 °F Excursions from 39-104 °F
Cost/kit[4]	$$	$$	$	$	$$$[5]

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PRESCRIBE TO PREVENT

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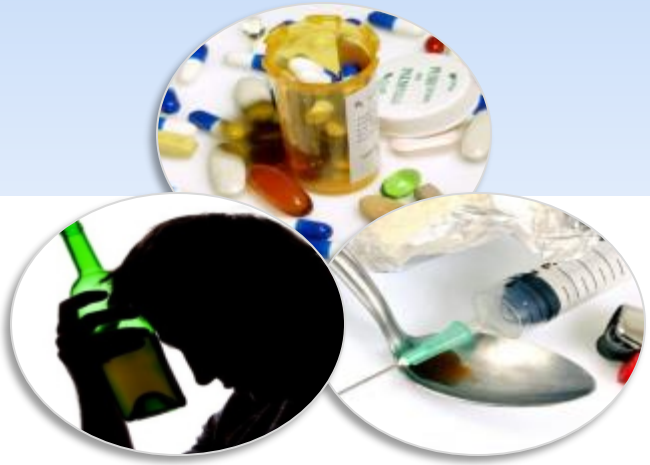
Rationale for overdose education and naloxone distribution

- Most opioid users do not use alone
- Known risk factors:
  - Mixing substances, abstinence, using alone, unknown source
- Opportunity window:
  - Opioid overdoses take minutes to hours and is reversible with naloxone
- Bystanders are trainable to recognize and respond to overdoses
- Fear of public safety



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Overdose Education and Naloxone Rescue

PRESCRIBE TO PREVENT

[Patient education videos and materials at prescribetoprevent.org]

What people need to know:

1.Prevention - the risks:

- Mixing substances
- Abstinence- low tolerance
- Using alone
- Unknown source
- Chronic medical disease
- Long acting opioids last longer

2.Recognition

- Unresponsive to sternal rub with slowed breathing
- Blue lips, pinpoint pupils

3.Response - What to do

- Call for help
- Rescue breathe
- Administer naloxone, continue breathing
- Recovery position
- Stay until help arrives

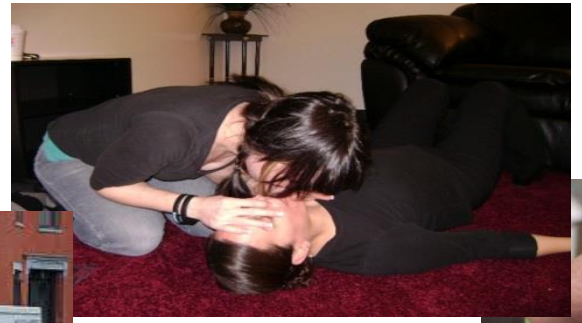

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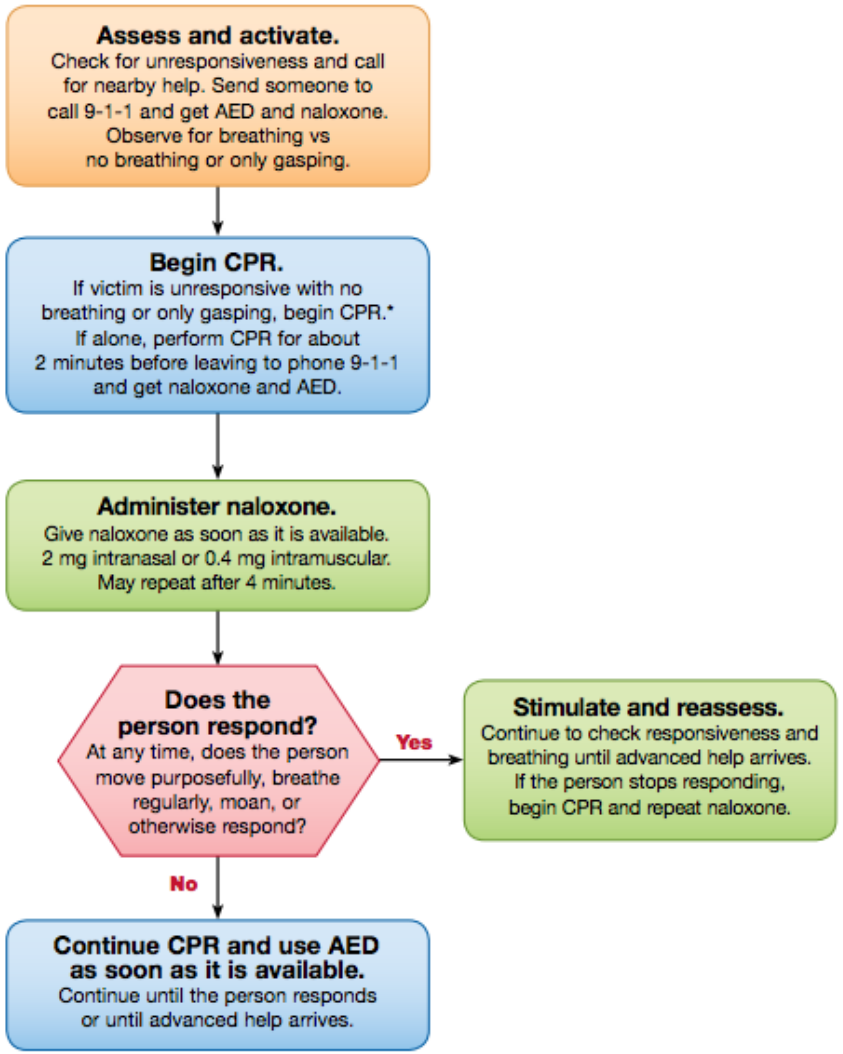
Figure 6

Opioid-Associated Life-Threatening Emergency (Adult) Algorithm—New 2015



*CPR technique based on rescuer's level of training.

Evaluations of Overdose Education and Naloxone Distribution Programs

Feasibility

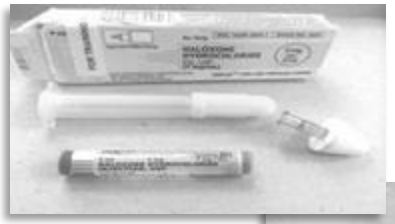
- Piper et al. Subst Use Misuse 2008: 43; 858-70.
- Doe-Simkins et al. Am J Public Health 2009: 99: 788-791.
- Enteen et al. J Urban Health 2010:87: 931-41.
- Bennett et al. J Urban Health. 2011: 88; 1020-30.
- Walley et al. JSAT 2013; 44:241-7. (Methadone and detox programs)

Increased knowledge and skills

- Green et al. Addiction 2008: 103;979-89.
- Tobin et al. Int J Drug Policy 2009: 20; 131-6.
- Wagner et al. Int J Drug Policy 2010: 21: 186-93.

