STI HIV Prevention and Control

Trends in HIV Positive Immigrants and Reporting by Citizenship and Immigration Canada (CIC)

2000 – 2007

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INTRODUCTION

Persons from HIV endemic countries are over-represented in Canada's current HIV epidemic. Sixteen percent of all new infections in 2005 were attributed to the heterosexual/endemic exposure category, yet only 1.5% of the Canadian population was born in an HIV-endemic country; thus the estimated infection rate in 2005 was 12.6 times greater in individuals from HIV endemic countries than in other Canadians (Boulos et al, 2006). Targeted testing of immigrants, therefore, will increase the opportunity to ensure that HIV positive immigrants are made aware of their status and support expedient counseling, prevention and treatment.

In 2001, Health Canada recommended routine HIV testing of all persons applying for immigration to Canada. As of January 15, 2002, Citizenship and Immigration Canada (CIC) requires all immigrants and certain visitors to Canada to undergo an immigration medical examination (IME). Currently, four routine tests are included in the IME:

- a urinalysis (applicants aged 5+)
- a chest X-ray (applicants aged 11+)
- syphilis serology (applicants aged 15+)
- an HIV test (applicants aged 15+ and infants having received blood/blood products or born to a known HIV+ mother)

Both tuberculosis (TB) and syphilis have been designated by CIC as reportable diseases, while HIV has been designated as a notifiable disease. Any individual testing positive for TB and/or syphilis as part of an IME must present to public health for assessment within a given period following arrival in Canada. Individuals testing positive for HIV as part of an IME are not required to present to public health upon arrival, and there are no conditions for follow-up in Canada.

Within British Columbia, there are two methods by which immigration-related HIV positive cases are identified. The first method is via CIC reporting of individuals who undergo an IME outside Canada and test positive for HIV. As of September 1, 2004, these individuals are reported by CIC to their intended province of residence. In British Columbia, CIC reports are forwarded on a monthly basis to the BC Centre for Disease Control, Division of STI/HIV Prevention and Control. Once the hardcopy CIC reports are received at the BCCDC, the HIV surveillance nurse contacts the designated HIV public health nurse in the Health Services Delivery Area (HSDA) in which the individual has settled. The public health nurse then makes contact with the individual to offer information on support and services, and to encourage the individual to re-test within BC.

The second method of identifying immigration-related HIV cases in BC is through routine provincial reporting and public health follow-up. Some individuals first settle within BC and then initiate the immigration proceedings. These individuals undertake their IME within BC, and as such, are not reported to the BCCDC by CIC if they test positive for HIV. Instead, the positive lab result is reported to the BCCDC by the Provincial Health Services Authority (PHSA) laboratory services, where all confirmatory HIV testing is conducted for the province. Once a positive lab report is received by the BCCDC, it is entered into the provincial HIV Surveillance System (HIVSS) and the HIV surveillance nurse initiates the follow-up procedure. All newly diagnosed HIV positive cases are reported to the designated HIV public health nurse in the appropriate HSDA. The public health nurse then makes contact with the individual for case follow-up, including counseling, partner notification, and data collection. It is generally at this time that a case is identified as immigration-related, although immigration testing may be indicated on the original laboratory requisition.

The BCCDC does not currently include immigration-related data in its regular HIV surveillance reporting. Recently, questions have been raised regarding the reporting of immigration-related HIV cases to medical health officers (MHO), the timeliness of reporting from CIC to BCCDC, and the

designation of HIV as a notifiable disease rather than a reportable disease (like TB and syphilis). This study was undertaken in response to these concerns, with the following objectives:

- to describe trends in HIV positive individuals immigrating to BC that are detected through immigration medical exams
- to further characterize these trends according to immigration from HIV endemic countries
- to examine the timeliness of CIC reporting.

METHODS

1 Data Sources

Two sources of data were used for this analysis:

- **CIC Reports**: Hardcopy reports are kept on file in the HIV surveillance office, and the information is entered into an Excel spreadsheet. See Appendix 3 for template report and fields.
- **HIV Surveillance System (HIVSS)**: MS Access database containing all HIV positive cases and associated client information (i.e., demographic, testing, and risk data). The data from this system are saved as line-listed data in a second Access database, from which the data for this analysis were extracted.

