

Notifiable Sexually Transmitted Infections

2010 Annual Report

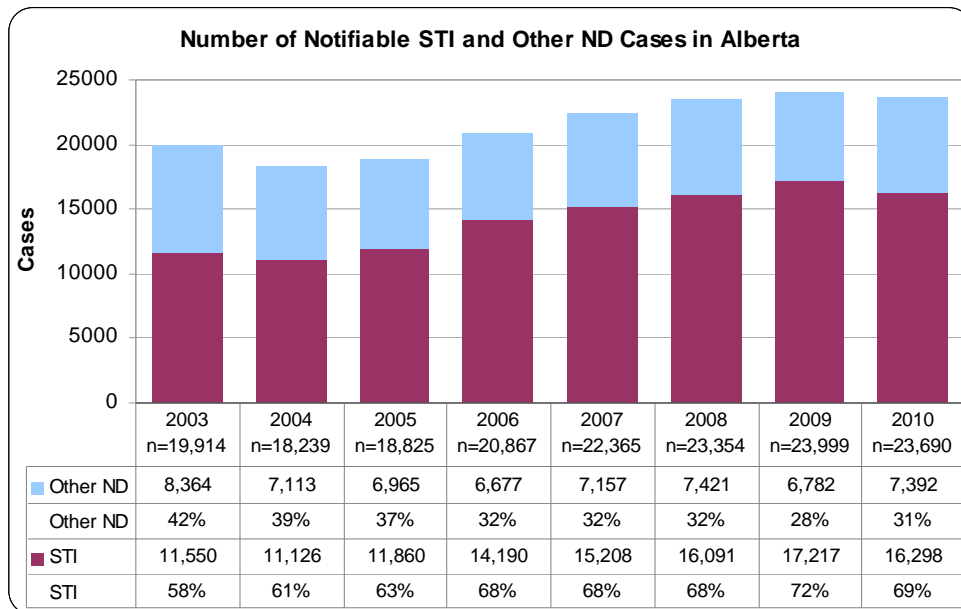
**Government
of Alberta ■**

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Overview

There are over 100 communicable diseases in Alberta which are notifiable to public health officials. While only seven of the notifiable diseases are sexually transmitted infections (STI), they are by far the most commonly reported notifiable diseases in Alberta. In 2010, STI made up 69 per cent of all notifiable disease cases reported (Figure 1).

Figure 1



The seven reportable STI are: chlamydia, chancroid, gonorrhea, non-gonococcal urethritis (NGU), lymphogranuloma venereum (LGV), mucopurulent cervicitis (MPC) and syphilis.

In 2010, there were no cases reported of chancroid or LGV. Chlamydia and gonorrhea were the two most commonly reported STI.

Although the greatest number of STI cases occurred in Calgary and Edmonton zones in 2010, the highest STI rate was in the North zone with 553 cases per 100,000 persons and the lowest rates of diseases in the South with 294 cases per 100,000 persons (Table 1).

Table 1: STI Cases by Alberta Health Zone, 2010

STI	South	Calgary	Central	Edmonton	North	ALBERTA
Chlamydia	731	4,214	1,652	4,588	1,947	13,132
Gonorrhea	30	282	107	488	281	1,188
Infectious Syphilis	19	78	13	43	15	168
NGU	47	626	111	404	136	1,324
MPC	14	125	28	69	46	282
Total Cases	841	5,325	1,911	5,592	2,425	16,094
Rate/100,000	294.4	386.2	427.2	479.9	552.9	433.1

Chlamydia

Chlamydia is the most commonly reported notifiable disease in Alberta. In 2010, over 13,000 cases were reported to the province with the largest proportion being young Caucasian females.

Gonorrhea

For the second year in a row, there was a decline in gonorrhea cases in 2010. The largest drop in cases has been among females. Overall, the rates for females and males were similar (30 and 34 cases per 100,000, respectively).

Syphilis

In March 2007, a syphilis outbreak was declared in Alberta by the acting Chief Medical Officer of Health. The infectious syphilis rate was lower in 2010 than in the previous three years.

Cases of congenital syphilis continue to be identified in the province despite changes to the provincial prenatal screening program. Two cases were identified in 2010 bringing the total number of congenital syphilis cases to 28 since 2000.

Non-Gonococcal Urethritis (NGU) and Mucopurulent Cervicitis (MPC)

Rates for NGU have been steady for the last seven years, fluctuating between 34 and 40 cases per 100,000 males. In 2010, MPC cases and rates decreased (282 cases in 2010 vs 354 cases in 2009).

Alberta has released the “Alberta Sexually Transmitted Infections and Blood Borne Pathogens Strategy and Action Plan, 2011-2016” in 2011, as well as undertaken a comprehensive multi-media syphilis campaign. The “Notifiable Sexually Transmitted Infections – 2010 Annual Report” predates both the strategy and campaign.

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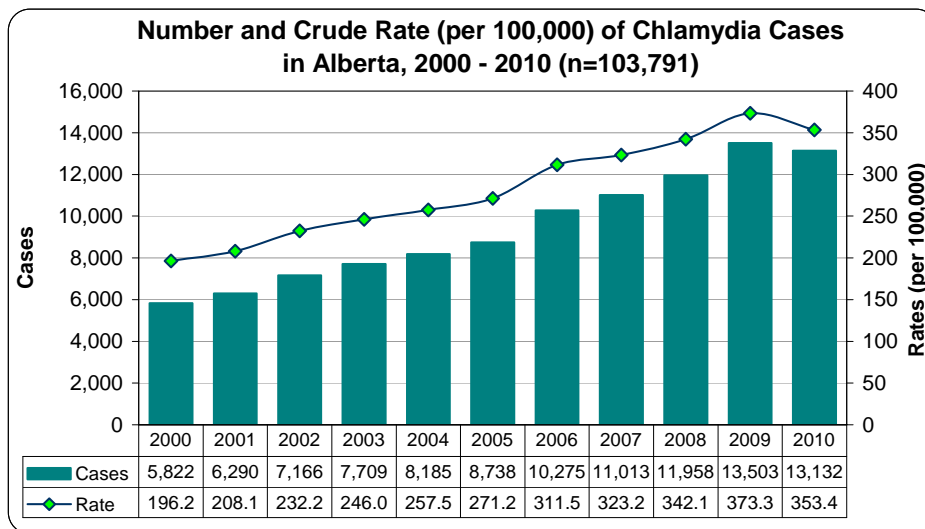
Data Note

Data for this report was pulled July 13, 2011. Information received after this date is not reflected in this report.

Chlamydia

Chlamydia is the most commonly reported notifiable disease in Alberta. This is a bacterial infection, transmitted through sexual contact or from mother to child during delivery. Chlamydia is easily treatable with antibiotics, but because it is often asymptomatic it may be left untreated allowing complications to become severe. The risk of pelvic inflammatory disease, ectopic pregnancy, infertility, pelvic pain and reactive arthritis are the associated complications for females. For males, risk of infertility, reactive arthritis and infection of the epididymis and testes may occur if chlamydia is untreated.

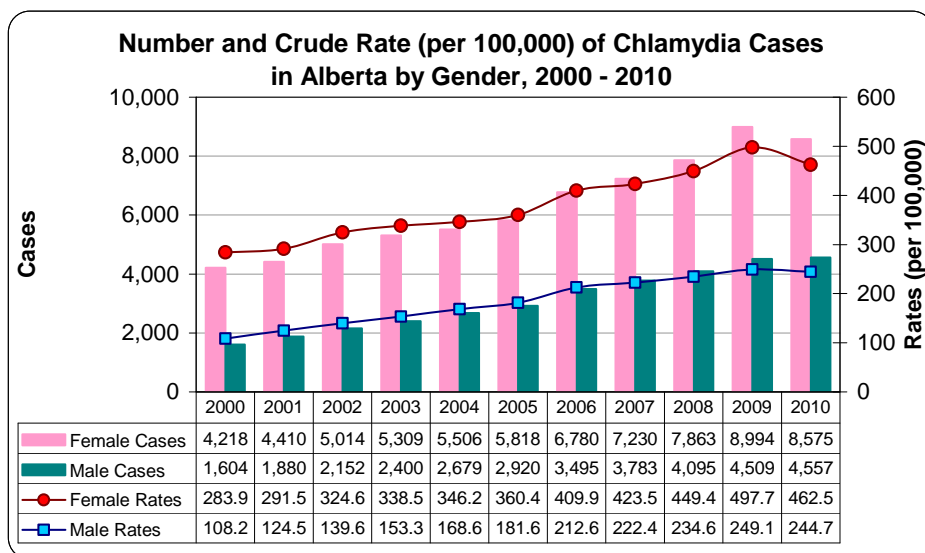
Figure 1.1



Cases and rates of chlamydia have steadily increased in Alberta between 2000 and 2009 (from 196 cases per 100,000 to 373 cases per 100,000 persons respectively) and then slowly decreased in 2010 with the rate of 353 cases per 100,000 persons.

Within 10 years, chlamydia cases increased from 5,822 cases in 2000 to 13,132 cases in 2010, or more than double the cases.

