What's **Inside...**

The increased use of crystal methamphetamine and other drugs has led to an increased demand for needle and syringe harm reduction services across Canada. There have been a small number of HIV outbreaks in rural parts of Canada, but these environments have mostly limited services for harm reduction and sexually transmitted and blood-borne infection (STBBI) testing.

In this case study, we describe the public health responses in rural Scott County, Indiana, following an alarming rise in HIV and Hepatitis C cases.

Harm Reduction in a Rural Setting: Lessons learned from HCV and HIV outbreaks in Scott County, Indiana

In 2015, officials in Scott County, Indiana declared a public health emergency when there was a sudden spike in HIV cases detected.

This is a story of the responses taken by public health and related teams, and the evidence of the outcomes, based on follow-up studies and the perspectives of local health officials. Shared knowledge, drawn from practice-based experience, can offer insights on useful strategies and resources that may be adaptable in rural Canada.

BACKGROUND

Public health officials became concerned in January 2015 when 11 new HIV cases were detected in a small, rural community where there had been only five new cases in the previous nine years (1). Scott County, Indiana, is home to 24,181 people (2010 census) and covers an area of 190 square miles. Its population has a 10% unemployment rate, with 19% of people living below the federal poverty line, and 21% of the population not having graduated high school (2). The only free HIV testing clinic in Scott County was closed in 2013 (1).

After initial diagnoses, an investigation began using contact tracing data and phylogenetic analyses of HIV and Hepatitis C (HCV) blood samples, and a public health emergency was declared on March 26, 2015. Eventually, 215 HIV cases were attributed to the outbreak (3) and many infections were identified as recently acquired (1). These infections were linked (1) to injecting oxymorphone – a powerful opioid, and were associated with poverty and a history of incarceration (4). 95% of HIV cases detected during that time were people with an annual income of less than $10,000 (2). The HIV outbreak had been preceded by HCV infections, with 55.3% chronic prevalence among 436 people who reported injecting drugs when tested for HIV in the county in 2015 (3). However, the extent of the network of people injecting drugs was unexpected in this rural area (1).

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SCOTT COUNTY'S RESPONSE

Within six days of the public health emergency declaration, Scott County established a free clinic with two infectious disease specialists and included HIV testing, treatment, education, and access to Pre-exposure Prophylaxis (PrEP) (2,4). Within one week of each other, five other testing sites were established, with rapid expansion of free HIV and HCV testing along with partner services (1). Tests increased from 23 per month in November 2014 to greater than 600 per month in March 2015 (1). A syringe services program (SSP) opened April 4, 2015 offering a needs-based syringe exchange, with no limits to the number of syringes a client could receive, regardless of the number returned (4).

WHAT WAS THE EVIDENCE FOR INTRODUCING THESE CHANGES?

The opening of the Scott County SSP was supported by research evidence. There have been several systematic reviews that found significant decreases (approximately 50%) in HIV infections, more mixed results regarding the reduction of HCV infections with the use of SSP, and even larger decreases when used along with opioid substitution therapy (OST) (5–7).

SSPs have also been shown to be effective in changing injecting risk behaviour (6). While the quality of evidence has been considered to be moderate to very low because of the lack of randomized control trials (RCT)(5), RCTs have also been considered unethical in this context. Researchers have appealed for more community-level studies with more rigorous design, but also acknowledge that programming is often organized according to local policies (6). Research has shown that harm reduction interventions provided at the structural level and integrated with multi-component programs, as well as high levels of coverage, are more beneficial (6). For example, broad access to harm reduction services that are incorporated with other relevant services, including access to health care (together with testing and problematic substance use services) and social services, have been found to be more effective.

RESULTS AND FURTHER STUDY ON THE SCOTT COUNTY OUTBREAK

Within about ten weeks (range 1-23), SSP clients in Scott County reported significant decreases in syringe sharing to inject (18% to 2%), dividing drugs (19% to 4%), and sharing other injection equipment (24% to 5%), with no change overall in injection frequency (4).

Scott County officials responded to the HIV outbreak emergency with multi-pronged approaches:

Infrastructure Created

- A "One-Stop-Shop" was opened, operating seven days a week and with extended evening hours. It included STBBI testing, a syringe-exchange program, wound care, immunization, access to naloxone, vital records, Infectious Disease services, insurance enrollment, rehabilitation services (including inpatient and outpatient behavioural, substance use, and mental health services), care coordination, workforce development and free transportation to the site.
- One-Stop-Shop outreach programs that included door-to-door testing for more transient people with a two nurse mobile unit.
- Five additional community STBBI testing sites.

Public Health Strategy and Interventions

- HIV education material created with consistent messages.
- Prioritized increased access to HIV treatment services and treatment.
- Increased access to substance-use disorder treatment services.
- Increased access to immunizations services.
- Universal HIV screening implemented in county jails.
- Immediate access to health insurance, including HIV treatment.
- Disease intervention specialists obtained needle sharing or sexual contacts for the last 12 months. Point-of-care testing was performed on located contacts, and non-reactive specimens had venous blood sent to a lab to test for early or acute infection using pooled RNA testing (venous blood was also tested for syphilis, HBV, HCV).
- Pharmacists were educated regarding Antiretroviral medications to provide consistent messages to clients and the public.
- Training programs for buprenorphine and naltrexone prescribing provided.
- Truckers were offered testing and PrEP access to prevent transmission beyond county borders.
- Responses involved collaboration with local health care practitioners, government health services, academic partners, and local partners (e.g. Faith-based).