No increase in use, increase in drug treatment

- Seal et al. J Urban Health 2005:82:303-11.
- Doe-Simkins et al. BMC Public Health 2014 14:297.



Reduction in overdose in communities

- Maxwell et al. J Addict Dis 2006:25; 89-96.
- Evans et al. Am J Epidemiol 2012; 174: 302-8.
- Walley et al. BMJ 2013; 346: f174.
- Bird et al. Addiction 2015; Dec 1.

Cost-effective

$438 (best)
$14,000 (worst) per quality-adjusted life year gained

Coffin and Sullivan. Ann Intern Med. 2013 Jan 1;158(1):1-9.

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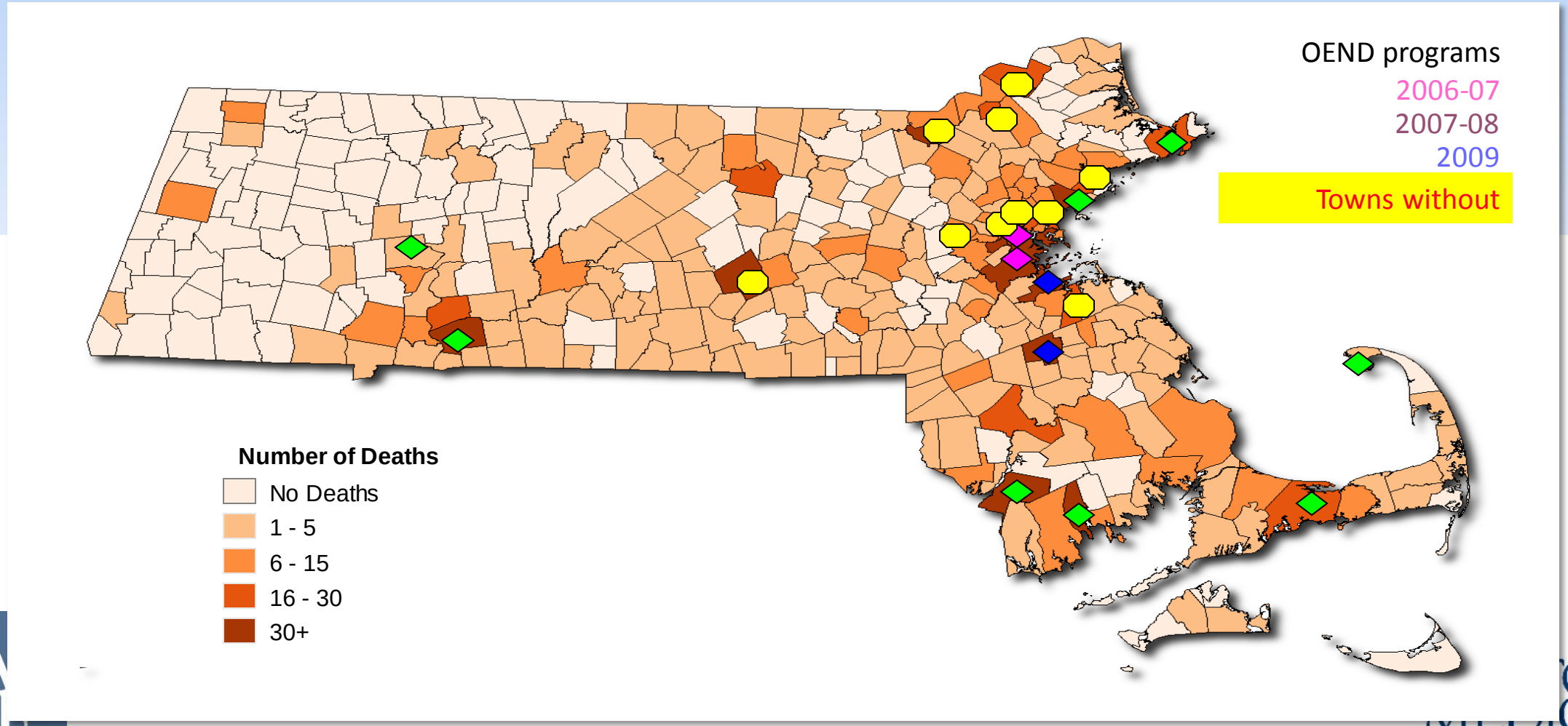
Opioid Overdose Related Deaths: Massachusetts 2004 - 2006



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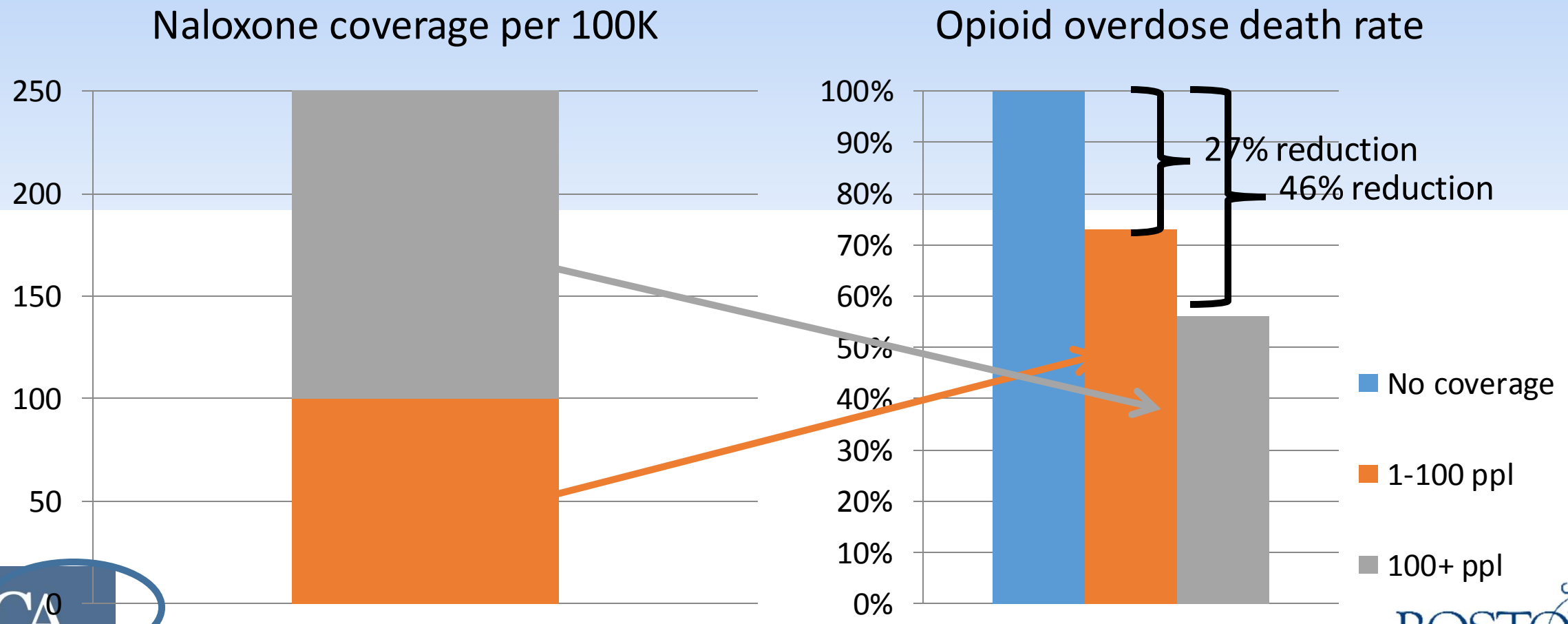
Fatal opioid OD rates by OEND implementation



