Massachusetts Naloxone Distribution Program: Overdose Prevention for Bystanders and People at Risk for Overdose

Tuft Health Care Institute

Opioid Risk Management Program

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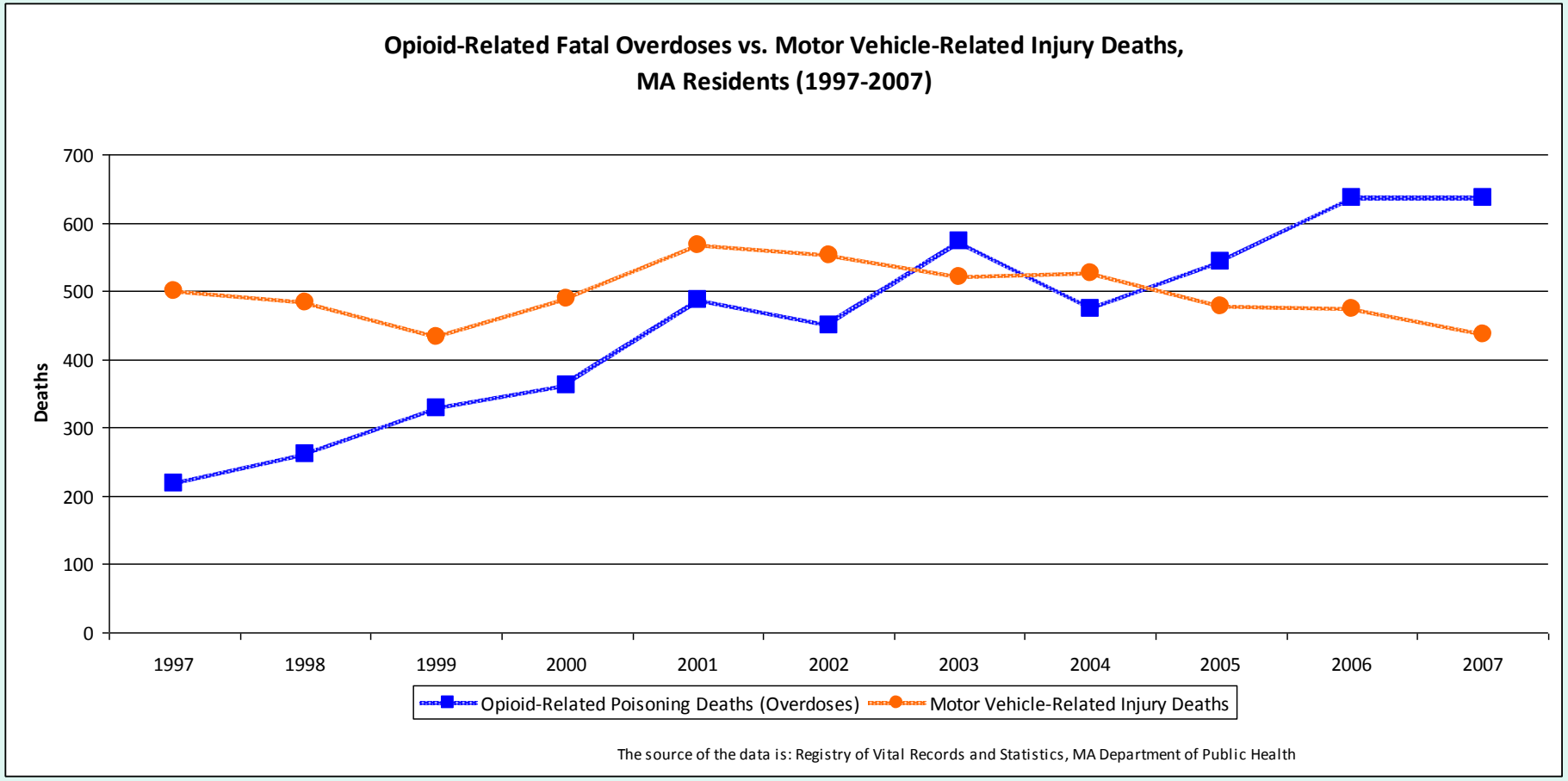
Disclosures

- Naloxone is FDA approved as an opioid antagonist
- Naloxone delivered as an intranasal spray with a mucosal atomizer device has not been FDA approved and is off label use
- I have no commercial interests with naloxone or any other pharmaceuticals
- I am the Principal Investigator on a CDC-funded study of the impact of overdose prevention programs on overdose rates in Massachusetts

Learning Objectives

1. Learn about existing overdose fatality prevention efforts in Massachusetts
2. Understand the rationale for overdose education and naloxone distribution for overdose bystanders and patients at risk for opioid overdose
3. Review preliminary findings from the MA Opioid Overdose Prevention Pilot

MA Opioid Overdose Magnitude



Massachusetts overdose fatality prevention efforts

MA Opioid Overdose Prevention Goals & Aims

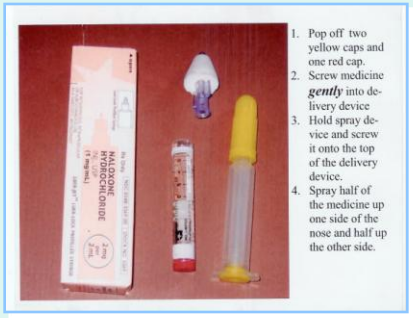
- Goal 1: Reduce the incidence of fatal and non-fatal overdose – prevent overdoses from occurring
  - Expand prevention programs, improve access to treatment & reduce overdose risk with awareness and education
- Goal 2: Improve the management of overdose if it occurs
  - Improve ability of drug users, families, providers & first responders to identify and manage an overdose, diminish real or perceived barriers to calling 911 in the event of an overdose, and increase knowledge of and implementation of proven overdose management strategies
- Goal 3: Reduce the amount of misused, abused and diverted prescription opioids
  - Educate prescribers on safe prescribing practices, educate patients and consumers on safe storage and disposal, and expand the state's ability to monitor & track prescription opioids

DPH/ BSAS Opioid Overdose Prevention Initiatives

- Expand Screening, Brief Intervention Referral to Treatment
  - Community Health Centers and Emergency Departments
- New Post-Detox step down services
- Buprenorphine: Expansion to 19 community health centers
- Enhance Prescription Drug Monitoring
- Disseminate OD prevention/response educational materials
- Train staff from criminal justice, addiction treatment and homeless services programs
- Implement OEND
- Support Community Coalitions through MASSCALL2
  - Fund 15 communities to implement OD prevention strategies

