Better Health for All Series 5
Human Immunodeficiency Virus (HIV)
About the Data

Definitions

AIDS

- The diagnosis of AIDS requires diagnosis of one of more AIDS-defining illnesses. For a complete list see http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5710a2.htm. See Limitations below.
- AIDS deaths are measured as of the preparation date of this report, July 2014.

Care Cascade

- The care cascade (sometimes referred to as the treatment cascade) reflects the different services required for HIV positive individuals to achieve an undetectable HIV viral load and optimal health outcomes. The cascade begins with counseling and testing, followed by linkage to care, engagement in care and treatment, followed by long term retention in care with adherence to the anti-retroviral treatment. The care cascade indicators used by Saskatoon Health Region do not presently include anti-retroviral treatment, however viral suppression is an expression of successful treatment.

Linkage to Care

Linkage to care is defined as accessed medical care through physician appointment or hospitalization within 91 days of a new positive HIV lab result.

Engagement in Care

Engagement is defined as two or more medical appointments or care events and two or more CD4 and viral load tests within six months of a new positive HIV lab result. Persons deceased before 6 months and persons never tested are excluded from the numerator and denominator.

Retention in Care

Retention in care is defined as having three or more medical appointments within 16 months of diagnosis, including one appointment one year after diagnosis, and two or more CD4 and viral load tests within 16 months of diagnosis. Persons deceased before 16 months and persons never tested are excluded from the numerator and denominator.

Mortality

- Population and Public Health receives notification of death for HIV and AIDS. Causes of death in HIV infected individuals are often complex, and contributing factors may be incompletely reported. The metrics presented here do not necessarily reflect HIV infection as a contributing factor.
- Age at mortality is reported by the age at which individuals were first reported HIV or AIDS positive, not age at death.

Pediatric HIV

- Babies born to HIV positive mothers are followed and tested for 18 months after birth to confirm their HIV status. Perinatal (mother to child) cases of HIV are reported in the year they are confirmed, not in the year of transmission or birth year.

Patient

- "Patient" denotes that the HIV positive person has been the patient of a medical care provider at least once.

Primary Risk Definitions

- Information about risk exposures are self-reported in Saskatchewan. HIV is reported by primary risk. The primary risk is determined by a hierarchy of risks; the most likely route of transmission is assigned as the primary risk. For example, where an individual reports both heterosexual sex and injection drug use, the most likely route of transmission is determined as injection drug use. This convention may mask the true frequency of heterosexual transmission.
- Multiple risks are reported for each individual. Risk frequencies represent the number of times the risk was reported over the time period indicated. The risk categories reported are those listed in PHIS (see Data Source).
- Endemic Country is used when sexual transmission in Canada is ruled out, or where perinatal and/or invasive procedures in a country where HIV is considered endemic are the most likely mode of transmission. For list of countries in which HIV is endemic see http://www.phac-aspc.gc.ca/aids-sida/publication/epi/2010/pdf/ch13-eng.pdf.

Testing

- In 2015, the Saskatchewan Disease Control Laboratory (SDCL) discontinued reporting prenatal testing. The estimates for prenatal tests in 2015 include extrapolated counts for the last three months of 2015, and monthly averages from the first eight months of 2015.

Data Sources

- PHAC – Public Health Agency of Canada: provincial and national rates are latest available metrics from Notifiable Diseases On-Line. http://dsol-smed.phac-aspc.gc.ca/dsol-smed/ndis/index-eng.php#top_list
- Population and Public Health (PPH), Saskatoon Health Region: enhanced HIV database (housing and clinical data), clinic database (high risk population test volumes).
- Integrated Public Health Information System (iPHIS): provincial database for communicable diseases.
- Saskatchewan Disease Control Laboratory (SDCL): overall test volumes.

Rate Calculations and Statistics

Crude rates are presented. Case counts are divided by covered population and multiplied by 100,000. Regional rates are based on case counts by encounter date (lab reported date) divided by covered population. Cases with confirmed case status only are counted. Residence at time of testing is used to assign the client to a Regional Health Authority which then reports and follows up the case. Rates and case counts are presented by calendar year.

Averages are presented where normal distribution of scores apply. Median is presented when distribution is not normal and/or counts are small enough to make averages distorted by outlier values.