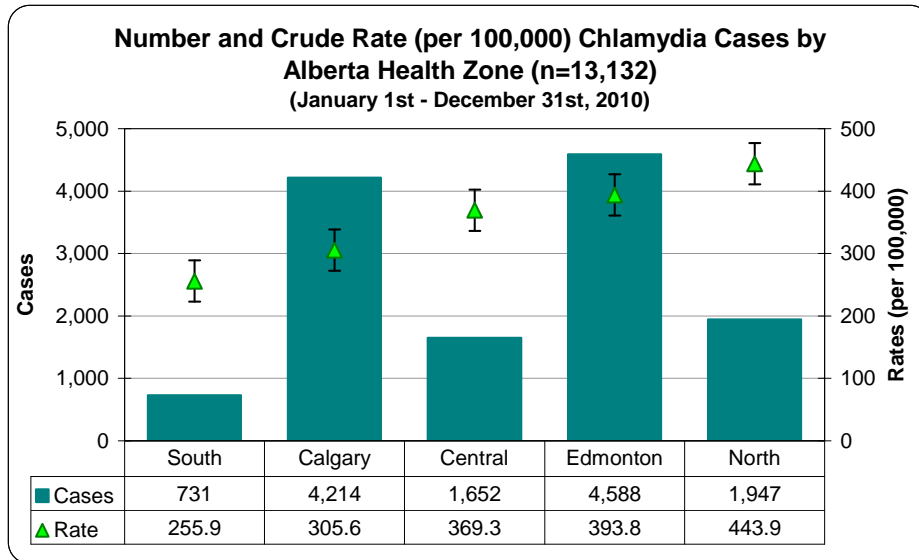
Figure 1.2



Females have historically had higher reported rates of chlamydia than males. In 2010, female rates were almost twice as high as male rates, but had decreased since 2009.

The 2010 number and rate of male cases is similar to what was seen in 2009.

Figure 1.3

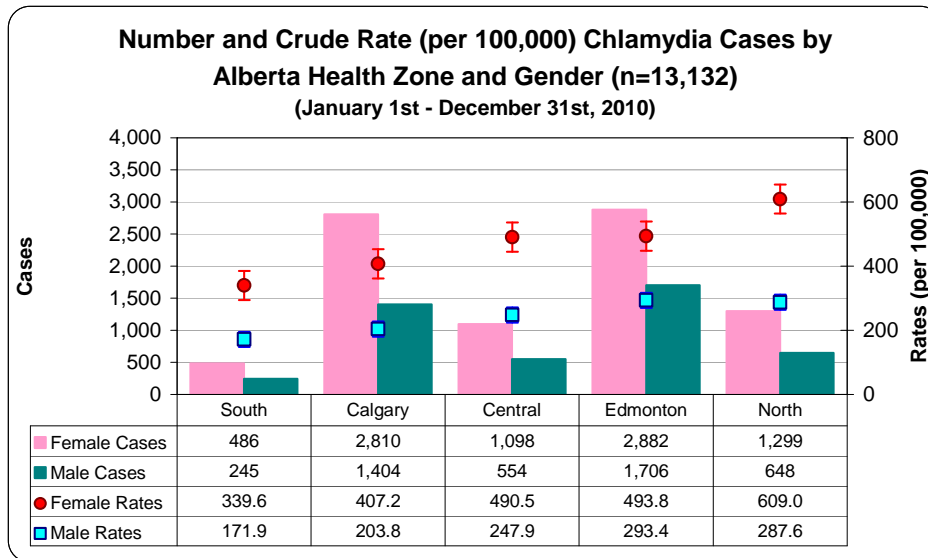


Chlamydia rates differ within the province by health zone, and appear to increase from north to south.

In 2010, the highest rate of chlamydia was in North zone and the lowest rate of disease was in South zone (444 cases vs. 256 cases per 100,000 persons, respectively).

Edmonton had the second highest rate, with Calgary having the second lowest rate (394 cases and 306 cases per 100,000, respectively).

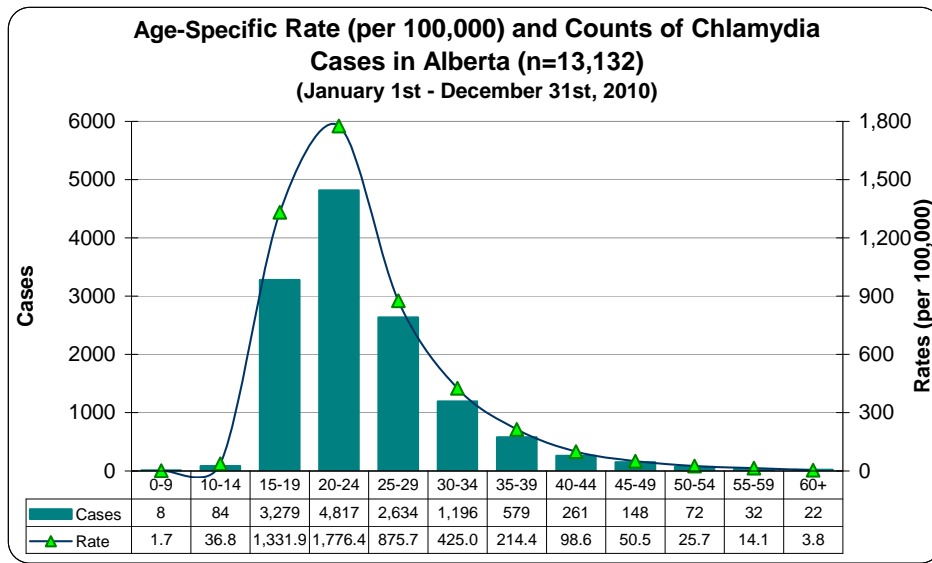
Figure 1.4



As mentioned, females make up the majority of chlamydia cases, as seen consistently across health zones in 2010. Female rates were 170 per cent to 210 per cent higher than male rates.

As can be seen on the graph to the left, there were approximately twice as many female chlamydia cases than male cases in the Central, North and Calgary zones.

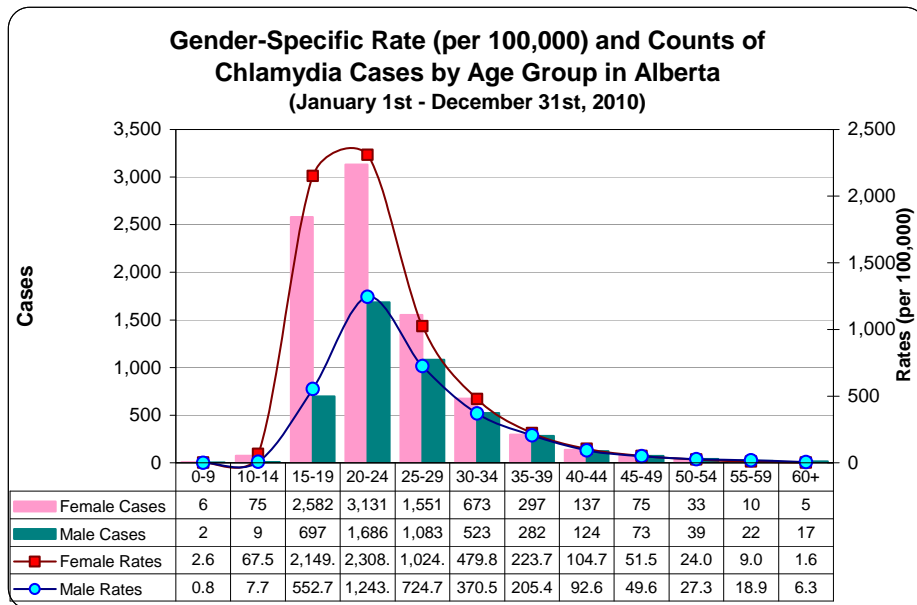
Figure 1.5



In Alberta, 82 per cent of all chlamydia cases were in people between the ages of 15 and 29 years old in 2010.

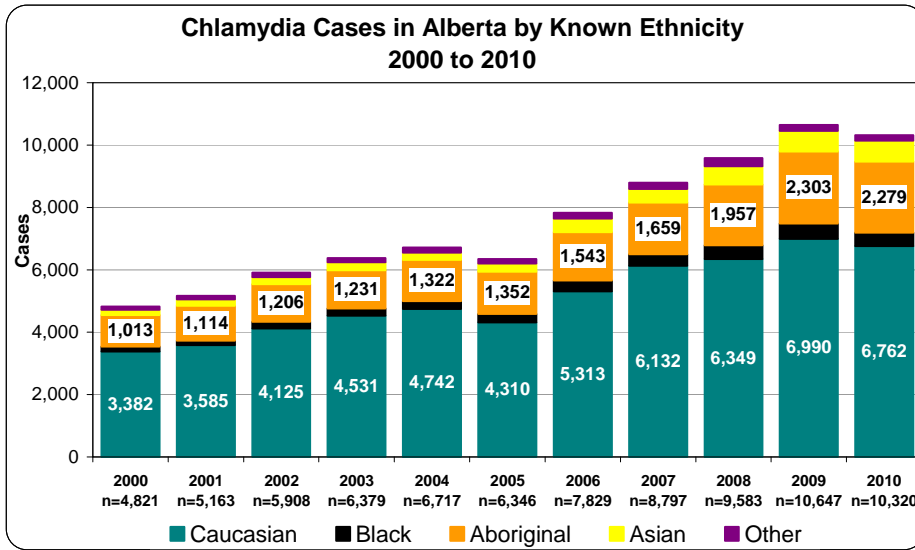
The highest rates of chlamydia occurred among older teens/young adults. The rates for the 20 to 24 year age group were 1,776 cases per 100,000 persons in 2010.

