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forecast

BRITISH COLUMBIA CENTRE *for* EXCELLENCE *in* HIV/AIDS

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BC-CfE brings innovative stimulant use disorder treatment to Downtown Eastside

BC has been under a public health emergency due to drug-related overdoses for six years now. Of the 9,400 lives lost to illicit drug toxicity in the province in that time, most deaths have occurred due to opioids, specifically fentanyl. However, the use of stimulants such as cocaine and methamphetamine, and the harms associated with this use, have been steadily increasing across Canada, with BC the most affected province.

Data from 2016-2018 shows polysubstance use is very common among overdose fatalities. 49 per cent of those who died from overdoses were found to have cocaine in their system and 31 per cent had amphetamines or methamphetamine. Stimulant use also imposes a significant burden on acute care health services through frequent emergency room visits and through psychiatric admissions due to stimulant-induced psychosis.

Due to these harms, for both individuals and society, the BC Centre for Excellence in HIV/AIDS (BC-CfE), in partnership with Vancouver Coastal Health, applied to Health Canada to implement and evaluate an integrated program of contingency management and cognitive behavioural therapy (CBT) for people with stimulant use disorder (SUD) who need help to reduce use or abstain from using stimulants. The application was successful and participants will soon be recruited through the Hope to Health Research and Innovation Centre (H2H). Opened in late 2019, H2H provides harm reduction, supervised consumption, safer drug supply including injectable opioid agonist therapy and primary care services to residents of Vancouver's Downtown East Side (DTES).

Despite being open for less than three years, demand for the programs offered at H2H has grown rapidly. DTES residents suffer the highest rate of death due to illicit drug overdoses in BC, and there is a striking 15-year disparity in life expectancy between DTES residents and residents of neighbouring areas. SUD is the second most common diagnosis among H2H's primary care clients.

Many of the clients this program plans to recruit will be unstably housed or homeless, and also face other barriers to accessing care. Due to this, the BC-CfE will ensure that individuals with lived experience of SUD and challenges with homelessness will be actively involved in designing, implementing and evaluating the program through the H2H Client Advisory Committee. With 30 per cent of H2H clients self-identifing as Indigenous, researchers will also ensure that all individuals involved have completed Indigenous cultural competency safety training.

It's hoped the program will be able to help up to 120 clients. The contingency management portion of the program will reward participants for achieving their health goals, whereas CBT helps participants learn and identify reasons for their substance use. Participants will work with counsellors to develop effective coping strategies to prevent or reduce future stimulant use by exploring the positive and negative consequences of continued drug use, self-monitoring to recognize cravings early, and identifying situations that might put one at risk for use. By using contingency management and CBT concurrently, researchers hope for longer-lasting psychological benefits.

The project has three objectives. The first is to build an interdisciplinary team to implement an integrated program of contingency management and CBT at H2H, including a dedicated counsellor trained in CBT, a peer support worker, and a licensed practical nurse to administer the contingency management component. The second objective is to measure uptake, retention and completion of both program components. The third objective will be to measure stimulant and other illicit or prescribed drugs at enrollment, program exit, and one month after program completion and other important health outcomes. Succeeding at these three objectives, means BC-CfE researchers will be able to measure the uptake and completion of this program and determine if the contingency management component may also improve completion of CBT.

The BC-CfE is forging a new path with this program. Several psychological or behavioural interventions have been demonstrated to be effective in reducing stimulant use. However, these methods have not been well studied among marginalized, unstably housed or homeless populations with polysubstance-use and mental health challenges, such as DTES residents. The experiences and data which will be collected from this project will directly provide evidence on the effectiveness of integrated stimulant use disorder treatment programs and the potential for further expansion of these services to reduce stimulant use in Vancouver and elsewhere.

» "Despite providing a comprehensive array of services at H2H, we currently have no formal program in place to help individuals with stimulant use disorders, other than prescriptions for safe supply of amphetamines. This new intervention will fill a critical gap in our current service delivery and will provide evidence to support the expansion of similar programs for similar underserved populations."

