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Executive Summary

Overall the rates of sexually transmitted infections (STIs) in Alberta continue to increase. Rates of chlamydia have increased each year. Despite the decrease in gonorrhea rates in 2010, they have rebounded. The rates of infectious syphilis have decreased in 2010 and 2011 but increased for males in 2012. Geographic distribution of sexually transmitted cases was not consistent among health zones. With the exception of infectious syphilis, the infection rates for STIs were highest in the Northern Zone and Edmonton Zone.

For chlamydia, the rate of infection was consistently higher among females and was highest among those 20 to 24 years of age. For gonorrhoea, the rate of infection was slightly higher among males. The age-specific rates of gonorrhoea were high among younger females, but for all ages over 24, the rate was higher among males. Infectious syphilis rates were consistently higher among males for each age group. The rate was highest among males 20 to 24 years old.

Rates of newly reported HIV have been increasing each year in Alberta. The rate of newly reported HIV cases was higher among males. The rate of HIV increased in the North and Edmonton Zones. The most common risk exposure for males was men who have sex with men (MSM) while heterosexual contact common risk exposure among newly reported female HIV cases.

There was an increase in HIV positive patients receiving a chlamydia, gonorrhea or syphilis diagnosis after their HIV diagnosis. This suggests that unsafe sexual practices may be increasing in certain HIV positive populations.
Introduction

More than 100 communicable diseases in Alberta are notifiable to public health officials and these include human immunodeficiency virus (HIV) and seven sexually transmitted infections (STIs). STIs are by far the most commonly reported notifiable diseases in Alberta. In 2012, STIs represented 68 per cent of the total notifiable diseases reported (19,749/29,216 cases).

**Figure 1:** Number of Notifiable STIs and Other Notifiable Diseases reported in Alberta, 2005 to 2012

Most STIs, including chlamydia, gonorrhea, chancroid, lymphogranuloma venereum, and syphilis (staged as congenital, infectious, and non-infectious) are laboratory-reportable. Mucopurulent cervicitis (MPC) and non-gonococcal urethritis (NGU) are syndromic illnesses and are diagnosed and reported based on clinical criteria when laboratory tests are negative for chlamydia and gonorrhea if testing is not performed. Congenital syphilis may also be reported based on clinical criteria without a positive laboratory test result.

Human immunodeficiency virus (HIV) became a notifiable disease in Alberta in 1998 and is reportable by physicians and laboratories when there is a positive HIV test. HIV can be transmitted through exposure to blood and/or body fluids from an HIV-infected person.
Chlamydia

Chlamydia is the most commonly reported notifiable disease in Alberta. It is a bacterial infection that is transmitted through sexual contact or from mother to child during delivery. Chlamydia is easily treatable with antibiotics, however, because it is often asymptomatic it may go untreated, allowing complications to develop. Complications for females include pelvic inflammatory disease, ectopic pregnancy, infertility, pelvic pain, and reactive arthritis. For males, complications of untreated chlamydia include infertility, reactive arthritis, and infection of the epididymis and testes.

Figure 1.1: Number of Chlamydia Cases and Crude Rate (per 100,000) in Alberta by Gender, 2005 to 2012

In 2012, there were 15,518 reported cases of chlamydia in Alberta. The number of cases has risen annually since 2000. The overall provincial rate for both sexes increased from 368.8 cases per 100,000 persons in 2011 to 393.5 cases per 100,000 persons in 2012.

Females historically report higher rates of chlamydia than males and this trend continued in 2012. The female rate in 2012 was almost twice as high as the male rate (506 cases per 100,000 vs. 282 cases per 100,000 persons, respectively) and represented 64 per cent of all chlamydia cases.