2 Case Definitions

Immigration-related HIV case: an HIV positive immigrant to BC, identified through the Immigration Medical Exam process conducted either outside of Canada or within BC.

HIV endemic country: a country having adult prevalence (ages 15 – 49) of HIV ≥ 1.0% and either (1) ≥ 50% cases attributed to heterosexual transmission, (2) male to female ratio of 2:1 or less, or (3) HIV prevalence ≥ 2% among women receiving prenatal care (Public Health Agency of Canada, 2005). See Appendix 4 for a list of HIV endemic countries.

New positive: an individual newly diagnosed as HIV positive; counted as a new case for surveillance reporting.

Previous positive: a repeat or confirmatory positive HIV test for an individual previously diagnosed as HIV positive; not counted as a new case for surveillance reporting.

3 Data Analysis

Trends in HIV Positive Immigrants

The HIVSS database was queried to identify individuals who tested positive for HIV within BC as part of an Immigration Medical Exam from January 2000 to August 2007. This included individuals with either "*CIC Immigration*" or "*Visa Requirement*" given as a reason for testing for HIV. Reason for testing information is collected on the Risk Assessment Form, one of two forms that are completed by a designated HIV public health nurse during case follow-up. This data was then extracted and the number of new positive and previous positive immigration-related HIV cases was tallied for each year.

The CIC reports were used to count the number of individuals who tested positive for HIV outside of Canada as part of an Immigration Medical Exam from January 2005 to August 2007. The CIC data were then linked to the HIVSS data extract to determine the degree of overlap between the two databases (i.e., how many individuals tested outside Canada and then again within BC). Linkage was performed using the full name, gender and date of birth data fields. The number of new positive and previous positive CIC-reported HIV cases also in HIVSS (i.e., overlap) by year was then calculated.

The total number of reported HIV positive immigration-related cases was then calculated for each year, from 2000 – 2007. The total was calculated by subtracting the number of overlapping cases (i.e., tested outside Canada and within BC) from the sum of all CIC reported cases (i.e., tested outside Canada) and all HIVSS cases (i.e., tested within BC).

Trends in Immigrants from HIV Endemic Countries

The HIVSS data extract was further analyzed by country of birth to examine trends in immigration from HIV endemic countries, from 2000 - 2007. Country of birth is collected on the Case Report form, the second of two forms completed by designated HIV public health nurses during case follow-up. The CIC reports do not contain any information on country of birth (or country last resided in); any cases reported by CIC that did not also occur in HIVSS were therefore excluded from the analysis. The data were divided into endemic and non-endemic countries (Public Health Agency of Canada, 2007), and the number of IME-related HIV positive cases from endemic countries by year was calculated.

The full HIVSS database was also queried to determine the number of all new positive HIV cases that identified having a sexual partner from an endemic country as a potential risk factor. Risk information is collected on the Risk Assessment form. Only individuals testing newly positive for HIV, with “Sexual partner from an endemic country” recorded, were included in the analysis.

CIC Reporting Statistics

The CIC reports were reviewed and the reporting time was calculated for each individual. Reporting time was the difference, in days, between the date on which the CIC report was received at the BCCDC and the date on which the individual was reported to have arrived in Canada. Because no reports were received in 2004, the average, minimum and maximum number of days taken for reporting were determined for each year from January 2005 to August 2007.

RESULTS

Trends in HIV Positive Immigrants

Since 2000, 172 HIV positive individuals have immigrated to BC (Table 1). While the annual number of HIV positive immigrants is variable from year to year, there is a slight increasing trend overall (Figure 1). A total of 162 individuals were identified as having tested HIV positive within BC for immigration purposes (Table 1); 139 (86%) of these individuals tested only within BC as part of their IME. From January 2005 through August 2007, a total of 33 individuals were identified as having

tested HIV positive outside Canada as part of an IME and were reported to the BCCDC by CIC (Table 1); 23 (70%) of these individuals subsequently re-tested within BC.

