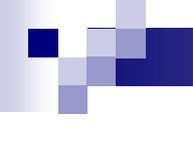


PREVENTING FATAL OVERDOSE

ADDICTION MEDICINE EDUCATIONAL SERIES WORKBOOK
NYS OFFICE OF ALCOHOLISM AND SUBSTANCE ABUSE SERVICES



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*This workbook is adapted from a presentation by Dr. Sharon Stancliff's program – "Get the SKOOP: Skills and Knowledge on Overdose Prevention". Dr. Stancliff is the Medical Director of the Harm Reduction Coalition in New York City.

DEFINITIONS



Papaver Somniferum
"Poppy Plant"

- Opium
 - Fluid obtained from the poppy plant
- Opiate
 - a substance derived from opium
- Opioid
 - substance with morphine-like actions, but not derived directly from the poppy plant

Opiate or opioid tend to be used interchangeably.

In the class of opioid/opiate substances, all of the following can be prescribed legally except for heroin.

- Heroin
- Morphine
- Codeine
- Methadone
- Oxycodone
 - OxyContin
 - Percodan
 - Percocet
- Hydrocodone
 - Vicodin
- Fentanyl
- Hydromorphone
 - Dilaudid

OPIATE INTOXICATION

MOST COMMON

- Miosis (small pupils; except with Demerol use which causes paralysis of the ciliary body and pupils dilate)
- Nodding
- Hypotension (low blood pressure)
- Depressed respiration
- Bradycardia (slow heart rhythm)
- Euphoria
- Floating feeling

OPIATE OVERDOSE

- CLASSIC TRIAD SEEN IN OVERDOSE
 - Miosis
 - Coma
 - Respiratory depression
- Pulmonary edema
- Seizures with:
 - Demerol, Darvon, Talwin



WHO OVERDOSES?

- Most often it is the dependent long term users with 5-10 years of experience rather than new users.

PHYSIOLOGY OF AN OVERDOSE

- The overdose generally happens over the course of 1-3 hours - the stereotype “needle in the arm” death is only about 15%
- Opioids repress the urge to breath and decrease the bodies/brains response to carbon dioxide. Thus opioids can lead to respiratory depression (decrease rate of breathing) and death

OVERDOSES ARE OFTEN WITNESSED

But what to do?

- Fear of police may prevent calling 911
 - Abandonment is the worst response
- Witnesses may try ineffectual things first
 - Salt & milk shots
 - Ice baths



THE ANTIDOTE TO OPIATE OVERDOSE

- Naloxone (Narcan), an injectable opioid antagonist will reverse the effects of opioids preventing a fatal overdose.

MAJOR RISK FACTOR: LOWERED TOLERANCE

- Tolerance- repeated use of a substance may lead to the need for increased amounts to produce the same effect
- Abstinence decreases tolerance increasing overdose risk (using the last amount of the opiate before the abstinent period)

Abstinence due to:

- Incarceration
- Hospitalization
- Drug treatment/detox

DEATH FOLLOWING INCARCERATION

Washington State Corrections: looked at
30,237 inmates released

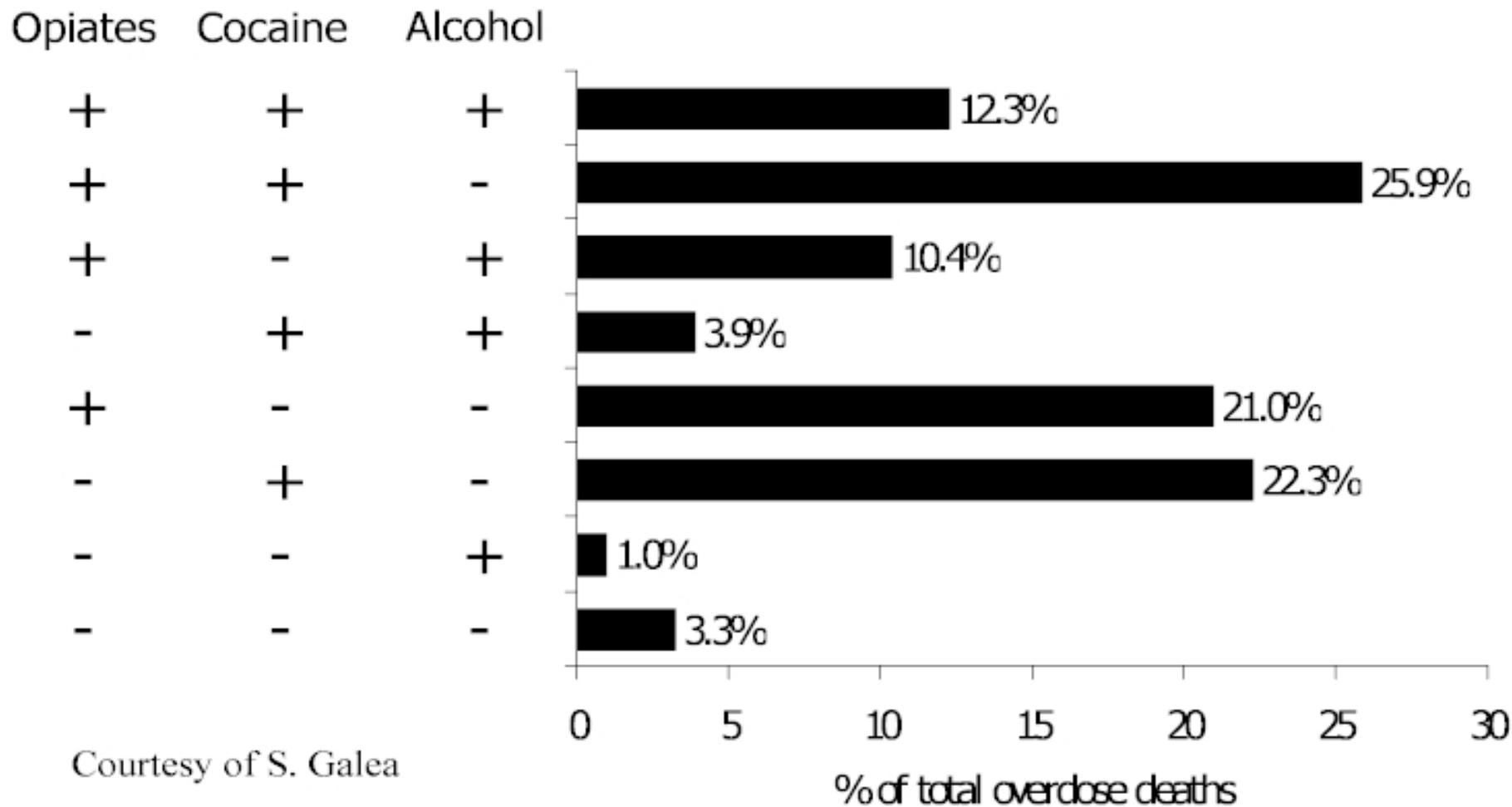
- Overall mortality: $777/100,000 = 2.5x$ expected
- First 2 weeks: $12.7x$ expected with overdose rate of $1840/100,000$
- Cause of the overdose deaths:
 - Opioids: 60%
 - Cocaine and other stimulants: 74%

MAJOR RISK FACTOR: MIXING DRUGS

- Using an opioid with other depressants such as alcohol or benzodiazepines raises the risk
- Cocaine is a stimulant but:
 - High doses also reduce the respiratory drive
 - Wears off sooner than heroin in a speedball
 - Involved in about 38% of overdoses in New York City

(Sporer 2007)

Drug combinations, accidental overdose deaths, New York City, 1990-2001 (n= 10,091) 1-2 deaths each day



ILLNESS AND OVERDOSE

Overdose is more likely in the presence of significant illness

- Liver disease: notably cirrhosis
- Advanced AIDS
- Coronary disease
- Pulmonary disease: notably pneumonia

(Wang 2005, Darke 2006)

OTHER RISK FACTORS

- Major changes in opioid supply: >1000 deaths USA 2006 with fentanyl
- Depression
- History of previous overdose

(Sporer 2006, Wines 2007, Pollini 2006, Tobin 2003))

(<http://www.whitehousedrugpolicy.gov/news/fentanyl%5Fheroin%5Fforum>)