Walley et al. *BMJ* 2013;346:f174.

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AMA
AMERICAN MEDICAL ASSOCIATION

News

"The **AMA** has been a
supporter of increasin
availability of Naloxon
patients, first respond
bystanders who can h
lives and has provide
to bolster legislative e
increase access to this
medication in several

www.ama-assn.org/ama/pub/news/
07-naxolene-product-approval.page

NATIONAL DRUG

FOR IMMEDIATE RELEASE
March 26, 2015

Contact: HHS Press Office
202-690-6343

HHS takes strong steps to address opioid-drug related overdose, death and dependence

Evidence-based, bipartisan efforts focus on prescribing practices and treatment to reduce prescription opioid and heroin use disorders

U.S. Health and Human Services Secretary Sylvia M. Burwell today announced a targeted initiative aimed at reducing prescription opioid and heroin related overdose, death and dependence. Deaths from drug overdose have risen steadily over the past two decades and currently outnumber deaths from car accidents in the United States. The President's FY 2016 budget includes critical investments to intensify efforts to reduce opioid misuse and abuse, including $133 million in new funding to address this critical issue.

The Secretary's efforts focus on three priority areas that tackle the opioid crisis, significantly impacting those struggling with substance use disorders and helping save lives.

1. **Providing training and educational resources, including updated prescriber guidelines, to assist health professionals in making informed prescribing decisions** and address the over-prescribing of opioids.
2. **Increasing use of naloxone**, as well as continuing to support the development and distribution of the life-saving drug, to help reduce the number of deaths associated with prescription opioid and heroin overdose.
3. **Expanding the use of Medication-Assisted Treatment (MAT)**, a comprehensive way to address the needs of individuals that combines the use of medication with counseling and behavioral therapies to treat substance use disorders.

agents-2

Community management of opioid overdose

World Health Organization

www.asam.org/docs/publicy-policy-statements/1naloxone-1-10.pdf

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Law that limits liability and promotes help-seeking, third party prescribing
Massachusetts - August 2012:

Good Samaritan provision:

•Protects people who overdose or seek help for someone overdosing from being charged or prosecuted for drug possession

- Protection does not extend to trafficking or distribution charges

Patient protection:

•A person acting in good faith may *receive a naloxone prescription, possess naloxone and administer naloxone* to an individual appearing to experience an opiate-related overdose.

Prescriber protection:

•Naloxone or other opioid antagonist *may lawfully be prescribed and dispensed to a person at risk of experiencing an opiate-related overdose or a family member, friend or other person* in a position to assist a person at risk of experiencing an opiate-related overdose. For purposes of this chapter and chapter 112, any such prescription shall be regarded as being issued for a legitimate medical purpose in the usual course of professional practice.

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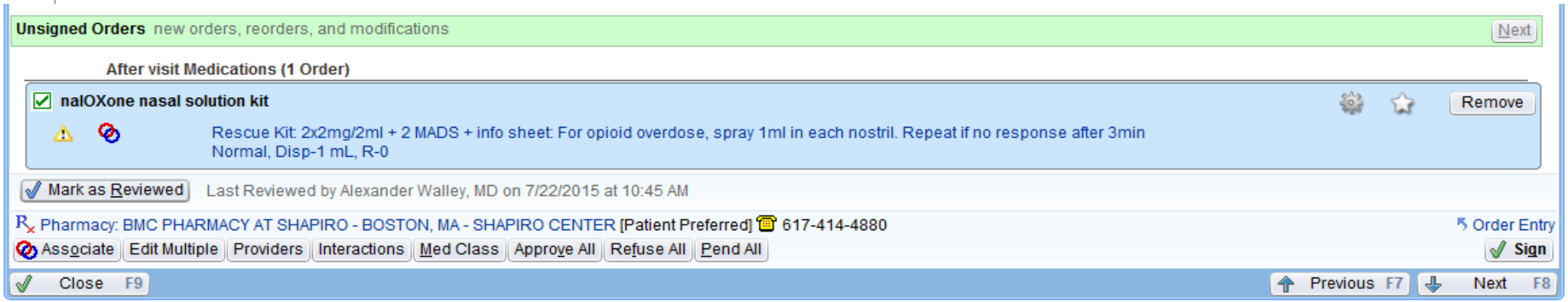
Models for Prescribing Naloxone

Prescriber writes prescription
Patient fills at pharmacy

- Setting: clinic with insured patients
- Pharmacies alerted to prescribing plans
- May need to have atomizers on-site for intranasal formulation

Pharmacy provides naloxone directly to customer

- Without prescriber contact under a collaborative practice agreement (CPA) or standing order
- Encourage naloxone co-prescribing



