

Harm Reduction in IV Drug Use

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Disclosures

- None

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Objectives

- Define harm reduction in the context of the opioid epidemic
- Understand various harm reduction strategies and their evidence, including needle-syringe exchange programs and safe injection facilities
- Understand barriers to implementation of harm reduction programs

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Outline

- A (Very) Brief Review of the Opioid Epidemic
- What is Harm Reduction?
- Historical Context
- Harm Reduction Strategies and their Evidence
- Barriers

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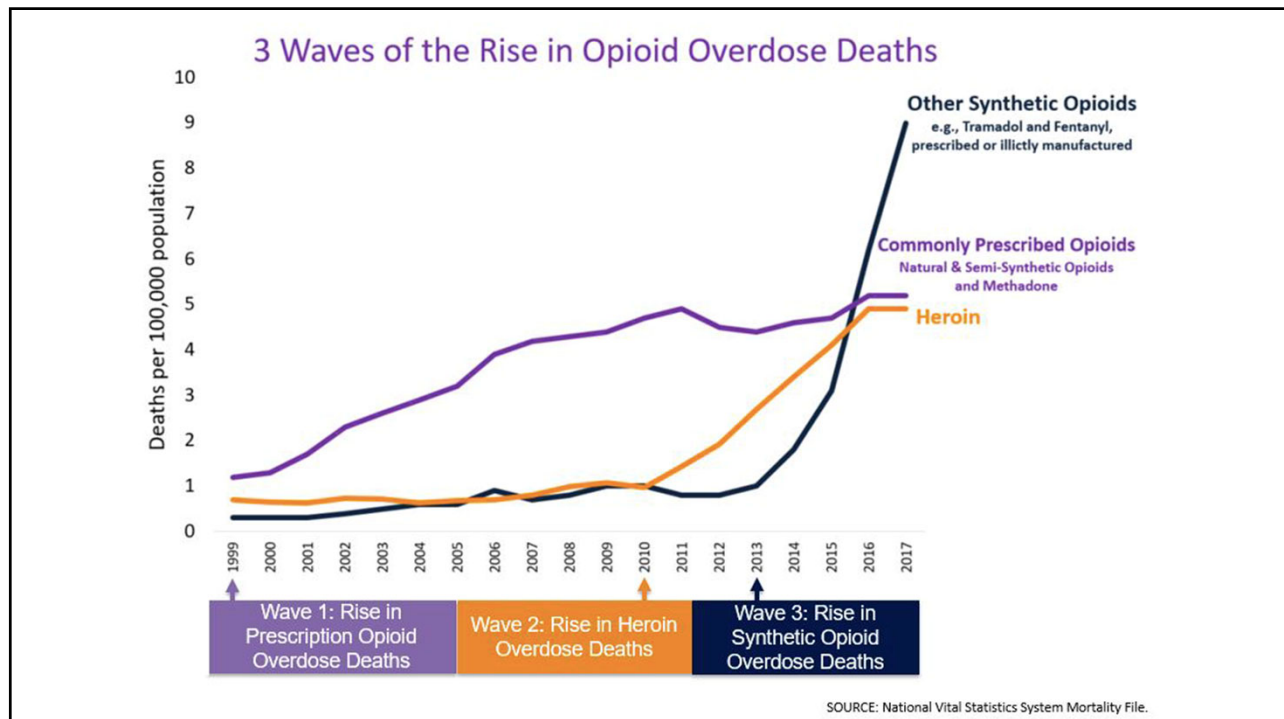
Opioid Epidemic



Per the CDC, drug overdoses in the US continue to increase

- Between 1999 to 2017, over 700,000 people have died from a drug overdose
- Around 68% of the more than 70,200 drug overdose deaths in 2017 involved an opioid
- In 2017, the number of overdose deaths involving opioids (rx opioids and illegal opioids) was 6 times higher than in 1999
- On average, 130 Americans die every day from an opioid overdose
- DEA: "The connection between prescription opioid abuse and heroin use is clear, with 80% of new heroin abusers starting their opioid addiction by misusing prescription medications."
 - Some controversy over this claim. DEA cites National Institutes of Drug Abuse as its source, which in turn cites a 2013 study by SAMHSA

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What are the Harms?