HEROIN OVERDOSE EPIDEMIOLOGY

About 2% of heroin users die each year -
many from heroin overdose

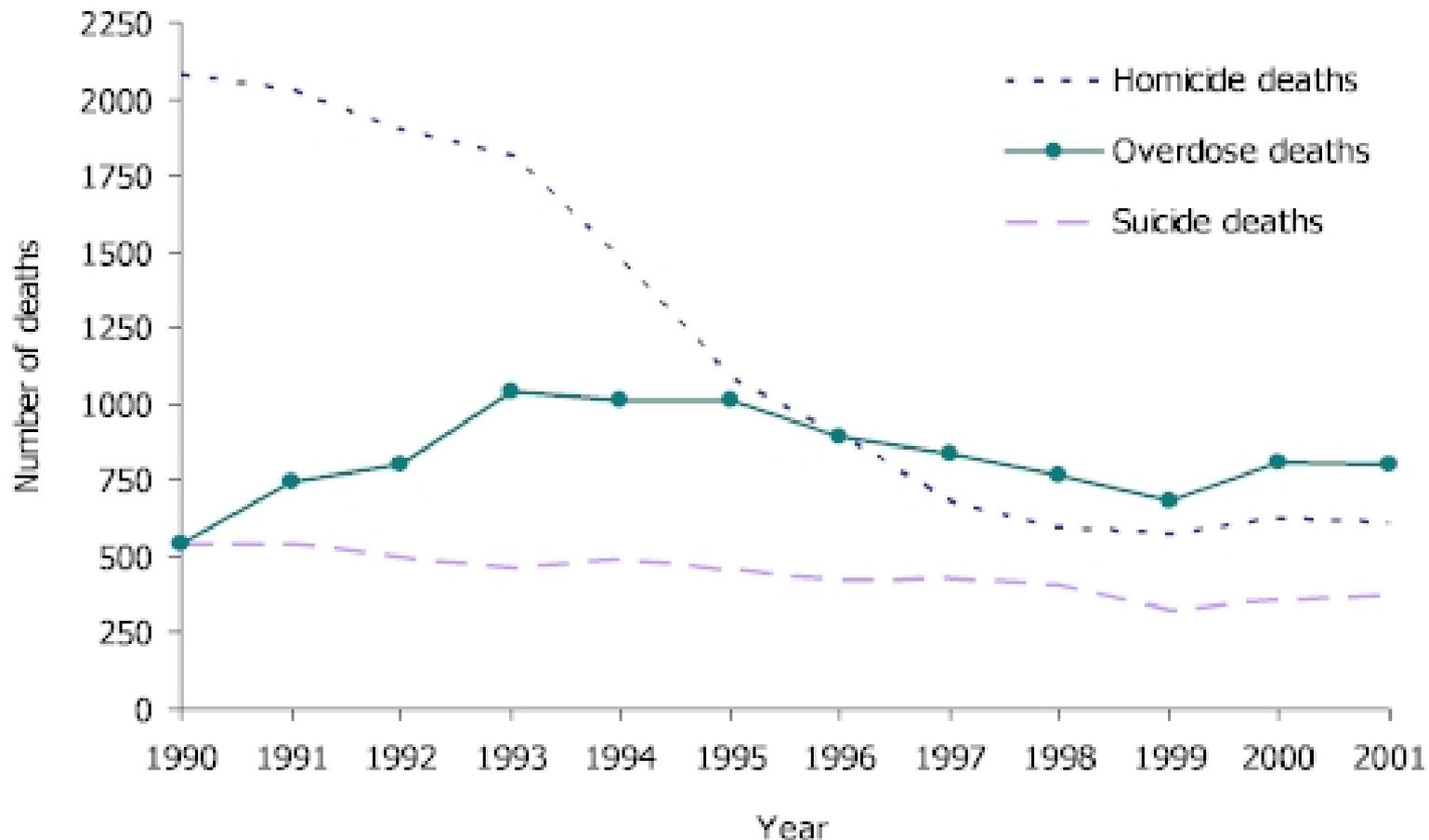
- 1990-98: 5,506 deaths in NYC
- Average of 1-2 per day in NYC
- 1999: leading cause of death in men age 25-54 in Portland OR and several other cities

(Sporer 2003, Galea 2003)

