

Briefing note: When is the HIV epidemic generalized?

Aboriginal people in Canada have higher HIV rates than do others in the country. We have known this for some time. More recently, HIV diagnosis rates among Aboriginal women have increased markedly compared with other women in Canada. Many of the Aboriginal women who became HIV positive were not intra-venous drug users (IDUs).

This statement is deceptively simple. Its implication is not so simple. They became infected by heterosexual intercourse, the transmission route that keeps generalized HIV epidemics going.

So when is the HIV epidemic generalized? And why does it matter? The second question is the easier to answer. If the epidemic is not generalized and you're not one of the special risk groups – intravenous drug users (IDU) and men who have sex with men (MSM) – then you have no real risk. In a generalized epidemic, many more people are at risk.

In public health policy and investment, an epidemic becoming generalized makes a world of difference. In an epidemic limited to specific risk groups, interventions address just these groups. In a generalized epidemic, interventions address nearly EVERYONE. A generalized HIV epidemic requires large-scale and fundamental changes in community norms, sexual values and practices. It means an overhaul of HIV surveillance and policy, and a very different order of investment in HIV prevention.

So when is an epidemic generalized? By convention, more than 1% of the general population infected means a generalized HIV epidemic. If less than 1% overall but more than 5% in high risk groups has HIV, they say the epidemic is “concentrated”. Officially, Canada has a concentrated HIV epidemic.

Although it is convenient, many scientists question the 1% cut-off. Every epidemic begins with just a few infections. The concern is what will happen next, how much further can it spread, not just how many people are HIV-positive now. In a concentrated HIV epidemic, the percent infected depends on the number of intravenous drug users in the society and the number of men who have sex with men. But once HIV transmission goes outside these high risk groups and spreads by heterosexual intercourse, there are very different limits. In Botswana and Swaziland, with fully developed generalized epidemics, 35-40% of young women have HIV infection.

In 2006, David Wilson of the World Bank proposed an addition to the definition by which the epidemic would be considered generalized – when protecting HIV-vulnerable groups would not in itself protect the wider population.

How far are we from a generalized HIV epidemic in Canada? Last year there were some 300 new HIV cases reported among Aboriginal peoples. Unlike Botswana and Swaziland, where exact diagnosis figures are available soon after the year-end, national data are not available in Canada. So we know that the real number is larger than 300.

Most people go for HIV tests only when they are already sick, so the real number who became HIV positive each year is higher than the number tested and diagnosed. Studies from the USA and UK suggest that four or five cases arise for each case diagnosed.

There is still a bigger difference between the number of new diagnoses and the number living with HIV, because people who contract HIV survive much longer these days. Most people infected 10 years ago are still alive and, thanks to the new antiretroviral drugs, nearly all those diagnosed in the last five years will still be alive in 10 years time. So the numbers of new cases really just tell us how many get added to the existing pool, increasing the HIV prevalence each year.

These figures suggest that between 15,000 and 30,000 Aboriginal people might be HIV positive – counting only those diagnosed in the last decade and using only a five-fold difference between new diagnoses and new cases. This implies between 1.25% and 2.5% of all the 1.2 million Aboriginal people in Canada are HIV-positive. Compare this with the “1% cut-off” figure.

It gets worse. HIV rates are highest in the age range 15 to 39 years. Some 40% of the Aboriginal population falls within this age range, a prevalence of 2.5% to 5%. Rates in Manitoba, Saskatchewan and Alberta are higher than the average across the provinces and territories that report Aboriginal status. Ontario and Quebec do not report Aboriginal status of HIV diagnoses.

But we don't really know, do we? There has never been a large-scale community-based survey of HIV prevalence in Aboriginal communities. There is also no prenatal surveillance, as African countries have, to know about HIV in reproductive age women. Apart from new diagnoses, national surveillance of HIV in Aboriginal communities takes place in a single community in Manitoba, called A-track.

So far we have discussed only the percentage required for designation of generalized status. The route of transmission raises other issues. Recognizing it is only part of the picture, what can one glean from the new diagnoses?

These data are not as boring as they first sound. The journal *International Health* recently published (<http://dx.doi.org/10.1016/j.inhe.2011.03.010>) numbers of newly diagnosed cases of HIV in two 5-year periods (1999-2003 and 2004-2008). Among Aboriginal peoples over the age of 50, male HIV rates are more than twice female rates; this is typical in a concentrated epidemic affecting MSM. For Aboriginal people aged 40-49 years, the HIV diagnosis rate is only 35% higher for men than for women. For those aged 30-39, it is 25% higher. *But among 20-29 year olds, the HIV diagnosis rates is 43% higher among women than men. And in the youngest group, 15-19 years of age, the female HIV diagnosis rates are four times the male rates.*

So dynamics of the HIV epidemic have changed among Aboriginal peoples.

The conventional predominance of MSM cases in HIV statistics is giving way to the pattern of the epidemic in southern Africa. Young Aboriginal women are four times more likely to be diagnosed HIV positive than are their male counterparts; HIV transmission is increasingly heterosexual. And it seems likely that prevalence rates are well past the arbitrary 1% said to define a generalized HIV epidemic.

There are strong arguments against a generalized epidemic in Aboriginal communities. The evidence on age-specific rates comes from HIV diagnoses that exclude Ontario and Quebec, where one in three Aboriginal people in Canada live. We lack the evidence most African countries produce as a matter of routine. Canada has never been a national survey to estimate population HIV rates in Aboriginal communities. For as long as we do not have this very basic information, no one can know with certainty if the HIV epidemic has generalized in Aboriginal communities.

No one wants a generalized HIV epidemic. When a Medical Officer of Health announced a concern about a generalizing epidemic in Aboriginal communities in Manitoba, the provincial government disciplined him and he published a retraction.

But other evidence is still on the table. We need to look at it and we need better evidence. Canada needs HIV surveillance at least as good as it is in most African countries. A national HIV survey, as most African countries have had, will help. And we need to develop prevention strategies that address the generalizing HIV epidemic.