- Direct
 - Dependence
 - Addiction
 - Blood borne infections (e.g. HIV, HCV)
 - Injection-related bacterial infections (local and systemic)
 - Overdose complications, including death
- Indirect
 - Mostly social harms that are hard to quantify, but proven associations of drug use with violence, homicide, property crime, involvement in the sex trade, public stigmatization, homelessness, and incarceration (Vearrier, 2019)
- US punitive drug policies with an unrealistic focus on abstinence (failed War on Drugs)
 - Billions of dollar spent annually on drug law enforcement and overwhelmed prisons
 - Drug convictions result in social consequences:
 - Loss of welfare benefits, financial aid eligibility for education, employment opportunities
 - Exacerbation of racial health, social and economic disparities
 - Blacks and Latinos disproportionately incarcerated for drug offenses



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What is Harm Reduction?

- Lack of consensus on the exact definition
 - Harm Reduction Coalition notes there is no single definition or formula for implementing harm reduction since informed approaches focus on specific individual and community needs
- In general, any effort that attempts to minimize the negative consequences associated with substance use (either to the individual, their families, their communities or societies as a whole) **without requiring the cessation of such use**
- Harm Reduction International (HRI) broad definition:
 - "...policies, programmes and practices that aim primarily to reduce the adverse health, social, and economic consequences of the use of legal and illegal psychoactive drugs **without necessarily reducing drug consumption**. Harm reduction benefits people who use drugs, their families and the community."
- Interventions include, but are not limited to syringe-exchange programs, basic phlebotomy teaching, opioid maintenance therapy, overdose prevention sites etc.

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Characteristics of Harm Reduction

- HRI released a position statement describing the main characteristics of harm reduction for use with people who use drugs
 - 1) Targeting risks and harms to people who use substances, understanding the roots of these risks, and tailoring intervention to reduce them
 - 2) Acknowledging the significance of any positive change that people who use substances make in their lives
 - 3) Accepting people who use drugs as they are and treating them with dignity and compassion
 - 4) Protecting the human rights of people who use drugs
 - 5) Maintaining transparency in decisions about interventions as well as their success and failures

RESEARCH

Open Access



Harm reduction principles for healthcare settings

Mary Hawk^{1*}, Robert W. S. Coulter², James E. Egan³, Stuart Fisk⁴, M. Reuel Friedman⁵, Monique Tula⁶ and Suzanne Kinsky⁷

- One of the first papers to provide a comprehensive set of principles for universal harm reduction as a conceptual approach for healthcare provision
- Used data from in-depth qualitative interviews with 23 patients and 17 staff members from an HIV clinic

Harm reduction principles, definitions, and approaches for healthcare settings (Hawk et al.)

Principle	Definition	Approaches
1) Humanism	<ul style="list-style-type: none"> -Providers value, care for, respect, and dignify patients as individuals. -It is important to recognize that people do things for a reason; harmful health behaviors provide some benefit to the individual and those benefits must be assessed and acknowledged to understand the balance between harms and benefits. -Understanding why patients make decisions is empowering for providers. 	<ul style="list-style-type: none"> -Moral judgements made against patients do not produce positive health outcomes. -Grudges are not held against patients. -Services are user-friendly and responsive to patients' needs. -Providers accept patients' choices.
2) Pragmatism	<ul style="list-style-type: none"> -None of us will ever achieve perfect health behaviors. -Health behaviors and the ability to change them are influenced by social and community norms: behaviors do not occur with a vacuum. 	<ul style="list-style-type: none"> -Abstinence is neither prioritized nor assumed to be the goal of the patient. -A range of supportive approaches is provided. -Care messages should be about actual harms to patients as opposed to moral or societal standards. -It is valuable for providers to understand that harm reduction can present experiences of moral ambiguity, since they are essentially supporting individuals in health behaviors that are likely to result in negative health outcomes.