HEROIN OVERDOSE EPIDEMIOLOGY

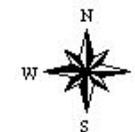
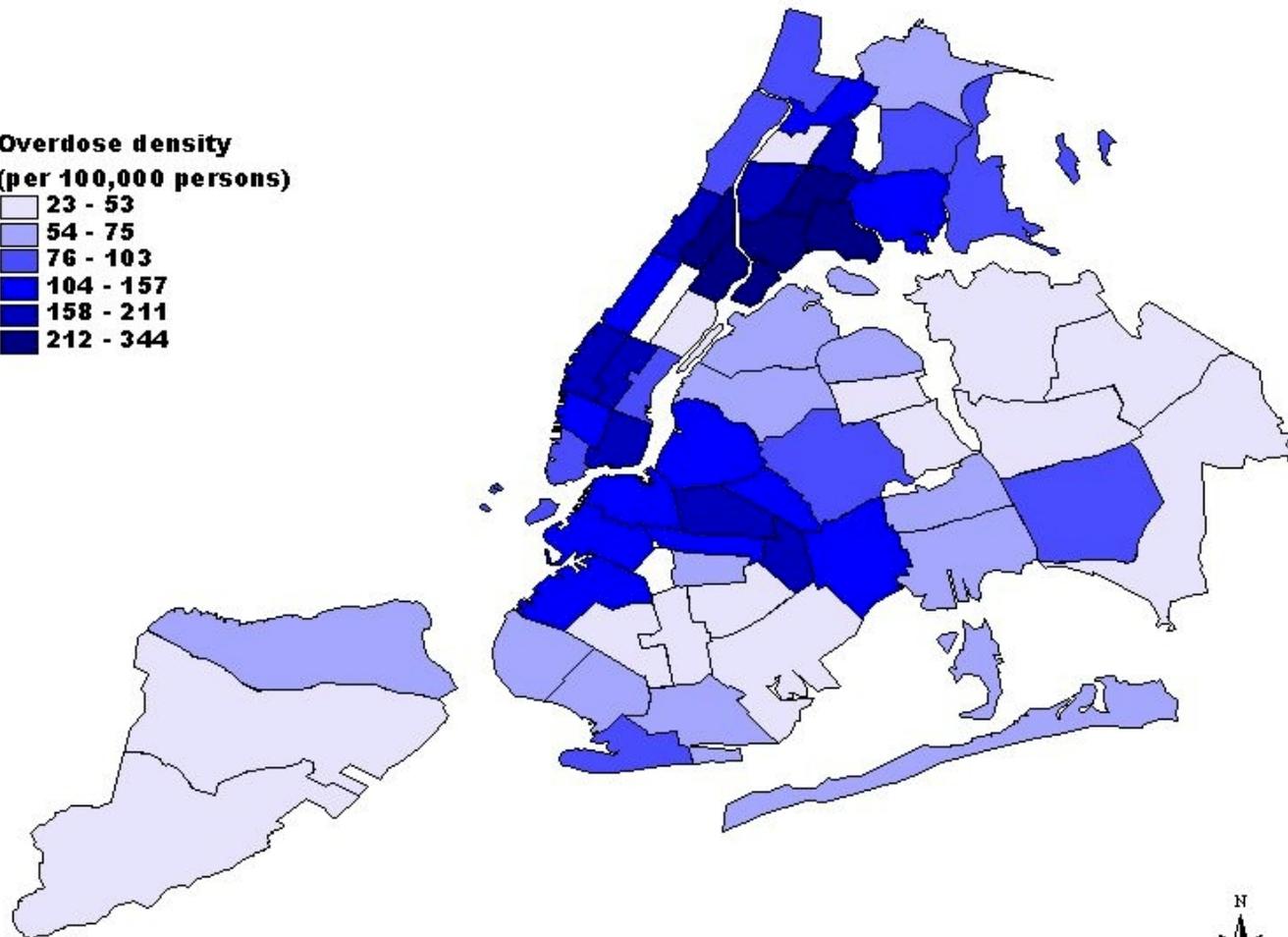
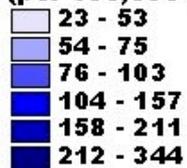
- Heroin overdose in 2006 revealed 57 deaths in NYS outside of NYC
 - 51 males and 6 females
 - Average age was 38
 - Suffolk County 26 deaths
 - Westchester County 16 deaths
 - Orange County 4 deaths

Accidental overdose, homicide, and suicide deaths, New York City, 1990-2001

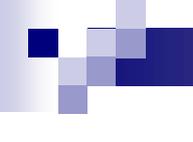


Drug overdose density in NYC community districts, 1990-2001

Overdose density
(per 100,000 persons)



Courtesy of
S. Galea



**MANY OPIOID OVERDOSES
ARE PREVENTABLE!
GET THE **SKOOP****

(Skills and Knowledge on
Overdose Prevention)!



Legal Status - New Law in New York State - April 1, 2006

- The purchase, acquisition, possession or use of an opioid antagonist pursuant to this section shall not constitute the unlawful practice of a profession.
- Use of an opioid antagonist pursuant to this section shall be considered first aid or emergency treatment for the purpose of any statute relating to liability.



TRANSLATION

- April 1, 2006: It is clearly legal for a non-medical person to administer naloxone (Narcan) to someone else in order to treat a potentially fatal overdose.
- However, by federal regulation naloxone requires a prescription
- NYS Department of Health has a regulation for implementation(Opioid Overdose Prevention Programs, Section 80.138 Regulations)



NEW YORK CITY

- Tides grant 4/04-present: Trained over 90 participants at one syringe exchange on how to prevent overdose
- NYCDOHMH grant 3/05 - present: 2300+ trained at 14 syringe exchanges, Expanded Syringe Access Demonstration Program (ESAP) sites and various others

Interventions: 180+ reported reversal of overdose

OTHER PROGRAMS INCLUDE:

- San Francisco: The Drug Overdose Prevention and Education (DOPE) Project/SFDOH: (650/141)*
- Chicago Recovery Alliance: 1997-present trained ~(4600/416)
- Baltimore DOH: 4/04- 3/05: (951/131)
- New Mexico emergency legislation passed to prescribe, dispense and administer naloxone widely: (1312/222)

(Sporer 2006 as of March 2006)

CHICAGO RECOVERY ALLIANCE

- Over 3,500 kits distributed
- 319 overdose reversals reported
- 1 unsuccessful revival
- 1 seizure
- 1 vomited
- Only 5 cases required more than 1 injection
- No cases of re-treatment after naloxone wore off

