

WYOMING DEPARTMENT OF HEALTH



2011 COMPREHENSIVE HIV/STD/TB/VIRAL HEPATITIS EPIDEMIOLOGIC PROFILE

Executive Summary

Since 1984, three hundred eighty-three Wyoming residents have been diagnosed with HIV disease (HIV and/or AIDS), including eight children. Thirty one percent (31%) were classified as HIV only while the remaining sixty-nine percent (69%) were classified as AIDS.

As of the end of 2010, 197 individuals were known to be living in Wyoming with HIV/AIDS.

Among all individuals living with HIV/AIDS in Wyoming at the end of 2010, over 77% were white 10% were of Hispanic ethnicity (any race), 7% were Black/African American and 4% were American Indian. Overall, 81% were male.

By transmission categories among adults and adolescents, nearly 51% were men who have sex with other men (MSM), 16% reported injection drug use (IDU), and approximately 10% were MSM who also reported IDU (MSM/IDU). Another 16% (male and female) reported IDU only. Twelve percent (12%) of individuals reported a transmission category of heterosexual contact only. Cases among MSM have continually accounted for the largest number of HIV cases diagnosed in Wyoming. During the period 1996-2000, 47% of all newly diagnosed cases of HIV infection were among MSM, 45% were MSM during 2001-2005, and 49% of newly diagnosed cases between 2006 and 2010 were classified as MSM.

In more recent years (2006-2010), individuals aged 25-34 years represented the largest group of individuals newly diagnosed with HIV infection, accounting for 38% of all cases. Pediatric HIV infection remains low in Wyoming.

Between 2006 and 2010, 21% of newly diagnosed cases of HIV infection among adults/adolescents were female; 61% of which were white and 72% of the newly diagnosed females reported heterosexual sex as their only transmission category. Of those females reporting a transmission category of heterosexual contact, 54% reported engaging in sex with a male known to be infected with HIV.

Chlamydia rates have increased annually from 2007 (323 cases per 100,000 population) to 2010 (391 cases per 100,000 population). Females have accounted for more cases than males annually since 2006 in Wyoming. The highest rate of infection occurs in individuals aged 15-24 years. The rate of gonorrhea has declined annually since 2008 in Wyoming. Most gonorrhea cases in 2010 (64%) occurred in those age 20-29 years. In 2010, males and females each accounted for approximately half of the gonorrhea cases. The presence of inflammatory STDs such as chlamydia and gonorrhea as well as STDs which present with lesions such as syphilis can increase the risk of acquiring and transmitting HIV.

In 2010, the number of acute hepatitis B cases decreased from four in 2009 to three in 2010. The number of chronic hepatitis B cases increased threefold from 2009 to 2010. Chronic hepatitis C cases have increased by 169 cases from 2008 to 2010. Males had a higher rate of hepatitis C infection than females from 2007-2011. Coinfection with HIV and Hepatitis C is not uncommon. In Wyoming 2.5% of HIV infected persons were also infected with Hepatitis C, and 1.0% are coinfecting with hepatitis B.

Active tuberculosis disease (TB) has remained low in Wyoming ranging from two to seven cases annually during 2006 through 2010. In 2011, 167 individuals were started on TB medications through the Wyoming Department of Health Tuberculosis Program.

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Introduction

This report was created to provide an overview of HIV/AIDS, STDs, TB, and viral hepatitis incidence in Wyoming. This report will further guide HIV and STD prevention program initiatives.

There are seven sections in this report. Section one describes the demographics and economics of Wyoming. Section two provides characteristics relating to HIV/AIDS cases in Wyoming as well as trends of HIV infection over time. Section three addresses the types of HIV services and care available in Wyoming. Section four provides characteristics of chlamydia, gonorrhea, syphilis, and viral hepatitis B and C cases in Wyoming. Section five describes both active tuberculosis disease and latent tuberculosis infection in Wyoming. Section six addresses co-infection of HIV with other STDs, TB, and viral hepatitis to include Wyoming specific statistics. Finally, section seven provides characteristics of high risk populations in the state.

In Wyoming, HIV became a reportable disease in 1989. As of December 31, 2010 a total of 197 persons are reported to live in Wyoming with an HIV or AIDS diagnosis. All HIV/AIDS cases are reported to our HIV Surveillance department where demographic information and risk factors are obtained. If needed, those patients are referred to Disease Intervention Specialists for partner services. Individuals reported with HIV/AIDS fall into three categories – 1) newly diagnosed cases of HIV, 2) newly diagnosed cases of AIDS (simultaneously diagnosed as HIV and AIDS), and 3) those individuals who were diagnosed with HIV in other states, subsequently moved to Wyoming, progressed to AIDS, and are now counted as Wyoming AIDS cases. For this epidemiologic profile, only those individuals in the first two categories are represented in the data, thereby representing incident cases of disease.

Other sexually transmitted diseases such as chlamydia, gonorrhea, syphilis, as well as, viral hepatitis B and C are also reportable diseases in the state of Wyoming. Chlamydia is consistently the most frequently reported notifiable disease in Wyoming and the US. Laboratories and providers are required to report cases of these STDs to include demographic information on the patient, treatment and risk factor information. The STD data in this report are provided for the last five years (2006-2010).

This report has several weaknesses:

- Actual numbers of STD and HIV cases are estimated to be higher than reported due to lack of symptoms in individuals who therefore do not seek testing;
- Females may represent a larger number of STD cases than males due to targeted screening of females in public health and family planning clinics in Wyoming;
- Risks and transmission routes are self-reported and therefore may be biased;
- Small numbers of tuberculosis cases in Wyoming make case rates unstable and difficult to analyze;
- A new HIV diagnosis may not represent a new infection; and
- STD data for 2007 are incomplete due to a system failure.

Section 1- Wyoming Demographics and Economics

Population: According to the 2010 Census, the total population of Wyoming was estimated to be 563,626¹. County populations ranged from 2,484 (Niobrara County) to 91,738 (Laramie County). There are no Metropolitan Statistical Areas (MSAs) in Wyoming. The two largest populated cities in Wyoming are Cheyenne (59,466) and Casper (55,316). Only two counties (Hot Springs and Platte) decreased in population size from 2000 to 2010.

Table 1. Population size by county, Wyoming, 2010¹.

County	Population (%)
Albany	36,299 (6.4)
Big Horn	11,668 (2.1)
Campbell	46,133 (8.2)
Carbon	15,885 (2.8)
Converse	13,833 (2.5)
Crook	7,083 (1.3)
Fremont	40,123 (7.1)
Goshen	13,249 (2.4)
Hot Springs	4,812* (0.9)
Johnson	8,569 (1.5)
Laramie	91,738 (16.3)
Lincoln	18,106 (3.2)
Natrona	75,450 (13.4)
Niobrara	2,484 (0.4)
Park	28,205 (5.0)
Platte	8,667* (1.5)
Sheridan	29,116 (5.2)
Sublette	10,247 (1.8)
Sweetwater	43,806 (7.8)
Teton	21,294 (3.8)
Uinta	21,118 (3.7)
Washakie	8,533 (1.5)
Weston	7,208 (1.3)
Total	563,626 (100)[§]

*Indicates counties which decreased in population from 2000 to 2010

§ Percentages may not add up to 100 due to rounding

Demographic Composition: The racial and ethnic composition of Wyoming's population in 2010 was estimated by the Census Bureau to be 90.7% White, 0.8% Black, 0.8% Asian, 2.4% American Indian/Alaskan Native, and 0.1% Native Hawaiian/Pacific Islander. Persons of Hispanic Ethnicity (any race) comprised 8.9% of the state's population¹.

Figure 1. Population density by census tract, U.S. Census¹, Wyoming, 2010.