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Harm reduction principles, definitions, and approaches for healthcare settings (Hawk et al.)

Principle	Definition	Approaches
3) Individualism	<ul style="list-style-type: none"> -Every person presents with his/her own needs and strengths. -People present with spectrums of harm and receptivity and therefore require a spectrum of intervention options. 	<ul style="list-style-type: none"> -Strengths and needs are assessed for each patient, and no assumptions are made based on harmful health behaviors. -There is not a universal application of protocol or messaging for patients. Instead, providers tailor messages, and interventions for each patient and maximize treatment options for each patient served.
4) Autonomy	<ul style="list-style-type: none"> -Though providers offer suggestions and education regarding patients' medications and treatment options, individuals ultimately make their own choices about medications, treatment, and health behaviors to the best of their abilities, beliefs, and priorities. 	<ul style="list-style-type: none"> -Provider-patient partnerships are important, and these are exemplified by patient-driven care, shared decision-making, and reciprocal learning. -Care negotiations are based on the current state of the patient.
5) Incrementalism	<ul style="list-style-type: none"> -Any positive change is a step toward improved health, and positive change can take years. -It is important to understand and plan for backward movements. 	<ul style="list-style-type: none"> -Providers can help patients celebrate any positive movement. -It is important to recognize that at times, all people experience plateaus or negative trajectories -Providing positive reinforcement is valuable.
6) Accountability without termination	<ul style="list-style-type: none"> -Patients are responsible for their choices and health behaviors. -Patients are not "fired" for not achieving goals. -Individuals have the right to make harmful health decisions, and providers can still help them to understand that the consequences are their own. 	<ul style="list-style-type: none"> -While helping patients to understand the impact of their choices and behaviors is valuable, backwards movement is not penalized.

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Historical Context of Harm Reduction

Harm reduction in the USA: the research perspective and an archive to David Purchase

Don C. Des Jarlais ✉

Harm Reduction Journal 2017 14:51

<https://doi.org/10.1186/s12954-017-0178-6> | © The Author(s). 2017

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The Struggle of Harm Reduction Implementation

- Four historical factors that have hindered implementation of harm reduction strategies in the US
 1. Long tradition of moralistic condemnation of intoxication with psychoactive drugs (e.g. Puritanism)
 2. Demonization of drugs associated with stigmatized racial/ethnic minority groups (e.g. opium by Chinese immigrants, cocaine by African-Americans, and marijuana by Mexican-Americans)
 1. Demonization doesn't prevent use of drugs, but did create fear and anger towards drug users and led to abstinence as the only acceptable policy
 3. Federal system of government vs individual states
 1. While individual states could implement harm reduction programs in opposition of attitudes of the federal government, federal government has more financial resources
 4. Biomedical and health research
 1. US government dominant funder of research, especially after WWII
 2. Drug researchers viewed substance use disorders as disease whereas the general public viewed it as a moral failing
 3. Role of activism in promoting research in harm reduction and eventual federal funding

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Harm Reduction Practices Within the US

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Skin and Needle Hygiene Interventions

- A simple intervention that we could be teaching out patients, but has not been widely studied.
- Considerable body of literature on HIV and HCV among IVDU and the effectiveness of harm reduction strategies in reducing these risks. However, very limited research on bacterial infections in IVDU despite how common they are.
- Phillips et al. (2012) studied a new skin and needle hygiene intervention designed to reduced high-risk injection practices associated with bacterial and viral infections
- RCT including 48 active heroin IVDU recruited through street outreach and randomized to either two-session intervention or an assessment-only (AO) condition and followed for six months.
 - "For the skin cleaning demonstration, scores were based on 11 total steps using alcohol wipes, following a protocol created by our team that was adapted based on information from the Public Health Department of Seattle & King County (2002). For needle cleaning, we based scores on 34 steps that included three sequences of water and bleach rinses, following a revised version of a protocol endorsed by NIDA ([Royer et al., 2004](#)) and developed by [Avants et al. \(2004\)](#); personal communication)."
- Primary outcome: skin and needle cleaning behavioral skills measured by videotaped demonstration
- Secondary outcomes: high-risk injection practices, intramuscular injection, and bacterial infection
- Results: Intervention groups had greater improvements on skin ($d=1.00$) and needle cleaning demonstrations ($d=0.52$) and larger reductions in high-risk injection practices ($d=0.32$) and intramuscular injection ($d=0.29$) with **lower incidence rate of bacterial infections (HR = 0.80) at 6 months compared to the AO**