— BC-CfE Research Scientist Dr. David Moore

HEPATITIS PROGRAM

BC-CfE researchers examine HCV knowledge and awareness of reinfection risk

The Hepatitis C virus (HCV) is a blood borne infection and a leading cause of end-stage liver disease. The World Health Organization estimates that about 58 million people are living with chronic HCV, leading to 290,000 deaths annually due to HCV-related liver illness. Here in Canada, HCV affects a quarter of a million people. Of this quarter million, over 40 per cent are unaware of their infection.

In British Columbia (BC), about two thirds of people living with HCV are baby boomers. However, the number of millennials diagnosed with HCV is increasing, with some reports tying this rise in cases to the drug poisoning crisis, as people who inject drugs (PWID) have an elevated risk of contracting HCV.

The advent of modern HCV treatments, known as direct-acting antivirals (DAAs), has essentially transformed HCV to a curable condition, with successes of over 95 per cent in clearing the virus following 8-12 weeks of oral treatment.

Despite the introduction of these widely successful treatments, pervasive barriers to HCV care persist, which fuel inequities in treatment outcomes. Among PWID, the barriers to care include misconceptions about treatment eligibility, or prescribers hesitant to initiate treatment due to ongoing substance use which raises fears of reinfection. Recent analysis has found that only half of Canadians who suffer from HCV have received DAA treatment, and among PWID, this falls to roughly 40 percent.

Given these changes in where and how treatment for HCV is offered in BC, BC-CfE researchers sought to find out the status of HCV knowledge among people who recently completed DAA therapy. The resulting study is titled *Knowledge of hepatitis C and awareness of reinfection risk among people who successfully completed direct acting antiviral therapy*.

The BC-CfE's Per-SVR (Preservation of Sustained Virologic Response) includes a cohort of patients who have recently achieved a sustained virologic response, i.e. were cured of HCV, after successfully completing DAA therapy. The 227 participants for the recently published study came from the Per-SVR cohort and were tasked with taking an HCV knowledge test.

The researchers assessed HCV knowledge scores overall and created four mutually exclusive key groups to assess knowledge among specific priority populations: PWID, people living with HIV and HCV, PWID who also live with HIV, and people who don't inject drugs nor live with HIV. Furthermore, using a latent modelling technique, they identified a group of patients in the cohort with complex conditions who often face challenging barriers to care.

The researchers found that knowledge about HCV, including treatment and reinfection risks, is quite high, even among populations that may face barriers to treatment because of perceived risks for reinfection. The study findings show the importance of barrier-free access to treatment, and contribute to growing evidence demonstrating the need for universal testing and treatment.

In concluding the research, the authors say continued evaluation of HCV knowledge levels among those who complete DAA treatment is critical in ensuring on-going engagement in follow-up care.

Kiana Yazdani, a BC-CfE Research Coordinator with the BC-CfE's Viral Hepatitis Research Program and the lead author of study, said, "About two thirds of clients in the study were treated in community-based settings, not in specialist clinics. We have encouraging data suggesting that in lower-barrier, primary care settings, that there is really high comprehension of the risk of HCV reinfection after being successfully treated with DAA therapy."

HIV RESEARCH

BC-CfE study examines how neighbourhood poverty affects those living with HIV

A recently published study by BC-CfE researchers titled *Neighbourhood-level material deprivation and response to combination antiretroviral therapy in the Canadian Observational Cohort (CANOC): a longitudinal cohort study* examines the relationship between a neighbourhood's socioeconomic status and how this affects the lives and health of Canadians living with HIV who are on combination antiretroviral therapy (ART).

Introduced to the world by the BC-CfE in the '90s, ART significantly reduces risks of HIV-related morbidity and death by reducing HIV viral load and increasing the number of CD4 T-lymphocyte cells (CD4). In fact, with successful ART usage, those living with HIV can achieve an undetectable viral load and are unable to transmit the virus.