Test Statistics

- Test volumes from Saskatchewan Disease Control Laboratory for prenatal screens, Population and Public Health and POC are deducted from total SDCL to estimate the relative contribution to overall testing by each sector. Where data from SDCL was missing, data was extrapolated based on available monthly data. For example, SDCL totals did not differentiate prenatal screens until 2012. Prenatal screens for 2011 were estimated based on the percentage of total that were prenatal screens in 2012; this percentage was applied to 2011 totals to estimate the number that were prenatal screens.
- High risk populations are clients seen by Population and Public Health. There may be other high risk clients seen by general practitioners; these are not included in the designation High Risk Populations.
- Point of care test (POC) are offered primarily to high risk populations and include tests by Population & Public Health, West Side Community Clinic (after Jan 2012) and the Sexual Health Center (after Jan 2012).

Co-infectivity Calculations

- HIV was reported non-nominally until 2009. After 2009 individuals with HIV can be linked to hepatitis C reports (data in iPHIS from 2005 to present), including cases confirmed, previously reported and cases transferred and counted in other Health Regions. This does not completely capture hepatitis C status reported elsewhere or earlier than 2005, so the hepatitis C co-infection percentage published here should be considered an underestimate.
- Tuberculosis co-infection includes only infection reported after or at the same time as HIV infection was reported. It does not include tuberculosis that was reported in another Health Region and therefore should be considered an underestimate.

Housing Indicators

- Not all clients reported since 2011 responded to housing questions. Less than five individuals of "Other" ethnicity were reported, so these numbers were added to the White (Caucasian) category. Those clients whose ethnicity was missing were removed from the analysis of housing type by ethnicity.
- The number of HIV clients without own apartment or house from 2011 to 2013 was19 or 23% of total respondents.

Clinical Indicators Calculations

CD4 Cell Counts

- Most recent CD4 cell count proportions are based on active clients only, and are measured as a point in time in July 2014. Of the 66 cases reported in 2011, 74.2% were active; of the 55 cases reported in 2012, 70.9% were active; of the 43 cases reported in 2013, 86% were active. Clients are inactive who are deceased, moved out of Region or lost to follow up, or refused contact. Of the 39 clients in total that were inactive, 49% were deceased and 41% moved out of Region.

- CD4 cell counts ranged from 2 to 1660 in the three year period. Median and average values were compared and were not significantly different; averages are reported here.

Viral Loads (vL)

- HIV vLs are the most recent available viral load at the time specified (end of calendar year for cumulative reporting, and July 2014 for point in time by year of diagnosis).
- Deceased persons and persons without a test are excluded from the denominator. The designation "patient" is used to differentiate between all HIV positive individuals (all newly reported cases since 2011) and those who have tests.
- "Patients" suggests they have received health care and are patients of one or more physicians.
- Viral load categories are suggested by the BC treatment cascade. See http://www.catie.ca/sites/default/files/1030%20-Day%202-Workshop%206Monitoring%20Evaluation.pdf, accessed July 2014.

Data Limitations

Factors influencing the testing, diagnosis and reported rates include physician screening practices and testing methods, patient access to testing, education and awareness of symptoms and risks, and competing priorities of daily life. The upward trend of STIs nationally and internationally since the 1990s in part reflects the expansion of screening efforts and increased use of more sensitive diagnostic tests as well as an actual increase in infections (Centers for Disease Control and Prevention: http://www.cdc.gov/std/stats05/trends2005.htm, accessed July 2014).

Case counts and rates do not include First Nations individuals living on reserves at the time of testing. These cases are reported to FNIH (First Nations & Inuit Health). Covered populations include Reserve populations, however these numbers are not removed from the population estimates, as many individuals registered on reserve live off-reserve at the time of testing. This may result in a very slight underestimate of true rate of infection.

In 2011 the Region changed annual counts to counts by encounter date for STIs from counts by diagnosis status date, used in previous years. This may result in slight changes in annual counts given in previous reports. Occasionally cases reported in a given year are found to belong to another RHA or vice-versa; this can also result in a change of annual counts of cases.

In 2011 significant changes were made to the risk categories in iPHIS, including inactivations of formerly used risk categories, making this data unavailable in data extracts. This may result in miscounts of risk frequencies for some STIs before 2011.

AIDS reporting is improving in recent years but in considered incomplete. While AIDS is a reportable condition some jurisdictions in Canada do not collect and submit data on AIDS to the Public Health Agency of Canada (see reference #4 below). Canadian rates are considered under-reported and are not included in this report.

Linkage & Retention in Care are not adjusted for clients who move out of the Region as the dates of moving out of the Saskatoon Health Region jurisdiction are often unknown.

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