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Skin and Needle Hygiene

Unfortunately, the authors of the study did not publish the skin and needle hygiene protocol that they used, and the original study from which it was adapted also did not make it publicly available.

However, the CDC does have guidelines on how to clean needles to prevent hepatitis C and HIV transmission.

The Well Project (www.thewellproject.org) also provides easily printable material that explains how to clean equipment for injecting drugs.



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Needle and Syringe Exchange Programs (NSPs)

- Also known as Syringe Services Programs (SSPs), syringe exchange programs (SEPs), needle exchange programs (NEPs)
- First established in the 1980s in response to the HIV epidemic
- Community-based programs that provide access to sterile needles and syringes free of cost and facilitate safe disposal of used needles and syringes
- Reduces risks associated with dirty needle and syringe use
 - HIV
 - Hepatitis C
 - Bacterial infections
- Some programs require the clients return used syringes and needles in order to receive sterile ones
- Most offer other harm reduction/prevention
 - Materials (e.g. alcohol swabs, vials of sterile water, condoms)
 - Services
 - Education on safer injection practices and wound care
 - Overdose prevention, including naloxone education and distribution
 - Referral to substance use disorder treatment programs including medication-assisted treatment
 - Counseling and testing for HIV and hepatitis C
 - Linkage to services and programs such as HIV care, PrEP, and PEP; hepatitis C treatment
 - Hepatitis A and B vaccinations
 - Screening for other sexually transmitted diseases and TB
 - Other medical, social, and mental health services

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Federal Funding of NSPs – with one big caveat!

- Consolidated Appropriations Act of 2018
- Federal funding cannot be used to buy needles, syringes, or other devices used for illegal drug injection
 - Fortunately, the costs of these things is generally pretty low
- Federal funding can be used for:
 - Staff
 - Supplies (e.g., alcohol pads, sterile water, cotton)
 - Testing kits for viral hepatitis and HIV
 - Syringe disposal services
 - Navigation services to ensure linkage to services
 - Provision of naloxone to reverse drug overdoses
 - Communication, outreach and educational materials
 - Condoms
 - Planning and evaluation activities

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NSPs Effectiveness

- Compelling evidence of NSPs effectiveness, safety and cost-effectiveness for HIV prevention among PWID
 - Reduction in injection risk behaviors
 - Reduction in HIV (declined by 80% between 1990-2006)
 - No increase in drug use (e.g., no increases in initiation, duration or frequency)
 - Most of recent increases in injection risk practices were in communities without NSPs
 - Additional benefits (e.g., enrollment in substance use disorder treatment, higher HIV treatment retention, reduced needle stick injuries among first responders)
- CDC. Syringe Services Programs for Persons Who Inject Drugs in Urban, Suburban and Rural Areas – United States, 2013. MMWR 2015; 64(48):1337-41. ²
- Wodak and Cooney (2006). Do Needle Syringe Programs Reduce HIV Infection Among Injecting Drug Users: A Comprehensive Review of the International Evidence. Substance Use & Misuse, 41:777-813.