(Maxwell 2006)

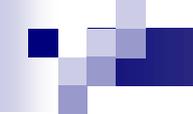
DECREASING OVERDOSE FATALITY RATES

- Chicago: 1999-2003 fatal opioid overdoses dropped 34% coinciding with start up of first naloxone distribution program
- Baltimore: 2004 fatal overdose rate down
- San Francisco: 2004 fatal overdose rate down while statewide is up 42%

(Scott, 2007;[3/28/05 Baltimore Sun, SFDOH Commission meeting 2005](#))

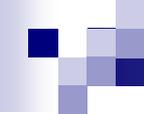


TRAINING TO PREVENT DEATH FROM OVERDOSE



TRAININGS COME IN ALL TYPES: SUIT THE SETTING

- Classroom based: 30-45 minutes, 5-10 participants
- One on one at syringe exchanges and in single room occupancy hotels: 15-30 minutes
- Street-based: 15-25 minutes, depending on the weather etc. 5-15 participants



SKOOP MODEL

- Each agency selects staff and peers to become trainers: interest outweighs formal education in success of trainer
- Physician offers support and oversight as well as prescribing and dispensing naloxone

THE TRAINING: 10-20 MINUTES

- What is naloxone?
- What are opioids?
- Prevention and understanding risk factors
- Overdose recognition
- Action Call 911
 - Rescue breathing - using dummy
 - Naloxone administration and how it works
 - Recovery position



EACH TRAINED RESPONDER SHOULD:

- Have hands on practice with vial/ syringe
- Meet with medical provider for very short medical history
- Receive prescription to keep in kit
- Receive certificate of completion
- Be reminded to report all use and come back for a refill



MESSAGES

- Try to use with others who know what to do if an overdose happens
- Be careful using alone especially if
 - Using after abstinence
 - Mixing different classes of drugs



RECOGNITION

- Overdose rarely immediate- be aware of companions all the time when using
- Nodding versus unresponsive
- Blue lips and nail beds
- Slow breathing, gurgling

STIMULATE

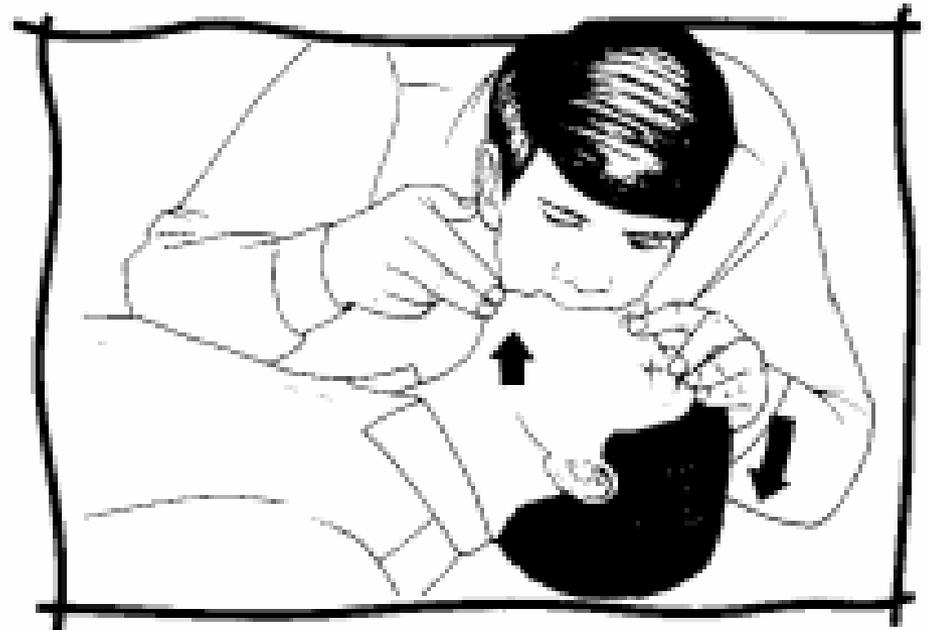
- Shake, call name
- Sternal rub: rub knuckles hard up and down breast bone
- Ice works but this is easier

RESPONSE

- Call 911- “My friend is unconscious/not breathing” Give location.
 - No need to say overdose
- Be aware that the police may respond as well to the call

RESCUE BREATHING

Mouth to mouth is taught
using a dummy for
practicing





RESCUE BREATHING

- Mouth to mouth breathing alone can sustain someone until Emergency Medical Services (EMS) arrives or until overdose passes - if started before the heart stops

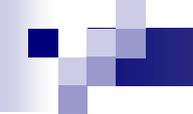


RESCUE BREATHING

- Tip back head to open airway
- Hold nose
- Start with 2 quick breaths then one breath about every 5 seconds