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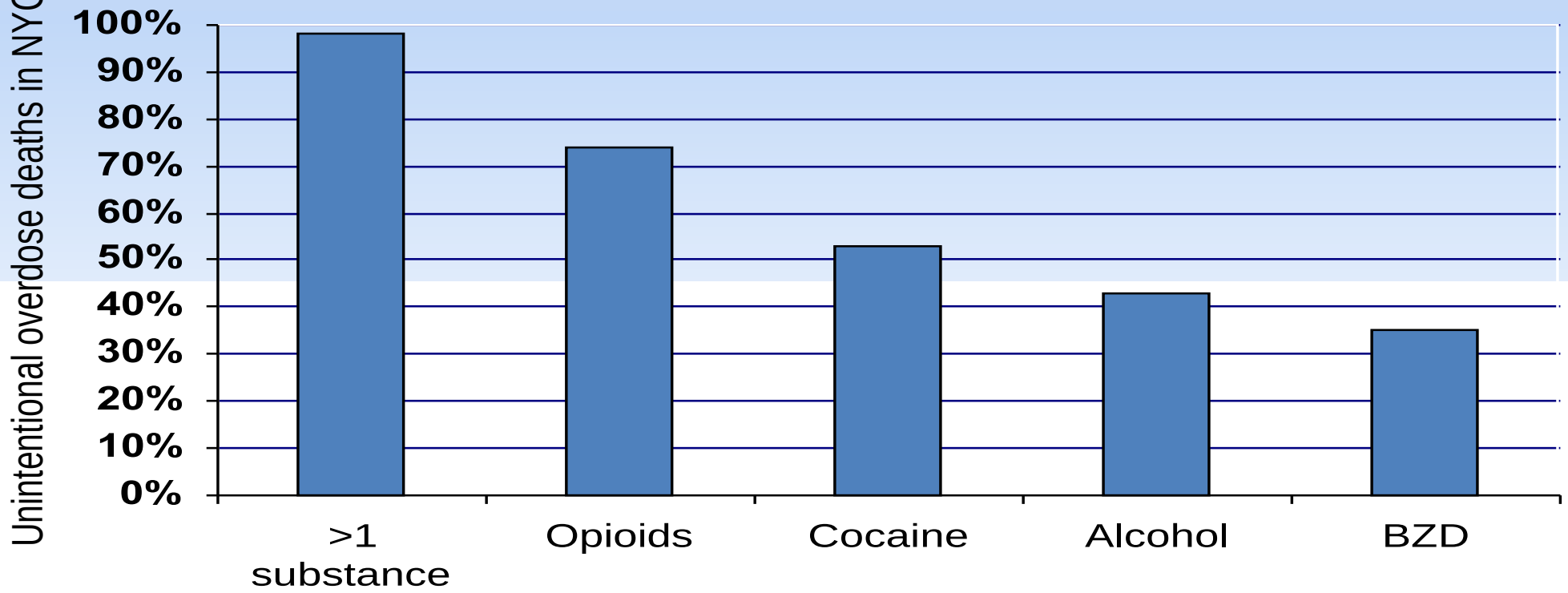
Polypharmacy

Overdose deaths in NYC 2006-2008



NYC Vital Signs. NYC DPMH. 2010

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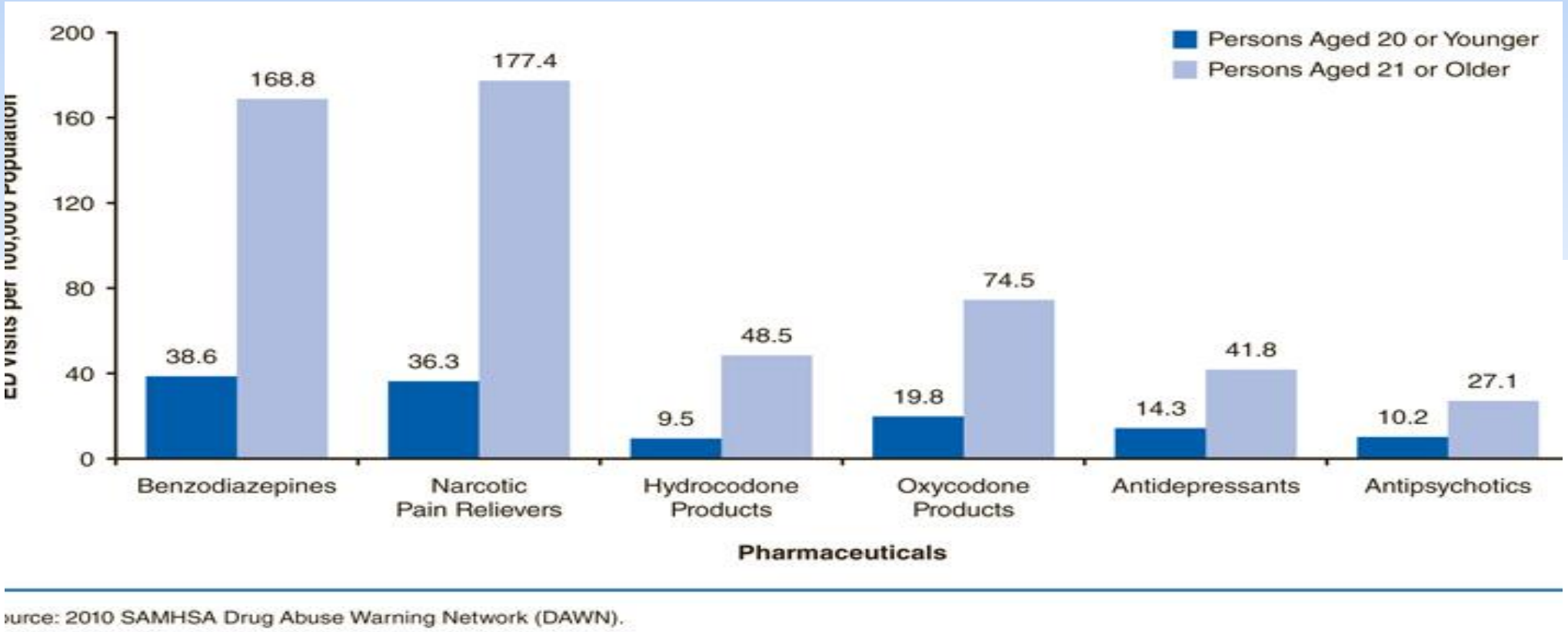
Rates of ED visits involving misuse or abuse of select pharmaceuticals per 100k, by age and drug: 2010



ource: 2010 SAMHSA Drug Abuse Warning Network (DAWN).

http://www.samhsa.gov/data/2k12/DAWN096/SR096EDHighlights2010.htm

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“Street pills”

- Benzodiazepines
  - Clonazepam (Klonopin) – “pins”
  - Alprazolam (Xanax) – “bars”
  - Diazepam (Valium)
  - Also Z drugs –ambien and lunesta
- Clonidine (Catapress) – “deans”
- Promethazine (Phenergan) – “finnegans”
- Queitiapine (Seroquel)
- Gabapentin (Neurontin) – “johnnies”
  - Pregabalin (Lyrica) – “super johnnies”
- Buproprion (Wellbutrin)

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Benzos
Widespread Use – Uncommon drug of choice

- Due to their significant margin of safety and effectiveness
  - BZDs among the most prescribed psychotropic medications worldwide
  - Prescribed to women more than men
    - Lagnaoui *Eur J Clin Pharmacol* 2004; **60**: 523–9.
  - On WHO essential drug list that should be available in all countries
- In the lab, people self-administer benzos
  - but weak re-inforcers vs. alcohol, opioid, cocaine, and amphetamine
    - Jones et al. DAD 2012; 125: 8-18.
- Few drug treatment patients cite benzos as their drug of choice
    - Cole and Chiarello. J Psychiatr Res. 1990; 24 Suppl 2: 135-44.