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NSPs Effectiveness

- Mixed evidence regarding actual effectiveness in terms of HCV
 - Review of systematic reviews (Fernandes et al. 2017)
 - 13 systematic reviews contributing with 133 unique studies, mostly observational
 - Methods used in the reviews varied at all levels of review design and conduct
 - Only two reviews considered to have low risk of bias
 - Most included studies were evaluated as having low methodological quality
 - Quality of evidence (when assessed) was considered low or modest to moderate
 - Overall interpretation: supportive of the effectiveness of NSPs in reducing HIV transmission and injection risky behaviors among PWID, as well as in reducing HCV infection (although the latter to a lesser extent).
 - Moderate quality evidence that NSP is likely effective in reducing HIV transmission and IRB among PWID, low to moderate quality evidence that NSP in the context of a comprehensive harm reduction strategy is likely effective in reducing HCV infection
 - Full multi-component harm reduction programs (i.e. NSP + other interventions) tend to be more beneficial

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BMC Public Health. 2017 Apr 11;17(1):309. doi: 10.1186/s12889-017-4210-2.

Effectiveness of needle and syringe Programmes in people who inject drugs - An overview of systematic reviews.

Fernandes RM^{1,2}, Cary M³, Duarte G¹, Jesus G¹, Alarcão J¹, Torre C³, Costa S³, Costa J^{1,2}, Carneiro AV^{4,5}.

Author information

Abstract

BACKGROUND: Needle and syringe programmes (NSP) are a critical component of harm reduction interventions among people who inject drugs (PWID). Our primary objective was to summarize the evidence on the effectiveness of NSP for PWID in reducing blood-borne infection transmission and injecting risk behaviours (IRB).

METHODS: We conducted an overview of systematic reviews that included PWID (excluding prisons and consumption rooms), addressed community-based NSP, and provided estimates of the effect regarding incidence/prevalence of Human Immunodeficiency Virus (HIV), Hepatitis C virus (HCV), Hepatitis B virus (HBV) and bacteremia/sepsis, and/or measures of IRB. Systematic literature searches were undertaken on relevant databases, including EMBASE, MEDLINE, and PsychINFO (up to May 2015). For each review we identified relevant studies and extracted data on methods, and findings, including risk of bias and quality of evidence assessed by review authors. We evaluated the risk of bias of each systematic review using the ROBIS tool. We categorized reviews by reported outcomes and use of meta-analysis; no additional statistical analysis was performed.

RESULTS: We included thirteen systematic reviews with 133 relevant unique studies published between 1989 and 2012. Reported outcomes related to HIV (n = 9), HCV (n = 8) and IRB (n = 6). Methods used varied at all levels of design and conduct, with four reviews performing meta-analysis. Only two reviews were considered to have low risk of bias using the ROBIS tool, and most included studies were evaluated as having low methodological quality by review authors. We found that NSP was effective in reducing HIV transmission and IRB among PWID, while there were mixed results regarding a reduction of HCV infection. Full harm reduction interventions provided at structural level and in multi-component programmes, as well as high level of coverage, were more beneficial.

CONCLUSIONS: The heterogeneity and the overall low quality of evidence highlights the need for future community-level studies of adequate design to support these results.

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Opioid Maintenance Treatment (OMT)

- Also known as Medication-Assisted Treatment (MAT), but MAT can include other non-opioid assistive medications
- Treatment of opioid-addicted/dependent patients with an oral or sublingual formulation of a long-acting opioid (methadone or suboxone) to reduce abuse of short-acting opioids (e.g. heroin and fentanyl)
- Common misconception: substituting one “addiction for another.”
 - Medications relieve withdrawal symptoms and psychological cravings that cause chemical imbalances
 - Safe and controlled level of medication to overcome use of an abused opioid
 - Do not have negative effects on a patient’s physical and mental health/functioning, employability, interpersonal relationships, or legal ramifications that an illegal opioid would.
- Methadone: full agonist; lessens painful symptoms of opiate withdrawal and blocks euphoric effects of other opioids
 - Unlike heroin, usually lasts 24-36 hours, preventing frequent peaks and valleys seen with drug-seeking behavior
 - No optimal treatment duration, but minimum for maintenance therapy is 12 months
- Buprenorphine: partial agonist (does not completely bind to mu-opioid receptor); subsequently has a ceiling effect
 - Does not cause euphoria
 - Optimal duration of treatment unknown, tapering often spans many months
- Naltrexone: opioid antagonist; effectively blocks the effects of opioids if used
 - Does not cause euphoria; no physical dependence
 - Recommended for abstinence-based treatment, not withdrawal management