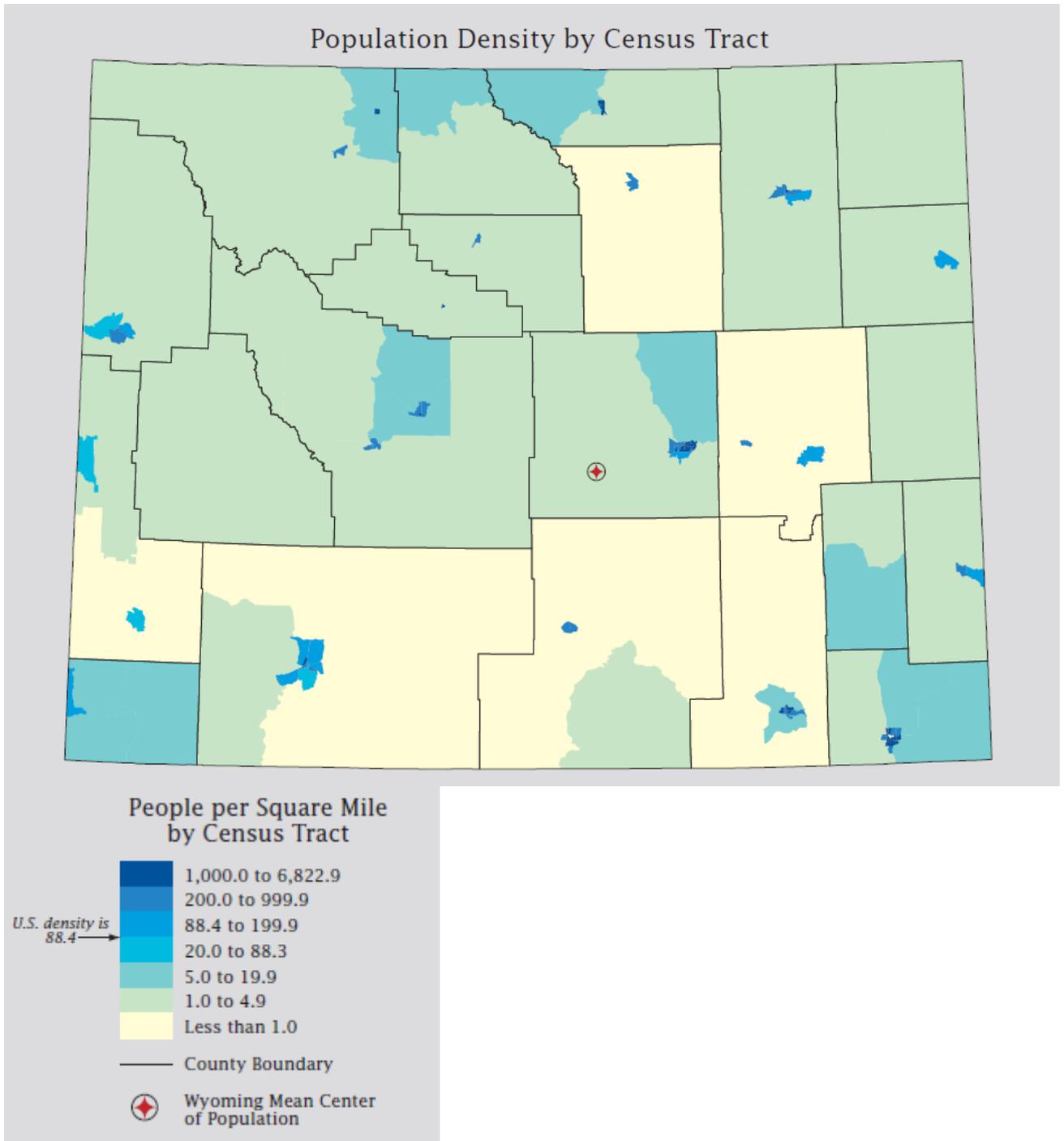
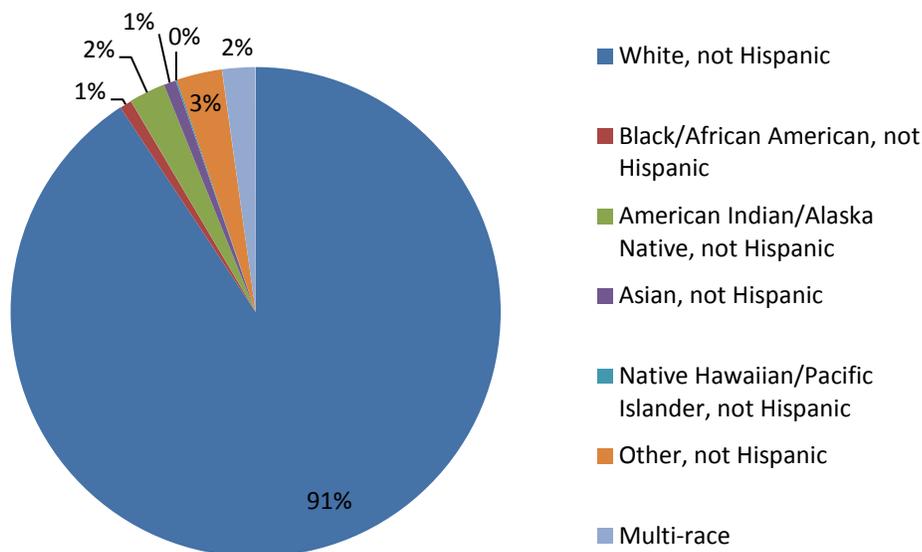


Table 2. Population by race/ethnicity and gender, Wyoming, 2010¹.

Race/Ethnicity	Male		Female		Total	
	No.	%	No.	%	No.	%
White, not Hispanic	260,000	90.5	251,279	91.0	511,279	90.7
Black/African American, not Hispanic	2,866	1.0	1,882	0.7	4,748	0.8
American Indian/Alaska Native, not Hispanic	6,696	2.3	6,640	2.4	13,336	2.4
Asian, not Hispanic	1,924	0.7	2,502	0.9	4,426	0.8
Native Hawaiian/Pacific Islander, not Hispanic	221	0.1	206	0.1	427	0.1
Other, Not Hispanic	9,486	3.3	7,563	2.7	17,049	3.0
Multi-race	6,244	2.2	6,117	2.2	12,361	2.2
Hispanic, any race	26,434		23,797		50,231	
Total	287,437	100.0[§]	276,189	100.0[§]	563,626	100.0[§]

§Percentage may not add to 100.0 due to rounding.

Figure 2. Population by race, Wyoming, 2010¹.



Age and Sex: The 2010 census estimates indicated 51.0% of the population was male and 49.0% of the population was female. Individuals under the age of 18 comprised 24.0% of the population while those over the age of 65 represented 12.4% of the population. The median age of individuals who reside in Wyoming was 36.8 years in 2010.¹

Table 3. Population by age group and gender, Wyoming, 2010¹.

Age Group	Male		Female		Total	
	No.	%	No.	%	No.	%
Under 5	20,596	7.2	19,607	7.1	40,203	7.1
5-9	19,203	6.7	18,010	6.5	37,213	6.6
10-14	18,592	6.5	17,363	6.3	35,955	6.4
15-19	19,626	6.8	18,516	6.7	38,142	6.8
20-24	21,315	7.4	19,003	6.9	40,318	7.2
25-34	40,671	14.1	36,978	13.4	77,649	13.8
35-44	34,851	12.1	32,115	11.6	66,966	11.9
45-54	42,163	14.7	41,414	15.0	83,577	14.8
55-64	37,806	13.2	35,707	12.9	73,513	13.0
65+	32,614	11.3	37,476	13.6	70,090	12.4
Total	287,437	100.0 ^s	276,189	100.0 ^s	563,626	100.0 ^s

^sPercentage may not add to 100.0 due to rounding.

Poverty, Income and Education: In 2009, 10.2% of the population of Wyoming was living below the poverty line. The average per capita income was \$26,925 while the average household income was \$54,400. In 2009, 91.1% of individuals age 25 years or older had at least a high school diploma while 23.2% of Wyoming residents had a Bachelor's degree or higher.¹

Public Health Regional Structure: Each of Wyoming's counties has at least one public health office. Most of these offices offer services including, but not limited to, child/adult immunizations, HIV counseling and testing, sexually transmitted disease testing, family planning, tuberculosis screening, and case management.

Health Indicators: As reported by *America's Health: State Health Rankings, 2010*, Wyoming ranked 19th in the nation. *America's Health Rankings* is a comprehensive, multi-dimensional, yearly analysis of the relative healthiness of the American population by state. Information is supplied by sources which include the U.S. Department of Health and Human Services, Commerce, Education, Labor, and the National Safety Council.²

Wyoming strengths included a low incidence of infectious diseases (3.5 cases per 100,000 population), a low percentage of children living in poverty (10.5 per 100,000 population), a low violent crime rate (228 offenses per 100,000 population), high public health funding (\$118 per person), and low levels of air pollution (5.2 micrograms of fine particulate per cubic meter).

Challenges included high occupational fatalities (11.2 deaths per 100,000 working population), limited primary care physicians (92.7 per 100,000 population), and a high premature death rate (8,412 years of potential life lost before age 75 per 100,000 population).²

The uninsured population in Wyoming increased from 2009 to 2010 by 1.1% (13.6% to 14.7%). The death rate from cardiovascular disease decreased by 27.2 deaths per 100,000 population from

2009 to 2010. Over the past decade, the rate children living in poverty has decreased from 14.8 to 10.5 per 100,000 population.²

Section 2 – HIV/AIDS in Wyoming

Human immunodeficiency virus is the virus that can lead to AIDS. The virus can damage a person’s immune system by destroying CD4+ cells which aid the body in fighting diseases. Many people infected with HIV are unaware of their infection because symptoms may be absent. If symptoms do arise they may consist of fever, headache, body ache, and other flu-like symptoms. When a person’s immune system becomes so damaged that it can no longer fight off certain diseases and opportunistic infections, the individual is diagnosed with AIDS. The Wyoming Department of Health recommends all sexually active individuals between the age of 13 and 64 years get tested for HIV annually and other individuals should be tested for HIV at least once in their lifetime.

Table 4. Incident HIV/AIDS cases by selected characteristics*, Wyoming, 2006-2010.

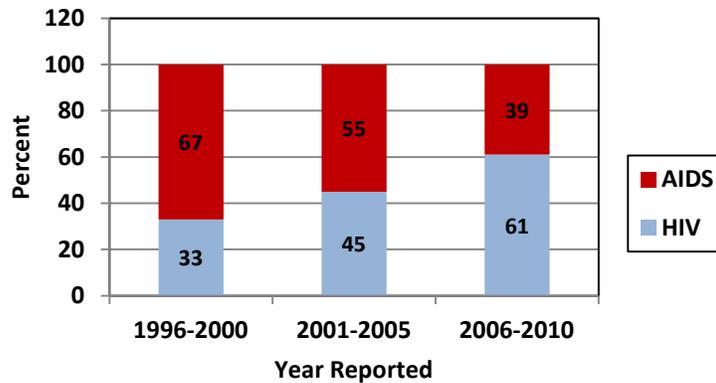
	Number (%)
Diagnosis	
HIV	51 (61)
AIDS	33 (39)
Gender	
Male	66 (79)
Female	18 (21)
Age Group	
13-24	10 (12)
25-34	32 (38)
35-44	20 (24)
45-64	22 (26)
Race/Ethnicity	
White (Not Hispanic)	45 (54)
Hispanic (All Races)	11 (13)
Other	10 (12)
Transmission	
MSM	41 (49)
IDU	12 (14)
MSM & IDU	8 (10)
Heterosexual Contact	15 (18)
Other/Unknown	8 (10)
Total	84 (100§)

*Characteristic subgroups may be incomplete due to lack response for those groups

§Percentage may not add to 100.0 due to rounding.