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Self-medication

- One physician survey reported that:
  - 26% of psychiatrists
  - 11% of other physcians

  Used unsupervised benzodiazepines in the past year

Principles of Addiction Medicine, 4th edition p.535.

Prescribers are ambivalent

On the one hand

- Rarely drug of choice
- Given the amounts prescribed, benzo abuse is "remarkably low"
- Work fast: few side effects
- Benefit maintained over time

Schenck CH; Mahowald MW Am J Med 1996 Mar;100(3):333-7.

On the other hand

- Non-medical use very common
- Concerning subgroups
  - Other sedating meds
  - Elderly
  - Other addictions
- Hard to discontinue
- Does not improve long-term course of PTSD
- Co-morbid depression may worsen

Stevens, Pollack. J Clin Psychiatry 2005; 66s2: 21-27

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What should be done about pills with a street value?

- Prescribe with caution
- Educate patients
  - Safety first – Teens, mixing meds, safe storage
  - Function over feelings
  - Risk of tolerance to benefits and withdrawal
- Communicate between prescribers
- Discontinue if risks outweigh the benefits

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Case

- You are called to admit a 29 yo woman with polydrug overdose, complicated by aspiration, and a left arm cellulitis. She was found unresponsive in the bathroom of a restaurant with a syringe, cooker and filters.
  - Works as a waiter
  - Injecting heroin daily since age 23.
  - Uses cocaine on the weekends and drinks alcohol after work
  - Trades sex for drugs, when money is short
  - Prescribed clonazepam, clonidine and gabapentin for panic disorder and mood stabilization
  - Treated with methadone and buprenorphine in the past when pregnant
  - Intends to use again on discharge

  Despite your best brief intervention and motivational interviewing…
  - ***She is not interested in treatment at this time.***

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Case

1. Discuss her addiction treatment options – conduct a brief intervention
    - Residential treatment, intensive outpatient, pharmacotherapy, 12-step groups
2. Review her injection and other drug use routine for knowledge and readiness
    - Educate/ re-enforce safer use strategies
        - NSP, keeping substances safe from others, not using alone, tester shots, PrEP
3. Ask her about her overdose experience
    - Make a plan with her to reduce her own overdose risk and how to respond to others
    - Prescribe naloxone rescue kit if available
4. Work to reduce sexual risk
    - Condoms
    - PEP and PrEP
5. Screen her for interpersonal violence.
    - Offer IPV and sex worker services info
5. Express concern about her polypharmacy and polysubstance use and discuss strategies to reduce
    - Speak to the prescriber of her clonazepam, clonidine, and gabapentin so the prescriber is aware of the overdose
    - Encourage closer monitoring and a risk-benefit analysis for safety

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Learning objectives

At the end of this session, you should be able to:

1. Define harm reduction and apply it to patient care
2. Teach overdose prevention strategies
3. Minimize the risk of polypharmacy among patients

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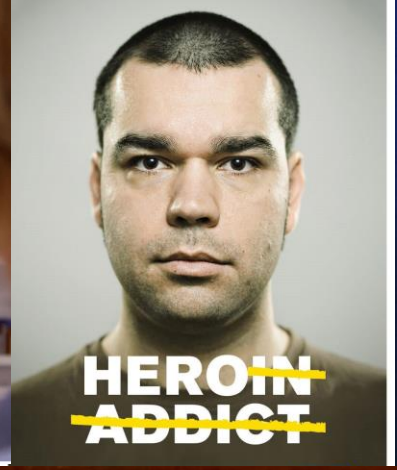

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Thank you awalley@bu.edu

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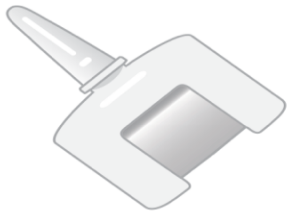
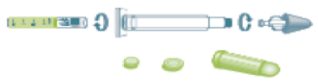
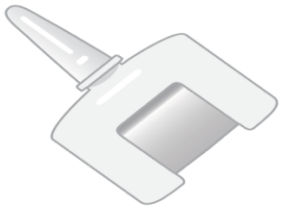
	Injectable (and intranasal- IN) generic[1]	Intranasal branded[2]	Injectable generic[3]	Injectable generic	Auto-injector branded
Brand name		Narcan Nasal Spray			Evzio Auto-Injector
Product comparison					
					
FDA approved Labeling includes instructions for layperson use	X (for IV, IM, SC)	X X	X	X	X X
Layperson experience	X		X		X
Assembly required	X		X	X	
Fragile	X				
Can titrate dose	X		X	X	
Strength	1 mg/mL	4 mg/0.1 mL	0.4 mg/mL OR 4 mg/10 mL	0.4 mg/mL	0.4 mg/0.4mL
Total volume of kit/package	4 mg/4 mL	8 mg/ 0.2 mL	0.8 mg/2 mL OR 4 mg/10 mL	0.8 mg/2 mL	0.8 mg/0.8 mL
Storage requirements (All protect from light)	Store at 59-86 °F Fragile: Glass.	Store at 59-77 °F Excursions from 39-104 °F	Store at 68-77 °F Breakable: Glass.	Store at 68-77 °F Breakable: Glass.	Store at 59-77 °F Excursions from 39-104 °F
Cost/kit[4]	$$	$$	$	$	$$$[5]

	Injectable (and intranasal- IN) generic[1]	Intranasal branded[2]	Injectable generic[3]	Injectable generic	Auto-injector branded
Brand name		Narcan Nasal Spray			Evzio Auto-Injector
Product comparison					
					