NALOXONE (NARCAN)

- Opioid antagonist which reverses opioid overdoses
- Pushes most other opioids off the receptors, then sits on the receptor preventing it from being activated for 30-90 minutes
- Analogy - getting the wrong key stuck in a lock



NALOXONE IN ACTION

- Reverses sedation and respiratory depression
- Causes sudden withdrawal in the opioid dependent person
- No psychoactive effects
- Over the counter in some countries, but not the US
- Routinely used by EMS

ADMINISTRATION

- Inject into muscle but subcutaneous and intravenous are fine also
- Acts in 2-8 minutes
- If no response in 2-5 minutes repeat- and if 911 has not been called do it now!!
- Do not repeat naloxone more than twice
- Lasts 30-90 minutes



INJECTION

- Inject into upper arm or front of thigh
- Rapidly push needle in and then push syringe to inject the medication
- Full needle is fine, maybe less if skinny



RESULTS: AWAKE AND BREATHING

Narcan wears off in 30-90 minutes

- Don't leave the overdoser alone as sedation may return
- Reassure the overdoser if s/he is drug sick - the naloxone will wear off - don't use more heroin to feel better!!

RECOVERY POSITION

- If you must leave the overdoser even for a few minutes put them into the recovery position (on the side) so they won't choke on vomit



POTENTIAL HARM?

- Sinking back into overdose when it wears off
 - Study of 998 OD patients who were administered naloxone by EMS and refused to go to the hospital - none died in the next 12 hours

(Vilke 2003)

HARM REDUCTION

- Emergency Medical Services give 1.2 - 1.6 milligrams of naloxone which precipitates severe withdrawal in the dependent person
- Overdose prevention services recommend starting with 0.4 with an additional dose readily available



PUSHING THE ENVELOPE

Will some users feel safer and take more heroin with naloxone near by?

- Probably a few but withdrawal is very unpleasant

SCENARIOS

- Best case:
 - administering naloxone,
 - calling 911,
 - staying on the scene

OPIOID MAINTENANCE AS PREVENTION

- Methadone maintenance may decrease the risk of overdose by up to 75%
- Since the institution of buprenorphine and methadone maintenance in 1996 in France heroin overdose has dropped by 79%

(Caplehorn 1996, Sporer 1999, 2003, Auriacombe 2004)