We've known for some time that socioeconomic status was associated with higher viral loads and lower CD4 cell counts among people living with HIV. In general, individuals of lower socioeconomic status have been disproportionately affected by HIV, and indicators of low socioeconomic status have been associated with suboptimal HIV treatment–related outcomes, including higher viral load and lower CD4 counts.

For example, when comparing people living with HIV who are employed to those who are not, employment predicted significantly higher CD4 counts, and higher education has been associated with lower viral loads. Meanwhile, after adjustment for demographic characteristics and ART adherence, it has also been shown that either being unemployed or not having completed a university education was significantly associated with higher viral loads.

The objective of this study was to examine the relationship between neighbourhood-level material deprivation—an index which combines one's postal code with information from the Canadian census— and immunologic and virologic response to combination ART among people living with HIV in Canada.

CANOC, is a longitudinal cohort study of 13,057 people living with HIV who have initiated ART, and includes 11 sites spanning five provinces, (BC, Saskatchewan, Ontario, Quebec, Newfoundland and Labrador), and contains data from 2000 to 2016. This study's population of 8,274 people living with HIV consisted mainly of male (86 per cent) residents of BC (~53 per cent) who reported no previous history of injecting drugs (~58 per cent). This demographic and clinical data was extracted from medical files at individual sites and combined at the BC-CfE.

Of the study's population, just over 21 per cent lived in the most materially deprived neighbourhoods. Delving deeper into the data, BC-CfE researchers found the odds of having a negative response to ART in the first six months is 45 per cent higher for individuals in the most deprived category than those in the least deprived category. Similarly, the odds of having a lower CD4 count and higher viral load for individuals in the most deprived neighbourhoods is 31 per cent higher than those in the least deprived group. These associations were found after adjustment for sex, province of enrolment, history of ever injecting drugs, era of entry into cohort, and age.

The authors of the study note how it lacks individual-level data on employment, income and education, and say that using a neighbourhood-level material deprivation index requires making generalizations about an individual based on a larger group. Furthermore, the study relied on information from 2000 to 2016, which means these findings may not be generalizable to more recent circumstances like the COVID-19 pandemic.

However, with this data, BC-CfE researchers can conclude that people living with HIV from the most materially deprived neighbourhoods had increased odds of poor immunologic or virologic response to combination ART in the Canadian context. These results should motivate further study of the specific socioeconomic factors that potentially affect response to combination ART among people living with HIV in Canada.

PODCAST

Dr. Julio Montaner joins Santa Ono on podcast

This April, Dr. Julio Montaner was UBC President and Vice-Chancellor Santa J. Ono's guest on the monthly Blue and Goldcast podcast. Broadcasting from UBC's campus, the podcast focuses on the innovative and creative minds at the university.

Besides being the Executive Director and Physician-in-Chief of the BC-CfE, Dr. Montaner is also Killam Professor of Medicine, Division of Infectious Diseases in the Faculty of Medicine at UBC.

During the podcast, Dr. Montaner discusses highlights from his distinguished career, including the world-changing INCAS Trial. This international collaborative trial, the first for Dr. Montaner, led to the discovery of highly active antiretroviral therapy (HAART), a treatment regimen which has changed the trajectory of HIV/AIDS for millions of people.

Near the conclusion of the podcast, Dr. Montaner offers advice to young academics, and pays tribute to his former mentors, saying, "Be sure that you have a mentor that will have the clout and the understanding and the ability to support your work. I was fortunate that Jim Hogg and John Ruedy, in particular, played that role for me at a time in which I was young and naive."

BC Centre for Excellence in HIV/AIDS

- Improve the health of British Columbians with HIV through comprehensive research and treatment programs;
- Develop cost-effective research and therapeutic protocols;
- Provide educational support programs to health-care professionals;
- Monitor the impact of HIV/AIDS on BC and conduct analyses of the effectiveness of HIV-related programs.

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