The Science of Harm Reduction

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Overview

1. What is harm reduction?

2. Effectiveness of harm reduction interventions – State of the evidence

3. Canadian harm reduction services

4. New directions for research
1. What is harm reduction?
Seat belts, emission controls, speed limits, and helmet laws are pragmatic interventions to reduce mortality and morbidity associated with using vehicles and bikes, without necessarily requiring people to stop driving.

These can all be understood as harm reduction strategies to reduce the risks and harms of motoring.
Harm reduction is an approach to substance misuse that emphasizes pragmatic interventions to reduce mortality and morbidity associated with the use of psychoactive substances, without necessarily requiring people to stop using drugs.

<table>
<thead>
<tr>
<th>Pragmatism</th>
<th>Focus on</th>
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<tbody>
<tr>
<td>Humanistic Values</td>
<td>Harms</td>
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<tr>
<td></td>
<td>Hierarchy of Goals</td>
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Historical origins of harm reduction

- Primarily developed in response to HIV/AIDS in 1980s
- Pioneered in UK, Netherlands, Australia and Canada
- ‘New public health’
- Syringe exchange programs
- Peer-driven
Presence of operational syringe exchange programs in 2012. Source: Harm Reduction International
2. Effectiveness of harm reduction interventions

State of the evidence
Study designs

Difficult to study all harm reduction interventions solely from a controlled clinical trials perspective.

However, a range of interventions have been examined in an extensive international literature.

Exposure to harm reduction interventions versus comparison groups in …

• Controlled clinical trials
• Cohort studies
• Interrupted time series studies
• Case control studies
Syringe distribution and collection
A recent review of reviews on sterile injecting equipment provision found:
(1) strong evidence that sterile injecting equipment provision reduces injection risk behaviour, and
2) more tentative evidence that sterile injecting equipment provision also prevents HIV incidence - Palamateer et al. 2010
Take home naloxone programs
Since 1996, 53,032 people have been trained to provide naloxone in the US, resulting in 10,171 documented overdose reversals. -Wheeler et al. 2012
Supervised injection facilities
Evidence

The SIF’s opening was associated with a 30% increase in detoxification service use, increased rates of long-term addiction treatment initiation and reduced injecting around the SIF.

-Wood et al. 2007
### Evidence

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

<table>
<thead>
<tr>
<th></th>
<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>
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<tbody>
<tr>
<td></td>
<td>Pre-SIF</td>
<td>Post-SIF</td>
</tr>
<tr>
<td>Number of overdoses</td>
<td>58</td>
<td>33</td>
</tr>
<tr>
<td>Person-years at risk</td>
<td>22,066</td>
<td>19,991</td>
</tr>
<tr>
<td>Overdose rate (95% CI)</td>
<td>253.8 (187.3–320.3)</td>
<td>165.1 (108.8–221.4)</td>
</tr>
<tr>
<td>Rate difference (95%)</td>
<td>88.7 (1.6–175.8);</td>
<td>..</td>
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<tr>
<td>Percentage reduction</td>
<td>35.0% (0.0%–57.7%)</td>
<td>..</td>
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</table>


* Expressed in units of per 100,000 person-years.
Safer inhalation kits
Research Paper

“I inject less as I have easier access to pipes”

Injecting, and sharing of crack-smoking materials, decline as safer crack-smoking resources are distributed

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Abstract

Among injection drug users (IDUs) in Ottawa, the capital of Canada, prevalence rates of HIV (20.6 percent) and hepatitis C HCV (75.8 percent) are among the highest in Canada. Recent research evidence suggests the potential for HCV and HIV transmission through the multiperson use of crack-smoking implements. On the basis of this scientific evidence, in April 2005, Ottawa’s needle exchange programme (NEP) commenced distributing glass stems, rubber mouthpieces, brass screens, chopsticks, lip balm and chewing gum to reduce the harms associated with smoking crack. This study aims to evaluate the impact of this initiative on a variety of HCV- and HIV-related risk practices. Active, street-recruited IDUs who also smoked crack consented to personal interviews and provided saliva samples for HCV and HIV testing at four...
Street and/or peer outreach
Evidence

The majority of 36 published evaluations showed that IDUs in a variety of places and time periods changed their baseline drug-related and sex-related risk behaviors following their participation in a outreach-based HIV risk reduction intervention.