Rationale for bystander overdose education and naloxone distribution

- Most opioid users do not use alone
- Known risk factors:
  - polydrug, abstinence, using alone, unknown source
- Opportunity window:
  - opioid OD takes minutes to hours and is reversible with naloxone
- Bystanders are trainable to recognize OD
- Fear of public safety
- Last line of defense



Intervening in opioid overdose

- Naloxone reverses opioid related sedation and respiratory depression
  - Not psychoactive, no abuse potential
  - May cause acute withdrawal symptoms
- May be injected in the muscle, vein or under the skin or sprayed into the nose
- Acts within 2 to 8 minutes
- Lasts 30 to 90 minutes
- May be repeated

OD Education and Naloxone Distribution (OEND) Programs

Number (#)	**2007***	**2010†**
States w/ OENDs	9	16
Programs	42	155
People enrolled	20,950	53,339
Reported OD reversals	2,642	10,194

Programs in:

Berkeley, Baltimore, Chicago, Los Angeles, Massachusetts, Mendocino County, CA, New Haven, New Mexico, New York City, Oakland, Pittsburgh, Rhode Island, San Francisco, Wilkes County, NC and more

***** Knox, 2008 † Wheeler, E. NOPE Working Group - Harm Reduction Coalition. 2010

Evaluations of OEND programs

- No increase in drug use
- No major medical side effects
- Possible increase in drug treatment
- Feasibility
  - Drug users recognize overdose and can be trained to respond

Boston Public Health Commission

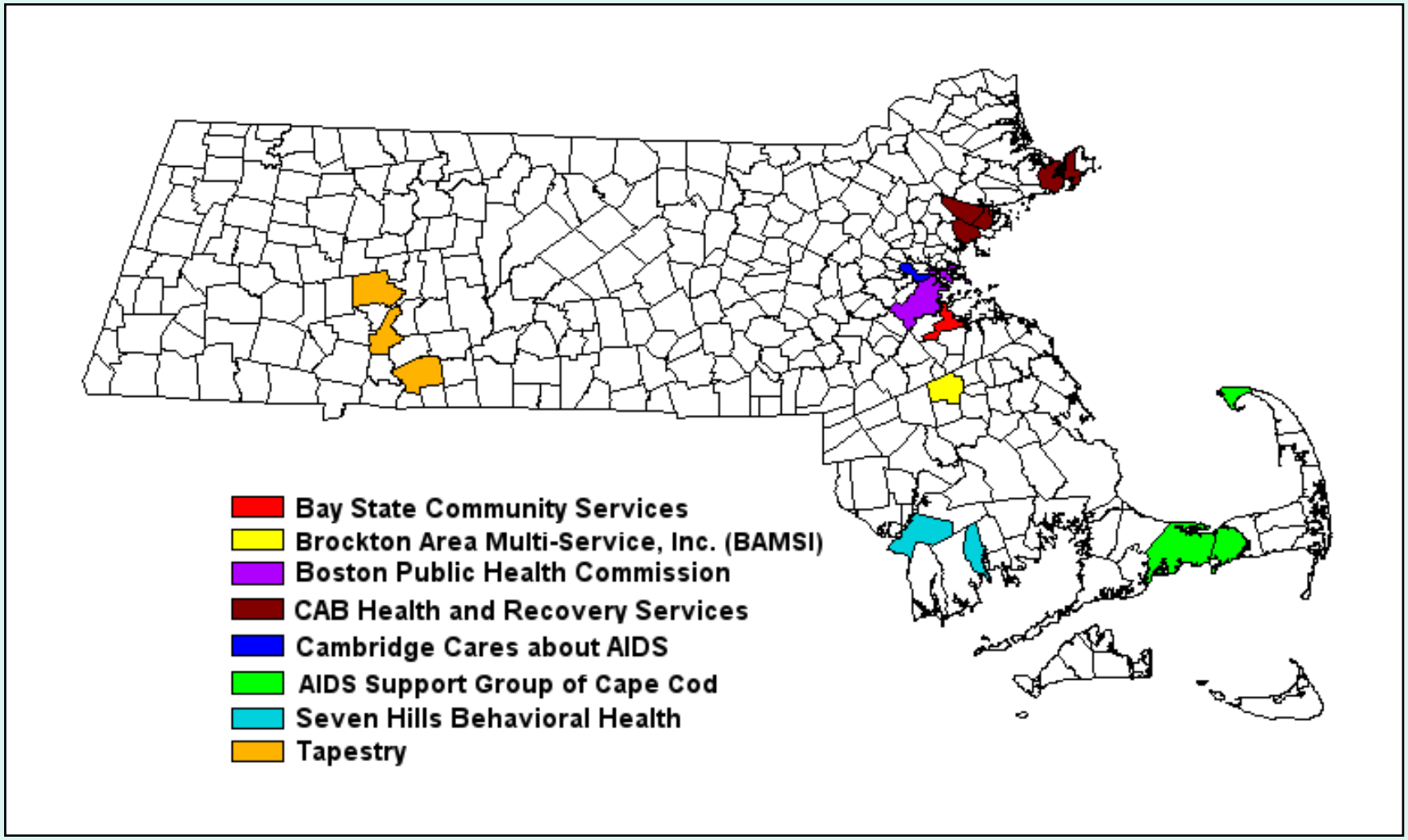
BPHC BOD supports naloxone availability through syringe access program

September 2006 - December 2007:

- 385 enrollments
- 50 trained bystanders reversed 74 overdoses

Doe-Simkins et al. AJPH 2009; 99:788-791

Massachusetts Naloxone Distribution Pilot Sites



Implementing the Massachusetts public health pilot: December 2007

- Pilot program conducted under DPH/Drug Control Program regulations (M.G.L. c.94C & 105 CMR 700.000)
- Medical Director issues standing order for the distribution
- Naloxone may be distributed by public health workers

Staff Training

Pilot site staff complete:

- 4 hour didactic training
- knowledge test
- 4 supervised bystander training sessions