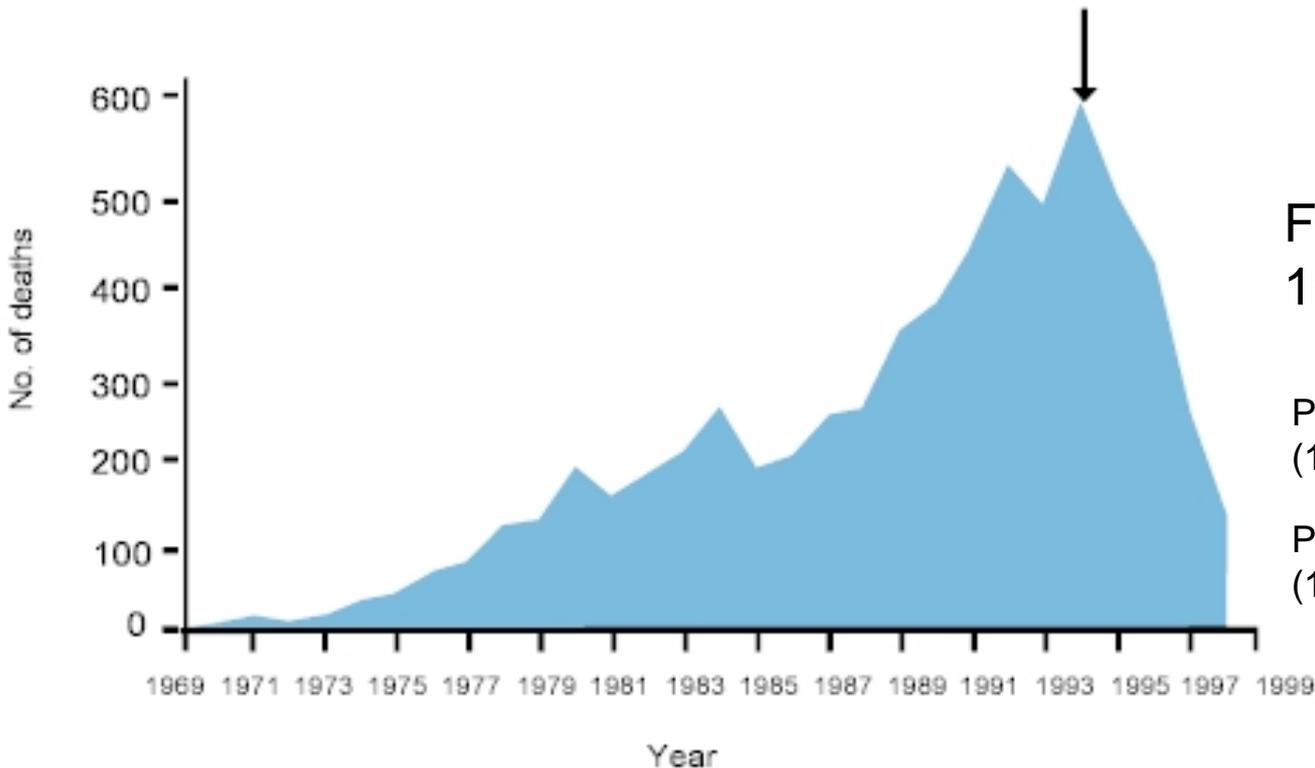


OPIOID MAINTENANCE

- Methadone and buprenorphine act to keep tolerance up - harder to get high but harder to overdose
- Both may increase risk of overdosing on other depressants if taken in high doses

SUBSTITUTION THERAPY PREVENTS OVERDOSE –
with the introduction of subutex and methadone in France,
overdoses decreased.

1996 Subutex and methadone



French population in
1999 = 60,000,000

Patients receiving buprenorphine
(1998): N= 55,000

Patients receiving methadone
(1998): N= 5,360

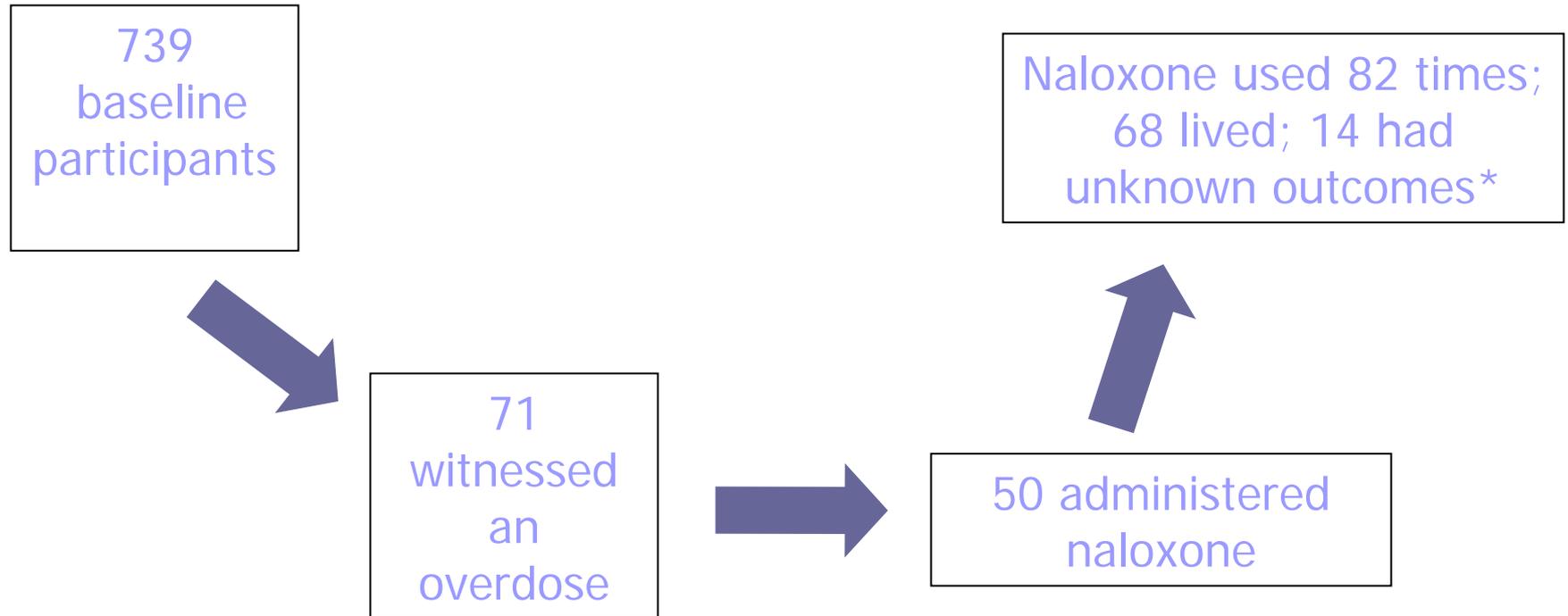


SKOOP EVALUATION

March 2005- December 2005: 739 people trained. A sample of 389 found that:

- 90% had used opioids including methadone (65%) in the last six months
- 49% had experienced a non-fatal overdose
- 82% had witnessed an overdose

USE OF NALOXONE



(Piper Markham, in press)

*Taken to hospital, rescuer left, etc

RESPONSES TO OVERDOSE: Before and after training

	Before n=389	After n=50
Called ambulance	78%	74%
Took to hospital	53%	60%
Injected with salt, water or cocaine	28%	1%

Trainees were still calling for help even with naloxone on hand

PROGRAM WITHOUT NALOXONE

- Still provide prevention training - users who learn about overdose from other *users* are LESS likely to call 911
- Lack of naloxone should not deter an overdose prevention program!