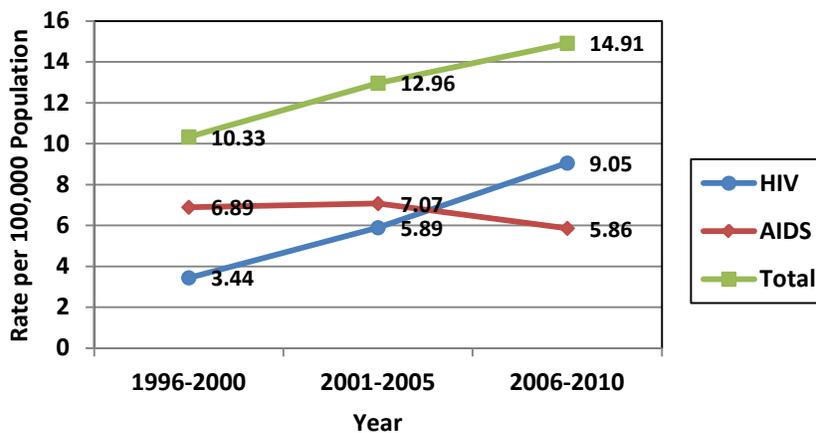
As shown in Figure 3, during 1996-2000, 33% of newly diagnosed cases were classified as HIV and 67% were classified as AIDS. By 2006-2010, 61% of newly diagnosed cases were classified as HIV. This may indicate that individuals are getting tested at an earlier stage of infection than in previous years.

Figure 3. Proportional distribution of newly diagnosed HIV disease among adults/adolescents by stage of infection, Wyoming, 1996-2010.



The five year cumulative incidence rate for HIV has increased since the 1996-2000 time period by 4.58 cases per 100,000 population. The cumulative incidence rate for AIDS decreased from the 2001-2005 time period to the 2006-2010 time period by 1.21 cases per 100,000 population.

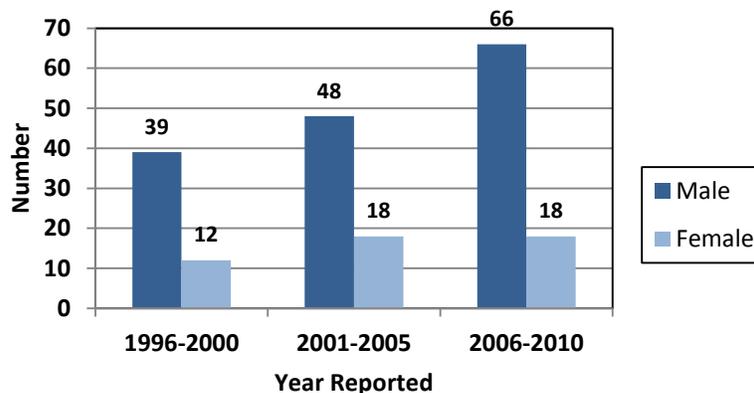
Figure 4. Five-year cumulative incidence rates, HIV/ AIDS, Wyoming, 1996-2010.



By gender, males accounted for the largest number of cases reported in each time period, ranging from 39 cases in 1996-2000 to 66 cases in 2006-2010. Cases among males accounted for 76% of all cases during the 1996-2000 and represented 79% of all cases in 2006-2010.

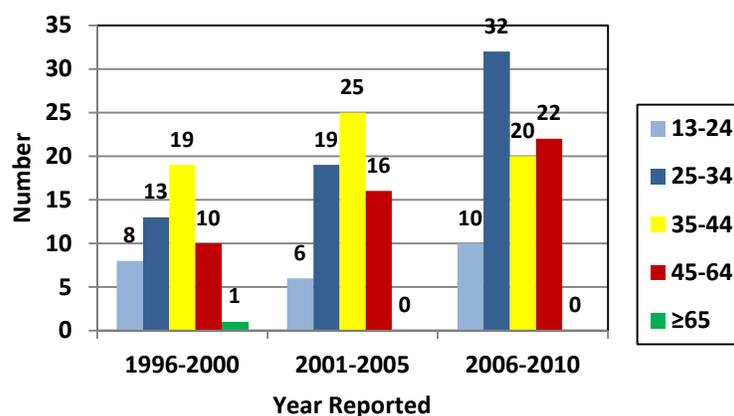
Females accounted for 24% of cases during the first time period and 21% of cases in the most recent time period.

Figure 5. Incident HIV/AIDS cases among adults/adolescents by gender, Wyoming, 1996-2010.



The 25-44 year old age group accounted for the largest number of HIV/AIDS cases from 1996 to 2010, followed by the 45-64 year olds (Figure 6).

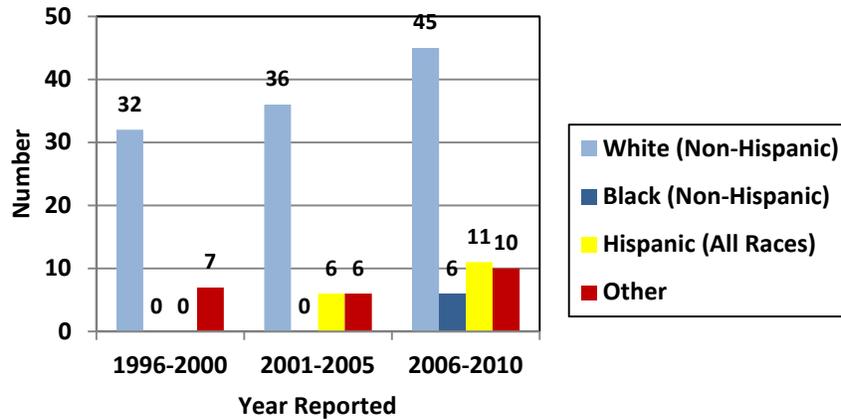
Figure 6. Incident HIV/AIDS cases among adults/adolescents by age group and time period reported, Wyoming.



White males represented 82% of cases among males during 1996-2000 but only 68% of cases among males during the most recent time period (Figure 7).

Hispanic males represented 13% of cases during 2001-2005 and represented 17% of cases during 2006-2010.

Figure 7. Incident HIV/AIDS cases among adults/adolescents by race/ethnicity, Wyoming, 1996-2010.

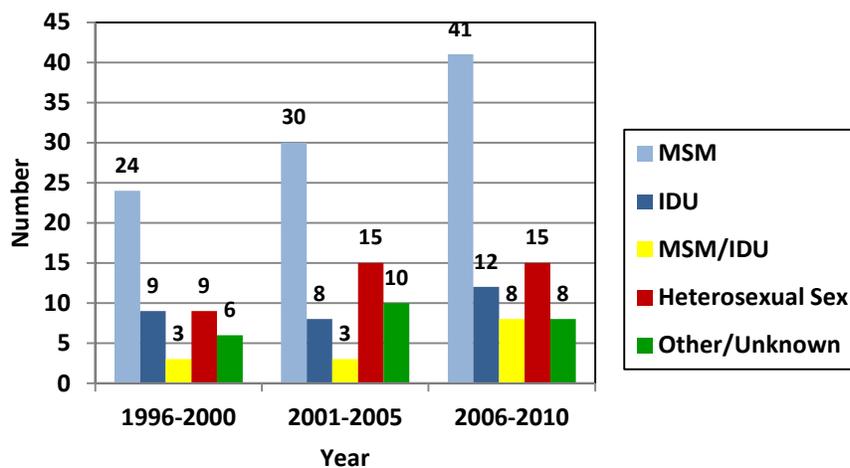


Cases of HIV/AIDS among men who have sex with other men (MSM) represent the largest number of cases in all three time periods, as shown in Figure 8. Cases among MSM totaled 24 (47%) cases in 1996-2000; 30 (45%) cases in 2001-2005, and 41 (49%) cases during 2006-2010.

A slight increase in cases among cases attributed to Injection Drug Use (IDU) is noted when comparing 2001-2005 to 2006-2010. Eight cases were reported in 2001-2005 and 12 cases were reported in 2006-2010.

An increase was also noted in cases among men who have sex with other men who also reported injection drug use (MSM/IDU). Three cases were reported during 1996-2000 and 2001-2005. Between 2006 and 2010, eight cases were reported in this transmission category.

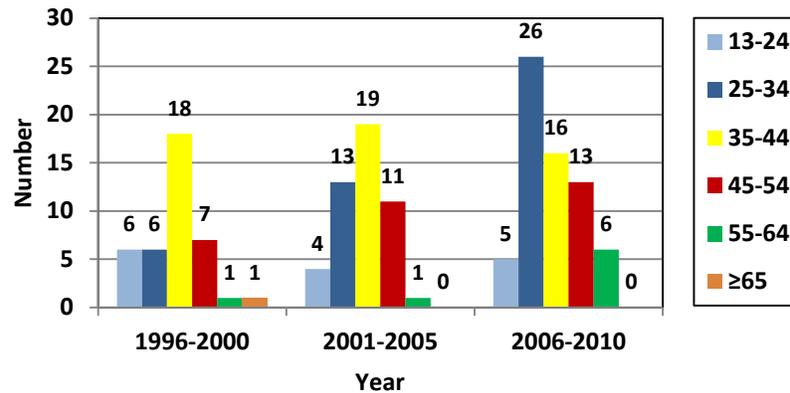
Figure 8. Incident HIV/AIDS cases among adults/adolescents by transmission category, Wyoming, 1996-2010.