-Coyle, Needle, Normand 1998
Low-threshold opioid substitution and heroin-assisted therapy
On the basis of an intention-to-treat analysis, the rate of retention in addiction treatment in the diacetylmorphine group was 87.8%, as compared with 54.1% in the methadone group. The reduction in rates of illicit-drug use or other illegal activity was 67.0% in the diacetylmorphine group and 47.7% in the methadone group.

- Oviedo-Joekes et al. 2009
## Summary

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Quantity and quality of evidence</th>
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<tr>
<td></td>
<td>Strong</td>
</tr>
<tr>
<td>Syringe exchange</td>
<td>✓</td>
</tr>
<tr>
<td>Take home naloxone</td>
<td>✓</td>
</tr>
<tr>
<td>Supervised injecting facilities</td>
<td>✓</td>
</tr>
<tr>
<td>Safer inhalation kits</td>
<td>✓</td>
</tr>
<tr>
<td>Street/peer outreach</td>
<td>✓</td>
</tr>
<tr>
<td>Opioid substitution</td>
<td>✓</td>
</tr>
<tr>
<td>Heroin assisted therapy</td>
<td>✓</td>
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Harm reduction services are pragmatic, effective interventions for reducing risk amongst illicit drug-using populations.
Popular criticisms (1)

Harm reduction ‘promotes’ drug use and keeps people stuck in a pattern of addictive behaviour
Patterns of injection drug use cessation during syringe exchange services in a Canadian setting

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ABSTRACT

Background: Needle and syringe programs (NSPs) are a recognized harm reduction intervention for people who inject drugs (IDUs). However, evidence on the impact of NSPs on IDUs’ cessation of injection drug use is limited.

Methods: Individuals reporting injection drug use at baseline and at follow-up (6 months, 12 months, 24 months) were enrolled in the Vancouver Injection Drug Users Study (VIDUS) and data on injection cessation were collected. Logistic regression was used to estimate the odds of quitting injection drug use while controlling for baseline characteristics.

Results: Among 6,559 IDUs, 5,996 (91.6%) provided data on injection cessation. The proportion of participants who reported quitting injection drug use at each follow-up period was 4.1% (95% CI: 3.4-4.8%) at 6 months, 4.0% (95% CI: 3.3-4.8%) at 12 months, and 3.8% (95% CI: 3.0-4.7%) at 24 months.

Conclusion: The proportion of IDUs who reported quitting injection drug use during syringe exchange services in a Canadian setting was low. Further research is needed to better understand the impact of NSPs on IDUs’ cessation of injection drug use.

Fig. 1. Proportion of injection drug users reporting injection cessation in past 6 months in Vancouver, Canada, 1996–2010.
Evidence

“We examined length of injecting career and circumstances surrounding initiation into injection drug use among 1065 users of North America’s first safer injecting facility and found that the median years of injection drug use were 15.9 years, and that only 1 individual reported performing a first injection at the safer injecting facility. These findings indicate that the safer injecting facility’s benefits have not been offset by a rise in initiation into injection drug use.”

- Kerr et al. 2007
Popular criticisms

(2)

Harm reduction promotes crime and community disorder
Overall, this study found no significant increase in the number of discarded needles over 32 different city blocks in Baltimore City from prior to the opening of the NEP through the first 2 months of its operation.

Doherty et al. 1997
Evidence

Changes in public order after the opening of a medically supervised safer injecting facility for illicit injection drug users

Evan Wood, Thomas Kerr, Will Small, Kathy Li, David C. Marsh, Julio S.G. Montaner, Mark W. Tyndall

Abstract

Background: North America’s first medically supervised safer injecting facility for illicit injection drug users was opened in Vancouver on Sept. 22, 2003. Although similar facilities exist in a number of European cities and in Sydney, Australia, no standardized evaluations of their impact have been presented in the scientific literature.

Methods: Using a standardized prospective data collection protocol, we measured injection-related public order problems during the 6 weeks before and the 12 weeks after the opening of the safer injecting facility in Vancouver. We measured changes in the number of drug users injecting in public, publicly discarded syringes and injection-related litter. We used Poisson log-linear regression models to evaluate changes in these public order indicators while considering potential confounding variables such as police presence and rainfall.