Staff enroll, educate and distribute naloxone

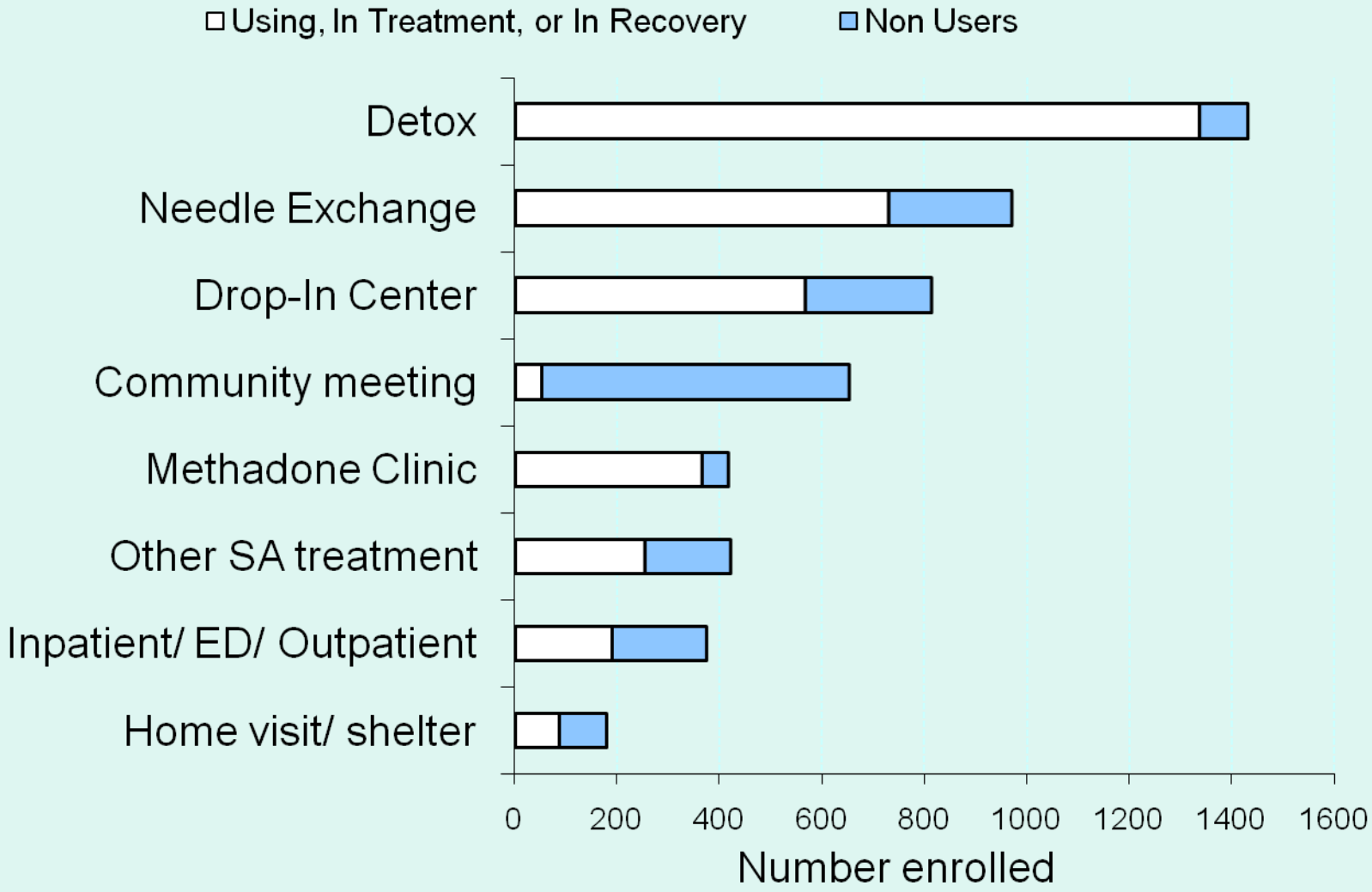
Pilot Program Components

- Approved staff enroll people in the pilot and distribute naloxone
- Curriculum delivers education on OD prevention, identification, and management
- Referral to addiction treatment available
- Reports on overdose reversals are collected as enrollees return for refills
- Enrollment and refill forms submitted to MDPH
- Kits include instructions and 2 doses

Enrollee characteristics: 2006-2010

	People in treatment, in recovery, or using	Non-users
Enrollments (N=8063)	5433	2630
Mean age (SD)	34 (11)	43 (13)
Gender: Male	64%	37%
Race: White	81%	77%
Black/ AA	8%	12%
Other race	11%	11%
Witnessed OD ever?	78%	47%
Lifetime history of OD?	53%	NA
Received naloxone	49%	NA

Enrollment locations: 2008-2010



Data from people with location reported: Users: 3845 Non-Users: 2025

Overdoses reversed with naloxone: 2006-2010

	N=768	
Male	367 / 504	72%
Bystander was “non-user”	70 / 672	10%
Who overdosed? Friend	488 / 735	66%
Partner/ Family	103 / 735	14%
Stranger	65 / 735	9%
Setting: Private	575 / 743	77%
Same day OD report – enrollment	44 / 672	7%

Adverse Events:
Sept 2006- October 2010

	N=768	
Deaths	1 / 768	0.1%
OD where 2 doses were used	128 / 346	37%
OD requiring 3 or more doses	5 / 346	1%
Positive interactions with public safety	85 / 176	48%
Negative interactions with public safety	38 / 176	22%
Neutral interactions with public safety	53 / 176	30%
Confiscations	112 / 1862	6%

Key Findings

- Bystanders can recognize ODs and use intranasal naloxone successfully
- Feasible in various venues and populations
- Demand for program is high
- Non-using enrollees important stakeholders
- Few adverse events
- Can train and distribute without a medical provider encounter

Next steps for policy

- Expand number of sites and venues
- Good Samaritan law for bystanders
- Liability protection for prescribers
- Target incarcerated and ED patients
- Facilitate co-prescription of naloxone with chronic pain medication

Next steps for research

- Collect overdose rates for 2009-2010
- Analyze the association between implementation and overdose rates
- Determine how program is best adapted to specific populations
  - Active users, friends/ family, detox, post-incarceration, emergency department, public safety
- Develop a better device that is FDA approved

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  - –Office of HIV/AIDS
- Data Coordinating Center, Boston University School of Public Health