As shown in Figure 9, during 1996-2000 and 2001-2005, the majority of males with newly diagnosed HIV disease were between the age of 35 and 44 years. However, during 2005-2010,

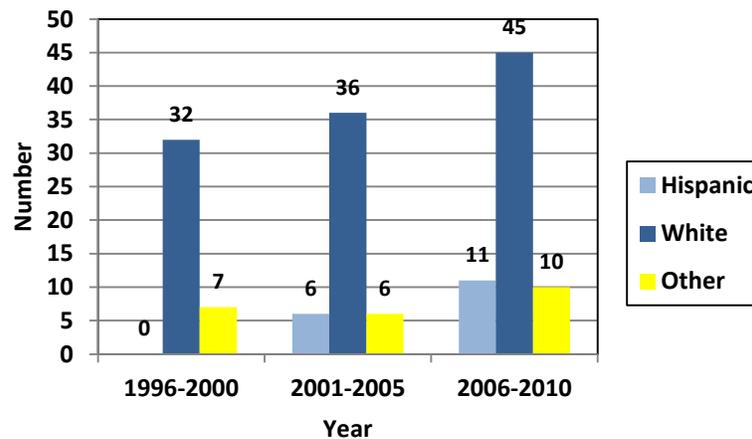
males age 25-34 years accounted for the majority of newly diagnosed HIV/AIDS cases (43%). The number of males between the age of 55-64 years increased from one case in 1996-2000 and 2001-2005 to 6 cases from 2006-2010.

Figure 9. Incident HIV/AIDS cases among adult/adolescent males by age group, Wyoming, 1996-2010.



The number of HIV/AIDS cases in males has increased in Hispanic, White and Other race and ethnicities from 2001-2005 to 2006-2010. White males represented 82% of cases during 1996-2000 and 68% of cases from 2006-2010. Hispanic males represented 13% of cases from 2001-2005 and 17% of male cases from 2006-2010. Cases among males of the “Other” race category represented 12% of cases during 2001-2005 and 15% of cases during 2006-2010.

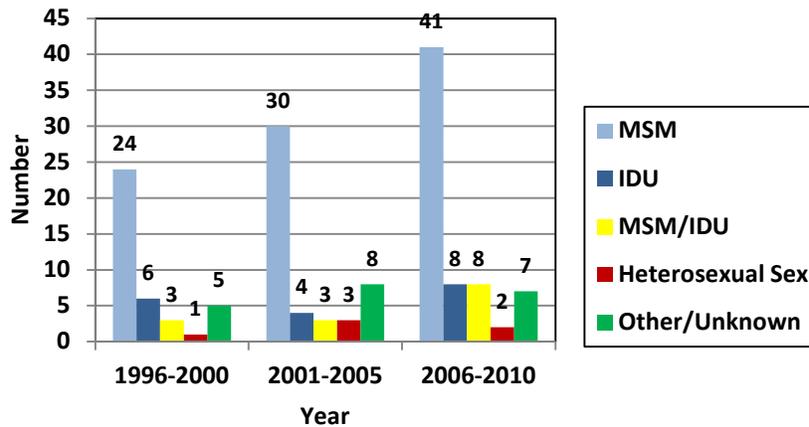
Figure 10. Incident HIV/AIDS cases among adult/adolescent males by race/ethnicity, Wyoming, 1996-2010.



Among adult and adolescent males, the number of cases among MSM increased each time period. Cases among MSM nearly doubled from 1996-2000 to 2006-2010. MSM accounted for 62% of all incident adult and adolescent cases among males in 1996-2000, 63% in 2001-2005, and 62% from 2006-2010. Cases attributed to IDU represented 8% of cases among males during 2001-2005 and 12% of cases from 2006-2010. The number of cases among male IDUs and MSM/IDUs increased from 2001-2005 to 2006-2010. During the two most recent time periods, cases of newly diagnosed

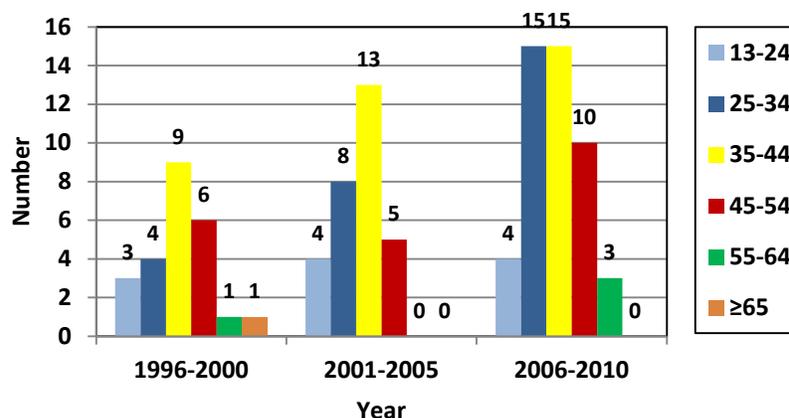
HIV disease among male IDUs rose from four to eight and cases among MSM/IDUs increased from three to eight.

Figure 11. Incident HIV/AIDS cases among adult/adolescent males by transmission category, Wyoming, 1996-2010.



As shown in Figure 12, the number of MSM age 25-34 years newly diagnosed with HIV/AIDS nearly doubled when comparing the two most recent time periods (from 8 to 15). The number of cases among MSM age 45-54 years doubled when comparing the two most recent time periods (from 5 to 10 cases). Individuals age 35-44 years represented the majority of cases among MSM between 1996 -2000 (38%) and 2001-2005 (43%) while younger males age 25-34 years represented the majority of cases from 2006-2010 (37%). Newly diagnosed cases in individuals older than 55 years accounted for a small number of newly diagnosed cases in Wyoming from 1996-2010. Only one new case of HIV disease among MSM age 65 years or older was reported in the last 15 years.

Figure 12. Incident HIV/AIDS cases among adults/adolescent MSM by age group, Wyoming, 1996-2010.



The total number of newly diagnosed male HIV/AIDS cases attributed to IDU was 8 during 2006 to 2010. Among male IDUs diagnosed with HIV disease in Wyoming, 3 cases were reported in both the 25-34 and 35-44 year age groups, and 1 case was reported in both the 45-54 and 55-64 year age groups.

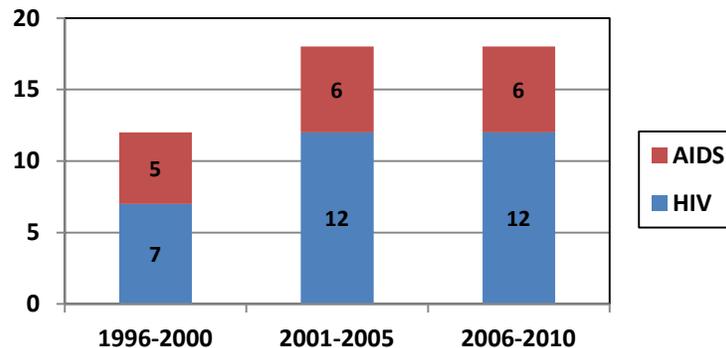
Table 5. Incident HIV/AIDS cases among adult/adolescent male IDUs, Wyoming, 1996-2010.

	1996-2000 Number (%§)	2001-2005 Number (%§)	2006-2010 Number (%§)
Stage of Disease			
HIV	1 (17)	3 (75)	3 (38)
AIDS	5 (83)	1 (25)	5 (63)
Age Group			
13-24	0 (0)	0 (0)	0 (0)
25-34	1 (17)	2 (50)	3 (38)
35-44	5 (83)	0 (0)	3 (38)
45-54	0 (0)	2 (50)	1 (13)
55-64	0 (0)	0 (0)	1 (13)
≥65	0 (0)	0 (0)	0 (0)
Total	6 (100)	4 (100)	8 (100)

§ Total percentage may not equal 100 due to rounding.

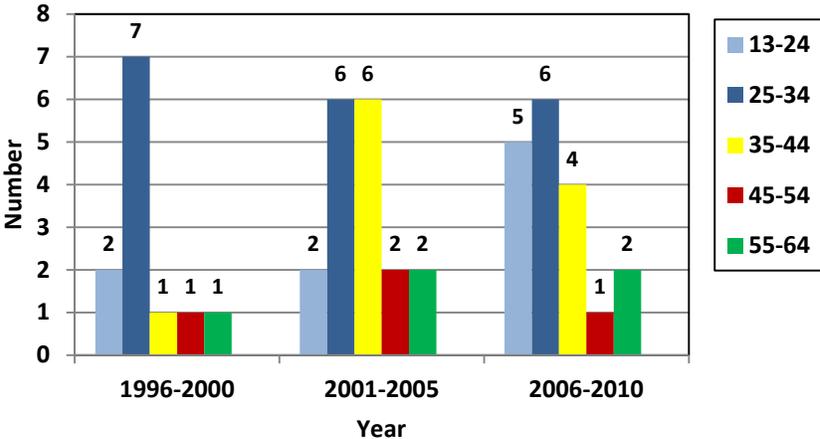
From 1996-2000 a total of twelve adult/adolescent females were reported with newly diagnosed HIV disease in Wyoming. The total number of females reported during 2001-2005 was 18, as it was in 2006-2010 also. Of those reported in 2001-2005 and 2006-2010, six were diagnosed with AIDS in each time period and 12 were diagnosed with HIV in each time period.

Figure 13. Incident HIV/AIDS cases among adult/adolescent females by stage of disease, Wyoming, 1996-2010.



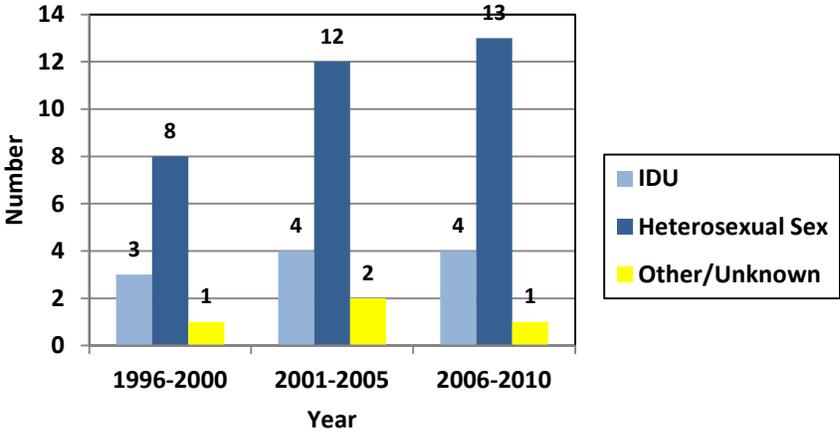
Females age 25-34 accounted for the majority of incident HIV disease in Wyoming from 1996-2000 (58%) and 2006-2010 (33%). From 2001-2005 six cases were reported in the 25-34 year age group as well as the 35-44 year age group (Figure 14).