The number and rate of cases for both males and females were higher in 2012 than in previous years. The rate of chlamydia in females increased to 506 cases per 100,000 females in 2012 from 481 cases per 100,000 in 2011. For males, the rate in 2012 was 282 cases per 100,000 males compared to 260 cases per 100,000 in 2011.
Chlamydia cases are concentrated among the young adult population. In 2012, 83 per cent of female cases and 75 per cent of male cases were between the ages of 15 to 29 years. The highest rates for both males and females were seen in the 20-24 year old age group. The rate of chlamydia for 15 to 19 year olds was almost four times higher in females than males (2,378 cases per 100,000 females vs. 619 cases per 100,000 males).
Chlamydia rates differ within the province by health zone, and appear to increase from south to north.

In 2012, the highest rate of chlamydia was in the North Zone and the lowest rate was in the South Zone (597 cases vs. 310 cases per 100,000 persons respectively). Edmonton had the second highest rate while Calgary had the second lowest rate (431 cases and 324 cases per 100,000, respectively).

Chlamydia rates increased in all provincial zones from 2011 to 2012. The only exception was the South Zone, which decreased slightly from 313.4 per 100,000 in 2011 to 310 per 100,000 in 2012.

<table>
<thead>
<tr>
<th>Health Zone</th>
<th>2010</th>
<th></th>
<th>2011</th>
<th></th>
<th>2012</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cases</td>
<td>Rates</td>
<td>Cases</td>
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<tr>
<td>North</td>
<td>1,941</td>
<td>439.4</td>
<td>2,320</td>
<td>510.6</td>
<td>2,807</td>
<td>597.4</td>
</tr>
<tr>
<td>Edmonton</td>
<td>4,589</td>
<td>394.9</td>
<td>4,897</td>
<td>410.8</td>
<td>5,325</td>
<td>430.9</td>
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<tr>
<td>Central</td>
<td>1,648</td>
<td>368.3</td>
<td>1,579</td>
<td>346.8</td>
<td>1,676</td>
<td>359.7</td>
</tr>
<tr>
<td>Calgary</td>
<td>4,213</td>
<td>305.5</td>
<td>4,389</td>
<td>308.9</td>
<td>4,791</td>
<td>324.2</td>
</tr>
<tr>
<td>South</td>
<td>731</td>
<td>255.9</td>
<td>911</td>
<td>313.4</td>
<td>919</td>
<td>309.7</td>
</tr>
<tr>
<td>Alberta</td>
<td>13,122</td>
<td>353.1</td>
<td>14,096</td>
<td>369.6</td>
<td>15,518</td>
<td>393.2</td>
</tr>
</tbody>
</table>
Over recent years, the proportion of chlamydia cases of both known and unknown ethnicity has remained consistent. As in previous years, the majority of chlamydia cases in 2012 were among Caucasians (64%) followed by Aboriginals (24%). There were 3,209 cases of chlamydia with unknown ethnicity in 2012.
A key public health intervention for mitigating the spread of sexually transmitted infections is to offer testing and treatment to those who have been exposed to a reported case. Information on sexual partners is obtained by the testing and/or treating by the health care provider and follow up of exposed partners is completed by the health care provider or partner notification nurses across the province. Data from 2011 and 2012 were available for this report.

The proportion of cases where zero sexual partners were reported decreased from 37.3 per cent (5,297 cases/14,196 total cases) in 2011 to 30.8 per cent (4,811 cases/15,637 total cases) in 2012. The majority of chlamydia cases reported one sexual partner, 47.9 per cent (6,806 cases/14,196 cases) in 2011 and 52.5 per cent (8,206 cases/15,637 cases) in 2012. The proportion of cases with two partners was 11.8 per cent in 2011 and 13.4 per cent in 2012. The proportion of cases who reported three or more partners was 2.9 per cent in 2011 and 3.4 per cent in 2012.
Gonorrhea

Gonorrhea is the second most commonly reported sexually transmitted infection in Alberta, and is caused by the bacterium *Neisseria gonorrhoea*. Many gonorrheal infections are asymptomatic, particularly in women. Common symptoms in males are painful urination and urethral discharge; in females symptoms may include endocervical discharge and cervical friability (prone to bleeding). Untreated gonorrhea can spread through the body affecting joints and in rare cases the heart valves. Resistance to the antibiotics traditionally used to treat gonorrhea is developing, thus prevention of infection is important.