Figure 1.6



In 2010, 65 per cent of all chlamydia cases were female, with 85 per cent of those females between the ages of 15 and 29 years. The rate of chlamydia for 15 to 19 year olds was almost four times higher in females than males (2,150 cases per 100,000 females vs. 553 cases per 100,000 males).

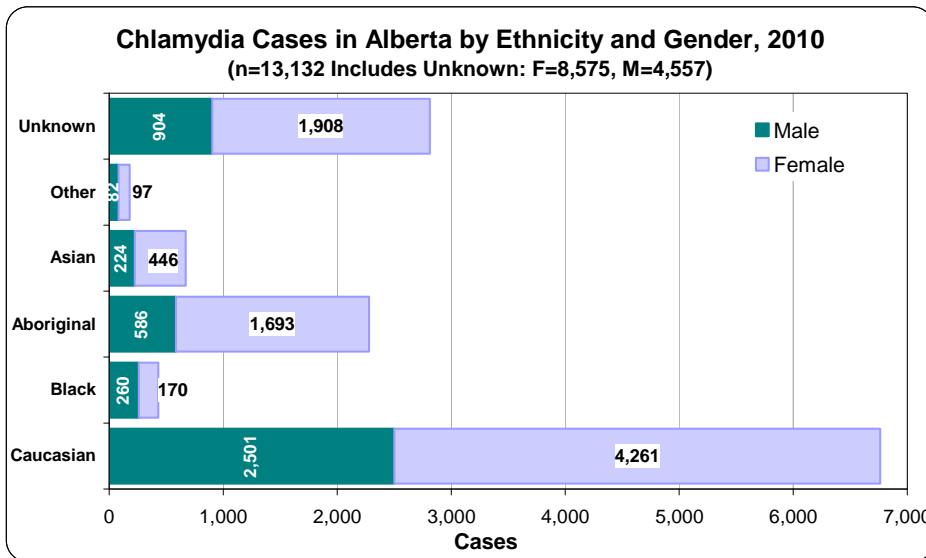
Figure 1.7



Over the past 10 years, the proportion of chlamydia cases by known ethnicity has remained consistent.

Between 65 and 71 per cent of chlamydia cases were Caucasian, with the next largest identified ethnic group being Aboriginal.

Figure 1.8



In 2010, the majority of chlamydia cases were Caucasian (51.5 per cent or 6,762/13,132 cases). The next largest group was Aboriginal (17 per cent or 2,279 cases).

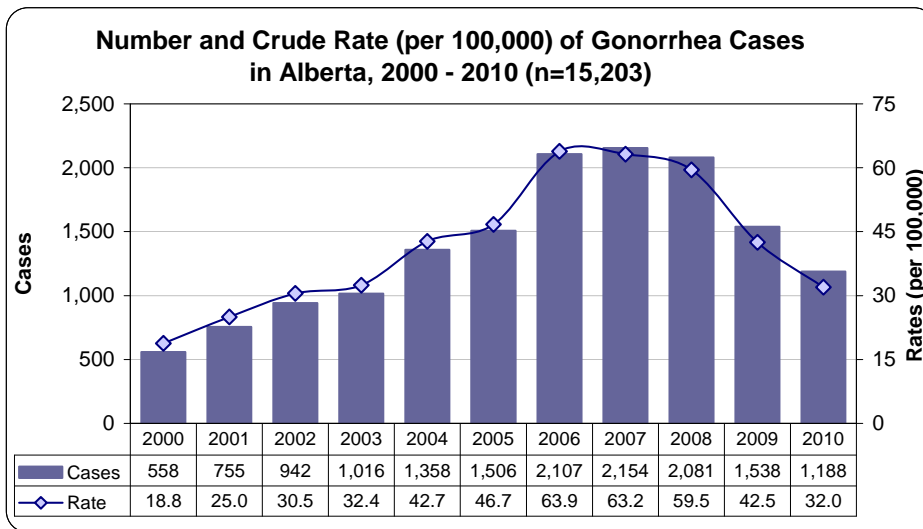
There were more female cases than male in all ethnic groups except for Black (170 female cases vs 260 male cases).

The majority of chlamydia cases with known sexual preference were heterosexual.

Gonorrhea

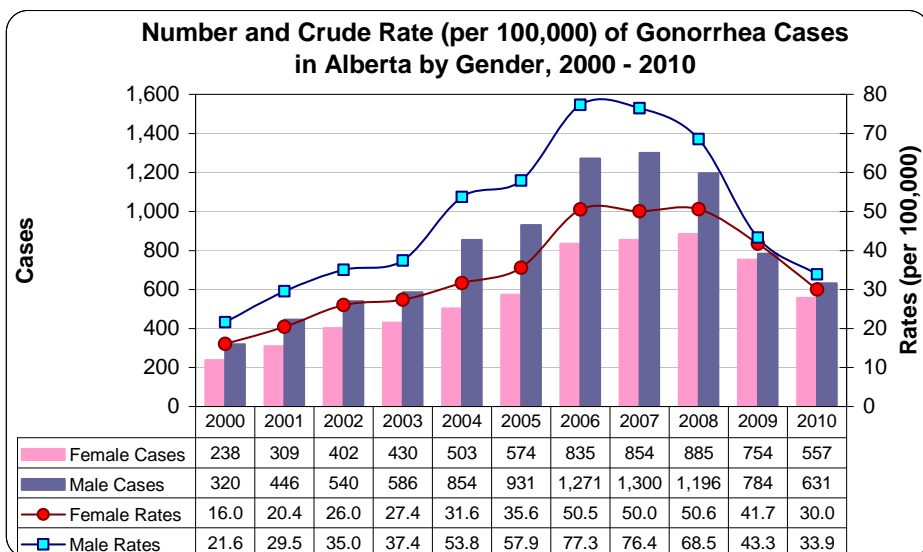
Gonorrhea is the second most commonly reported sexually transmitted infection in Alberta, and is caused by the bacterium *Neisseria gonorrhoeae*. Many gonorrheal infections are asymptomatic, particularly in women. Common symptom in males is painful urination and urethral discharge; in women they are cervicitis and sometimes urethritis. Untreated gonorrhea can spread through the body affecting joints and even heart valves. Evidence of resistance to antibiotics traditionally used to treat gonorrheal infections has been increasing, thus prevention is key.

Figure 2.1



Cases and rates of gonorrhea increased until 2006. After remaining steady for a few years, both cases and rates then dropped significantly since 2009. In 2010, the rate of gonorrhea was 32 cases per 100,000 persons, or half the rate from 2007.

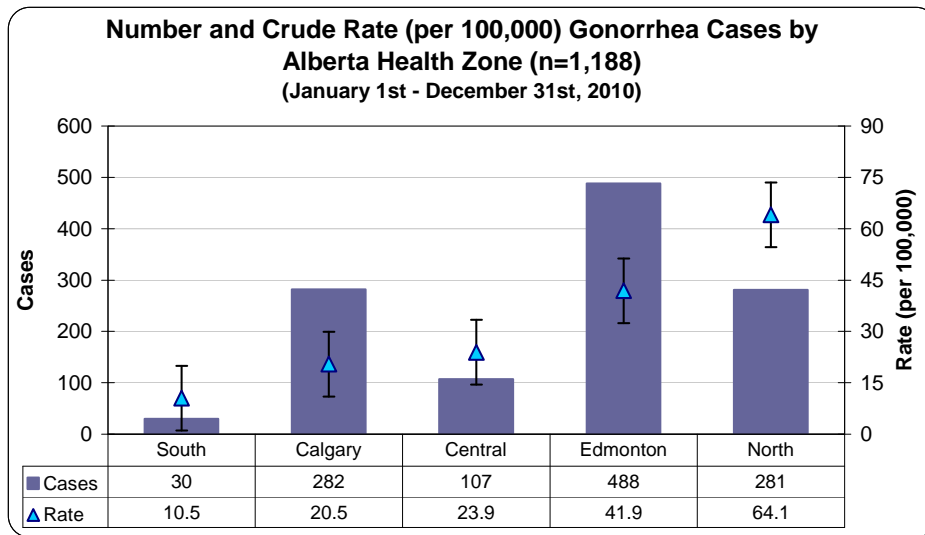
Figure 2.2



Since 2000, males have had predominately higher rates of gonorrhea than female. In 2009, as can be seen in the graph to the left, there was a marked decrease in cases and rates of gonorrhea among males. The rates of disease for males and females have almost converged, something that has not occurred within the last ten years.