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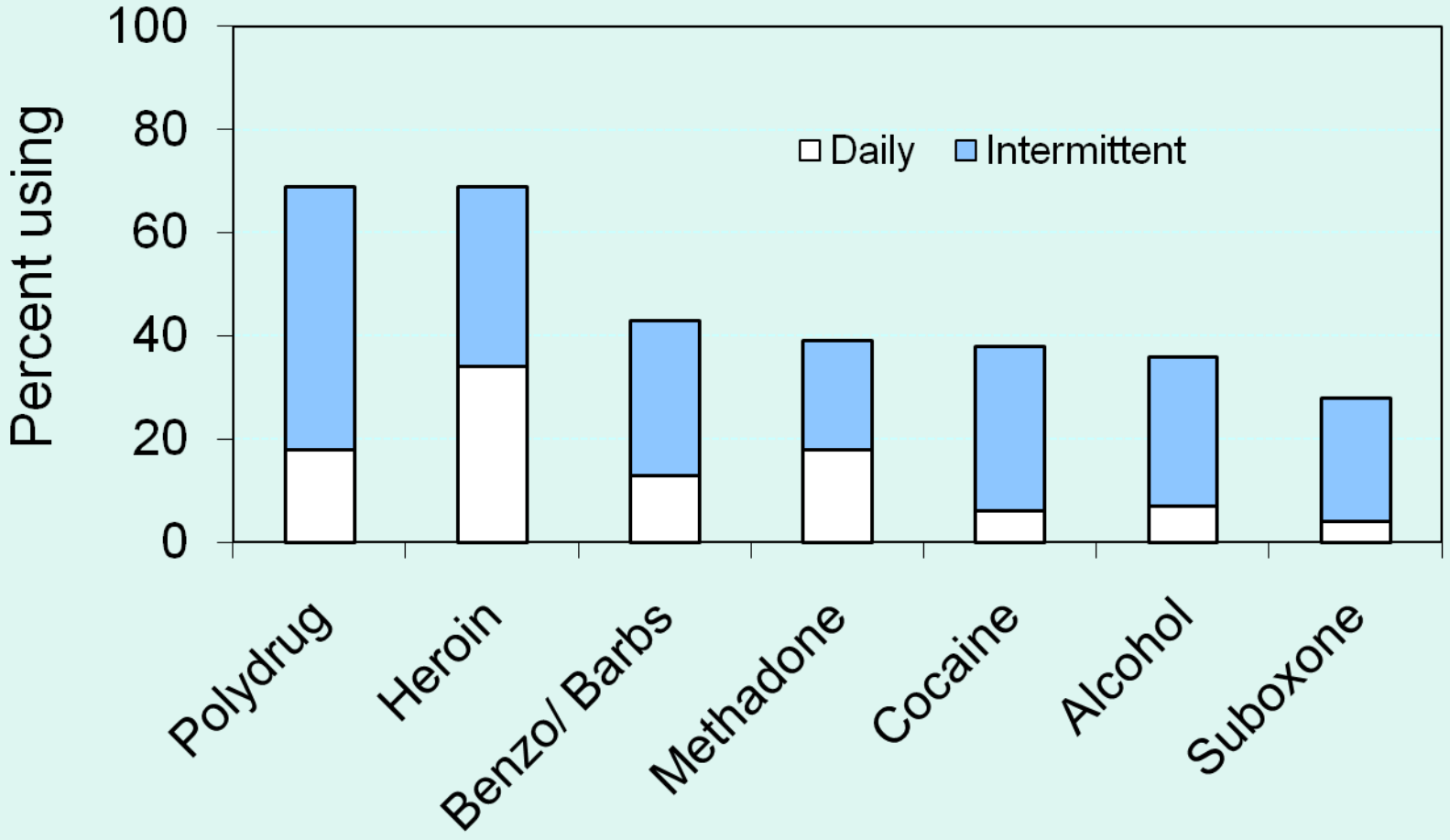
Enrollee past 30 day use: 2006-2010



Data only from people in treatment, recovery, or actively using N= 5433

Overdoses reversed: 2006-2010

Overdose reversals with naloxone	N=768	
Drugs used during overdose		
Heroin	384 / 399	96%
Any prescription drugs	114 / 399	29%
Benzodiazepines/ Barbituates	106 / 399	27%
Alcohol	36 / 399	9%
Cocaine	16 / 399	4%
Methadone	5 / 399	1%

What was done during the overdose

	N=768	
911 called /public safety present?	134 / 405	33%
Stayed with victim	647 / 721	90%
Sternal/ lip rub	319 / 553	58%
Rescue breathing	253 / 553	46%
Salt or cocaine shot	0 / 553	0%

MassCALL2

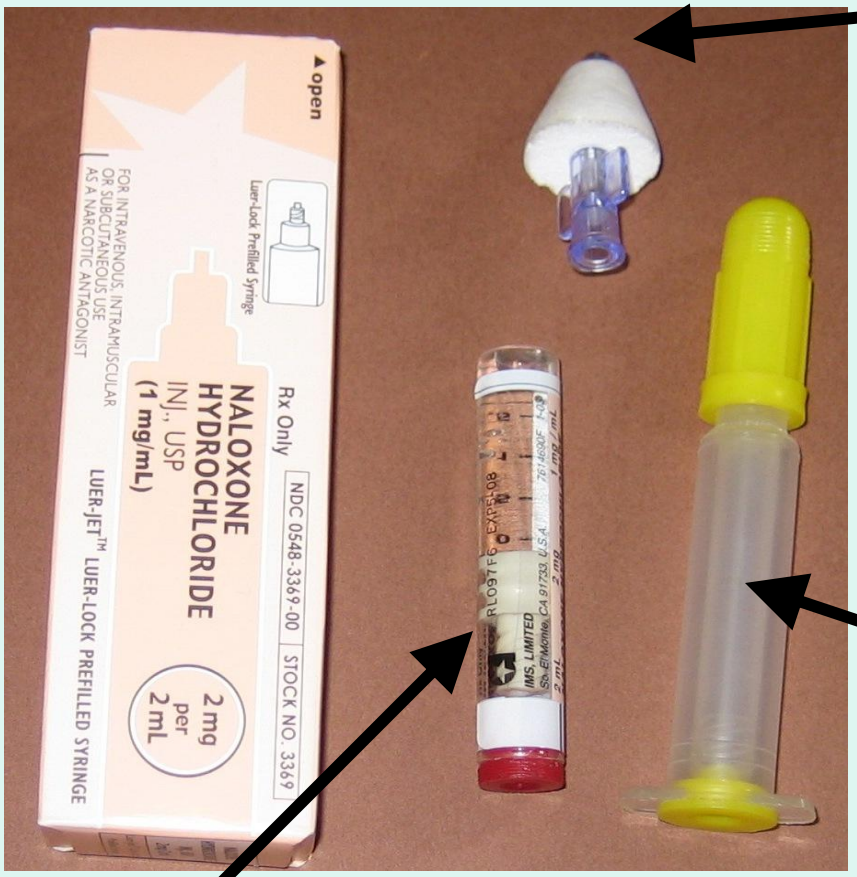
Top 3 Opioid Overdose Prevention Strategies:

1. Work with police, law enforcement and users/bystanders to address fear of contacting 911
2. Education and training to users/bystanders and providers on preventing and reversing opioid overdoses
3. Provide treatment information, referrals, or linkages with support services/follow up

Limitations to Current OENDs

- Agencies are CBOs which target IDU, people w/ substance use disorders, HIV prevention
- Missing people who don’t identify as drug users
- Missing people who may periodically misuse opioids= no tolerance

Naloxone “Compounding”



Mucosal Atomization Device (MAD)- nasal attachment, comes in bag separately- attach to box

+ patient literature (TBD)

Plastic delivery device- looks like barrel of a syringe, comes in the box

Prefilled ampoule of naloxone- comes in the box

Legal Barriers to Prescription Model

"Prescribing naloxone in the USA is fully consistent with state and federal laws regulating drug prescribing. The risks of malpractice liability are consistent with those generally associated with providing healthcare, and can be further minimized by following simple guidelines presented."