Of the 139 individuals that underwent IME testing only within BC, 92 (66%) tested newly positive for HIV while 47 (34%) had been previously diagnosed with HIV. Of the 23 individuals that underwent IME testing outside Canada and then re-tested within BC, 2 (9%) were newly HIV positive and 21(91%) were previously HIV positive. The 2 newly positive individuals were reported as such because they had tested within BC in advance (20 months, 39 months) of their official arrival in Canada date; both individuals were in BC on refugee status but are presumed to have initiated official immigration proceedings outside of Canada.

Trends in Immigrants from HIV Endemic Countries

From January 2000 through August 2007, a total of 53 HIV positive individuals immigrated to BC from HIV endemic countries (31% of all HIV positive immigrants to BC) (Table 1; Figure 1). Many of these individuals were emigrating from sub-Saharan Africa; a smaller proportion emigrated from Southeast Asia, Central America and the Caribbean (Table 2).

From May 2003 through August 2007, 60 individuals testing newly HIV positive identified having a sexual partner from an endemic country as a potential risk factor. Of these individuals, 16 (25%) listed an HIV endemic country as their country of birth; the remaining 44 (75%) individuals listed Canada and other non-endemic countries (Mexico, Hong Kong, India, Vietnam) as their country of birth. Overall, the data show a decreasing trend in the number of HIV positive individuals reporting endemic partners as a risk factor (Figure 1).

CIC Reporting Statistics

The average number of days taken for BCCDC to receive CIC reports of HIV positive immigrants moving to BC was 36 days in 2005 (range 11 – 57 days), 36 days in 2006 (range 16 – 56), and 38 days in 2007 (range 28 – 43 days) (Table 3). A total of 13 reports were received at BCCDC after the date on which the individual re-tested within BC; the average number of days elapsed between re-test and receipt of CIC report was 28 days (range 8 – 51 days). In addition, 4 individuals tested within BC in advance (range 7 – 39 months) of the arrival in Canada date cited on the CIC report.

DISCUSSION

While the data for 2007 are incomplete, there appears to be an increasing trend in the number of HIV positive individuals immigrating to British Columbia since January 2000. Over three-quarters (81%) of these individuals undertook their immigration medical exam in British Columbia; the remainder (19%) underwent IME testing outside Canada, with 6% opting to not retest again in BC.

Although a relatively small proportion of immigrants undergo their IME outside of Canada and do not retest within BC, a CIC report is the only way to identify these individuals as HIV positive. As such, the timeliness of CIC reporting to BCCDC and subsequently to the health authorities is critical. Since 2005, it has taken anywhere from 11 to 57 days for BCCDC to receive CIC reports and in many cases, the individual has already re-tested within BC by the time the CIC report is received. Reporting delays of this length are consistent with the flow of data through CIC, and reflect the time required to receive, process and match incoming IME data with the database of landed immigrants.

However, there are consequences of this reporting delay: (1) health authorities are not aware of all HIV positive immigrants settling within the region, and (2) new immigrants to BC that are HIV positive may not receive appropriate public health support and services.

The identification of HIV positive immigrants could be improved if HIV were to be reclassified as a reportable disease like TB and syphilis. It is not uncommon for individuals to be unaware of their HIV status until receiving their results after entry into Canada. Currently, public health is not always able to connect with immigrants who tested positive for HIV outside of Canada. Elevating HIV to reportable status, and requiring individuals to present to public health following arrival in Canada, will improve the timeliness of delivery of appropriate public health services to new HIV positive immigrants.

Since 2000, one-third of all HIV positive immigrants have come from HIV endemic countries. There does not appear to be an increasing trend in the number of HIV positive individuals from endemic countries, although the number of immigrants with an unspecified country of origin may mask any slight trends. The one exception was 2006, where 49% of all immigrants were from endemic (sub-Saharan Africa) countries. It is important to exercise caution when interpreting HIV trends in immigrant populations, as refugee-related immigration can fluctuate from year to year.