Prescription variation					
Refills	Two	Two	Two	Two	Two
Rx and quantity	#2 2 mL Luer-Jet™ Luer-Lock needleless syringe plus #2 mucosal atomizer devices (MAD-300)	#1 two-pack of two 4 mg/0.1 mL intranasal devices	#2 single-use 1 mL vials OR #1 10mL multidose vial PLUS #2 3 mL syringe w/ 23-25 gauge 1-1.5 inch IM needles	#2 single-use 1 ml vials PLUS #2 3 mL syringe w/ 23-25 gauge 1-1.5 inch IM needles	#1 two-pack of two 0.4 mg/0.4 mL prefilled auto-injector devices
Sig. (for suspected opioid overdose)	Spray 1 ml (1/2 of syringe) into each nostril. Repeat after 2-3 minutes if no or minimal response.	Spray 0.1 mL into one nostril. Repeat with second device into other nostril after 2-3 minutes if no or minimal response.	Inject 1 mL in shoulder or thigh. Repeat after 2-3 minutes if no or minimal response.	Inject 1 mL in shoulder or thigh. Repeat after 2-3 minutes if no or minimal response.	Inject into outer thigh as directed by English voice-prompt system. Place black side firmly on outer thigh and depress and hold for 5 seconds. Repeat with second device in 2-3 minutes if no or minimal response.
Ordering information					
How supplied	Box of 10 Luer-Jet™ prefilled glass syringes	Two-pack of single use intranasal devices	Box of 10 single-dose fliptop vials (1 ml) OR Case of 25 multi-dose fliptop vials (10 ml)	Box of 10 single-dose fliptop vials	Two pack of single use auto-injectors + 1 trainer
Web address	Amphastar.com / Teleflex.com	Narcannasalspray.com	Hospira.com	Mylan.com	Evzio.com

Active overdose prevention advocacy efforts

- Pharmacy access to naloxone rescue kit
- Insurance coverage for naloxone rescue kits regardless of opioid using status
- Integrating naloxone training into Basic Life Support education
- Integration of addiction treatment and harm reduction education into the curriculum
- Safe spaces, drug consumption rooms, supervised infection facilities, heroin maintenance

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Overdose and Opioid Crisis Advocacy ideas

- Surveillance system that integrates public health, public safety, and law enforcement data
- Public health-public safety rapid response team that deploys treatment and harm reduction services
- Full coverage for methadone maintenance without daily co-pay requirements
- Mandate that all inpatient facilities (medical, psychiatric, detox, addiction residential, correctional) provide evidence-based medication for their patients and have cooperative agreements with methadone, buprenorphine and naltrexone providers that will allow for direct admissions and transfers to facilitate induction and maintenance on addiction medications.
- Fund addiction medicine fellowship training and faculty development
- Fund expansion of the OBOT nurse care manager model to all state-supported community health centers
- Expanded state funding for evidence-based harm reduction - needle-syringe access and overdose prevention with naloxoneSafe spaces, drug consumption rooms, supervised injection facilities, heroin maintenance (legalization)

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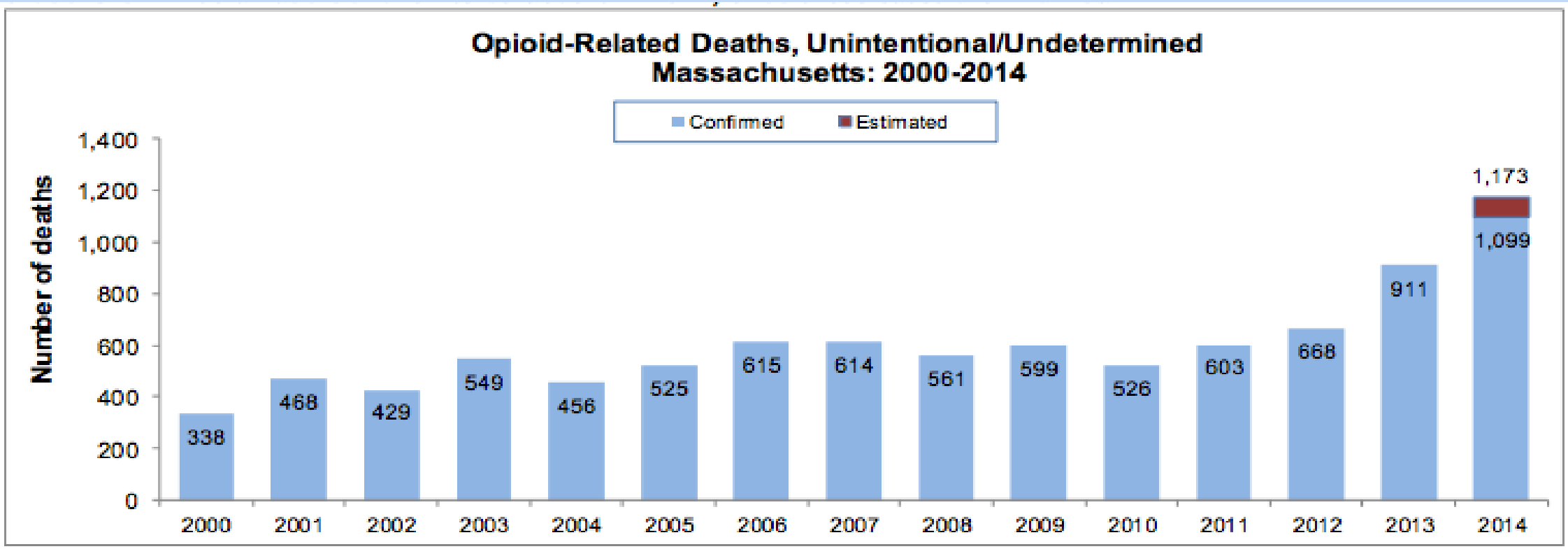
The Addiction Crisis



Note: These counts are complete as of the date that the stat's statistical file was closed

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SIFs reduce overdose mortality

Methods: Population-based overdose mortality rates were examined in the 500m surrounding the SIF before and after its opening and compared with before and after rates in the rest of the city of Vancouver.

Results: In the area around the SIF overdose mortality **decreased 35%**, compared with a 9.3% reduction in the rest of the city.

	ODs occurring in blocks within 500 m of the SIF*		ODs occurring in blocks farther than 500 m of the SIF*	
	Pre-SIF	Post-SIF	Pre-SIF	Post-SIF
Number of overdoses	56	33	113	88
Person-years at risk	22 066	19 991	1 479 792	1 271 246
Overdose rate (95% CI)*	253·8 (187·3–320·3)	165·1 (108·8–221·4)	7·6 (6·2–9·0)	6·9 (5·5–8·4)
Rate difference (95% CI)*	88·7 (1·6–175·8); p=0·048	..	0·7 (-1·3–2·7); p=0·490	..
Percentage reduction (95% CI)	35·0% (0·0%–57·7%)	..	9·3% (–19·8% to 31·4%)	..

SIF=supervised injection facility. Pre-SIF period=Jan 1, 2001, to Sept 20, 2003. Post-SIF period=Sept 21, 2003, to Dec 31, 2005. *Expressed in units of per 100 000 person-years.