**Figure 2.1:** Number of Gonorrhea Cases and Crude Rate (per 100,000) in Alberta by Gender, 2005 to 2012

In total there were 2,067 cases of gonorrhea in Alberta in 2012. Both 2011 and 2012 have seen increases in rates for both males and females. As seen in previous years, males had overall higher rates of gonorrhea than females in 2012 (55.4 cases per 100,000 males vs. 49.3 cases per 100,000 females).
When analyzed by age groups, the highest reported rate of gonorrhea was in 15 to 19 year-old females (239 cases per 100,000 females). Male rates peaked in the 20 to 24 years age group (211 cases per 100,000 males). Males had higher rates than females in the 25 years and older age groups.
Gonorrhea rates differ within the province by health zone, and appear to increase from south to north. In 2012, the gonorrhea rate in the North Zone was 109.2 cases per 100,000, while the rate in the South Zone was 14.2 cases per 100,000 persons.

In 2012, the gonorrhea rate in the Edmonton Zone was three times higher than the rate in the Calgary Zone (109.2 cases per 100,000 vs. 34.0 cases per 100,000 respectively). The Edmonton Zone and the North Zone had higher rates of gonorrhea than the provincial rate of 52.4 cases per 100,000 persons.

<table>
<thead>
<tr>
<th>Health Zone</th>
<th>2010 Cases</th>
<th>Rates</th>
<th>2011 Cases</th>
<th>Rates</th>
<th>2012 Cases</th>
<th>Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>283</td>
<td>64.1</td>
<td>317</td>
<td>69.8</td>
<td>513</td>
<td>109.2</td>
</tr>
<tr>
<td>Edmonton</td>
<td>484</td>
<td>41.6</td>
<td>690</td>
<td>57.9</td>
<td>868</td>
<td>70.2</td>
</tr>
<tr>
<td>Central</td>
<td>105</td>
<td>23.5</td>
<td>119</td>
<td>26.1</td>
<td>141</td>
<td>30.3</td>
</tr>
<tr>
<td>Calgary</td>
<td>280</td>
<td>20.3</td>
<td>346</td>
<td>24.4</td>
<td>503</td>
<td>34.0</td>
</tr>
<tr>
<td>South</td>
<td>30</td>
<td>10.5</td>
<td>25</td>
<td>8.6</td>
<td>42</td>
<td>14.2</td>
</tr>
<tr>
<td>Alberta</td>
<td>1,182</td>
<td>31.8</td>
<td>1,497</td>
<td>39.3</td>
<td>2,067</td>
<td>52.4</td>
</tr>
</tbody>
</table>
As in previous years, the highest proportions of gonorrhea cases were seen among Caucasians and Aboriginals. In 2012, Caucasians represented 43.9 per cent of cases with reported ethnicity and Aboriginals represented 42.2 per cent. In 2012 there were 363 unknown ethnicity cases reported.
Figure 2.5: Number of Sexual Partners Identified by Newly Diagnosed Gonorrhea Cases in Alberta, 2011 and 2012

Note: Zero partners refer to cases where no information was obtained on sexual partners, i.e., client refused to provide information, health provider did not collect information, client had no identifying information for partner, etc.

The proportion of cases where zero sexual partners was reported decreased from 39 per cent (588/1,501 cases) in 2011 to 31 per cent (658/2,098 cases) in 2012. Correspondingly, the proportion of cases with one sexual partner increased from 42 per cent (643/1,501 cases) in 2011 to 49 per cent (1,040/2,098 cases) in 2012.

The proportion of cases with two sexual partners also increased from 12 per cent (191/1,501 cases) in 2011 to 14 per cent (298/2,098 cases) in 2012. The proportion of cases with greater than two sexual partners was approximately five per cent in 2011 and 2012.
Infectious Syphilis

One of the oldest sexually transmitted infections recorded is syphilis. Syphilis is caused by the bacterium *Treponema pallidum*. Undiagnosed or untreated syphilis progresses through several stages: primary, secondary, latent and tertiary. This section will only deal with infectious syphilis, which includes the primary, secondary and early latent stages.