1. Only prescribe to a person who is at risk for overdose
2. Ensure that the patient is properly instructed in the administration and risks of naloxone

Burris S at al. "Legal aspects of providing naloxone to heroin users in the United States. Int J of Drug Policy 2001: 12; 237-248.

Practical Barriers to Prescribing Naloxone

1. Prescriber knowledge and comfort
2. How to write the prescription?
   - Stay tuned
3. Does the pharmacy stock it? Naloxone? Overdose kit with MAD?
   - BMC stocks it and is putting it on the formulary
4. Who pays for it?
   - MassHealth and BlueCross cover the naloxone
   - BMC/DPH will likely cover the MAD
   - We are working with MassHealth to cover MAD
   - The MAD costs $2.50 each

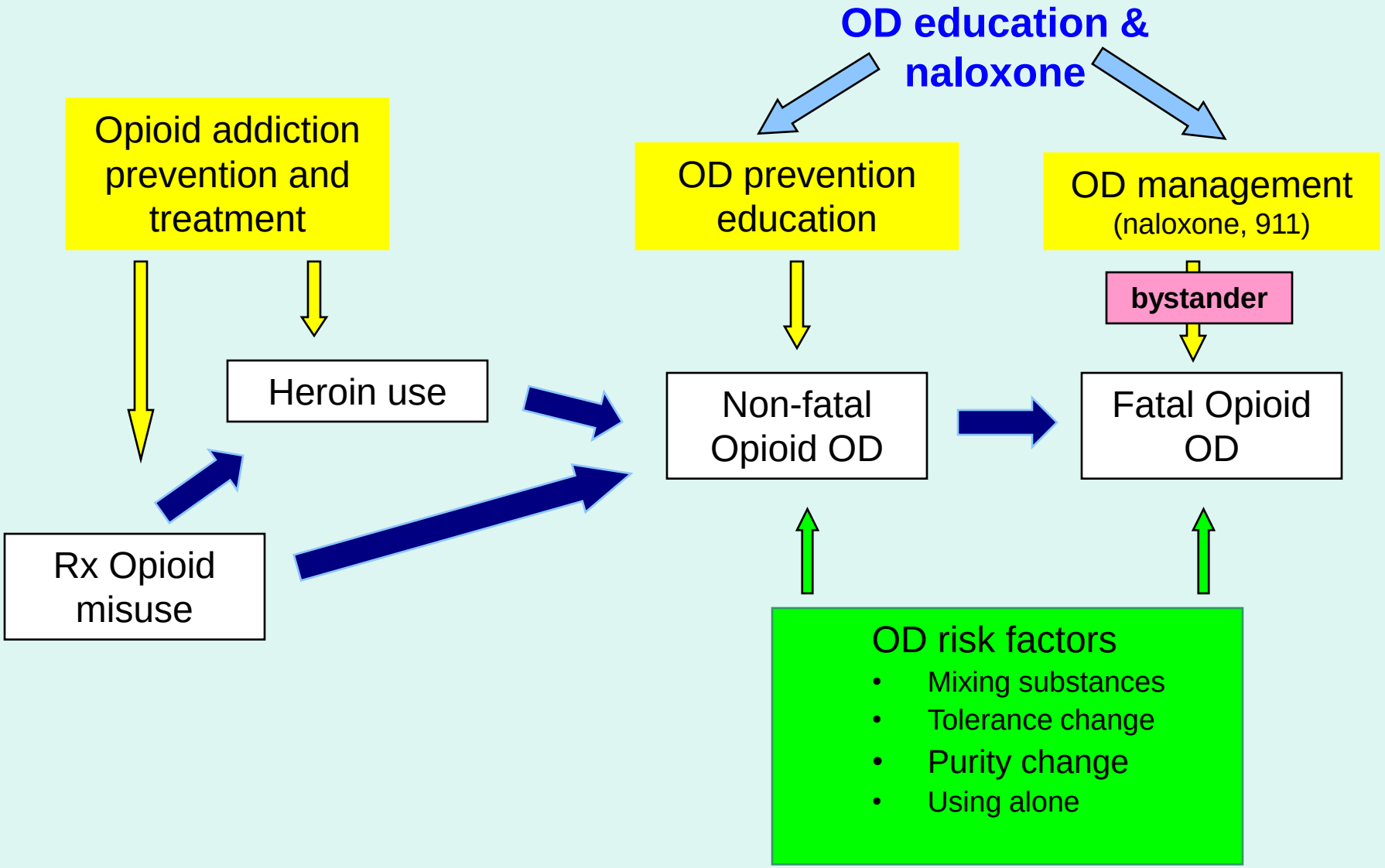
Patient Selection

- After emergency medical care involving opioid intoxication or poisoning
- Suspected hx of substance abuse or nonmedical opioid use
- Patients taking methadone or buprenorphine
- Any patient receiving an opioid prescription for pain and:
  - higher-dose (>50 mg morphine equivalent/day) opioid
  - rotated from one opioid to another= poss incomplete cross tolerance
  - Smoking, COPD, emphysema, asthma, sleep apnea, respiratory infection, or other respiratory illness or potential obstruction.
  - Renal dysfunction, hepatic disease, cardiac illness, HIV/AIDS
  - Known or suspected concurrent heavy alcohol use
  - Concurrent benzodiazepine or other sedative prescription
  - Concurrent antidepressant prescription
- Patients who may have difficulty accessing emergency medical services (distance, remoteness)
- Voluntary request from patient or caregiver

Prescription Directions

- Dispense: One naloxone rescue kit
  - 2 prefilled syringes with 2mg/2ml naloxone
  - 2 mucosal atomizer devices
  - Risk factor info and assembly directions
- Directions: For suspected opioid overdose, spray 1ml in each nostril. Repeat after 3 minutes if no or minimal response- include infosheet
- Refills: None