Table 2: **Overdose mortality rate in Vancouver between Jan 1, 2001, and Dec 31, 2005 (n=290), stratified by proximity to the SIF**

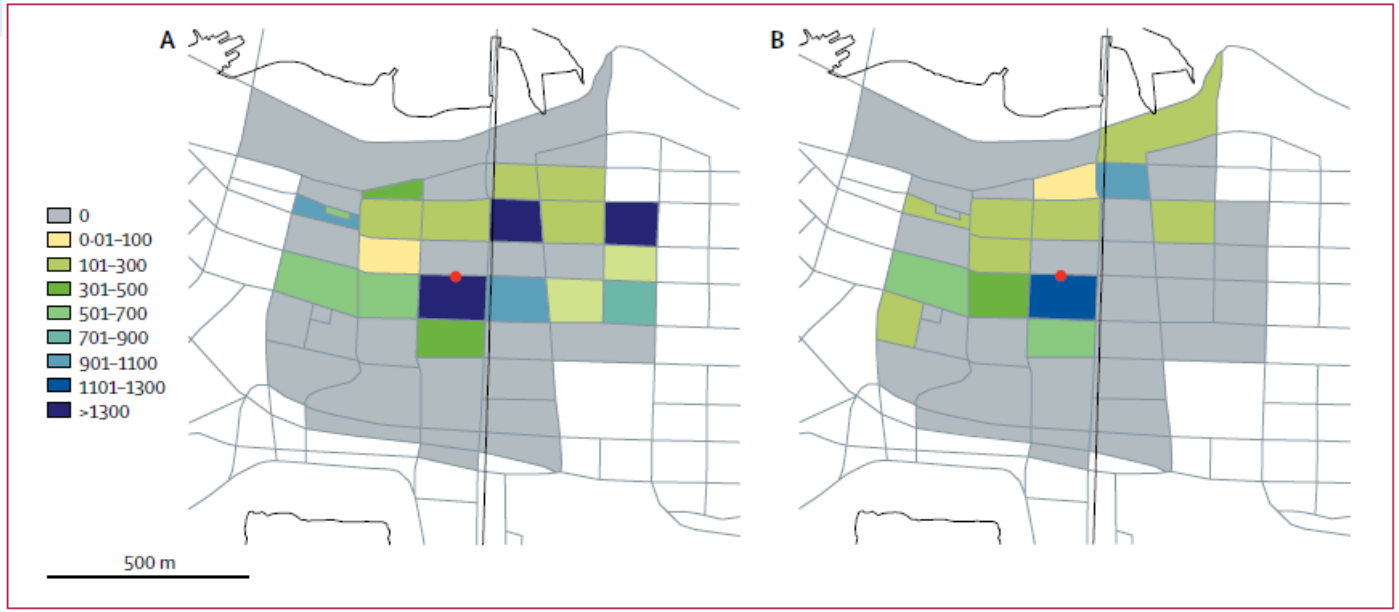

Figure 2: **Fatal overdose rates before (A) and after (B) the opening of Vancouver's SIF (shown in red) in city blocks located within 500 m of the facility**
Rates are given in units of 100 000 person-years and were calculated by aggregating the locations of death to the dissemination block level as shown.

Marshall, B. et al. (2011). Reduction in overdose mortality after the opening of North America's first medically supervised safer injecting facility: a retrospective population-based study. *Lancet, 377*(9775):1429-37.

BOSTON HEALTH CARE *for the* HOMELESS PROGRAM

Slide courtesy of Jessie Gaeta

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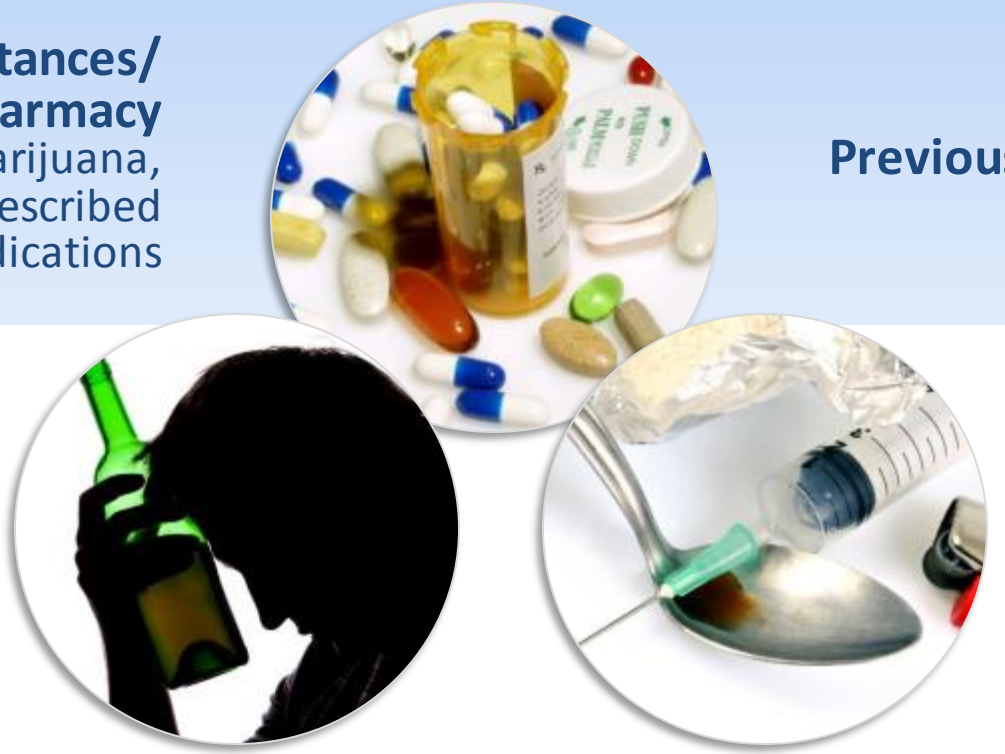
Common Risks for Opioid Overdose

Opioid Dose and Changes in Purity

Mixing Substances/ Polypharmacy
Alcohol, stimulants, marijuana, prescribed and non-prescribed medications



Previous Overdose

Social Isolation
Using alone

Addiction History

Chronic Medical Illness
Lung, liver, and kidney compromise

Abstinence
- Release from incarceration
- Completion of detoxification
- Relapse

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Legal and Logistical Barriers to SIF

1. **Federal** crack house statutes make it a crime to maintain a facility for the purpose of using substances
2. **State** laws would have to shield programs from local and state law enforcement
3. **Local** law enforcement, neighborhoods, and business community would need to support it
4. Adequate **funding** is needed to ensure the program is implemented correctly
5. An **empowered group of people who use drugs** is needed to ensure this works