Figure 14. Incident HIV/AIDS cases among adult/adolescent females by age group, Wyoming, 1996-2010.



Cases among females attributed to heterosexual sex accounted for the majority of cases among females for all three time periods, ranging from 8 cases during 1996-2000 to 13 cases during 2006-2010. Female IDUs accounted for three cases of newly diagnosed HIV disease between 1996 and 2000 and four cases in each of the two most recent time periods.

Figure 15. Incident HIV/AIDS cases among adult/adolescent females by transmission category, Wyoming, 1996-2010.



Among females in Wyoming reporting their risk for acquiring HIV as heterosexual sex, a steady increase in the number females engaging in sex with an HIV+ male partner is noted (Figure 16). During 2006-2010, over half of females reporting heterosexual sex were also found to have engaged in sex with a HIV positive male sex partner.

Six of 13 females reported with newly identified HIV disease during 2006-2010 were found to have engaged in sex with a male IDU.

Figure 16. Incident HIV/AIDS cases among adult/adolescent females by expanded heterosexual sex categories, Wyoming, 1996-2010.

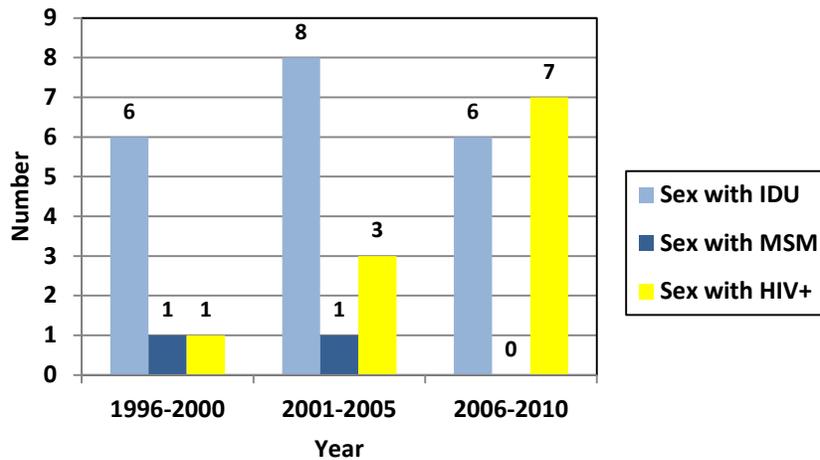


Table 6. Number of reported HIV/AIDS deaths, Wyoming, beginning of epidemic-2010.

Year of Diagnosis	HIV/AIDS Cases Reported (#)	HIV/AIDS Deaths Reported (#)
Before 1985	2	2
1985	2	2
1986	5	5
1987	4	3
1988	10	9
1989	10	10
1990	16	9
1991	20	17
1992	15	13
1993	22	19
1994	17	11
1995	22	12
1996	13	7
1997	14	6
1998	9	7
1999	14	3
2000	9	4
2001	9	1
2002	19	4
2003	16	2
2004	18	4
2005	11	2
2006	12	2
2007	17	2
2008	28	1
2009	22	0
2010	24	2
Total	380	159

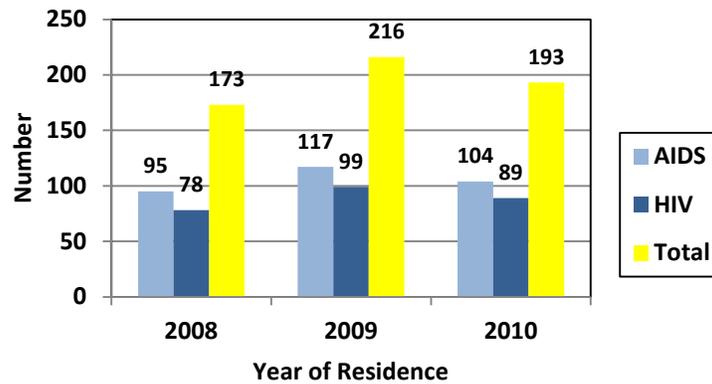
Table 6 indicates the number of HIV/AIDS deaths per year since the beginning of the epidemic. As of December 2010, 42% of individuals diagnosed with HIV/AIDS in Wyoming have died.

As shown in Figure 17, the number of individuals living in Wyoming with HIV/AIDS decreased from 2009 to 2010. A total of 216 adults and adolescents were living in Wyoming with HIV/AIDS at the end of 2009 and 193 were residing in Wyoming at the end of 2010.

Individuals classified as AIDS represented the majority of individuals living with HIV disease in Wyoming at year-end 2008, 2009 and 2010.

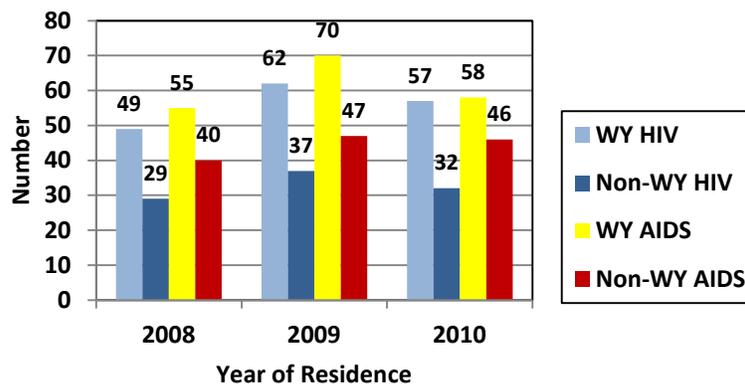
Ninety-five of the 173 individuals residing in Wyoming with HIV/AIDS at the end of 2008 were classified as AIDS. In 2009, 117 of the 216 individuals with HIV/AIDS were AIDS and at the end of 2010, 104 of the 193 individuals living with HIV/AIDS in Wyoming had an AIDS diagnosis.

Figure 17. Prevalence of adults/adolescents living with HIV/AIDS, Wyoming, 2008-2010.



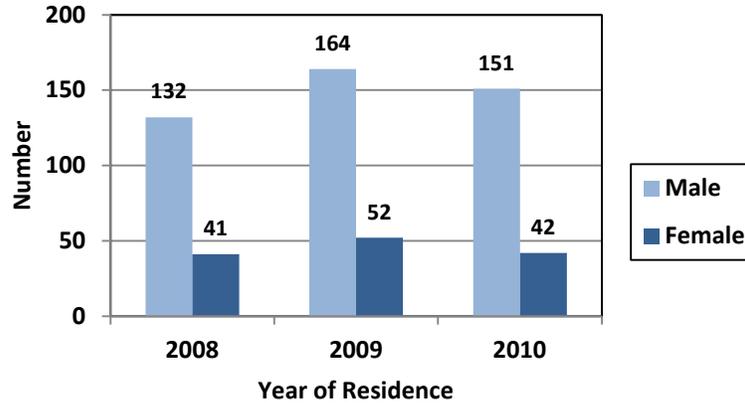
In 2008, 104 (49 HIV and 55 AIDS) of the 173 individuals living with HIV/AIDS in Wyoming were residents of Wyoming at the time of diagnosis; 132 (62 HIV and 70 AIDS) out of 216 in 2009 and 115 of (57 HIV and 58 AIDS) 193 in 2010 (Figure 18).

Figure 18. Prevalence of adults/adolescents living with HIV/AIDS by State of Diagnosis, Wyoming, 2008-2010.



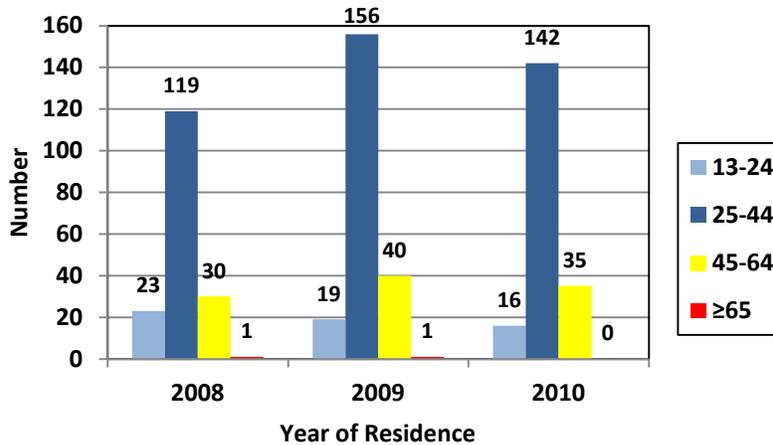
By gender, the majority of individuals residing in Wyoming with HIV/AIDS from 2008 to 2010 were male, as shown in Figure 19.

Figure 19. Prevalence of adults/adolescents living with HIV/AIDS by gender, Wyoming, 2008-2010.



As shown in Figure 20, Individuals residing in Wyoming with HIV infection were between 25 and 44 years of age at diagnosis during each of the three time periods shown, followed by those in the 45-64 year age group.

Figure 20. Prevalence of adults/adolescents living with HIV/AIDS by age group, Wyoming, 2008-2010.