Untreated syphilis can lead to destruction of soft tissues and bone, blindness and heart failure. A pregnant woman with untreated syphilis can transmit the infection to her unborn child, which can lead to death or lifelong deficits for the child.

Starting in 2003, the number of infectious syphilis cases dramatically increased in the province and a syphilis outbreak was declared in Alberta in 2007. The rates of syphilis began to decrease over the last few years. Table 3.0 shows the breakdown of infectious syphilis cases by stage of infection for 2005 to 2012.

**Table 3: Number of Infectious Syphilis Cases by Stage in Alberta, 2005 to 2012**

<table>
<thead>
<tr>
<th>Stage of Infectious Syphilis</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Latent</td>
<td>18</td>
<td>50</td>
<td>84</td>
<td>77</td>
<td>111</td>
<td>92</td>
<td>39</td>
<td>48</td>
</tr>
<tr>
<td>Primary</td>
<td>96</td>
<td>97</td>
<td>92</td>
<td>113</td>
<td>111</td>
<td>39</td>
<td>34</td>
<td>50</td>
</tr>
<tr>
<td>Secondary</td>
<td>25</td>
<td>59</td>
<td>63</td>
<td>41</td>
<td>47</td>
<td>32</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>Symptomatic CNS (CNS)</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Symptomatic CNS Ocular</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>7</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Asymptomatic CNS</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Unknown CNS</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>8</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>146</td>
<td>215</td>
<td>247</td>
<td>243</td>
<td>280</td>
<td>176</td>
<td>95</td>
<td>127</td>
</tr>
</tbody>
</table>
In 2012, 127 cases were reported in Alberta. Overall, the rates of infectious syphilis in Alberta dropped from 4.8 cases per 100,000 persons in 2010 to 2.5 cases per 100,000 in 2011, but increased to 3.2 cases per 100,000 persons in 2012. The overall provincial rate in 2010 was almost twice that of 2011 (4.8 cases per 100,000 vs. 2.5 cases per 100,000 persons). There were no congenital syphilis cases in Alberta in 2012.

The number of female cases reported in 2012 was lower than that reported in 2011 (28 cases vs. 22 cases), however, the reported male cases increased from 67 in 2011 to 105 in 2012. This was the first increase in the male syphilis rate since 2009. In 2012, the male rate was almost five times higher than the female rate (5.3 cases per 100,000 males vs. 1.1 cases per 100,000 females).
As seen in previous years, infectious syphilis cases were consistently reported more often for males than females in 2012. The highest infectious syphilis rate for males was in the 20 to 24 years age group (14.2 cases per 100,000 males) followed closely by the 25 to 29 years age group (13.6 cases per 100,000 males).

The highest infectious syphilis rate for females was in the 20 to 24 and 40 to 44 years age groups at 3.6 cases per 100,000 females.
Figure 3.3: Infectious Syphilis Crude Rate (per 100,000) by Alberta Health Zone, 2012

In 2012, the highest rate of disease was in the South and Calgary Zones (4.0 cases per 100,000 persons); the lowest rate was in the Central Zone with 1.5 cases per 100,000.

The rates in 2012 for four zones (North, Edmonton, Central, and Calgary) were higher than those in 2011. The rate for the South Zone decreased from 5.5 cases per 100,000 in 2011 to 4.0 cases per 100,000 in 2012. The rates of infectious syphilis in all five zones dropped from 2010 to 2011.