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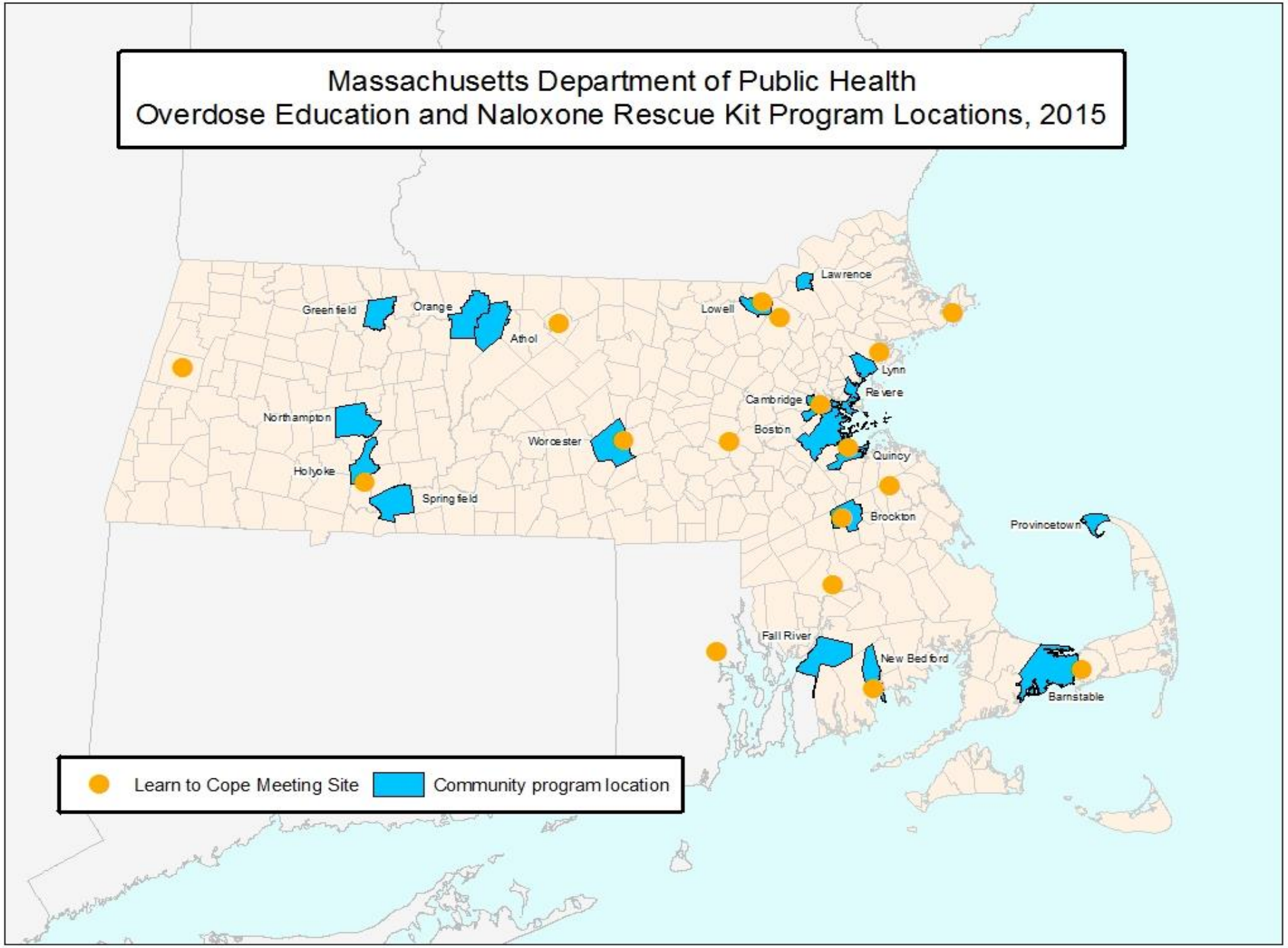

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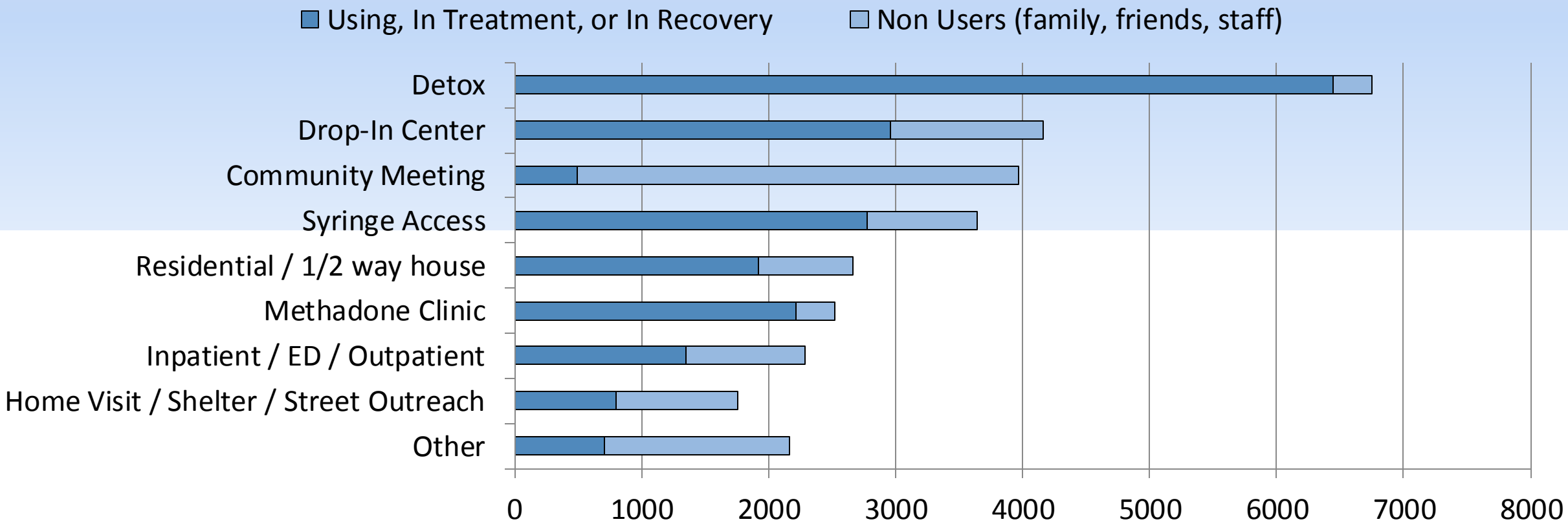
Enrollment locations: 2008-2014



Program data from people with location reported: Users: 19,694 Non-Users: 10,250

Currently > 40,000 enrollees (16 per day) and

> 6000 overdose rescues documented (5 per day)

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