

Describing rural HIV care in British Columbia and Canada – is there a rural/urban gap?

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(Slide: Describing rural HIV care in British Columbia and Canada – is there a rural/urban gap?)

Helmut Albrecht: Our second speaker is Lauren MacKenzie. She has several jobs. One is as CIHR Canadian HIV Trials Network Postdoctoral Fellow at the B.C. Centre for Excellence in HIV/AIDS. She's also resident of the University of Manitoba's Clinician Investigator Program and a graduate student in the Master's of Public Health Program at the University of British Columbia. I hope they pay you for your travel.

She's going to give a presentation describing rural HIV care in B.C. and Canada and address whether there is a rural/urban gap.

Lauren MacKenzie: Hi, everybody. Thanks so much for coming today. We're really excited by the large turnout. I'm Lauren MacKenzie and I'm going to be talking to you today about rural HIV care in British Columbia and Canada.

(Slide: Rurality and remoteness as a barrier to care in HIV)

Since 2006, the absolute number of rurally based Canadians has increased by about 1%. As of 2011, over ten million Canadians, or about a third of the population, were living outside of Canada's 33 central metropolitan areas.

As Katherine mentioned, literature from the United States has demonstrated disparities in HIV care and outcomes between urban and rurally located people living with HIV. Unfortunately, there is not a lot of literature looking at Canadian individuals living with HIV in rural areas.

Today I'm going to give you an overview of some of the Canadian literature that is out there and then I'll tell you a little bit about some of the research that we have been doing in B.C.

(Slide: Canadian Rural HIV Literature)

This group from western Ontario conducted telephone surveys of a general population of urban and rural individuals who were living in areas of B.C., Ontario and Newfoundland. In the questionnaire, they wanted to know basic information about what people knew about HIV and whether they knew somebody with HIV. They found that rural respondents were actually less likely than urban individuals to be acquainted with someone with HIV, and they were also less likely to have ever discussed HIV at all.

When they adjusted for factors such as education and age and gender, rurality was a predictor of decreased HIV knowledge among the general population. That same study group, as well as a group out of Alberta, also conducted qualitative interviews with people living with HIV, as well as their friends and family and health care providers. They conducted about 300 interviews. The

common themes that emerged were things that Katherine spoke to in her presentation. These included things like stigma, fear of breaks of confidentiality in a small community, social isolation, especially amongst MSM population, the importance of peer support in their community, concerns about limited local care provider HIV experience, the lack of support services in their area and the inconvenience of traveling long distances for appointments.

(Slide: Canada's National Family Physician Workforce Survey (2001))

A survey conducted a while ago, in 2001, and sent to all Canadian family physicians, included a couple questions about HIV care. They rated HIV care in three levels, with level one being the most basic HIV care, mostly testing, and level three being more advanced HIV care. They found that, proportionally, for physicians administering level three or more advanced HIV care, there are about half as many living in small town rural areas as in urban areas.

(Slide: Highlights from our BC rural HIV data)

I'm going to run through some highlights from some of the data we have been doing here in B.C.

(Slide: Objective 1)

For our first question, we wanted to look at something called the Programmatic Compliance Score (PCS). This is a previously validated metric predictive of all-cause mortality amongst treatment-naïve individuals who are starting antiretroviral therapy. We wanted to know if morality impacted a person's programmatic compliance score.

(Slide: Programmatic Compliance Score)

The Programmatic Compliance Score is scored from zero to six. It is a sum of six non-performance indicators that are based on IAS guidelines. Zero is the best, or most compliant, score and four or more is the worst, or least compliant, score. I have listed the components of the Programmatic Compliance Score: whether somebody had less than three CD4 measurements in the first year after starting antiretroviral therapy; whether they had less than three plasma viral load measurements; whether they had baseline genotypic drug resistance testing performed; whether they started antiretroviral therapy with a CD4 count less than 200; whether they started antiretroviral therapy on a non-recommended regimen; and whether they achieved viral suppression in the first nine months.

(Slide: Rural Classification Method 1)

In terms of the way we looked at rurality, we looked at two different methods. As Katherine mentioned, there are actually a lot of different ways that Statistics Canada has looked at rurality in Canada. Our first method was looking categorically, either rural or urban, using somebody's postal code. We used the Forward Sortation Area, which is the first three digits of somebody's postal code. If it's zero, they are categorized as rural. If it's a digit other than zero, then they are categorized as urban.