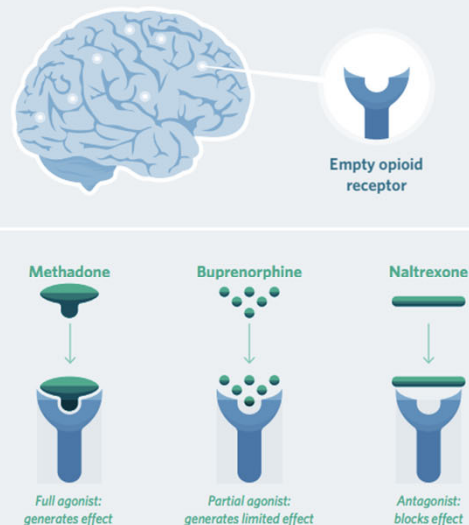
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Table 1
FDA-Approved Drugs Used in MAT²¹

Medication	Mechanism of action	Route of administration	Dosing frequency	Available through
Methadone	Full agonist	Available in pill, liquid, and wafer forms	Daily	Opioid treatment program
Buprenorphine	Partial agonist	Pill or film (placed inside the cheek or under the tongue)	Daily	Any prescriber with the appropriate waiver
		Implant (inserted beneath the skin)	Every six months	
Naltrexone	Antagonist	Oral formulations	Daily	Any health care provider with prescribing authority
		Extended-release injectable formulation	Monthly	

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Figure 1
How OUD Medications Work in the Brain



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Harm Reduction in OMT

- Reduces blood borne disease transmission by providing persons who use drugs with opioid substitutes for heroin that are not injected
- Enrollment in methadone maintenance program has been shown to be independently protective against hepatitis C seroconversion (Nolan et al.)
- MacArthur et al. performed systematic review showed on average 54% reduction in new HIV infection among people who inject drugs on opiate substitution treatment

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Opioid Overdose Education and Naloxone Distribution (OEND)

- Overdose remains one of the leading causes of death among drug users
 - Other causes include infectious causes (AIDS, hepatitis), trauma due to violence, and cirrhosis
- Naloxone: opiate antagonist that reverses respiratory failure
 - No abuse potential
 - Medical complications uncommon
- Includes educating patients, laypersons, and first responders on the signs of opioid overdose and the use of naloxone to reverse overdose
- Designed to be used out-of-hospital
 - Intramuscular injection devices and intranasal spray devices
- Multiple studies showing it is effective
 - An analysis that compared communities in Massachusetts with no OEND implementation to those with low implementation (1–100 people trained per 100,000 population) and high implementation (greater than 100 people trained per 100,000 population), demonstrated 27% and 46% reductions in opioid overdose mortality rates, respectively (Walley et al.)

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Future Directions: Enlistment of Community Pharmacists?

- Watson *et al.* (2012) performed a review of the literature regarding community pharmacist involvement in harm reduction services
- Found that patients tend to find community pharmacists to be more accessible than most health care providers
 - Ideal position to provide more meaningful services
- Primarily involved in providing clean needles and opioid substitutions
- Generally, have positive attitudes towards providing health promotion and harm reduction compared to other medical providers
- Way to reach out to rural/suburban PWID
- Found that provision of clean injecting equipment in rural Australian pharmacies resulted in reduced heroin use and criminal activity
 - Do not feel as stigmatized obtaining injection equipment in pharmacies
- Pharmacies in New Zealand and Scotland offer needle exchange
- Opioid substitution therapy offered in many countries in Europe, Canada, China, India, Australia and others
- Following introduction in clean needle sales in New York, pharmacists noted no increase in crime or discomfort among staff
- Barriers:
 - Fear of harms to staff, shoplifting, “undesirable clientele”
 - Lack of time and training
 - Inadequate communication between health care providers

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Safer Injection Facilities (SIFs)