In 2010, both male and female rates have continued to decline (10 cases less per 100,000 compared to 2009)

Figure 2.3

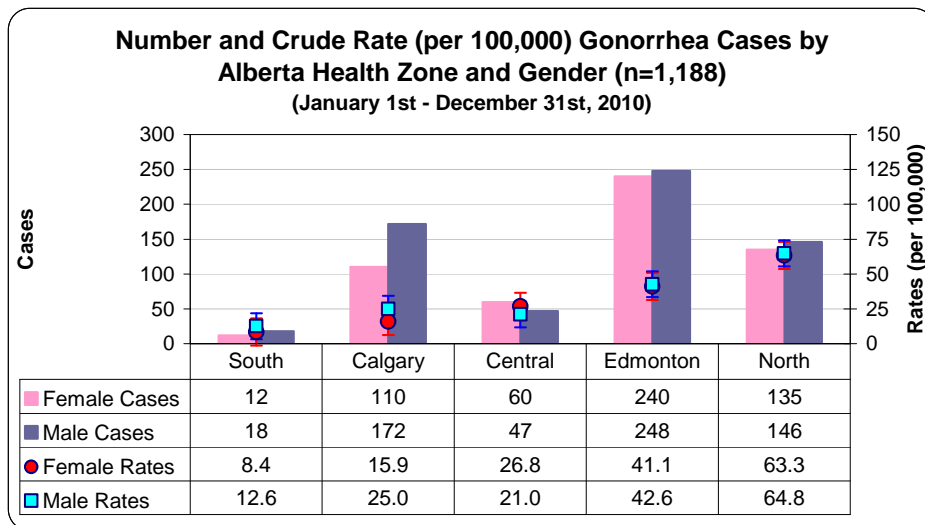


In 2010, the gonorrhoea rate in the North zone was six times more than the rate in the South zone (64.1 cases per 100,000 vs. 10.5 cases, respectively).

The rate of disease in the Edmonton zone was twice as high as the Calgary zone rate (41.9 cases per 100,000 vs. 20.5 cases, respectively).

Central, Calgary, and South zones had lower rates of gonorrhoea than the provincial rate of 32.8 cases per 100,000 persons.

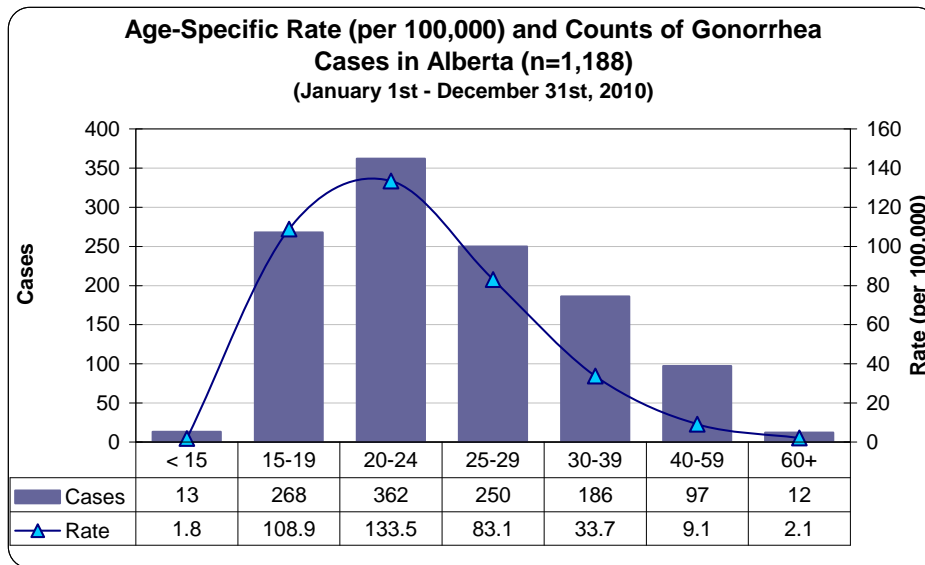
Figure 2.4



Within health zones in 2010, the rate of gonorrhoea for males was generally higher than for females, except in Central.

The largest difference in cases between the two genders was in Calgary (males had 62 cases more than females).

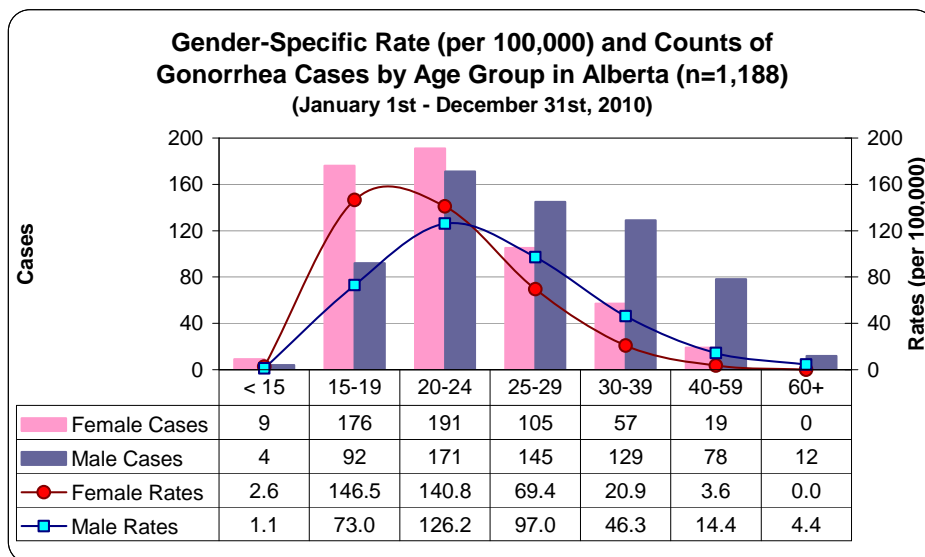
Figure 2.5



In Alberta, 74 per cent of all 2010 gonorrhoea cases were in people between the ages of 15 and 29 years old.

The highest rates of gonorrhoea occurred among older teens/young adults; the highest rate for the 20 years to 24 years age group was 134 cases per 100,000 persons. The second highest rate of disease was 109 cases per 100,000 persons in those aged 15 to 19 years.

Figure 2.6

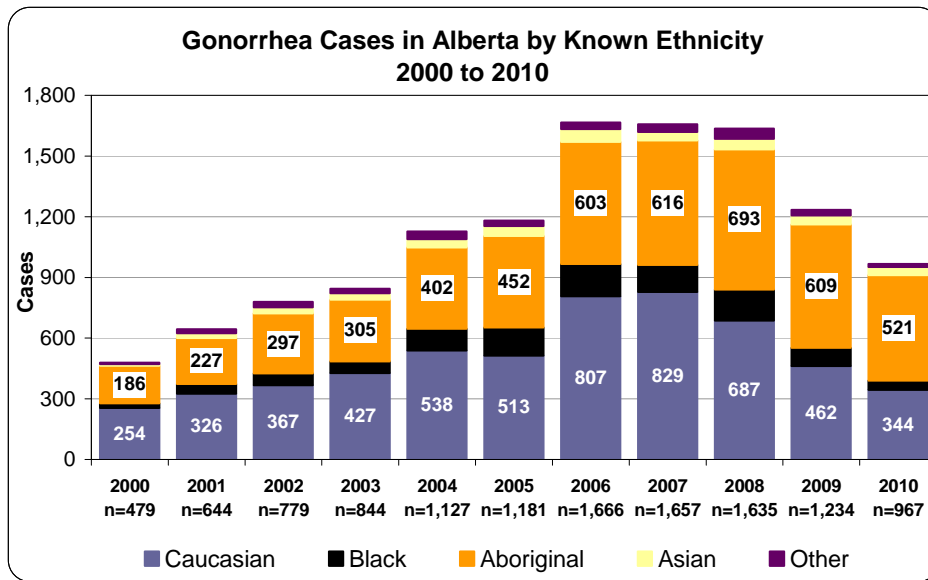


The breakdown of gonorrhoea cases by sex and age groups show that females had higher rates of disease than males for those under 25 years of age.

The highest reported rates were for 15 to 19 year old females (147 cases per 100,000 females). Male rates peaked in the 20 to 24 year age group (126 cases per 100,000 males).

Males had significantly higher rates than females in those 30 years and over.

Figure 2.7

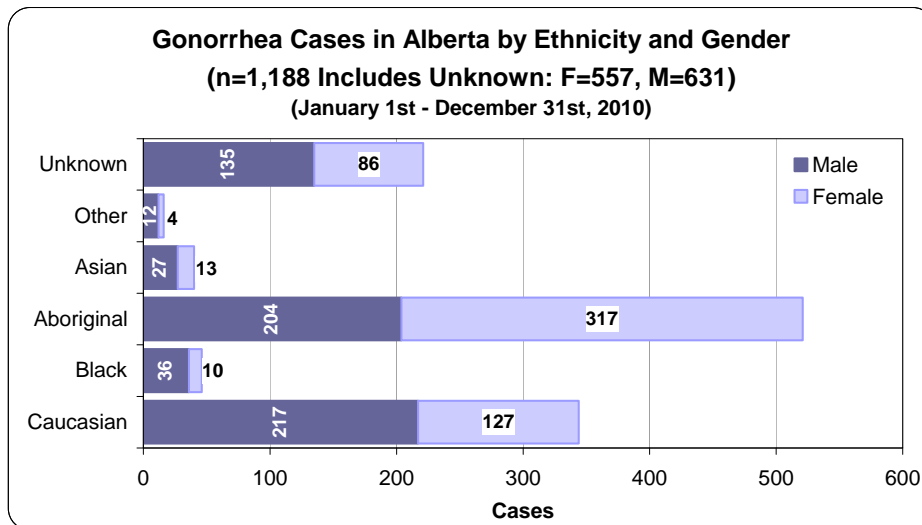


The ethnicity of gonorrhea cases has also changed over the years.

Aboriginal have been overrepresented through the years as cases, and have the largest proportion as an ethnic group in 2008, 2009, and 2010.

