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Research finds that harm reduction and ART helped to reduce the spread of HIV in Vancouver

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In clinical trials, the early initiation of HIV treatment (ART) stabilizes the immune system and significantly reduces the risk of developing AIDS-related infections and cancers. This benefit of ART is so profound that researchers increasingly expect that many [ART users will live into their senior years](#).

Key to reaping the benefit of ART is achieving an undetectable level of HIV in the blood (viral load) and maintaining it through daily use of ART and regular checkups and laboratory monitoring. Clinical trials have found that ART users with undetectable viral loads [do not pass on HIV to their sexual partners](#).

Harm reduction in brief

Viruses such as HIV and hepatitis B and C can be spread through the re-use of contaminated equipment when injecting drugs. Harm reduction is a term that refers to different ways to help reduce and/or alleviate the harm associated with substance use. A few examples of harm reduction activities include the following:

- provision of sterile syringes and needles
- psychosocial support
- opioid substitution therapy – prescribed medicines, such as methadone, buprenorphine and in some cases pharmaceutical-grade heroin (diacetylmorphine)
- supervised injection sites

Compare and contrast

Researchers at the [British Columbia Centre for Excellence in HIV/AIDS](#) along with other researchers in Vancouver have attempted to study the relative impact that ART, harm reduction or both can have on the spread of HIV. In their study, which is currently in press in the journal *Lancet HIV*, the harm reduction services consisted of the provision of sterile syringes/needles and the prescription of drugs such as methadone and buprenorphine. The researchers used health-related information collected in databases to develop computer simulations of the HIV epidemic in B.C. Researchers used the simulations to understand the effect of ART, harm reduction services or both on the province's HIV epidemic.

The researchers estimated that between 1996 and 2013, 3,204 new cases of HIV infection were prevented due to “the combined effect of the expansion of harm reduction services and ART coverage on HIV transmission via [sharing of syringes/needles].”

In one simulation, researchers assumed that ART would have zero impact on the spread of HIV among people who shared syringes/needles. They found that harm reduction services would have prevented about 77% of HIV infections that could have otherwise occurred. In another simulation where harm reduction efforts (distribution of sterile needles and opioid substitution therapy) were kept at relatively low levels, the researchers estimated that ART alone would have prevented 44% of HIV infections.

The provision of prescribed medicines (such as methadone and buprenorphine) helped people enjoy periods of good health, presumably because they were less likely to share syringes/needles.

Moving forward

As the researchers did their work via computer simulations, they cannot be certain about the precise impact of the different interventions on the course of the HIV epidemic among people who inject street drugs. However, the work of the B.C. researchers strongly suggests, in their own words, that “harm reduction services had a vital role in reducing [the spread of HIV] in B.C. and should be viewed as essential and cost-effective tools in combination implementation strategies to reduce the public health and economic burden of HIV/AIDS.”

Study details

The researchers focused on limited elements of harm reduction because their impacts could be assessed relatively easily within the simulation since data were available on their deployment.

A noteworthy point is that the researchers assumed that among people who used ART and who injected street drugs, ART’s ability to prevent the new HIV infections that occurred via sharing of syringes/needles was about 50%.

Results—Impact of ART and harm reduction

Researchers found that the provision of both ART and harm reduction services prevented 3,204 people from becoming HIV positive between 1996 and 2013.

In one simulation, the researchers assumed that ART had no impact on the spread of HIV among people sharing syringes/needles. This assumption was made so that the researchers could try to isolate the specific impact of harm reduction. In that simulation they estimated that harm reduction alone would have prevented about 77% of HIV infections.

In a further focus on harm reduction services, the simulations revealed that the provision of sterile syringes/needles was likely responsible for preventing most new HIV infections. The use of opioid substitution therapy (methadone and buprenorphine) also helped to reduce some new infections (by about 15%). Furthermore, the researchers noted that this therapy was responsible for users spending time in improved health.

More on harm reduction

The researchers said that the “broader spectrum of harm reduction” included other activities and services such as the following:

- “short-term inpatient detoxification”
- “integrated and non-integrated housing supports”
- “peer navigation networks”
- “supervised injections”
- psychosocial support
- mental healthcare

The researchers stated: “Although accounting for the direct or indirect contributions of each of these many services in relation to the current analysis is not feasible, the potential effect of these interventions should be acknowledged.”

They added: “Our estimates of the collective effect of harm reduction services on the British Columbia HIV epidemic underline that maintenance and further expansion of access to these critical services should be a priority. British Columbia was once the epicentre of the HIV/AIDS epidemic in Canada in the 1980s and 1990s [and rates of new infections have fallen dramatically]. Harm reduction services have played an integral role in this achievement.”

Intersecting problems

When explaining why the deployment of harm reduction had such a tremendous impact, the researchers elaborated on the situation in B.C.:

“British Columbia and the greater metropolitan area of Vancouver in particular, have had extensive, overlapping epidemics of...heroin, crack cocaine, methamphetamine, and most recently, synthetic powder-form fentanyl. Death rates from accidental overdose among people in the province with substance use disorders have rivalled that of

some of North America's worst urban drug use epidemics for much of our study period and were the highest in the world before the opening of North America's first medically supervised injection facility. As a result, the relative and absolute magnitude of benefits of harm reduction services were probably greater than would have been observed in settings with less, and possibly more dispersed, drug use epidemics."

Bear in mind

The B.C. study was not designed to find out the precise effectiveness of using ART to help prevent the spread of HIV via sharing needles. A robustly designed study to explore this issue would be complex and costly. However, the B.C. researchers recommend a future analysis of the economic and public health benefits of providing opioid substitution therapy together with the distribution of sterile needles.

For the future

The B.C. researchers closed their research paper with the following statement:

"The scale-up of harm reduction services had a comparable effect on [new HIV infections] to that attributable to ART access. Harm reduction services such as [the distribution of] sterile needles/syringes and [opioid substitution therapy] should be viewed as key interventions within a combination implementation strategy to reduce the public health and economic burden of HIV/AIDS worldwide."

Resources

[Pre-fix: A guide for people with Hep C or HIV who inject drugs](#)

[Prevention & Harm Reduction](#) from *Hepatitis C: An In-Depth Guide*

[Best Practice Recommendations for Canadian Harm Reduction Programs](#)

—Sean R. Hosein

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