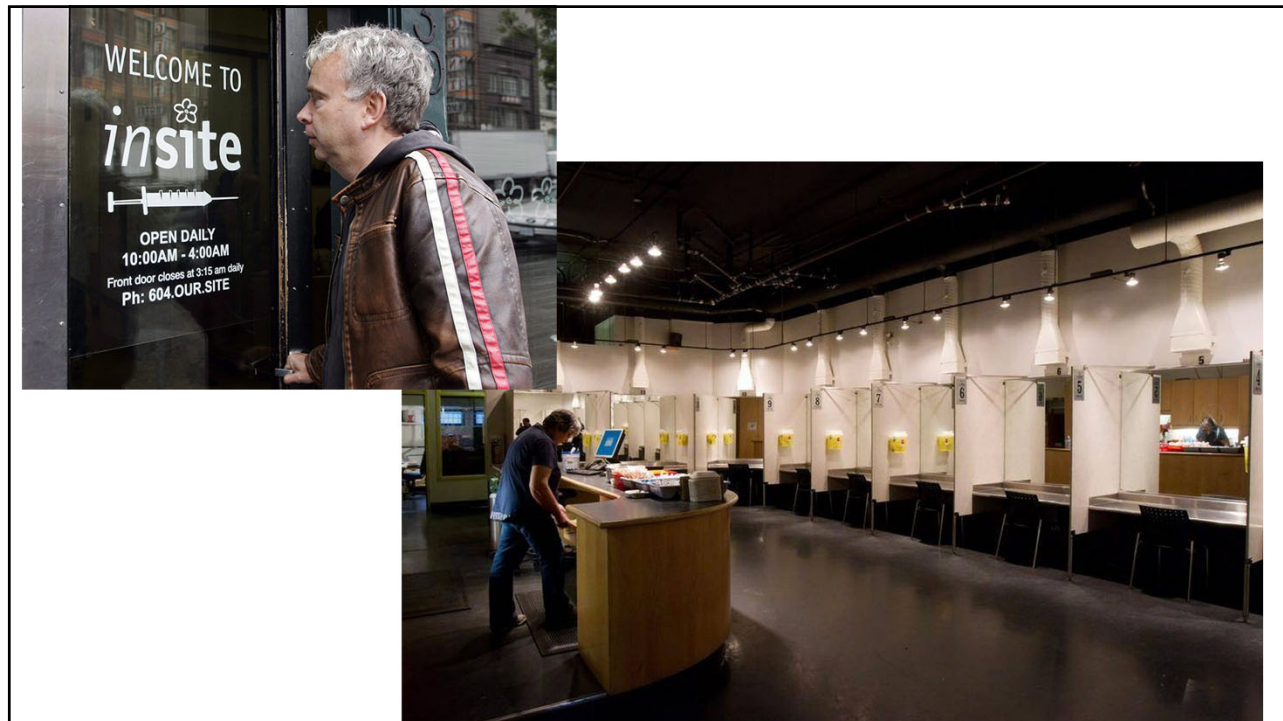
- Also known as Overdose Prevention Sites or Supervised Consumption Services
- Exist in Canada, many European countries, and Australia
 - As of July 2018, there are **at least thirteen proposed sites** seeking approval, including in New York City, Philadelphia, Boston, San Francisco, Seattle, Denver, Vermont, and Delaware
 - Bill in San Francisco to allow SIF failed to win approval
- Allow persons who inject drugs to self-administer pre-obtained drugs under the supervision of trained staff
- Under legal protection, can take time for other infection prevention measures (skin cleaning, removal of impurities and particulate matter from drugs)
 - Decreased incidence of infections from bacteremia – endocarditis, OM, epidural abscess
- Provide sterile injection, supplies, dispose of used supplies, and administer rescue medications in the case of overdose (including naloxone)
- May provide other health and social services
 - Basic wound care, education on safer injection practices, counseling serves, and referrals for further health social services
- Majority of SIF users are daily heroin or cocaine users, homeless or with unstable housing environments, unemployed or with unstable employment, and have a history of nonfatal overdose
 - SIFs are safe places that might serve as a refuge from the street drug scene