Opioid OD conceptual model



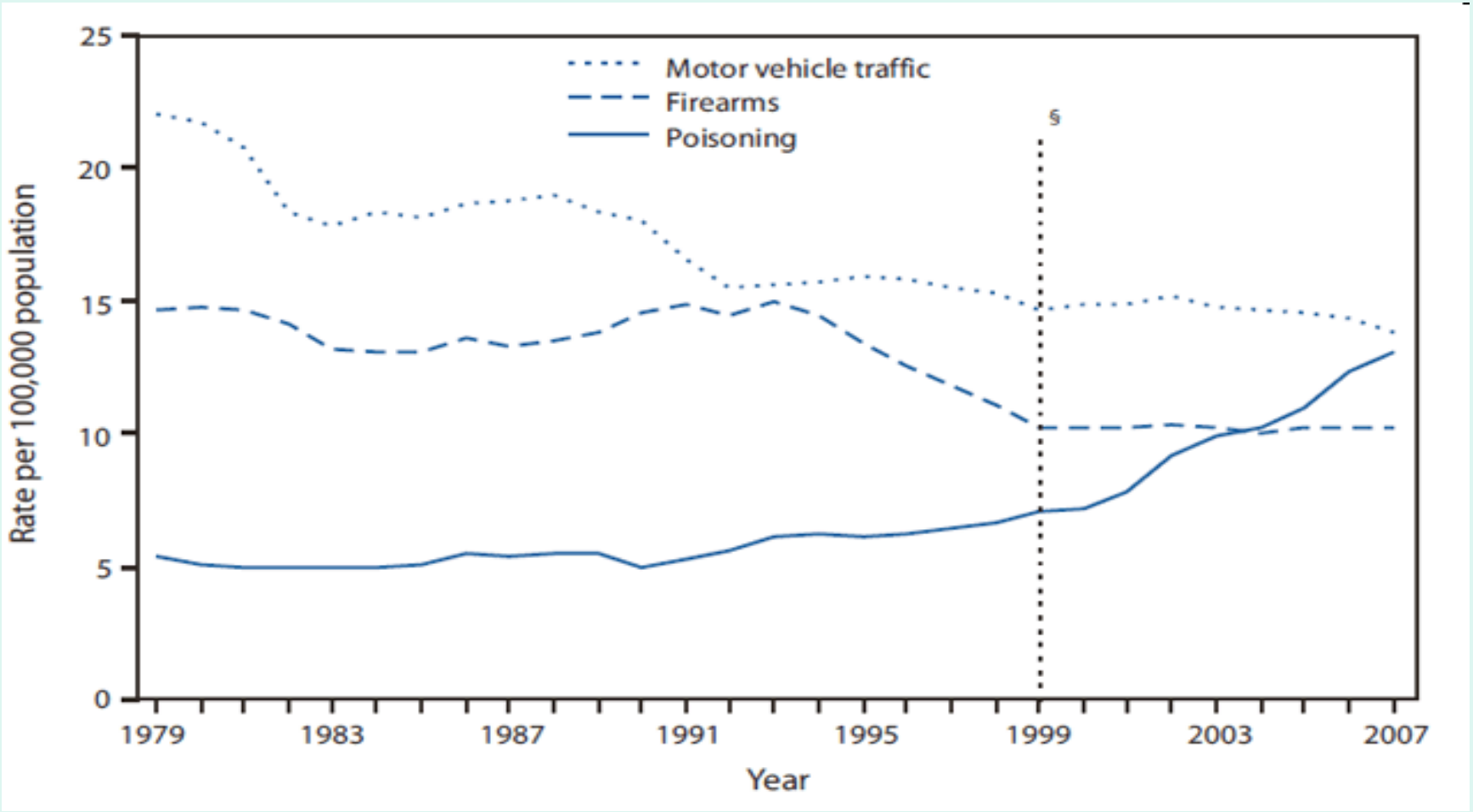
Evidence reviews

- Ashton and Hassan. *Emerg Med J*. 2006; 23: 221-223.
  - The clinical bottom line is that it is likely that intranasal naloxone is a safe and effective first line prehospital intervention in reversing the effects of an opioid overdose and helping to reduce the risk of needle stick injury. A large, well conducted trial into it's usage is however required to confirm this.
- Kerr et al. *Addiction.* 2008;103:379-386.
  - Currently there is not enough evidence to support i.n. naloxone as first-line intervention by paramedics for treatment of heroin overdose in the pre-hospital setting. Further research is required to confirm its clinical effectiveness, safety and utility