<table>
<thead>
<tr>
<th>Health Zone</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cases</td>
<td>Rate</td>
<td>Cases</td>
</tr>
<tr>
<td>North</td>
<td>15</td>
<td>3.4</td>
<td>9</td>
</tr>
<tr>
<td>Edmonton</td>
<td>41</td>
<td>3.5</td>
<td>32</td>
</tr>
<tr>
<td>Central</td>
<td>15</td>
<td>3.4</td>
<td>1</td>
</tr>
<tr>
<td>Calgary</td>
<td>86</td>
<td>6.2</td>
<td>37</td>
</tr>
<tr>
<td>South</td>
<td>20</td>
<td>7.0</td>
<td>16</td>
</tr>
<tr>
<td>Alberta</td>
<td>177</td>
<td>4.8</td>
<td>95</td>
</tr>
</tbody>
</table>
In 2012, as in previous years, the largest proportion of infectious syphilis cases by known ethnicity was among Caucasians at 61 per cent (75/124 total cases). Aboriginals represented the second highest proportion of cases. In 2012, the proportion of infectious syphilis cases reported as Aboriginal dropped to 26 per cent (32/124 total) from 36 per cent in 2011 (33/93 total cases).
Figure 3.5: Number of Sexual Partners Identified by Newly Diagnosed Infectious Syphilis Cases in Alberta, 2011 and 2012

Note: Zero partners refer to cases where no information was obtained on sexual partners, i.e., client refused to provide information, health provider did not collect information, client had no identifying information for partner, etc.

The proportion of cases where zero sexual partners were reported has remained consistent over the two reporting years; 21 per cent (21/98 cases) in 2011 and 23 per cent (29/127 cases) in 2012. The number of sexual partners per case increased in 2012. In 2011, 54 per cent of syphilis cases (53/98 cases) reported one sexual partner, this decreased to 43 per cent (55/127 cases) in 2012. In 2012, the number of cases reporting two sexual partners increased to 20 per cent (25/127 cases) from 15 per cent (15/98 cases) in 2011. The proportion of cases who reported greater than two partners increased from nine per cent (9/98 cases) in 2011 to 14 per cent (18/127 cases) in 2012.
HIV

Human immunodeficiency virus (HIV), the cause of AIDS (Acquired Immunodeficiency Syndrome), was first recognized in 1981. AIDS became reportable in Alberta 1983 and HIV reportable in 1998. HIV is often associated with high-risk sexual and drug use behaviours. Immigration patterns to Alberta also affect the number of new cases found in the province. Immigrants, foreign workers, and refugees from HIV endemic countries (where a disease is present on a continuous basis) can increase the number of newly reported cases in Alberta.

Figure 4.1: Number and Crude Rate (per 100,000) of Newly Diagnosed HIV Cases in Alberta by Gender, 2005 to 2012

In 2012, there were 241 newly diagnosed cases of HIV in Alberta; the second year in a row that the number of HIV cases has increased. The provincial HIV rate was 6.1 per 100,000 persons in 2012, up slightly from 5.9 per 100,000 in 2011.

HIV rates have historically been higher among males than females in Alberta. In 2012, the male rate was 8.7 cases per 100,000 males. The male rate has slowly increased since 2010. The female rate slightly decreased from 3.7 cases per 100,000 in 2011 to 3.5 cases per 100,000 females in 2012.
The age range of newly diagnosed HIV cases in 2012 was seven to 74 years, with 71 per cent (171/241 cases) of cases being between 25 to 49 years. In all age groups the male rate exceeded the female rate, except for less than 20 years where the trend was reversed.

The highest HIV rate for females was among the 30 to 34 years age group with nine cases per 100,000 females and the 35 to 39 years age group with 9.9 cases per 100,000 females. The highest HIV rates for males were among the 40 to 44 and 45 to 49 years old age groups with 19.5 cases per 100,000 males and 18.5 cases per 100,000 males, respectively. There was also a high rate of 16 cases per 100,000 males among the 25 to 29 year old age group.
Figure 4.3: Newly Diagnosed HIV Crude Rate (per 100,000) by Alberta Health Zone, 2012

In 2012, the Edmonton Zone had the highest rate of HIV with 8.5 cases per 100,000 persons, followed by the North Zone with 6.4 cases per 100,000 persons and the Calgary zone with 5.9 cases per 100,000 persons. The lowest rate of HIV was in the Central Zone with 2.4 cases per 100,000 persons.