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Insite: First and most extensively studied SIF in North America

- Opened in Vancouver, Canada in 2003 in response to overdose-fatality and HIV epidemics
- 35% reduction in overdose mortality in the surrounding vicinity during first two years of operation
- Economic benefit likely related to decrease in number of new HIV infections
 - Estimated annual savings of 25 million CAD
- Evidence supports supervised injection sites (Ng, 2017)
 - Associated with lower overdose mortality (88 fewer overdoses deaths per 100,000 person-years)
 - 67% fewer ambulance calls for treating overdoses
 - Decrease in HIV infections
 - Effects on hospitalizations are unknown

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Other harm reduction strategies that are also not happening in the USA any time soon...

- Medical heroin/diacetylmorphine
 - Heroin-assisted treatment (HAT) used in several European countries to treat refractory heroin addiction that fails other treatments (second-line therapy)
 - Prescribed by a physician and patients then self-inject under nursing supervision at a designated facility up to three times per day
 - High incidence of serious adverse events
 - Including life-threatening overdose and seizure
 - Cost-savings largely relates to decrease in crime resulting in decrease in law enforcement costs
 - Decreases HIV and hepatitis C transmission (prevents re-circulation of dirty needles)
- Decriminalization/Legalization
 - Decriminalization: possession, use, or distribution of drugs remains illegal, however legal punishments for violation of relevant laws, statutes or regulations are abolished or mitigated
 - Legalization: refers to the repeal or abolishment of laws making the drug illegal or use of superseding law that makes possession, sale, or use of the drug legal
 - Some states have decriminalized the possession of drug paraphernalia
 - Proponents argue that legalization would help to regulate drug purity and its associated harms (e.g. levamisole toxicity)
 - Societal benefits, particularly regarding mass incarceration that disproportionately affects Blacks and Latinos as a result of the failed War on Drugs

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Barriers to Harm Reduction

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Barriers

- Despite evidence in benefit of harm reduction practices, implementation has been met with resistance from some health care professionals
 - Some disagree with goal and definition of harm reduction, and feel that abstinence should be the only goal
 - One notable harm reduction psychotherapist, P. Denning, argues that treatment programs that require abstinence for entry are harmful because they create barriers to treatment for people who could otherwise be helped (Bartlett et al., 2013)
 - Moralistic attitudes and demonization of psychoactive substances still very pervasive
 - Professionals not always familiar with the scientific literature describing new methodologies
 - Adoption of any new policy or treatment may be hampered by lack of perceived need, anticipated community resistance, lack of resources, etc.
 - Fear that harm reduction strategies will increase IVDU prevalence of that PWID will engage in heavier or more frequent behavior
 - Multiple studies have been done on various harm reduction strategies (NSPs, OMT, OENDs) showing that this simply isn't true
 - For example, in a survey of over 1000 people who used a SIF, only one subject reported performing an initial injection at the facility (Kerr et al., 2007)
 - Other studies have reported that SIFs do not attract naïve users (Hedrich, 2004)
 - Negative attitudes of health care providers have negative impact on the care these patients receive (Brener et al., 2010; van Boekel, Brouwers, van Weeghel, & Garretsen, 2013)
 - Persons who experience stigmas are more likely to have negative attitudes toward treatment for their problems (Coner & Rosen, 2008)
 - "Come back when you're motivated" is generally not helpful

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You!

- Things you can do:
 - Counsel your patients on good skin and needle cleaning practices if they are unable or unwilling to abstain
 - Refer patients to needle exchange programs
 - Assess readiness/willingness to consider Opioid Maintenance Therapy and refer to appropriate clinics (e.g. local methadone and suboxone clinics)
 - Prescribe naloxone for overdose prevention and educate patients that they should be able to obtain naloxone from any pharmacy without a prescription, if allowed per state law
 - Prescribe needles or instruct patients that needles are able to be obtained from most pharmacies without a prescription (YMMV, cost may also be prohibitive)

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Resources

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