Results: In stratified linear regression models, the 12-week period after the facility’s opening was independently associated with reductions in the number of drug users injecting in public, publicly discarded syringes and injection-related litter. This study confirms that medically supervised safer injection facilities can improve public order and reduce the public health impacts of illicit drug use in cities, where injection drug users (IDUs) can inject newly obtained illicit drugs under the supervision of medical staff, have been established in an effort to reduce the community and public health impacts of illicit drug use. These facilities are typically provided with injecting equipment, emergency care in the event of overdose, as well as primary care services and referral to addiction treatment. Although anecdotal reports have suggested that such sites may improve public order, reduce the number of deaths from overdose and improve access to care, no standardized evaluations of their impact are available in the scientific literature.

On Sept. 22, 2003, health officials in Vancouver opened a government-sanctioned safer injecting facility as pilot project. The facility, the first in North America, is centrally located in Vancouver’s Downtown Eastside, which is the most impoverished urban neighbourhood in Canada and home to well-documented overdose and HIV epidemics involving injecting drug users.
Evidence

"We examined crime rates in the neighborhood where the SIF is located in the year before versus the year after the SIF opened. No increases were seen with respect to drug trafficking (124 vs. 116) or assaults/robbery (174 vs. 180), although a decline in vehicle break-ins/vehicle theft was observed (302 vs. 227). The SIF was not associated with increased drug trafficking or crimes commonly linked to drug use. –Wood et al. 2006"
3. Canadian harm reduction services
Best characterized as a poorly resourced patchwork of provincial and territorial services that are highly variable with respect to types of interventions and governance
Poorly resourced?

- DeBeck et al. (2009) analyzed Canadian federal funding allocations in Canada’s Anti-Drug Strategy.
- Base Federal drug strategy expenditures for 2004/05 presented.
- New allocations provided in 2007 and 2008 still would amount to enforcement receiving ~28 times more funding than harm reduction services.

<table>
<thead>
<tr>
<th>A patchwork of services?</th>
<th>Service variation?</th>
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<tbody>
<tr>
<td>• In Alberta, only six communities have syringe exchange programs</td>
<td>• Until recently, naloxone distribution programs only existed in Edmonton, Toronto and Ottawa (BC pilot program underway)</td>
</tr>
<tr>
<td>• In Ontario only ~one third of public health units provide syringes</td>
<td>• Canada currently has only two supervised injection facilities, both located in Vancouver</td>
</tr>
<tr>
<td>• In large parts of Manitoba and Nunavut, syringe exchange programs are not available at all</td>
<td>• A recent review of provincial/territorial methadone policies and programs concluded that low threshold opioid substitution programs are not provided consistently across Canada</td>
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Governance?

- Little progress has been made integrating harm reduction services within treatment programs and/or other services and supports for illicit drug users.

- Except for BC, in most provinces/territories, policy direction and funding for harm reduction services mainly flows from agencies or programs designed to address blood borne pathogens rather than addiction and mental health.
4. New research directions
What evidence is most relevant?

Research in this area implicitly adopts an instrumental-rational model of health policy making. This approach, closely associated with evidence-based medicine and health economics, narrowly construes the types of evidence (e.g., efficacy, effectiveness, costs, iatrogenic effects) deemed to be relevant for constructing policies to optimize health services for illicit drug users.
Evidence to date…

An impressive (though certainly not complete) international evidence base supports the effectiveness of harm reduction interventions.

For most health topics, this would support relatively unproblematic uptake of these approaches into routine health care via KTE.

Yet the approach continues to be poorly supported, variable across jurisdictions, and is not systematically organized. Why?
Harm reduction services are a prototypical example of *morality policy* in the health arena, i.e., policy making that involves clashes of core values about the legitimacy of providing certain kinds of health services to a target population.

As such, policy-making shaping harm reduction services for illicit drug users is more resistant than other services (e.g., hip replacements) to instrumental-rational data and recommendations advanced in the extant intervention literature.
If harm reduction is an example of morality policy…

Evidence on efficacy, effectiveness, costs, iatrogenic effects) is necessary, but not sufficient to advance uptake of harm reduction interventions into routine care for addictions.

Data are required to describe how a range of policy stakeholders construe a highly contested moral, value-laden landscape about illicit drug users and their right to access harm reduction services.

Not “KTE” but a coordinated effort to modify attitudes and structural barriers preventing harm reduction from greater uptake.
Conclusions

1. There is solid (but not completely conclusive) evidence of the effectiveness of many harm reduction interventions

2. Despite this international evidence base, Canada has a poorly resourced patchwork of provincial and territorial harm reduction services that are highly variable with respect to types of interventions and governance

3. Harm reduction services research challenges traditional models of knowledge transfer and exchange. As a prototypical morality policy making area, traditional KTE is limited