(Slide: Rural Classification Method 2)

The second method we used is something called the General Practice Rurality Index; it's a previously validated score. This involves looking at rurality on a spectrum, or degree of rurality. It ranges from 0 to 100, with 100 being more rural. Factors used to assign this score are things like population, how close the basic and advanced referral centres are, the number of GPs and specialists in the area, and the presence of an acute-care hospital.

(Slide: Baseline characteristics of cART-naïve rural and urban individual initiating cArt between 2000-2013 (rurality determined by postal code))

This is a breakdown of some of the baseline characteristics of the individuals in our study, divided into rural and urban. You can see here that rural individuals tended to be older; they were more often female; there was a higher proportion of people of First Nations ancestry; there was a higher prevalence of Hepatitis C co-infection; and they tended to have lower baseline CD4 counts.

(Slide: Programmatic Compliance Score (PCS): comparing single non-performance indicators between rural and urban individuals initiating cART between 2000-2013)

When we look at the individual components of the Programmatic Compliance Score, we can see that the distribution between rural and urban individuals was similar for all of the components except for plasma viral load testing. So 15% of rural individuals did not have sufficient plasma viral load testing done in their first year, whereas this was only the case in 9% of urban individuals.

(Slide: Comparing Programmatic Compliance Scores (PCS) for rural and urban individuals initiating cART between 2000-2013)

This chart is looking at the sum of the Programmatic Compliance Score. Again, if we remember that the best score is zero and the worst score is four or more, the distribution seems to be pretty similar for each score between urban and rural individuals. In fact, after adjusting for age, gender, Hepatitis C status, First Nations ancestry, baseline CD4 count, and baseline viral load, categorical rurality, so that's using postal code, was not associated with a higher, or worse, programmatic compliance score.

(Slide: The probability of a high (poor) Programmatic Compliance Score (PCS) increases as degree of rurality increases)

We see something a little bit different when we look at rurality as a spectrum; we are using the GPRI score now. Along the Y-axis we have probability and along the X-axis we have our GPRI score (remember that higher means more rural).

Observe a good PCS score, that's a score of either 0 or 1 (represented by the blue and green lines). As we get more rural, we can see that the chances of getting one of those scores actually drops. Meanwhile, if we look at worst PCS score, such as three or four (represented by the orange and red lines), we have an increase in chance of getting a worse score.

After we adjusted for the same variables that I mentioned previously, an increase in GPRI score was associated with a higher, or worse, Programmatic Compliance Score.

(Slide: Objective 2)

For our second question, we looked at postal code and GPRI in terms of how we categorize rurality. But this time we wanted to look at prescriptions. We looked specifically at the uptake of newer antiretroviral therapies in treating experienced individuals. So we're essentially measuring from the date that a drug was released until the date that they switched to that drug. So our antiretrovirals of interest were Atripla, Raltegravir, Complera and Stribild.

(Slide: Comparing the time-to-uptake of newer ARVs between rural and urban cART-experienced individuals in BC (rurality determined by postal code, n=2145))

This table is comparing the time to uptake in months for each of our antiretrovirals of interest and you can see for Atripla, there was a difference in the median time to uptake, or switch for urban and rural individuals. On average, urban individuals took about six months, whereas it was about nine months for rural individuals. We did not see any differences for the rest of the other antiretrovirals.

(Slide: The relationship between time-to-uptake of newer ARVs and an increasing degree of rurality (determined by General Practice Rurality Index) among cART-experienced individuals in British Columbia (n=2399))

This table is similar. We're looking now at spectrum of rurality, with the GPRI score, so we are looking at the correlation between an increasing amount of rurality and a longer time to uptake for the antiretrovirals.

We see, again, that Atripla is associated with a longer time to uptake in people who are more rural and, interestingly, we seem to see the reverse relationship with Stribild, although it's worth noting that we cannot make any strong conclusions based on the really small sample size we have for Stribild.

(Slide: Conclusions)

To conclude, our data from B.C. has highlighted the potential vulnerabilities of rural people living with HIV. They tend to be older, they are more often female, there are higher proportions of First Nations individuals, and there is a higher prevalence of Hepatitis C infection. We also saw that for individuals who were initiating antiretroviral therapy and increasing degree of rurality based on this GPRI score that I mentioned was associated with a worse Programmatic Compliance Score. Remember that this is important because this score is predictive of mortality.

Finally, we saw that for treatment-experienced individuals, there was a delayed uptake of some antiretroviral therapies, but not all, so there seems to be a difference in some prescribing practices that require further investigation.

I think it's clear that we still have a lot to learn about rural HIV care in Canada, which is why it is great to see so many of you out here today.

(Slide: Acknowledgements)

Thank you!