The proportion of Caucasian gonorrhea cases has been trending down since 2007 (829 cases in 2007, 344 cases in 2010).

Figure 2.8



There were a higher number of male gonorrhea cases than female for all ethnic group except Aboriginal.

Sixty seven per cent of the total number of gonorrhea cases among females with known ethnicity were Aboriginal (317/471 cases).

Syphilis

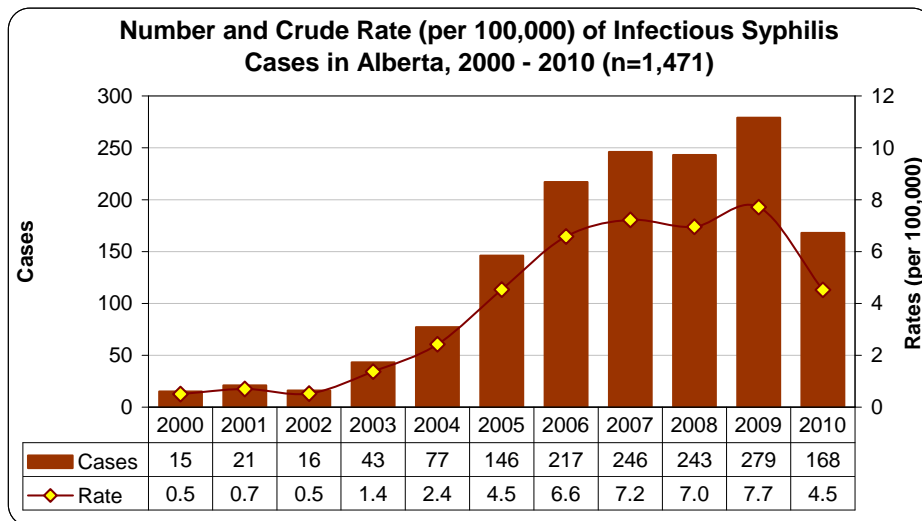
One of the oldest sexually transmitted diseases recorded is syphilis. Syphilis is caused by the bacterium *Treponema pallidum*. Undiagnosed or untreated syphilis progresses through several stages: primary, secondary, latent and tertiary. Untreated syphilis can lead to destruction of soft tissues, bone, blindness, and heart failure. More importantly, a mother with untreated syphilis may transmit the disease to her unborn child, which can lead to death or lifelong deformity of the child. This section discusses infectious syphilis which covers the primary and secondary stages, as well as early latent. The breakdown of infectious syphilis cases by stage of infection for 2010 is below:

Table 3.1 Infectious Syphilis by Stage, Alberta 2010

Stage	# Cases
Early Latent	83
Primary	40
Secondary	32
Symptomatic CNS (Central Nervous System)	4
Symptomatic CNS Ocular	7
Asymptomatic CNS	1
Unknown	1
Total	168

Syphilis regained notoriety in Alberta as cases increased, with a province-wide outbreak declared in March 2007. The last outbreak occurred in the mid-1980's, with a peak of 574 cases (24.5 cases/100,000) in 1984. Between outbreaks, reports of syphilis cases were rare.

Figure 3.1

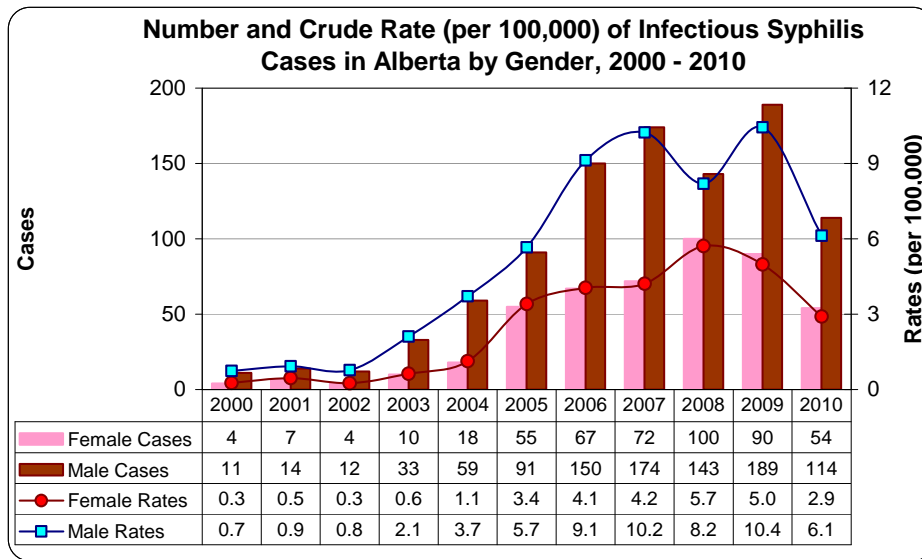


However, starting in 2003 there was an exponential increase in the number of syphilis infectious reported.

Alberta declared an outbreak of syphilis in 2007, at which time the number of cases and rates of diagnosed infectious syphilis levelled off.

In 2009, there were 279 cases reported in the province. In 2010, the number of cases of syphilis reported in Alberta sharply dropped to 168 cases.

Figure 3.2

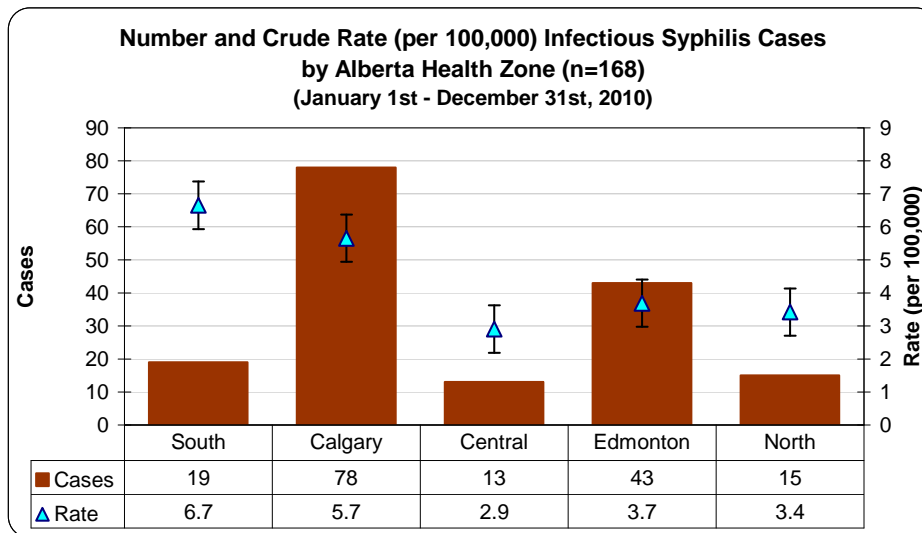


Compared to other STI in Alberta, infectious syphilis was reported more often among men, ranging from the lowest of 59 per cent (2008) to the highest of 77 per cent (2004) of total annual cases.

The chart to the left shows the difference between the genders over the years.

In 2010, the male rate was twice as high as the female rate.

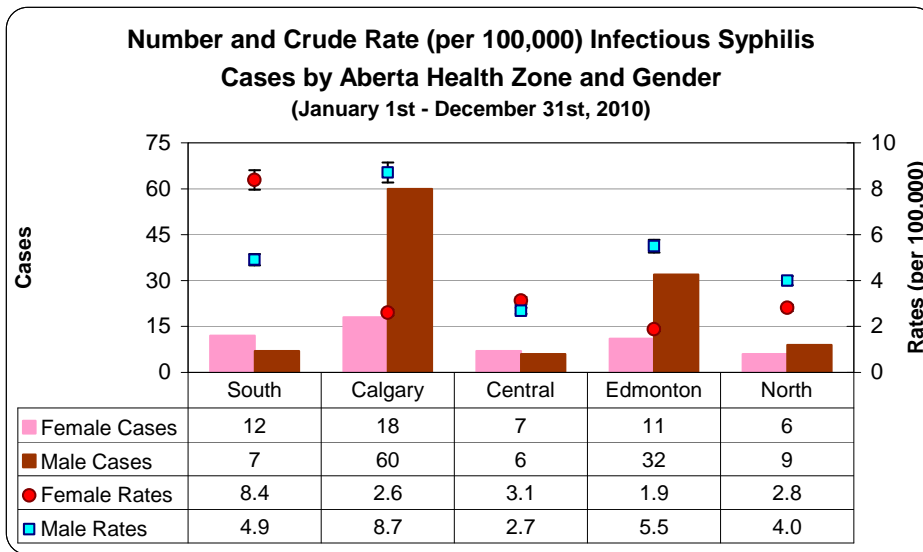
Figure 3.3



Infectious syphilis rates also differ within the province by health zone. In 2010, the highest rate of disease was in the South zone (6.7 cases per 100,000 persons); the lowest rate was in Central with 2.9 cases per 100,000.

The rate for infectious syphilis in the Calgary zone was 1.5 times higher than the rate in the Edmonton zone (5.7 cases per 100,000 persons vs. 3.7 cases per 100,000 persons, respectively).