There have been a number of modelling studies using the 2015 Scott County HIV outbreak dynamics[1] to assess potential or reflective outcomes. One modelling study suggested that applying the observed case-finding rate scale-up earlier could have substantially reduced the total number of HIV infections (est. 183–184 infections by August 11, 2015). Models predicted that a response on January 1, 2013 could have suppressed the number of infections to 56 or fewer, averting at least 127 infections; whereas a response on April 1, 2011 could have reduced the number of infections to ten or fewer, averting at least 173 infections (8). This study did not model OST or SSP because the authors noted there were no behaviour change data for the model. The authors, Gonzalvez and Crawford, discussed warning signs – increased overdose rates and increased prescription drug abuse within the community – that should have been heeded.

Goedel et al. state that the HIV outbreak response required SSPs or programs to engage people who inject drugs (PWID). Their model compared outcomes in the absence of a SSP to a pre-existing SSP or implementation of a SSP after the detection of the HIV outbreak following the introduction of a single infection into the network. In the absence of a SSP, the model predicted an average of 176 infections among PWID over five years, an incidence rate of 12.1/100 person-years. Proactive implementation averted 154 infections and decreased incidence by 90.3% (9). With reactive implementation beginning operations ten months after the first infection, the model predicted a SSP would prevent 107 infections and decrease HIV incidence by 60.8% (9).

LESSONS LEARNED

Overall, the lessons learned in the Scott County HIV outbreak were that proactive prevention strategies are essential to prevent transmission of infection (9). The follow-up studies to the Scott County HIV outbreak highlight the importance of supporting and expanding public health services, especially testing, in rural settings, even with low HIV incidence. This is especially important where there is evidence of problematic substance use and injection drug use. HCV infection was highly prevalent in this network of persons who inject drugs and should, in future, be recognized as an indicator of communities or populations at risk for HIV and requires prevention strategies that are useful for HCV, HIV, and other blood-borne infections (1).

Janowicz commented that healthcare provider awareness of injecting behaviors in the community is essential (2). She also stated a key to success of the SSP was the involvement of the community and of local law enforcement, including community organization relationships and efforts, which are important for program sustainability (2). According to Janowicz, treatment as prevention was fundamental in this outbreak response (2). In another review, Kishore et al. identified stigma as a barrier that continues to lead to the lack of syringe exchange and OST (10).

CONCLUSION

A recent large-scale US modelling study showed that 80% of HIV transmissions occur from those who are undiagnosed or not receiving HIV care (11). Kishore et al. noted that "since the 2015 outbreak of HIV and HCV in Scott County, Indiana, it has been clear that the sharing of syringes among people who inject drugs is fueling the spread of these diseases in rural America" (10). Since that time, the United States Centre for Disease Control released a report noting the disproportionate occurrence of HIV in rural areas in seven US states in 2016–2017, also noting that jurisdictions with low testing rates had low diagnosis rates (12).

Drug use networks in sparsely populated areas may be more extensive than acknowledged. This case study demonstrates that the lack of STBBI and harm reduction services in rural Canada is an important consideration for preventing and managing outbreaks among injecting drug users. It is also important to note that not all people with HIV in Scott County, Indiana, have been engaged or remain in care (2), highlighting the importance of sustained accessible comprehensive health and harm reduction services for individuals who use drugs. The Scott County HIV outbreak response continues today with more limited funding. The One-Stop-Shop operates now with more limited hours from Monday to Thursday, and using mobile units on weekends. A Family Medicine clinic offers HIV care and testing for the community. In 2018, there were seven new cases of HIV/AIDS and 58 (including probable and confirmed) new chronic or acute HCV cases in Scott County, Indiana (13,14).

ACKNOWLEDGEMENTS

This case study is based on a literature review of the Scott County HIV and HCV outbreaks as well as a review of documents and interviews with Scott County Health Department. Special thanks to Michelle Matern, who provided information and supported the development of this case study.

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Centre de collaboration nationale des maladies infectieuses

Room L332A, Basic Medical Sciences Building,
745 Bannatyne Ave., Rady Faculty of Health Sciences,
University of Manitoba, Winnipeg, Manitoba R3E 0W2
Tel: (204) 318-2591 Email: nccid@umanitoba.ca
Website: centreinfection.ca

@CentreInfection

Points to **take away...**

This case study is intended for public health decision-makers, including medical officers of health, program managers and case managers who are considering wholistic approaches to managing outbreaks of HIV and other STBBIs.

The success of the Scott County response results from a number of factors. Key among them:

- Proactive prevention strategies are essential to prevent transmission of infection.
- Supporting and expanding public health services, especially testing, in rural settings, even with low HIV incidence is important, especially where there is evidence of problematic substance use and injection drug use.
- HCV infection should be recognized as an indicator of communities or populations at risk for HIV and require prevention strategies that are useful for HCV, HIV, and other blood-borne infections.

This case study, prepared by Jami Neufeld, is part of the series: *Promising Practices in Public Health.*
Project #466

Production of this document has been made possible through a financial contribution from the Public Health Agency of Canada through funding for the National Collaborating Centres for Public Health (NCCPH). The views expressed herein do not necessarily represent the views of the Agency.