Overdose is on the rise

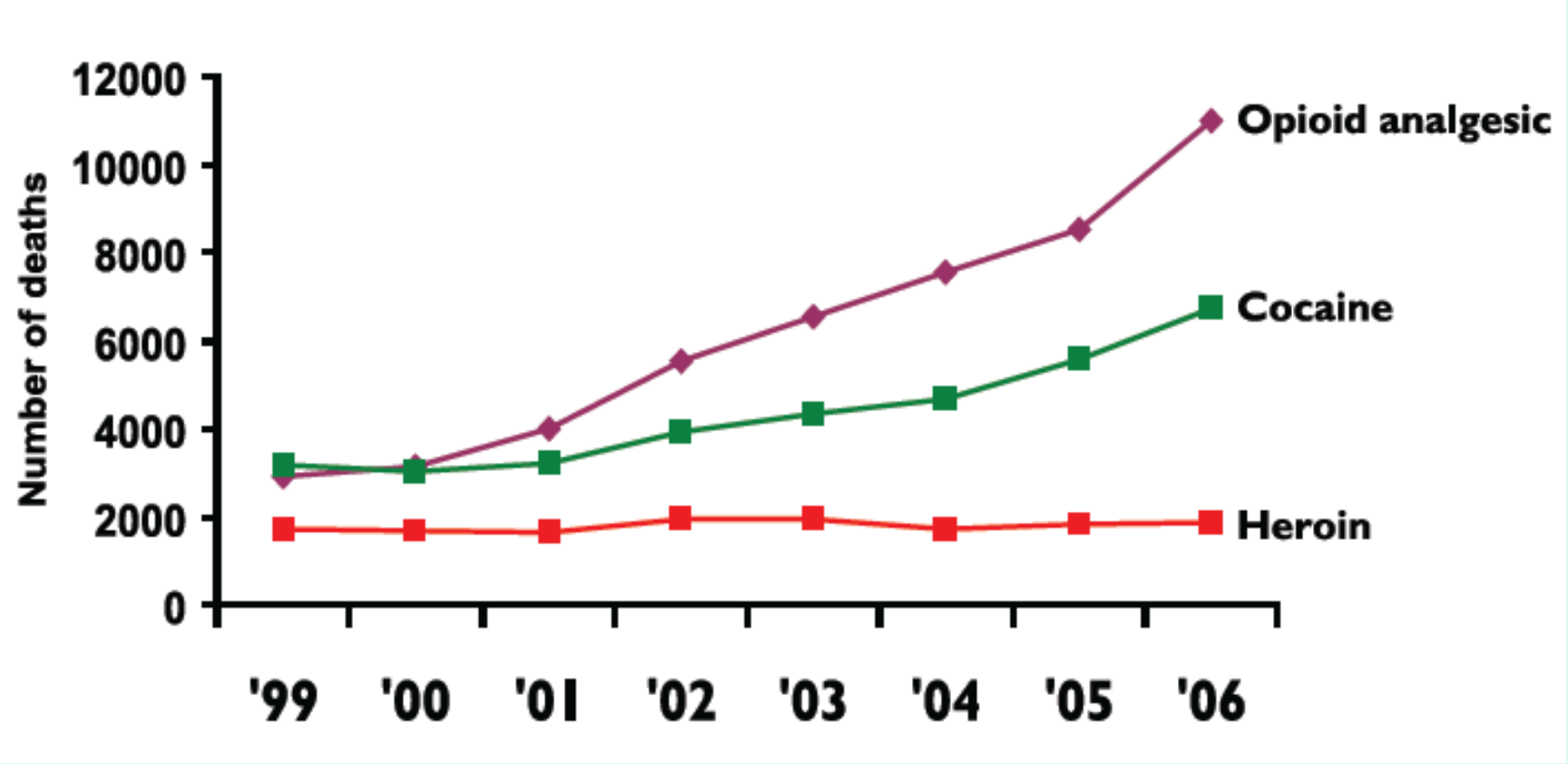
- 1999 to 2006, poisonings, 94% of the which were overdoses, doubled from 12,186 to 26,400
  - >50% were associated with prescription drugs
  - Exceed MVA death rates in 16 states, and ages 35-54 nationwide
- New users of prescription painkillers now outnumber new users of MJ
  - 2.2 vs. 2.1 million
- Emergency department visits in 2008
  - 306,000 involved pharmaceutical opioids
  - 201,000 involved heroin

Overdose Trends: Death Rates for the Three Leading Causes of Injury Death, United States: 1979-2007



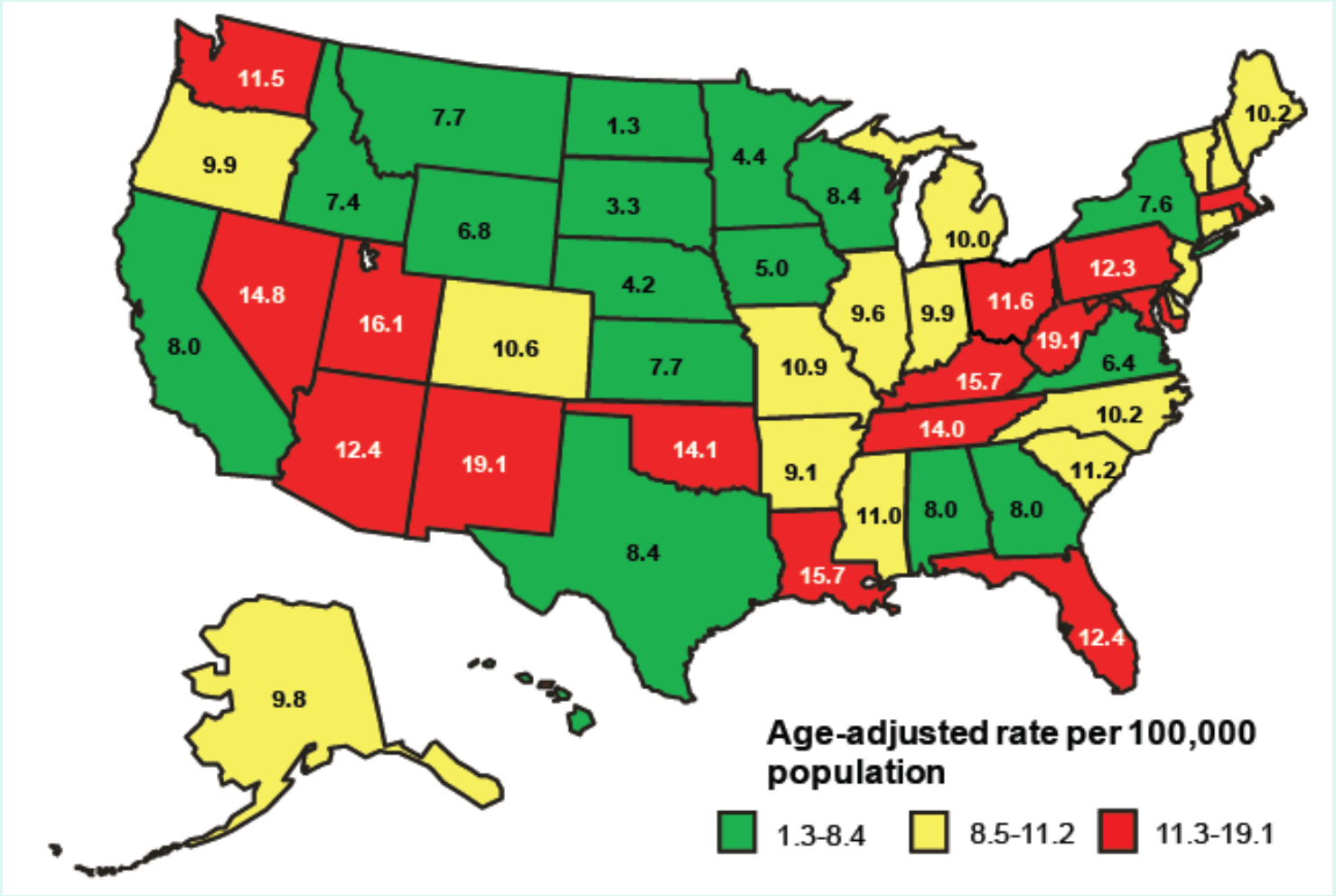
MMWR August 6, 2010

Unintentional drug overdose deaths by major type of drug, United States: 1999-2006