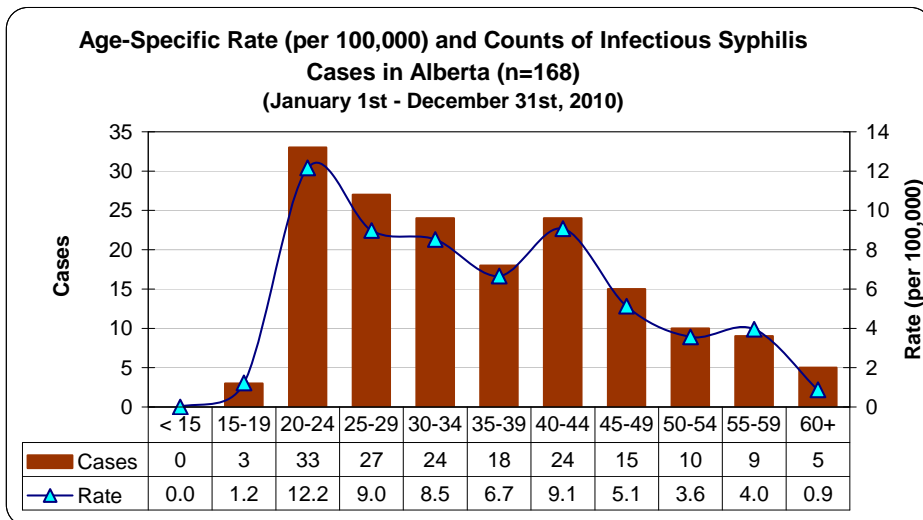
Figure 3.4



Not only do case counts and rates of infectious syphilis differ by health zone, cases and rates by gender also vary greatly depending on the health zone.

In 2010, the majority of male cases occurred in the Calgary zone with the highest rate of 8.7 cases per 100,000 males. The highest rate of disease for females was in the South zone (8.4 cases per 100,000 females).

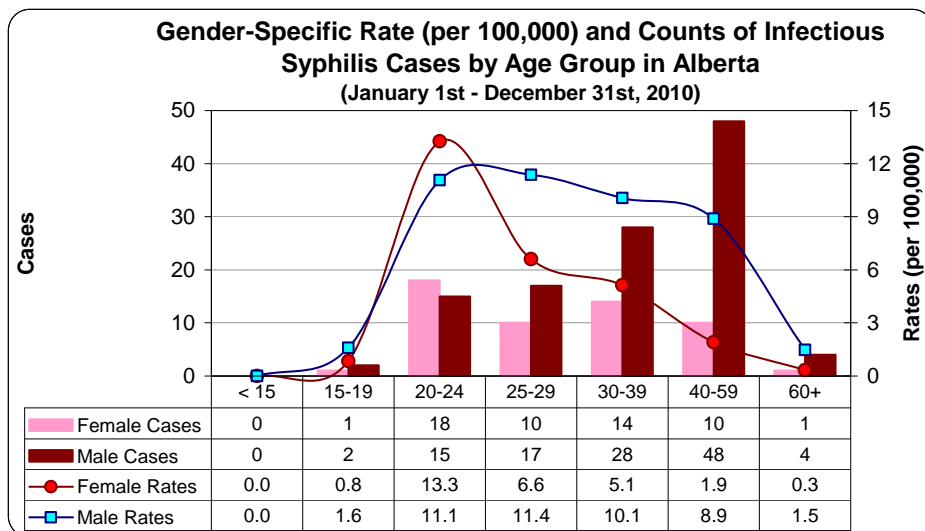
Figure 3.5



While cases of chlamydia and gonorrhea are skewed toward young adults, newly reported infectious syphilis cases are more evenly distributed over year groups until 50 years of age where the number of cases decrease.

The highest rate of disease was 12.2 cases per 100,000 persons in the 20 to 24 years age group, with the next highest rate in the 40 to 44 year old group (9.1 cases per 100,000).

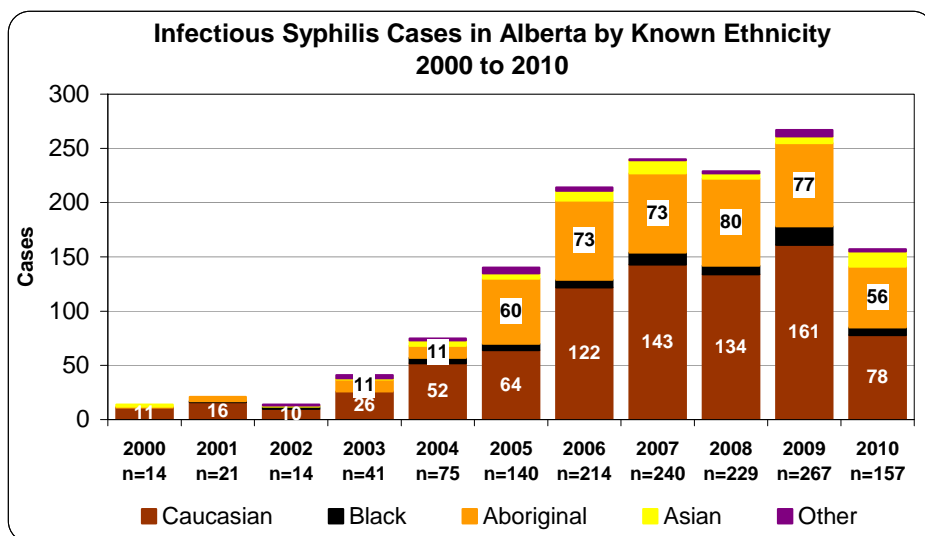
Figure 3.6



The highest rate for females was in 20 to 24 years age group at 13 cases per 100,000 females, which is higher than males for this group. Males have the highest rate in the 25 to 29 years age group (11 cases per 100,000 males).

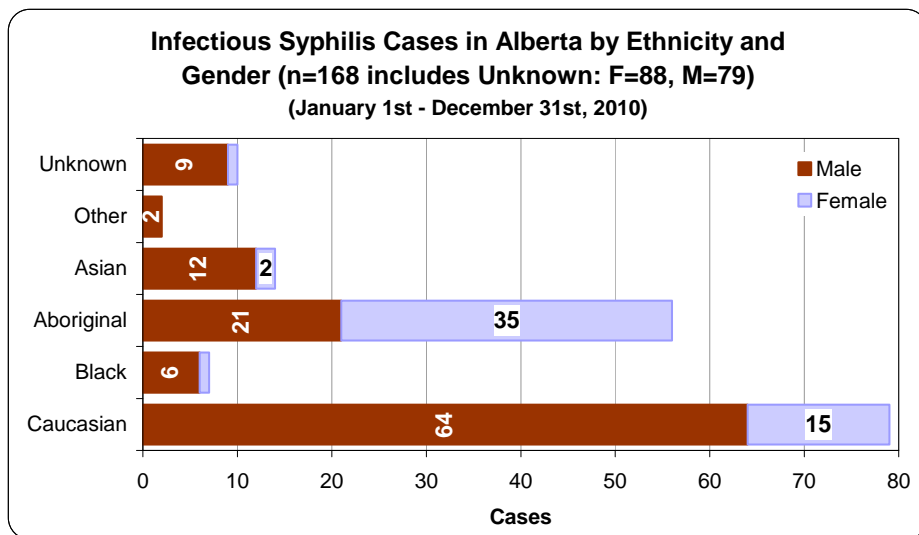
In 2010, the males rate of infectious syphilis for age group between 40 to 59 years was 4.7 times higher than rate for females (8.9 cases vs. 1.9 cases per 100,000).

Figure 3.7



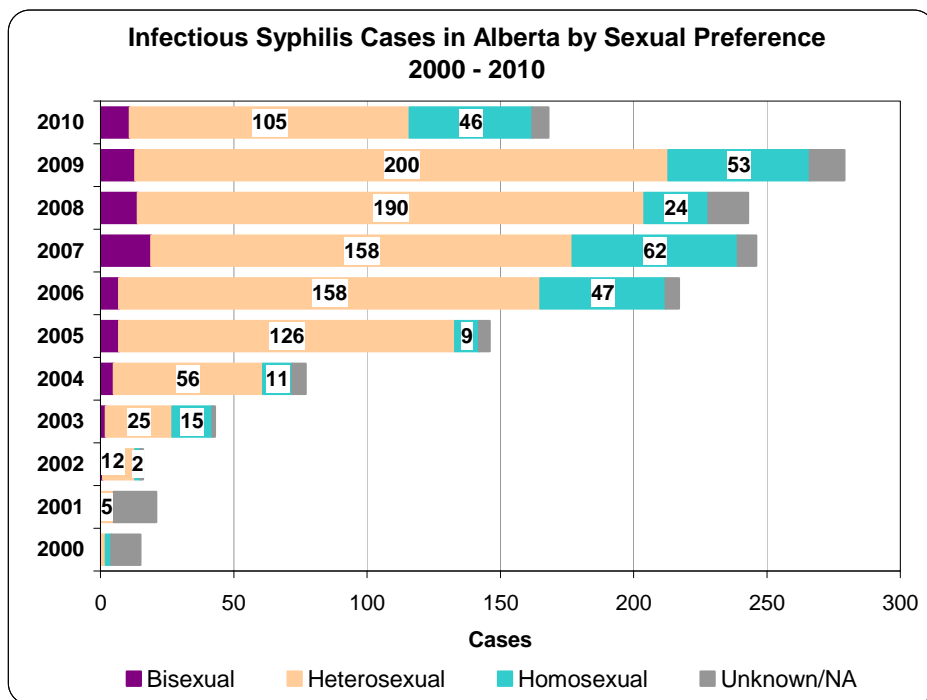
For the past eleven years (2000-2010), the majority of infectious syphilis cases with known ethnicity have been Caucasian (55.4 per cent), followed by Aboriginal (30.6 per cent).