One limitation to this and future analyses of HIV positive immigration trends is the lack of country of birth/country of origin data on the CIC reports. This lack of data can be extended to the HIV surveillance information collected on individuals testing within BC, where 38% of all newly diagnosed HIV positive immigrants (since 2000) do not have country of birth specified on their HIV Case Report form. These data gaps mean that the number of immigrants from HIV endemic countries is likely to be underestimated. In an effort to improve data collection, the HIV forms have been amended to include date of arrival in Canada and the designated nurses have been educated on the importance of collecting country of birth information.

A second limitation to examining trends in immigrants from endemic countries is an apparent lack of clarity around the definition of an HIV endemic area and which countries have been designated as endemic. This is evident in the decrease over time of HIV positive individuals reporting endemic partners as a potential risk factor – a trend that is likely due, in part, to increased understanding among public health nurses of what constitutes an HIV endemic country. Steps will be taken by the STI/HIV Division to ensure that designated HIV nurses in BC have a clear definition of “HIV endemic” and access to an updated list of HIV endemic countries.

In an effort to keep medical health officers and other public health officials informed on current and changing trends in HIV positive immigrants moving to BC, the BCCDC Division of STI/HIV Prevention and Control will begin including immigration-related HIV data in surveillance reports (STI/HIV Annual Report, HIV/AIDS Update Report), commencing in 2008.

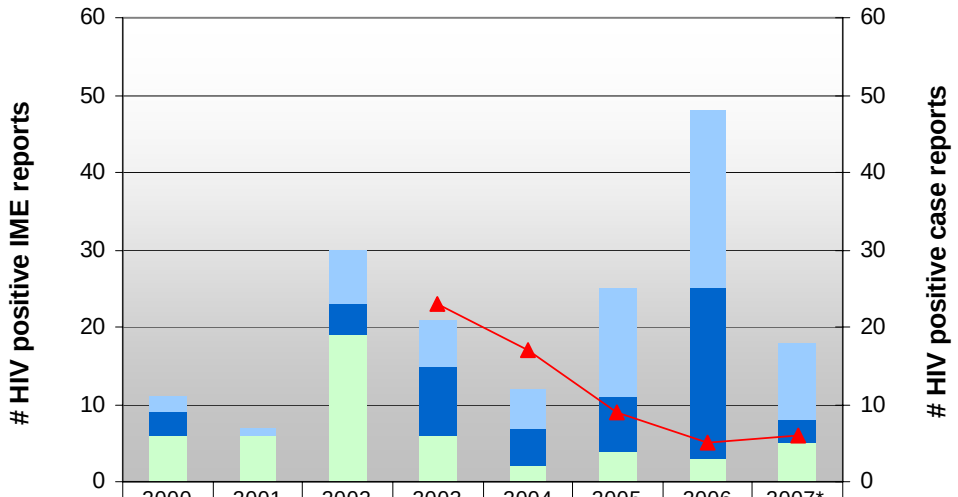
APPENDIX 1: Figures and Tables

Table 1: Number of new and previous HIV-positive IME reports for BC, January 2000 – August 2007

Year	Total # HIV Reports in BC		# IME Reports: CIC Reported (A)	# IME Reports: Tested in BC			# IME Reports: CIC Reported & Tested in BC			Total IME Reports (A + B - C)	# IME Reports from HIV Endemic Countries
	New Positive	Previous Positive		New Positive	Previous Positive	Total (B)	New Positive	Previous Positive	Total (C)		
2000	400	3	-	11	0	11	-	-	-	11	3
2001	420	6	-	7	0	7	-	-	-	7	0
2002	418	17	-	25	5	30	-	-	-	30	4
2003	409	19	-	21	0	21	-	-	-	21	9
2004	441	377	0	4	8	12	0	0	0	12	5
2005	401	89	13	8	14	22	2	8	10	25	7
2006	361	107	15	15	30	45	0	12	12	48	21
2007*	223	59	5	3	11	14	0	1	1	18	3
Total	**3073**	**677**	**33**	**94**	**68**	**162**	**2**	**21**	**23**	**172**	**52**

* Note: Numbers for 2007 are incomplete (January – August, 2007)