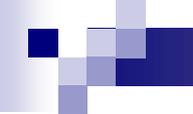
(Pollini 2006)

WHO MAY OFFER AN OPIOID OVERDOSE PREVENTION PROGRAM?

- Licensed health care facilities :
 - Hospitals
 - Diagnostic & Treatment Centers
- Drug treatment programs
- Health care practitioners:
 - Physicians
 - Physician assistants
 - Nurse practitioners
- CBOs with the services of a clinical director
- Local health departments

PROGRAM STAFF

- Program Director - required
- Clinical Director - required
 - Physician
 - Physician assistant
 - Nurse practitioner
- Affiliated prescribers, who must be physicians, physician assistants or nurse practitioners
- Training staff



STARTING A PROGRAM

- Educate key staff and decision makers
 - Assistance available from Harm Reduction Coalition, NYCDOHMH, NYSDOH
- Identify target audience
- Designate staff responsibilities
- Register with New York State DOH



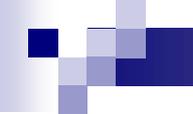
REGISTRATION

- Registration must be with the NYS Department of Health on a simple form prescribed for this purpose
- It must be accompanied by attestation signed and dated by Program Director and Clinical Director
- Program may operate only after the Department in response to the completed registration issues a Certificate of Approval



AVAILABLE RESOURCES

- Naloxone kits
- Sample policies and procedures
- Approved curriculum
- Fact sheets
- Sample medical history
- Certificates of completion
- OD reporting form



PROGRAM DIRECTOR

Oversees day to day activities

- Responsible for maintaining quality of training
- Maintain inventory of supplies
- Keeps log of who was trained by date
- Issue certificates of completion to trained overdose responders who have completed the training program



PROGRAM DIRECTOR

- Review of reports of all overdose responses, particularly those including administration of opioid antagonist with clinical director
- Report all administrations of opioid antagonist on forms prescribed by the Department



CLINICAL DIRECTOR

- Does not need to be staff member
- Provide clinical consultation, provide consultation to ensure that all trained overdose responders are properly trained;
- Adapt and approve training program content and protocols;
- Review reports of all administrations of an opioid antagonist



TRAINED OVERDOSE RESPONDER RESPONSIBILITIES

- Complete initial opioid overdose prevention training program;
- Complete refresher training at least every 2 years;
- Contact EMS during response to victim of suspected drug overdose and advise if opioid antagonist has been used;
- Report all opioid overdose responses to program director

CONCLUSIONS

- Overdose prevention training consists of a few basic components
- Drug users can prevent and reduce overdoses
- Potential goals:
 - Overdose training as standard of care
 - Naloxone over-the-counter

COMMON QUESTIONS

- **What about salt or milk shots?** Many users believe that injecting salt water or milk will revive an overdose victim. There is no medical reason why this works and it can be dangerous as it wastes time. Some people are certain that they work - explain that naloxone is definitely effective so salt shots are unnecessary.
- **What about walking someone around?** If the overdoser can walk this is good and they don't need naloxone. Dragging someone around doesn't help.

COMMON QUESTIONS

- **What about ice?** Like the sternal rub, ice can wake someone in a heavy nod. The sternal rub is easier.
- **How bad does getting naloxone feel?** Naloxone puts an opioid dependent person into withdrawal. This program recommends starting with 0.4mg. Emergency Medical Services often give 1.2-1.6mg and precipitate much more severe withdrawal.
- **Can one take naloxone and give a clean urine?** No, the naloxone only blocks the opioid for a little while; it is still in the body.

COMMON QUESTIONS

- **What if I hit a vein instead of the muscle?**
Naloxone is effective intramuscularly (in the muscle), intravenously (in the vein) and subcutaneously (skin popping). Intramuscularly is the quickest and easiest way.
- **What if someone is pregnant or taking medications - is it dangerous to administer naloxone?** Remember naloxone is only to be given if you think someone is dying.

COMMON QUESTIONS

- **What about methadone and overdose?**

Even if people continue to use heroin while on methadone or buprenorphine they are unlikely to overdose on heroin. Tolerance to opioids occurs with daily use of methadone or buprenorphine so it is hard to feel high from heroin- and very hard to take enough to overdose. But overdoses can occur when mixing methadone or buprenorphine with benzodiazepines.

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