Optimizing Safety in Patients with Addictions

CRIT/FIT program – May 2015

Alex Walley, MD, MSc
Assistant Professor of Medicine
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
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.*
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
Optimizing safety
(aka Harm Reduction)
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
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

Vascular Access
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)
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
Change in HIV seroprevalence with and without needle-syringe programs

<table>
<thead>
<tr>
<th></th>
<th>Cities with NSPs</th>
<th>Cities without NSPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>All cities</td>
<td>-5.8% per year</td>
<td>+5.9% per year</td>
</tr>
<tr>
<td>Cities with seroprevalence &lt;10%</td>
<td>-1.1% per year</td>
<td>+16.2% per year</td>
</tr>
</tbody>
</table>


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
• 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
Overdose prevention
Figure 1. Age-adjusted rates for drug-poisoning deaths, by type of drug: United States, 2000–2013

NOTES: The number of drug-poisoning deaths in 2013 was 43,982, the number of drug-poisoning deaths involving opioid analgesics was 16,235, and the number of drug-poisoning deaths involving heroin was 8,257. A small subset of 1,342 deaths involved both opioid analgesics and heroin. Deaths involving both opioid analgesics and heroin are included in both the rate of deaths involving opioid analgesics and the rate of deaths involving heroin. [Access data table for Figure 1](https://example.com) [PDF - 86KB].

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State legislation</strong></td>
<td>Low evidence quality from 3 states where multiple efforts in place at the same time with inadequate controls</td>
</tr>
<tr>
<td>• Pill Mills, Doctor Shopping, and Good Samaritan laws</td>
<td>No clear effects on total opioid prescribing or health outcomes. Data only up through 2008, Impact of proactive reporting or provider mandates not known</td>
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<tr>
<td><strong>Prescription drug monitoring programs</strong></td>
<td>Low evidence quality because lack of comparison groups, short-term follow-up and inadequate statistical testing</td>
</tr>
<tr>
<td><strong>Insurance and pharmacy benefits manager</strong></td>
<td>Extremely low evidence quality from lack of baseline data and comparison groups, small sample size, short-term follow-up, health outcomes not assessed and inadequate controls</td>
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<tr>
<td><strong>Safe storage and disposal</strong></td>
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The impact of state policy and systems-level interventions on prescription drug overdose
Haegerich et al. Drug Alc Dep 2014: 145; 34-47
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www.scopeofpain.com
wwwopioidprescribing.com
www.pcss-o.org
Overdose deaths decrease when agonist treatments increase

Methadone and Buprenorphine in Baltimore:
Schwartz et al. AJPH 2013.

Methadone in Norway:
Clausen et al. Addiction 2009

Figure 1—Heroin overdose deaths and opioid agonist treatment: Baltimore, MD, 1995-2009.
## Supervised injection facilities


<table>
<thead>
<tr>
<th>ODs occurring in blocks within 500 m of the SIF*</th>
<th>ODs occurring in blocks farther than 500 m of the SIF*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-SIF</strong></td>
<td><strong>Post-SIF</strong></td>
</tr>
<tr>
<td>Number of overdoses</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>33</td>
</tr>
<tr>
<td>Person-years at risk</td>
<td></td>
</tr>
<tr>
<td>22,066</td>
<td>19,991</td>
</tr>
<tr>
<td>Overdose rate (95% CI)*</td>
<td></td>
</tr>
<tr>
<td>253.8 (187.3–320.3)</td>
<td>165.1 (108.8–221.4)</td>
</tr>
<tr>
<td>Rate difference (95% CI)*</td>
<td></td>
</tr>
<tr>
<td>88.7 (1.6–175.8); p=0.048</td>
<td>--</td>
</tr>
<tr>
<td>Percentage reduction (95% CI)</td>
<td></td>
</tr>
<tr>
<td>35.0% (0.0%–57.7%)</td>
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</tr>
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</table>


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

![Diagram](image)

*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.
Enrollment locations: 2008-2014

Currently > 31,000 enrollees (16 per day) and
> 4000 overdose rescues documented (4 per day)
Opioid Overdose Related Deaths: Massachusetts 2004 - 2006

Number of Deaths

- No Deaths
- 1 - 5
- 6 - 15
- 16 - 30
- 30+

OEND programs
- 2006-07
- 2007-08
- 2009

Towns without
Fatal opioid OD rates by OEND implementation

Naloxone coverage per 100K

Opioid overdose death rate

27% reduction
46% reduction

“The AMA has been a longtime supporter of increasing the availability of Naloxone for patients, first responders and bystanders who can help save lives and has provided resources to bolster legislative efforts to increase access to this medication in several states.”


“APhA supports the pharmacist’s role in selecting appropriate therapy and dosing and initiating and providing education about the proper use of opioid reversal agents to prevent opioid-related deaths due to overdose”


“Naloxone has been proven to be an effective, fast-acting, inexpensive and non-addictive opioid antagonist with minimal side effects... Naloxone can be administered quickly and effectively by trained professional and lay individuals who observe the initial signs of an opioid overdose reaction.”