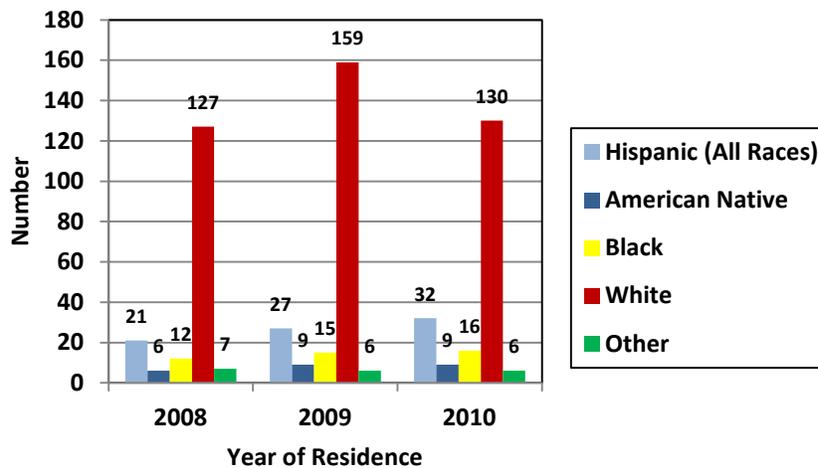
Non-Hispanic Whites have consistently accounted for the largest number of cases by race/ethnicity living in Wyoming. At the end of 2008, 127 individuals living with HIV infection were White. The number of Whites increased to 159 at the end of 2009 and Whites totaled 130 (Figure 21).

Persons of Hispanic ethnicity accounted for the second largest group by race/ethnicity. Twenty-one HIV infected individuals of Hispanic ethnicity resided in Wyoming at the end of 2008, 27 in 2009 and 32 at the end of 2010.

Non-Hispanic Blacks consistently accounted for the third largest group with 12 individuals with HIV living in Wyoming at the end of 2008. Fifteen Black persons were residing in Wyoming with HIV at the end of 2009 and 16 at the end of 2010.

American Natives living with HIV in Wyoming totaled six at the end of 2008 and nine at the end of 2009 and 2010.

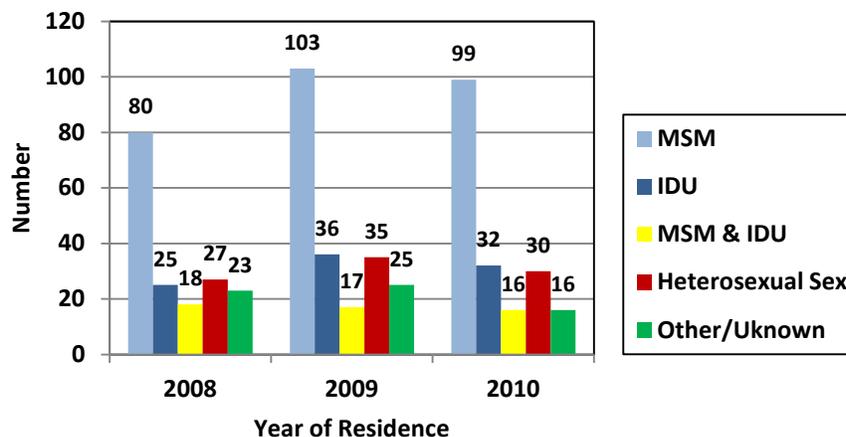
Figure 21. Prevalence of adults/adolescents living with HIV/AIDS by race/ethnicity, Wyoming, 2008-2010.



As shown in Figure 22, cases among MSM have continued to represent the largest number of individuals with HIV/AIDS residing in Wyoming.

The number of individuals with a transmission category of heterosexual sex and those classified as IDU have remained consistent for all time periods and both fall second to MSM by transmission category.

Figure 22. Prevalence of adults/adolescents living with HIV/AIDS by transmission category, Wyoming, 2008-2010.



Section 3- Wyoming HIV Services & Prevention

The HIV Services Program is comprised of the Ryan White Part B/ADAP (AIDS Drug Assistance Program), Ryan White Part C-EIS (Early Intervention Services) and the Housing Opportunities for Persons with AIDS (HOPWA) programs. A combined application serves for enrollment for any services provided through federal and state dollars intended to benefit HIV positive clients.

RYAN WHITE CARE ACT

According to the Health Resources and Services Administration (HRSA), the populations most impacted by the HIV epidemic are those at high risk for poverty, those who lack health insurance, and those who are disenfranchised from the health care system. In August 1990, Congress enacted the Ryan White CARE Act to improve the availability of care for low-income, uninsured, and underinsured individuals and families affected by HIV disease. Congress most recently reauthorized the CARE Act in October 2009. The CARE Act legislation is divided into distinct program areas: ***Part A, Part B, Part C, Part D, AIDS Education and Training Centers (AETC), and Dental Reimbursement Program (DRP).***

The State of Wyoming, through various grants and grantees, currently receives Ryan White CARE Act funding under Part B, Part C, and AETC.

HOPWA

Housing Opportunities for Persons with AIDS, more commonly referred to as HOPWA, is a program funded by the U.S. Department of Housing and Urban Development (HUD). The program is designed to help low-income individuals who are living with HIV/AIDS to stabilize their housing, which is a key factor contributing to health and well-being. Examples of HOPWA services include rental assistance, utility assistance, mortgage assistance, housing supportive services, and case management.

The purpose of the HIV Services Program funding is to improve the quality, availability, and organization of health care and supportive services for individuals and families living with HIV disease. In addition, the funding provides access to needed pharmaceuticals through the AIDS Drug Assistance Program (ADAP), which is a component of Part B.

As of December 31, 2011, a total 150 individuals were enrolled in the HIV Services Program in Wyoming. The program spends approximately \$100,000 per month providing prescription medications, medical care, diagnostic laboratory testing and other supportive services such as housing and transportation.

Table 7. Characteristics of persons enrolled in HIV Services, Wyoming, 2011.

	Persons Enrolled	
	#	%
Gender		
Male	120	76
Female	38	24
Transgender	0	0
Other	0	0
Race		
White	118	75
Black	18	11
Asian	1	1
American Native	10	6
More Than One	4	3
Unknown	7	4
Ethnicity		
Hispanic	22	14
Non-Hispanic	133	84
Unknown	3	2
TOTAL	158	100[§]

§Percentage may not add to 100.0 due to rounding.

Based on recent surveillance numbers, it is estimated that the number enrolled in the HIV Services Program is approximately 61% of the 232 individuals known or presumed to be living in Wyoming. An additional 23% are receiving regular primary medical care through other sources, resulting in approximately 16% or 37 persons, who would meet the definition of not being in regular medical care.

HIV PREVENTION

The Wyoming Department of Health in a cooperative agreement with the Center for Disease Control (CDC) provides low-cost or free testing at clinics throughout the state. Prevention efforts in Wyoming include the knowyo.org campaign which provides HIV and STD education, Knowyo vouchers for free HIV and STD testing, and a map of clinics which accept the vouchers and provide testing throughout the state. The Wyoming Department of Health also provides free testing events for special occasions and HIV awareness days. The HIV services program also contributes to prevention by providing treatment for those who would otherwise not be able to afford the medications. Table 8 lists the characteristics of individuals who were tested for HIV throughout the state.

Table 8. HIV Tests performed by HIV prevention program funded sites, Wyoming, 2010.

	Persons Tested	
	#	%
Gender		
Male	2861	44.6
Female	3554	55.4
Transgender F to M	0	0.0
Transgender M to F	1	<0.1
Unknown	1	<0.1
Age Group		
≤12	10	0.2
13-19	829	12.9
20-29	3206	50.0
30-39	1255	19.6
40-49	658	10.3
≥50	459	7.2
Race		
White	5411	84.3
Black	211	3.3
Asian	37	0.6
American Native	150	2.3
Native Hawaiian/Pacific Islander	33	0.5
More Than One	78	1.2
Unknown	332	5.2
Declined	165	2.6
Ethnicity		
Hispanic	795	12.4
Non-Hispanic	4973	77.5
Unknown	406	6.3
Declined	243	3.8
TOTAL	6417	100.0[§]

§Percentage may not add to 100.0 due to rounding.

Section 4- Sexually Transmitted Diseases in Wyoming

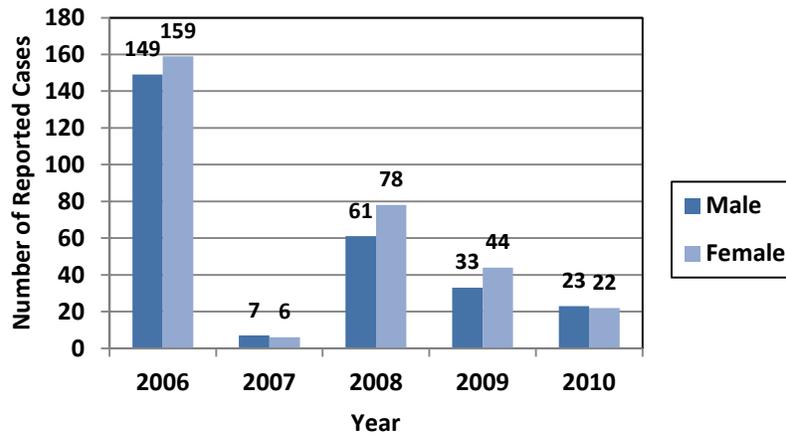
GONORRHEA

Gonorrhea is a bacterial infection caused by *Neisseria gonorrhoeae* that is transmitted by unprotected oral, anal, and/or vaginal sex. Many people infected with gonorrhea do not know they have an infection because they often do not show symptoms. If symptoms do appear they develop within 1 to 14 days after infection and may consist of discharge from the penis, vagina, or rectum; burning during urination; itching at the affected site; vaginal bleeding; and pain during intercourse.

If left untreated gonorrhea can cause Pelvic Inflammatory Disease (PID) in women. Symptoms of PID can include abdominal pain, fever, and chronic pelvic pain. PID can damage the fallopian tubes and cause infertility. Individuals with a gonorrhea infection may also be at a greater risk of an HIV infection.