Figure 3.8



In 2010, the majority of infectious syphilis in each ethnic group were males (more than 81 per cent), except for Aboriginals, where there were more female cases than male cases (35 female cases vs. 21 male cases).

Figure 3.9



The number of syphilis cases identified by sexual preference as homosexual vary from year to year. The proportion of homosexual identified cases range from no cases in 2001 to 27 per cent (46/168 cases) in 2010. In 2007, when the outbreak of infectious syphilis was declared, the proportion of homosexual and bisexual cases accounted for one-third of all cases (62/246 cases and 19/246 cases, respectfully).

In 2010, 27 per cent of infectious syphilis cases were homosexual (or 46/168 cases), the largest proportion for the three main sexually transmitted infections. Among Caucasians in 2010, homosexual cases accounted for 41 per cent of cases (32/79 cases).

Congenital Syphilis

Congenital syphilis is the vertical transmission of syphilis from an infected mother to her infant. Congenital syphilis has also increased in Alberta, with the first case in years reported in 2002.

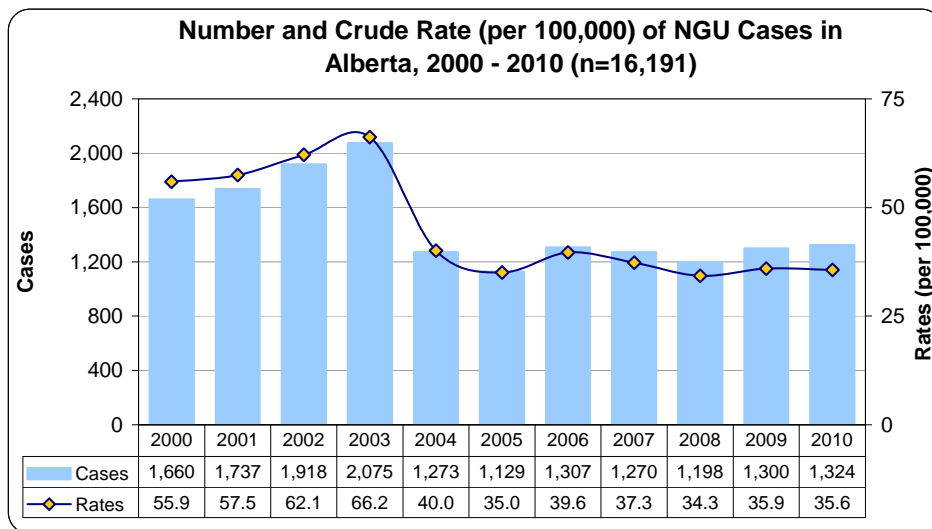
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<i>Congenital Syphilis</i>	0	0	1	0	0	5	4	6	3	7	2

Since August 2002, Alberta has had a centralized provincial prenatal screening program in place to screen women early in their pregnancy for five infectious diseases – infectious syphilis, HIV, hepatitis B, rubella and varicella. In response to the increase in congenital syphilis cases, Alberta also instituted an universal prenatal syphilis re-screening program in May 2009 to capture women infected with syphilis during pregnancy (mid-pregnancy and delivery). In 2009, three women were identified with infectious syphilis upon re-screening (all three at delivery).

Non-Gonococcal Urethritis (NGU)

Non-gonococcal urethritis is the inflammation of the urethra in males not caused by *Neisseria gonorrhoea*. The Alberta case definition also excludes *Chlamydia trachomatis* as a cause. NGU may be caused by organisms such as *Ureaplasma*, *Mycoplasma* or *Trichomonas vaginalis*, although a specific pathogen is often not identified. NGU infections may have symptoms such as discharge, itching or burning sensation, or they can be very mild or asymptomatic. The treatment is antibiotics. If NGU is not treated, it may cause epididymitis or infertility. NGU is not reportable at the national level.

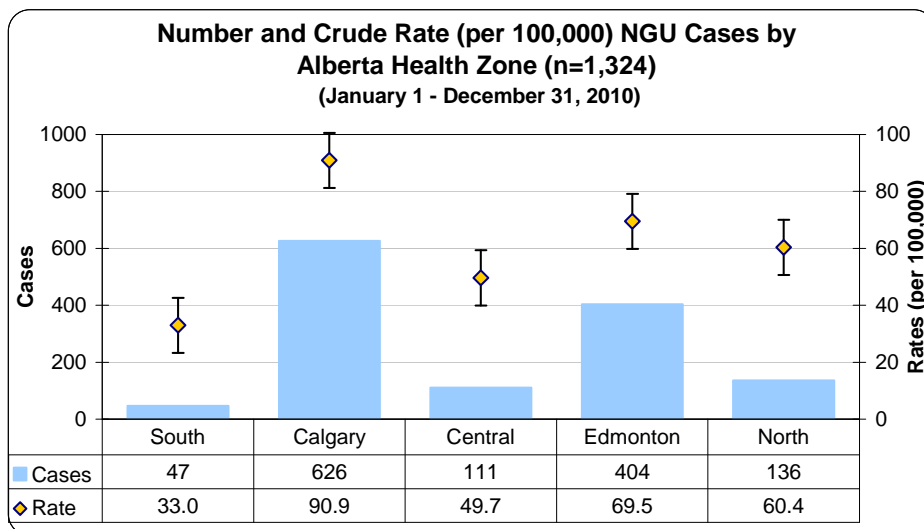
Figure 4.1



Rates for NGU have been steady for the last seven years (2004-2010), fluctuating between 34 and 40 cases per 100,000 males.

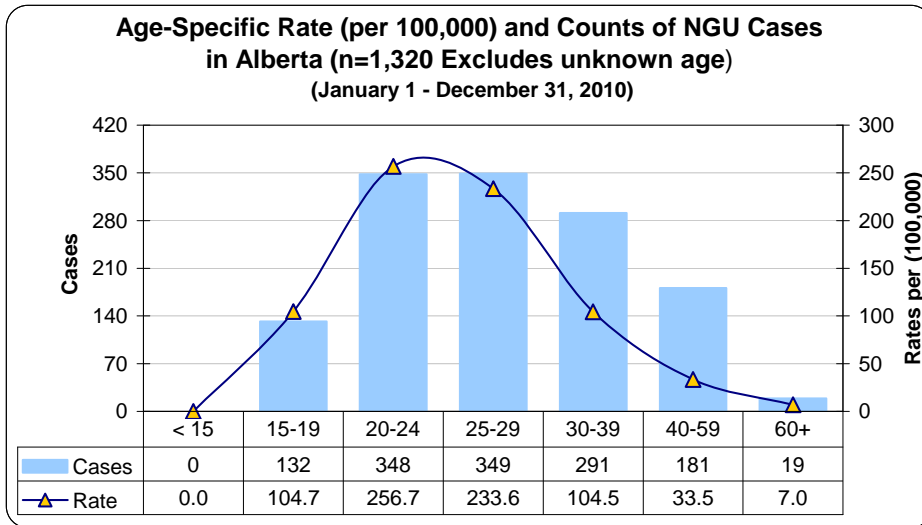
Please note that the case definition for NGU was modified in 2003 and thus comparisons cannot be made between the time periods before and after 2003.

Figure 4.2



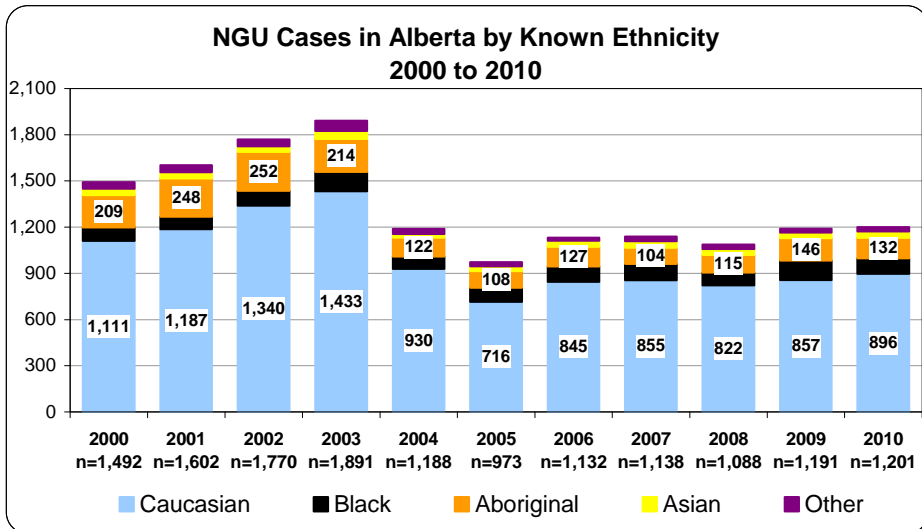
In 2010, the rate of disease varied across the province, with the highest rate in Calgary zone (91 cases per 100,000 males) followed by Edmonton and North zones (rate of 70 and 60 cases per 100,000 males, respectively). The lowest NGU rate was in South zone with 33 cases per 100,000 males.