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

• Three formulations

1. Injectable
   • Dispense:
     – 2x Naloxone 0.4mg/ml single dose vial or 1x 0.4mg/ml 10ml vial
     – 2x IM syringe (3ml 25g 1” syringes recommended)
   • Directions: For opioid overdose, inject 1ml IM in shoulder or thigh. Repeat after 3 minutes, if no or minimal response

2. Nasal (off-label)
   • Dispense:
     – 2x Naloxone 2mg/2ml prefilled luer-lock syringe
     – 2x Mucosal Atomizer Device nasal adapter
   • Directions: For opioid overdose, spray 1ml in each nostril. Repeat after 3 minutes, if no or minimal response

Overdose Education and Naloxone Rescue

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

Patient education videos and materials at prescribetoprevent.org
Polypharmacy
Overdose deaths in NYC
2006-2008

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

- Benzodiazepines
- Narcotic Pain Relievers
- Hydrocodone Products
- Oxycodone Products
- Antidepressants
- Antipsychotics

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

“Street pills”

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

• One physician survey reported that:
  – 26% of psychiatrists
  – 11% of other physicians
Used unsupervised benzodiazepines in the past year

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

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


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
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.
  - She works as a waitress and has been injecting heroin daily since age 23. She also uses cocaine on the weekends and drinks alcohol after work. She sometimes does sex work, when she does not have enough money.
  - She is prescribed clonazepam, clonidine and gabapentin for panic disorder and mood stabilization.
  - She tried methadone and buprenorphine in the past when she was pregnant. She intends to continue using again when she leaves the hospital. Despite your best brief intervention and motivational interviewing...
  - *She is not interested in treatment at this time.*
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.
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  – Trades sex for drugs, when money is short
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  – 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.*
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
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
Prescribe to Prevent: Overdose Prevention and Naloxone Rescue Kits for Prescribers and Pharmacists

Alexander Y. Walley, MD, MSc
Boston University School of Medicine

Jeffrey Bratberg, PharmD, BCPS
University of Rhode Island College of Pharmacy

Corey Davis, JD, MSPH
The Network for Public Health Law

Go to prescribetoprevent.org
Thanks!

Alex Walley, MD, MSc
awalley@bu.edu

Acknowledgments:
Sarah Wakeman for several harm reduction slides
Bathrooms are injection facilities
How to make them safer?

Make your bathrooms safer - outfit bathrooms with:

• Secure biohazard boxes
• Good lighting
• Mirrors
• Doors that open out
• Call button
• Intercomm system
• Safer injection equipment
• Naloxone rescue kit

1 IN 5 OVERDOSE DEATHS HAPPEN IN PUBLIC BATHROOMS

CHECK YOUR RESTROOMS
YOUR ACTIONS COULD HELP SAVE A LIFE

KNOW WHAT TO LOOK FOR
- Unresponsive
- Slow breathing
- Lack of breathing
- Blue lips/fingertips

KNOW WHAT TO DO
- Call 911 immediately
- Perform rescue breathing
- Administer Narcan

For more information visit www.bphc.org/ahope
Prevalence of HIV infection among people who inject drugs

Mather et al. Lancet 2008:372
Number of needle-syringes distributed per PWID per year

Mather et al. Lancet 2010:375
Availability of methadone and buprenorphine maintenance

Mather et al. Lancet 2010:375
Summary

• Injection drug use involves several steps, each with risks of infection
• Engaging with patients can help prevent harm

• Encourage users to:
  – Find a clean setting
  – Use sterile water
  – Cook
  – Dental pellets for filter if possible
  – Clean, fresh syringe
  – One-Wipe alcohol swipe
  – Needleless syringes for sharing
  – Vitamin C for solids
How do you incorporate overdose education and naloxone rescue kits into medical practice?

1. Prescribe naloxone rescue kits
   - PrescribeToPrevent.org

2. Work with your overdose education and naloxone distribution program
Overdose Prevention in Medical Settings

- Review medications – Communicate with other prescribers
- Take a substance use history
- Check the prescription monitoring program
- Overdose history: Where is the patient at as far as overdose?
  - Ask your patients whether they have overdosed, witnessed an overdose or received training to prevent, recognize, or respond to an overdose
    - Have you ever overdosed?
      - What were you taking?
      - How did you survive?
    - What is your **plan** to protect yourself from overdose?
      - How do you keep your medications safe?
      - Are they locked up?
Overdose Prevention in Medical Settings

Overdose witness history:
• How many overdoses have you witnessed?
  Were any fatal?
  What did you do?
• What is your plan if you witness an overdose in the future?
  How do you:
    – recognize an overdose?
    – call for help?
    – rescue breathe?
    – give naloxone?
Do you have a naloxone rescue kit?
Do you feel comfortable using it?
### DEA NFLIS 2006 Report

- Prescription drugs seized by law enforcement and analyzed forensics labs: 2001-2005

<table>
<thead>
<tr>
<th>Drug</th>
<th>Rx Dispensed</th>
<th>Items seized per 10k Rx Dispensed</th>
</tr>
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<tbody>
<tr>
<td>Diazepam</td>
<td>65M</td>
<td>6.06</td>
</tr>
<tr>
<td>Alprazolam</td>
<td>169M</td>
<td>5.96</td>
</tr>
<tr>
<td>Morphine</td>
<td>23M</td>
<td>5.80</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>161M</td>
<td>5.29</td>
</tr>
<tr>
<td>Clonazepam</td>
<td>82M</td>
<td>3.55</td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>550M</td>
<td>1.63</td>
</tr>
<tr>
<td>Codeine</td>
<td>165M</td>
<td>1.06</td>
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If prescribing…

Consider when prescribing pills with a street value

• Intent –
  – Are you treating a diagnosed medical problem?

• Effect –
  – Does the medication improve the patient’s functional status or worsen it?

• Monitoring –
  – Are you assessing the patient at the peak or trough effect of the medication?
Injecting Solids

- Oxycontin, Percocet, Crack
- All bases, need acid to dissolve
- Vinegar is caustic
- Lemon juice as solvent linked to disseminated candida
- Ideal is Vitamin C powder