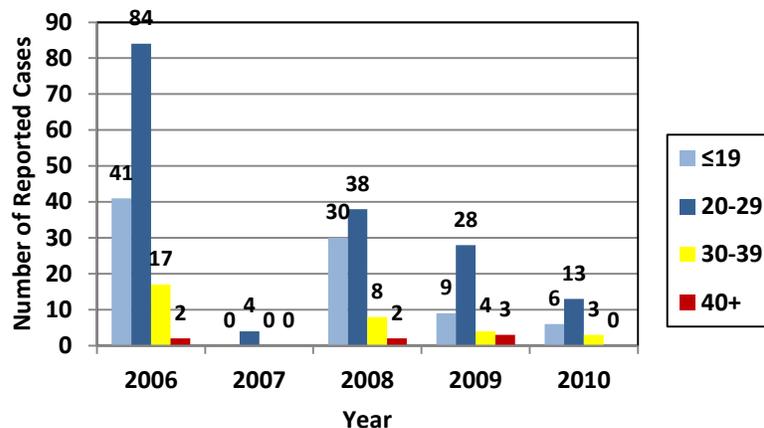
Targeted screening for gonorrhea occurs in all sexually active females under the age of 25 and women over 25 that have had a new partner within the past 60 days, multiple sex partners in the past 60 days, PID, or an STD infection in the past 12 months. As shown in Figure 24, gonorrhea among both males and females has been decreasing since 2008 in Wyoming.

Figure 23. Gonorrhea cases by gender, Wyoming, 2006-2010.



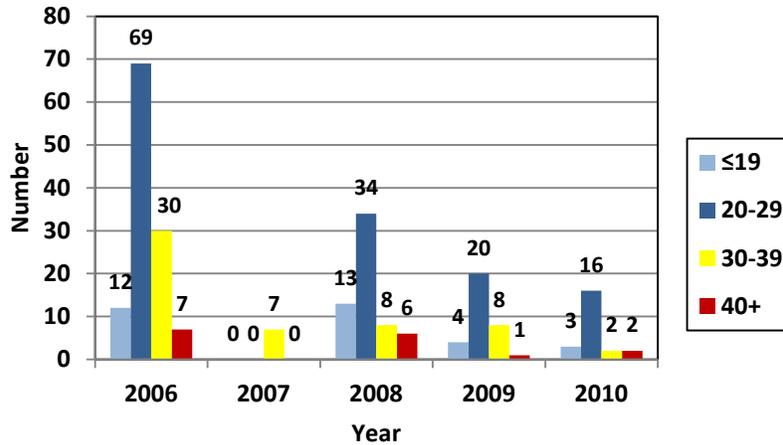
Individuals age 20-29 years account for the largest number of reported gonorrhea cases among females. Those aged 20-29 years accounted for 59% of cases in 2010. Cases among females in all age groups except those 40 years and older have steadily decreased since 2008.

Figure 24. Gonorrhea cases by age group, female, Wyoming, 2006-2010.



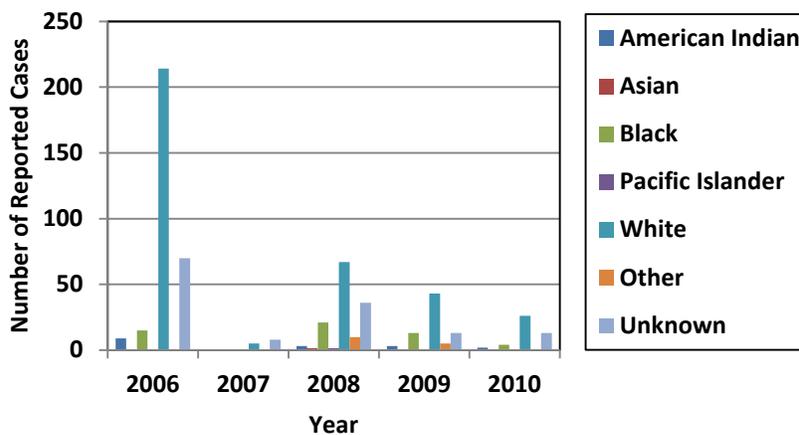
Individuals aged 20-29 years account for the largest number of gonorrhea cases in Wyoming among males. Males aged 20-29 accounted for 70% of cases among males in 2010.

Figure 25. Gonorrhea cases by age group, male, Wyoming, 2006-2010.



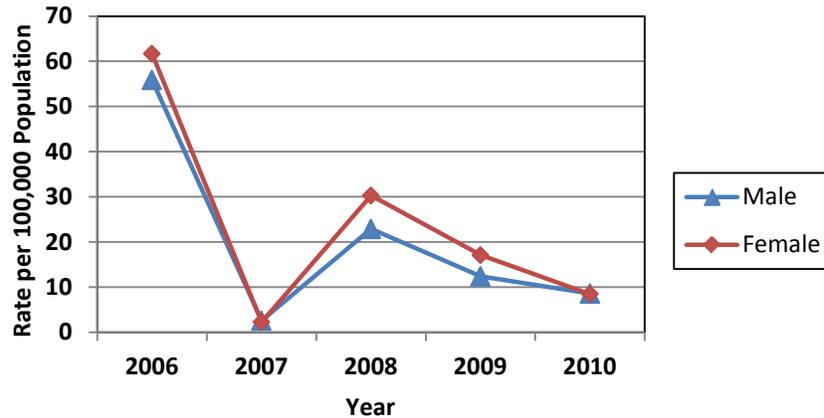
White individuals account for the largest number of gonorrhea cases in Wyoming followed by individuals whose race is unknown. The large number of unknowns is likely due to private physician case reporting which often do not contain information on race and ethnicity.

Figure 26. Gonorrhea cases by race, Wyoming, 2006-2010.



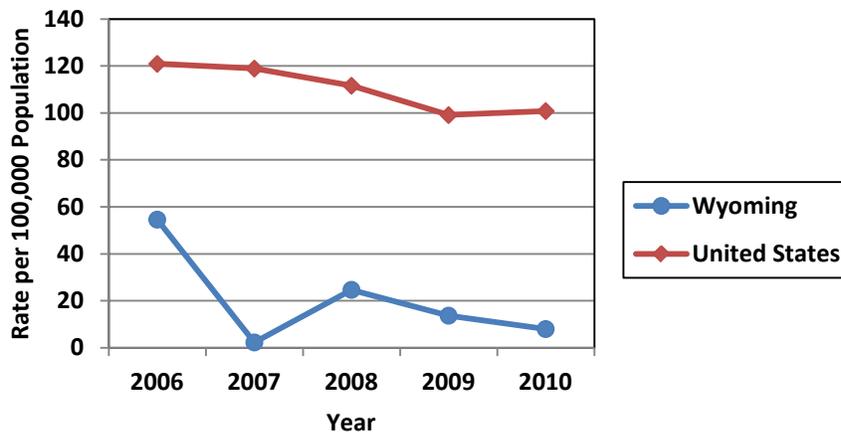
The rate of gonorrhea infection in males and females has been similar since 2006 with females accounting for a slightly higher rate than males.

Figure 27. Gonorrhea rates per 100,000 population by gender, Wyoming, 2006-2010.



The rate of gonorrhea in Wyoming has been declining since 2008 (Figure 29). From 2009 to 2010 the rate declined by 58%. The rates of gonorrhea in Wyoming are significantly less than the national rates from 2006 to 2010.⁷⁻¹¹

Figure 28. Gonorrhea rates per 100,000 population, Wyoming and United States, 2006-2010⁷⁻¹¹.

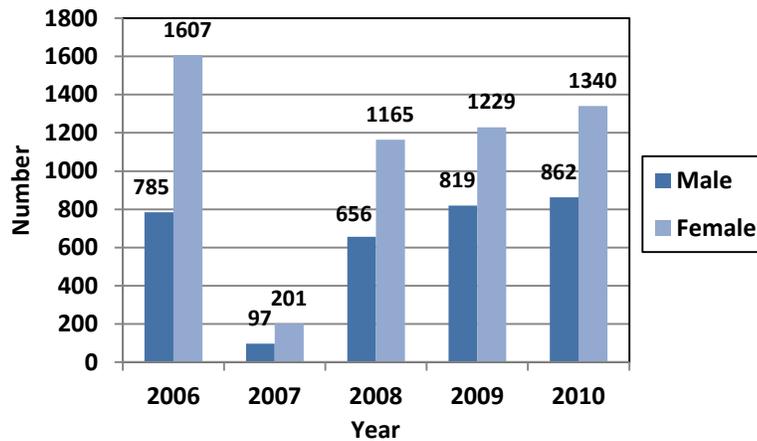


CHLAMYDIA

Chlamydia is a sexually transmitted bacterial infection caused by *Chlamydia trachomatis*. Approximately 75% of females and 50% of males infected with chlamydia show no symptoms. If symptoms do occur they present within one to three weeks after exposure. Symptoms may include abnormal discharge from the infected site, burning during urination, itching, and pain during intercourse. If left untreated chlamydia can cause PID. Individuals infected with chlamydia are at greater risk for an HIV infection.