In previous years, the Edmonton and Calgary zones have had the highest rates of HIV in the province. The 2012 HIV rate for most zones were similar to those in 2011, except for the North Zone, which increased from 3.7/100,000 persons in 2011 to 6.4/100,000 persons in 2012. This is likely due to changing immigration patterns in Alberta. The rate for the South Zone decreased slightly in 2012 to 2.7/100,000 persons from 3.8/100,000 persons in 2011.

In 2012, the Central, South, and Calgary Zones had HIV rates lower than the provincial rate of 6.1 cases per 100,000 persons.

<table>
<thead>
<tr>
<th>Health Zone</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cases</td>
<td>Rates</td>
<td>Cases</td>
</tr>
<tr>
<td>North</td>
<td>17</td>
<td>3.8</td>
<td>17</td>
</tr>
<tr>
<td>Edmonton</td>
<td>85</td>
<td>7.3</td>
<td>98</td>
</tr>
<tr>
<td>Central</td>
<td>12</td>
<td>2.7</td>
<td>13</td>
</tr>
<tr>
<td>Calgary</td>
<td>83</td>
<td>6.0</td>
<td>86</td>
</tr>
<tr>
<td>South</td>
<td>7</td>
<td>2.5</td>
<td>11</td>
</tr>
<tr>
<td>Alberta</td>
<td>204</td>
<td>5.5</td>
<td>225</td>
</tr>
</tbody>
</table>
Figure 4.4: Number of Newly Diagnosed HIV Cases in Alberta by Ethnicity (Self-defined), 2005 to 2012

Note: This excludes ‘unknown’

Figure 4.4 shows the proportion of newly diagnosed HIV cases with known ethnicity has changed over the past eight years. From 2005 to 2012, the Caucasian ethnic group has consistently represented the largest proportion of newly diagnosed HIV cases. The proportion ranged from a high of 57 per cent in 2007 (128/223 cases), to a low of 39 per cent in 2012 (91/233 cases).

In 2005 and 2006, the second largest ethnic group of newly diagnosed HIV cases with known ethnicity was Aboriginal. Since 2007, the proportion of Aboriginals has decreased to become the third largest. In 2012, 17 per cent of newly identified HIV cases (39/233 cases) self-identified as Aboriginal.

From 2007 to 2012, the ethnic group with the second largest proportion of newly diagnosed HIV cases was Black. In 2012, 35 per cent of newly diagnosed HIV cases in Alberta self-identified as Black. In 2012, there were eight cases of HIV with unknown ethnicity.
HIV Risk Exposure

Since 2010, a new category for exposure called Citizenship and Immigration Canada/Out of Country (CIC/OOC) was added to the HIV data collection form. This represents cases that are identified upon entry to Canada and who acquired disease outside of Canada. Appendix 1 has the hierarchy of risk exposures applied to HIV cases. Figure 4.5a shows the proportion of CIC/OOC cases among females increased from four per cent in 2010 to 20 per cent in 2011 and to 32 per cent in 2012. Figure 4.5b shows that the CIC/OOC proportions for male cases were 4.1 per cent in 2012, seven per cent in 2011 and 16 per cent in 2012.

**Figure 4.5a: Proportion of Newly Diagnosed HIV Cases in Alberta by Risk Exposure Category among Females, 2005 to 2012**