Figure 4.3



In 2010, the majority of NGU cases were diagnosed in males under the age of 30, with the highest rates occurring between the age of 20 and 24 years (257 cases per 100,000 males).

Figure 4.4



In the last seven years (2004-2010), Caucasians accounted for the majority of NGU infection cases. Aboriginals followed with the proportion ranging from 9 per cent to 12 per cent.

Table 4.1: NGU 2010 – Cases by Ethnicity and Sexual Preference

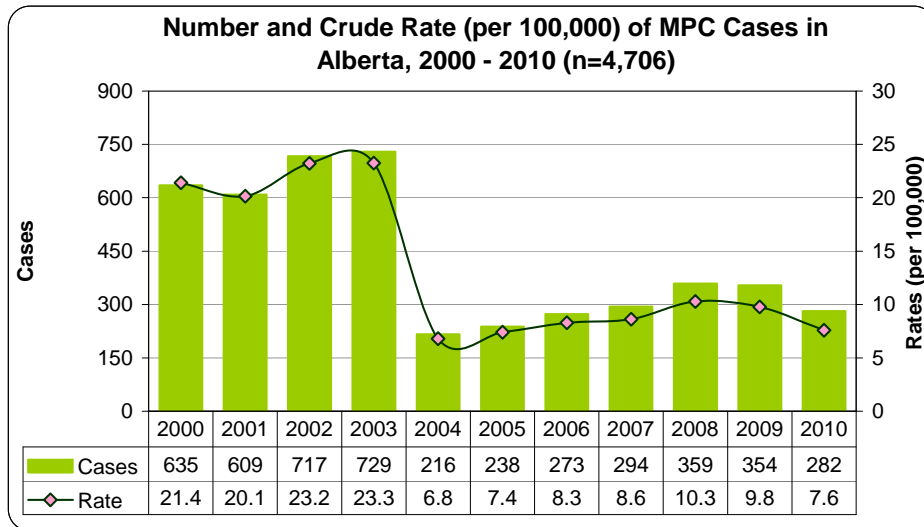
Ethnicity	Bisexual	Heterosexual	Homosexual	Unknown	Total
Caucasian	12	678	104	102	896
Black	1	91	1	9	102
Aboriginal	3	110	3	16	132
Asian	0	30	7	5	42
Other	0	27	2	0	29
Unknown	0	68	4	51	123
Total	16	1,004	121	183	1,324

In 2010, the majority of NGU cases are heterosexual (75.8 per cent). Among 1,004 cases identified as heterosexual, 67.5 per cent were Caucasian.

Mucopurulent Cervicitis (MPC)

Mucopurulent cervicitis is the clinical syndrome of inflammation of the cervix in females not caused by *C. tracomatis* or *N. gonorrhoea*. It is associated with higher risk of poor pregnancy outcome, upper genital tract disease, and transmission of HIV. MPC can be treated with antibiotics. If left untreated, it may cause pelvic inflammatory disease (PID), chronic pelvic pain, ectopic pregnancy and infertility. As with NGU, MPC is not reportable nationally.

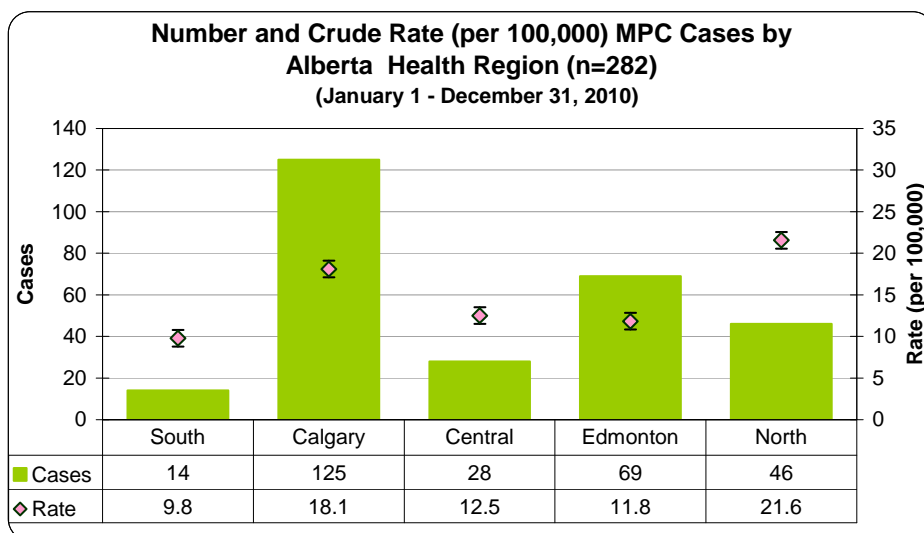
Figure 5.1



The case definition for MPC was modified in 2003 and thus comparisons cannot be made between the two time periods before and after 2003.

MPC cases and rates have increased from 2004 to 2008 (6.8 cases vs. 10.3 cases per 100,000 females, respectively). The rate was 7.6 cases per 100,000 females in 2010.

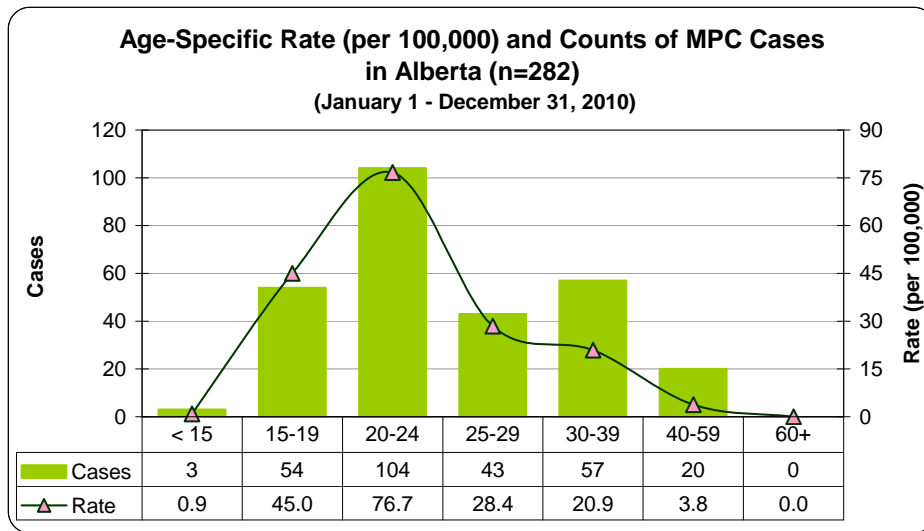
Figure 5.2



Rates varied among Alberta health zones; the lowest was 9.8 cases per 100,000 females in the South and the highest was 21.6 cases in the North.

Forty-four per cent of MPC cases were in the Calgary zone. The other health zones had MPC rates under the provincial rate (15.2 cases per 100,000 females).

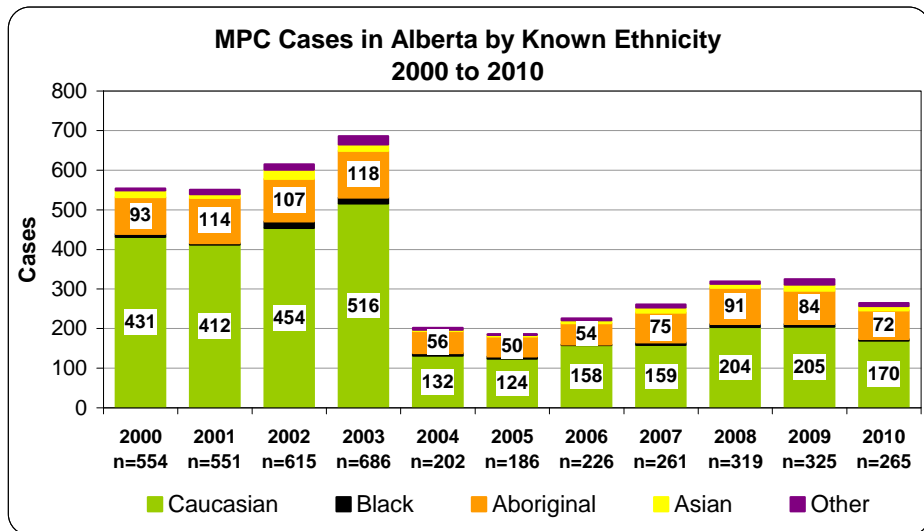
Figure 5.3



More than half of MPC cases in 2010 were between 15 and 24 years of age (56 per cent).

The highest rate of MPC was 77 cases per 100,000 females among 20 to 24 year olds. Young females aged 15 to 19 years had MPC rate with 45 cases per 100,000.

Figure 5.4



Overall from 2004 to 2010, the majority of females infected with MPC were Caucasian (65 per cent of cases over those seven years).

Table 5.1: MPC 2010 – Cases by Ethnicity and Sexual Preference

Ethnicity	Bisexual	Heterosexual	Homosexual	Unknown	Total
Caucasian	7	143	2	18	170
Black	0	4	0	0	4
Aboriginal	2	63	0	7	72
Asian	0	11	0	0	11
Other	0	7	0	1	8
Unknown	0	10	0	7	17
Total	9	238	2	33	282

The majority of MPC cases in 2010 were identified as heterosexual (84.4 per cent). Among these, 60 per cent were Caucasian and 26 per cent were Aboriginal.