Figure 1: Total number of HIV-positive IME reports from endemic and non-endemic countries (January 2000 – August 2007) and number of HIV-positive individuals reporting "sexual partner from endemic country" as a risk factor (May 2003 – August 2007)



	2000	2001	2002	2003	2004	2005	2006	2007*
Non-endemic countries	2	1	7	6	5	14	23	10
Endemic countries	3	0	4	9	5	7	22	3
Country unspecified	6	6	19	6	2	4	3	5
Endemic partners				23	17	9	5	6

year

* Note: Numbers for 2007 are incomplete (January – August, 2007)

Table 2: Number of HIV-positive IME reports by country of origin (2000 – 2007)

Country	# HIV+
African	
* Africa	3
* Angola	1
* Burundi	4
* Congo	2
* Djibouti	2
* Eritrea	2
* Ethiopia	4
* Ivory Coast	2
* Kenya	4
* Liberia	2
* Malawi	1
* Nigeria	3
* Rwanda	4
* Somalia	1
* Sudan	2
* Uganda	2
*Zambia	2
* Zimbabwe	4
Asian	
* Burma (Myanmar)	2
* Cambodia	1
China	1
India	7
Philippines	2
South Korea	1
Singapore	3
Taiwan	2
* Thailand	2
Vietnam	3

Country	# HIV+
Central/South America	
Brazil	1
Columbia	2
Costa Rica	1
Cuba	1
El Salvador	1
* Honduras	2
Mexico	15
Panama	1
Peru	2
Venezuela	1
Caribbean	
* Jamaica	1
European/North American	
Australia	1
England	1
Germany	1
Holland	1
Portugal	1
Russia	1
Sweden	1
United States	16
Yugoslavia	1
Unknown/Unspecified	41

* HIV endemic country

Table 3: Average, median, maximum and minimum CIC reporting times, January 2005 – August 2007

Year	Average # days	Median # days	Maximum # days	Minimum # days
2005	36	40	57	11
2006	36	38	56	16
2007	38	40	43	28

APPENDIX 2: CIC Report Template

Citizenship and Immigration Canada
Citoyenneté et Immigration Canada

MONTHLY HEALTH REPORT

The following individuals have had immigration medical examinations, and have the following medical condition identified by the International Classification of Diseases 9th Revision (ICD9) code.

These individuals have entered Canada and have indicated an intent to reside in your jurisdiction. Citizenship and Immigration Canada is notifying you as per your jurisdictional requirements.

	ICD Code	Family Name	Given Names	Date of Birth (ddmmyyyy)	Gender (M or F)	Intended Address in Canada	Postal Code	Telephone Number	Date of Entry to Canada (ddmmyyyy)
1	795.8								
2									
3									
4									
5									
6									
7									

If you require additional information, please contact:

Citizenship and Immigration Canada,
Medical Services Branch,
Telephone Number (613) 957-5865

APPENDIX 3: HIV Endemic Countries

Caribbean

Anguilla
Antigua and Baruda
Bahamas
Barbados
Bermuda
British Virgin Islands
Cayman Islands
Dominica
Dominican Republic
Grenada
Guadeloupe
Haiti
Jamaica
Martinique
Montserrat
Netherlands Antilles
St. Lucia
St. Kitts and Nevis
St. Vincent and the Grenadines
Trinidad and Tobago
Turks and Caicos Islands
U.S. Virgin Islands

Central/South America

French Guiana
Guyana
Honduras
Suriname

Asia

Cambodia
Myanmar/Burma
Thailand

Africa

Angola
Benin
Botswana
Burkina Faso
Burundi
Cameroon
Cape Verde
Central African Republic
Chad
Congo
Djibouti
Equatorial Guinea
Eritrea
Ethiopia
Gabon
Gambia
Ghana
Guinea
Guinea-Bissau
Ivory Coast
Kenya
Lesotho
Liberia
Malawi
Mali
Mozambique
Namibia
Niger
Nigeria
Rwanda
Senegal
Sierra Leone
Somalia
South Africa
Sudan
Swaziland
Tanzania
Togo
Uganda
Zaire
Zambia
Zimbabwe

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