Immigration plays a large role among female HIV cases in Alberta. From 2006 to 2010, the most common risk exposure category for female cases was heterosexual endemic (i.e., individuals coming from an HIV endemic country and who are exposed to HIV via heterosexual contacts). For 2011 and 2012, the heterosexual endemic and CIC/OOC exposure groups represented 41.4 per cent and 59.4 per cent of all female cases, respectively. The proportion of female cases reporting injection drug use (IDU) behaviour decreased from 25 per cent in 2005 to six per cent in 2012.
As in previous years, the most common risk exposure category for male cases was MSM. In 2012, 42 per cent of male cases reported in MSM. IDU as a risk factor among males has decreased over the years from a high of 19 per cent in 2005 to a low of eight per cent in 2012.
In 2012, 45 males with newly identified HIV reported having sex with a person with confirmed or suspected HIV/AIDS. This incidence has been increasing each year since 2008.
When examining Hepatitis B and C co-infection among newly diagnosed HIV cases, the highest proportion of co-infection occurs with the Hepatitis C virus. The proportion of HIV cases co-infected with Hepatitis C has varied over the past few years between 0.9-12.8 per cent. In 2012, 7.5 per cent of newly diagnosed HIV cases were co-infected with Hepatitis C.

The proportion of newly diagnosed HIV cases co-infected with Hepatitis B has varied between 2-4 per cent over the past few years. In 2011 and 2012, two per cent of newly diagnosed HIV cases were co-infected with Hepatitis B. Less than one per cent of cases were co-infected with both Hepatitis B and C between 2008 and 2012. There were no reported cases of individuals co-infected with both Hepatitis B and C in 2012.
The number of people with HIV infected with an STI after their HIV diagnosis has increased, suggesting that unsafe sexual practices are occurring in some HIV positive populations. In the mid-2000s, the majority of individuals received their chlamydia, gonorrhea, or infectious syphilis diagnosis before or at the same time as their HIV diagnosis. This trend has reversed since 2007 such that individuals with dual diagnoses in 2012 were almost twice as likely to have been diagnosed with chlamydia, gonorrhea or infectious syphilis after their HIV diagnosis.

In the past eight years, the majority of newly diagnosed HIV cases infected with chlamydia or gonorrhea were infected after their HIV diagnosis. The majority of newly diagnosed HIV cases with infectious syphilis were infected with syphilis before their HIV infection. A small number of HIV cases were infected with chlamydia, gonorrhea or infectious syphilis at the same time as their HIV diagnosis.
HIV among First Nations in Alberta

Figure 4.9: Number of Newly Diagnosed HIV Cases and Crude Rate (per 100,000) of First Nations vs. Non-First Nations in Alberta by Year of Diagnosis, 2005 to 2012

As in previous years, the rate of HIV has consistently been higher among First Nation populations (FN) than for Non-First Nation populations (Non-FN). In 2012, the FN rate was 19.1 per 100,000 FN persons which were 3.6 times higher than rates in Non-FN populations in 2012.
Figure 4.10: Crude Rate of Newly Diagnosed HIV Cases for First Nations (per 100,000) in Alberta by Sex and Year of Diagnosis, 2005 to 2012

The rate of HIV for FN females has decreased over the past eight years; this rate is higher than for non-First Nation females. The lowest rate of HIV for FN females was 15.9 cases per 100,000 FN females in 2012. In contrast, the male HIV rate among FNs has been on an upward trend; in 2012, the rate was 22.4 cases per 100,000 FN males.
Appendix A: HIV Hierarchy

1. **CIC/Out of Country (OOC):** Cases who test positive prior to or on admission to Canada.

2. **Perinatal:** Perinatal cases (baby must be born in Canada).

3. **MSM and MSM/IDU and IDU:** Cases with either MSM or IDU identified as risk factors. If MSM and IDU then the cases is MSM/IDU.

4. **Occupational Exposure:**Occupationally exposed to HIV contaminated blood or body fluids-In Canada.

5. **Heterosexual Endemic:** Case from an endemic country and heterosexual contact with a person from an endemic country.

6. **Heterosexual Partner at Risk:** Sexual partner of an IDU, sexual partner of a confirmed/suspected HIV or AIDS positive individual, sexual assault, patron of a sex worker, sex worker and sexual partner from an endemic country.

7. **NIR-Heterosexual:** Heterosexual contact, anonymous partner.

8. **NIR-Other:** Sharing drug paraphernalia (not needles), non-medical or occupational exposure,