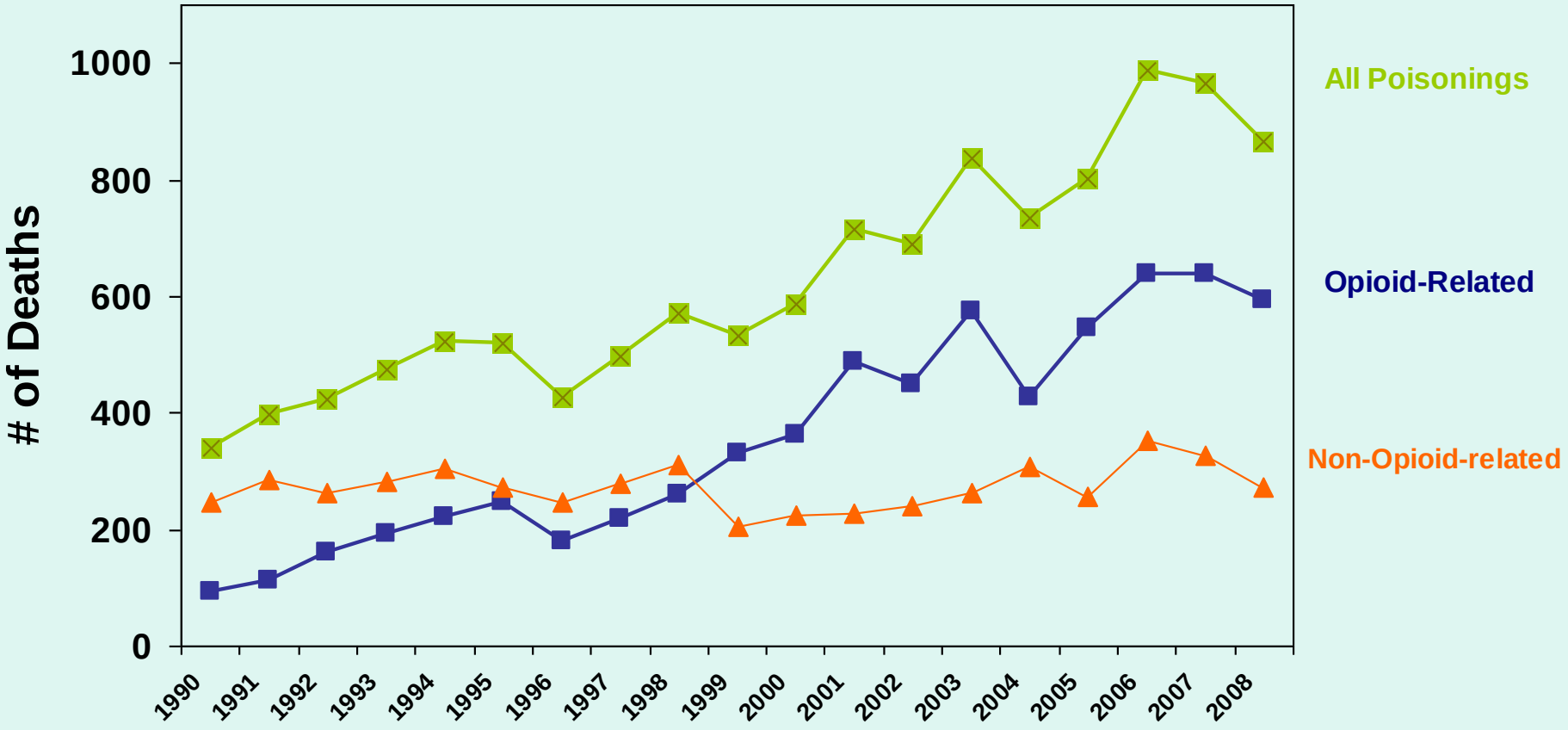
CDC Issue Brief. March 2010

Drug Overdoses by State, 2006



CDC Issue Brief. March 2010

Opioid-Related Poisoning Deaths: Massachusetts 1990-2007



Source: Registry of Vital Records and Statistics, MA Department of Public Health

Prescription Monitoring Program Changes 2011

- Schedules: Increase from Schedule II only to Schedules II – V
- Customer ID: Require for all schedules (II – V)
- Out-of-state mail order pharmacies: Require reporting
- Reporting frequency: Increase from monthly to weekly
- Provider reports: Online prescription histories for their patients
- Interstate data sharing: Codify existing authority
- State agency reports: Focus Medical Review Group expertise on unsolicited reports

Bystander administration evidence

Survey of trained vs. untrained potential bystanders

Population:

62 subjects (30 trained/32 untrained) from 6 OD prevention/ naloxone distribution sites

Assessments:

Knowledge test with 16 OD scenarios

9 opioid ODs requiring nalxone

7 non-opioid ODs or non ODs

Results:

	Trained	Untrained
Opioid ODs correctly identified*	85%	68%
Indication for naloxone correctly identified*	87%	69%

Green et al. Distinguishing signs of opioid overdose and indication for naloxone. *Addiction*. 2008; 103:979-89.

*p<0.05

Intranasal Administration

Pro

- 1st line treatment among some local EMS
- RCTs, show slower onset of action but milder withdrawal
- Acceptable to non-users
- No needle stick risk
- No disposal concerns

Con

- Not FDA approved
- No large RCT
- Device requires assembly and is subject to breakage
- High cost:
  - $30+ per kit

Intranasal naloxone evidence

Randomized trial of IN vs. IM naloxone

Population:

172 patients requiring treatment of suspected opioid overdose and attended by paramedics in Australia

Intervention:

Randomized to 2mg of IM (n=89) vs. IN (n=83) naloxone

Results: All survived

	IN group	IM group
Adequate response ≤ 10 minutes	72%	69%
Mean response time in minutes	8.0	7.9
Supplementary naloxone needed*	18%	4.5%
Hospitalization	29%	26%

*p<0.05

Kerr et al. Intranasal naloxone for suspected heroin overdose. *Addiction*. 2009.

Intranasal Administration

- In Massachusetts, we are distributing intranasal naloxone
- 2005 - Boston EMS standard of care
- 2006 – BPHC AHOPE and Cambridge Cares About AIDS distributed via syringe access programs
- 2008 – MA DPH sponsored distribution at 6, now 9 community agencies

What is Driving the Increase in Overdose?

- New Drug Use Patterns
  - New Initiates to prescription drugs
  - Oxycontin to Heroin
- Heroin Availability/Purity/Lethal Mixture
  - Heroin is the leading drug threat in New England
  - From ‘93-’10 Heroin reported as primary drug increased from 19.63% - 40.4% of treatment admissions in MA
- Prescribing Patterns
  - Number of Schedule II Opioid prescriptions has more than doubled in the past decade
- Previous Reductions in Treatment Services
  - 2001-2004 Budget Cuts in Massachusetts