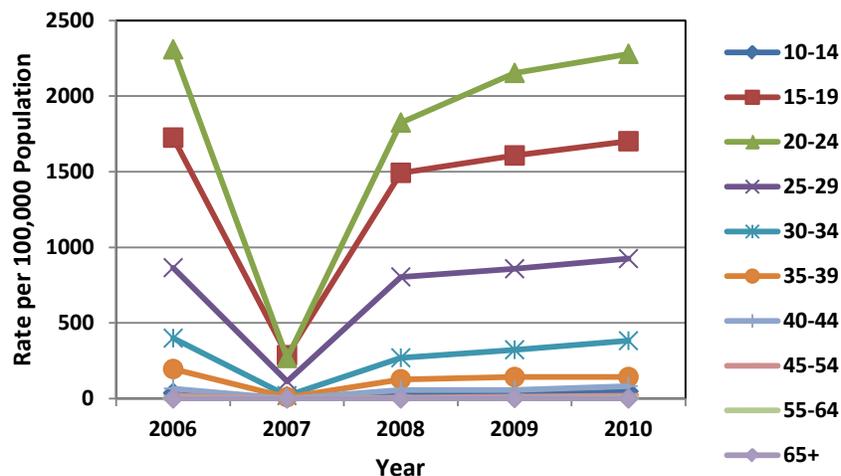
Screening efforts are targeted at all sexually active women under the age of 25 and women over the age of 25 that have risks. Reported chlamydia cases have increased in Wyoming since 2007. Females account for the largest number of cases. In 2010, females accounted for 60% of all reported chlamydia infections.

Figure 29. Chlamydia cases by gender, Wyoming, 2006-2010.



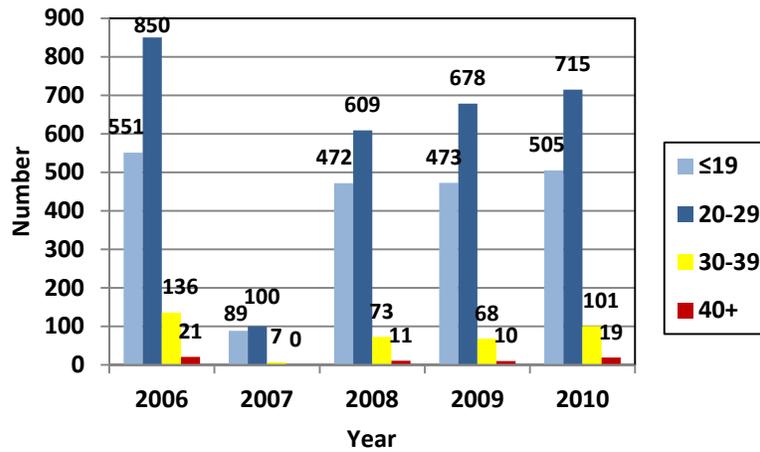
The highest rates of chlamydia infection are found in individuals age 15-24 years. In 2010, those in the 20-24 year old age group had a 2.5 times higher rate of chlamydia than 25-29 year olds; the 15-19 year old age group had a chlamydia rate 1.8 times that of 25-29 year olds.

Figure 30. Chlamydia rates per 100,000 population by age group, Wyoming, 2006-2010.



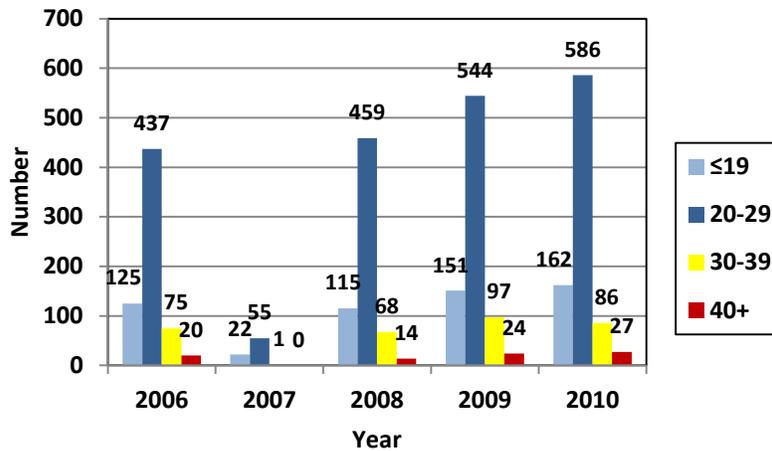
Females aged 20-29 years account for the largest number of reported chlamydia cases among females. In 2010, 53% of all reported chlamydia cases were in the 20-29 year age group and 38% were in individuals under the age of 19 years. In 2010, Wyoming ranked 8th highest in the US for rate of chlamydia in males.

Figure 31. Chlamydia by age group, females, Wyoming, 2006-2010.



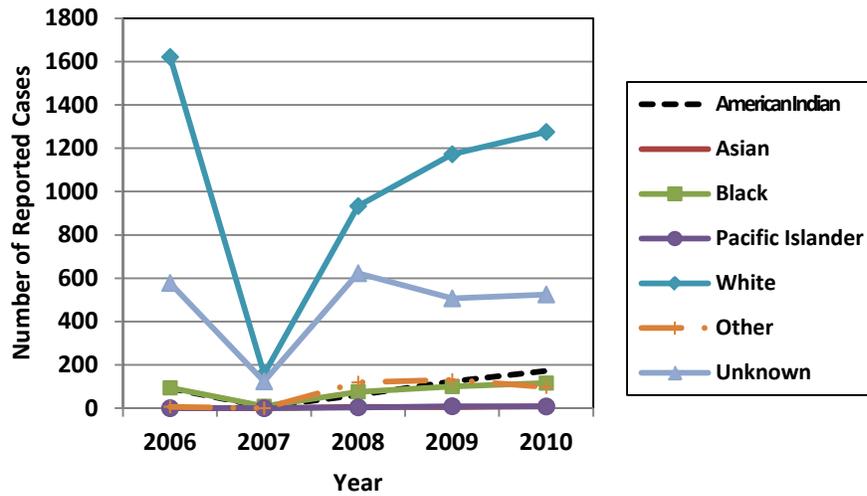
Males aged 20-29 years account for the largest number of reported chlamydia cases among males. In 2010, males aged 20-29 years accounted for 68% of reported cases among males.

Figure 32. Chlamydia by age group, males, Wyoming, 2006-2010.



The highest rate of chlamydia from 2006-2010 is in Non-Hispanic White individuals which has increased since 2007. The unknown race category accounts for the second largest number of cases. This is likely due to private provider reporting which often do not contain information regarding race and ethnicity.

Figure 33. Chlamydia cases by race, Wyoming, 2006-2010.



A higher rate of chlamydia infection is found in females. In 2010 the rate of chlamydia infection in females was 1.6 times higher than males. Rates in both males and females have increased since 2007.

Figure 34. Chlamydia rates per 100,000 population by gender, Wyoming, 2006-2010.

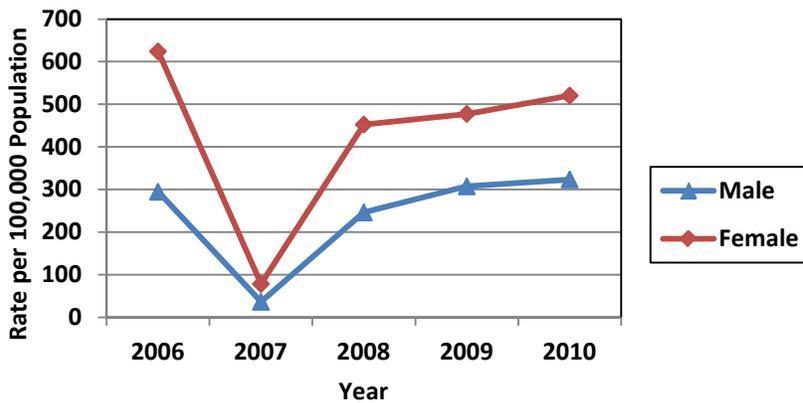
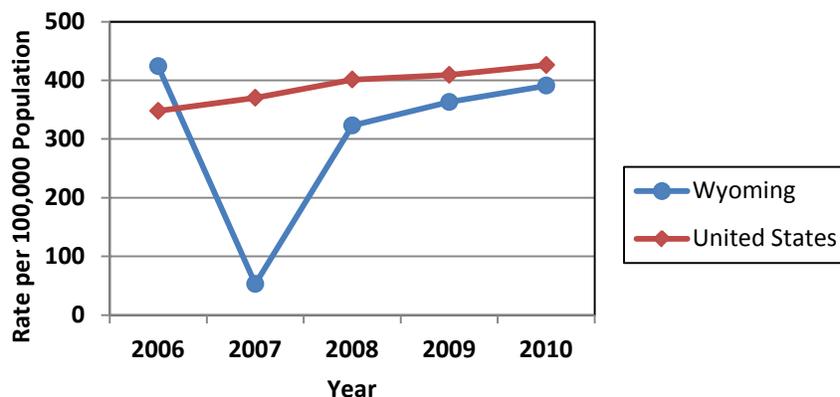


Figure 35 displays the overall rate of chlamydia in Wyoming against the total rate of chlamydia in the United States from 2006-2010. From 2008 to 2010 the Wyoming rate has been approaching the national rate for chlamydia infection.⁷⁻¹¹ In 2010, Wyoming had the 26th highest rate of chlamydia infection in the U.S. Many factors may attribute to this increase such as enhanced screening recommendations and enhanced partner services.

Figure 35. Chlamydia rates per 100,000 population, Wyoming and United States, 2006-2010⁷⁻¹¹.



SYPHILIS

Syphilis is a sexually transmitted bacterial infection caused by the bacterium *Treponema pallidum*. Syphilis is passed from person to person by direct contact with a syphilis sore which are often found on the penis, in the mouth, anus, or vagina. A syphilis infection may increase the chances of acquiring an HIV infection. Many people with syphilis do not show symptoms for many years. If symptoms do present, a painless sore, or chancre, will develop at the site of infection 10 to 90 days after exposure. This is indicative of the primary stage of syphilis. The chancre may last 3 to 6 weeks and will disappear on its own.

A skin rash and mucous patches indicate the secondary stage of syphilis. The rash can develop on one or more areas of the body and usually does not itch. The rash may develop when the chancre is still present or several weeks after the chancre has disappeared. Other symptoms of secondary syphilis may include fever, alopecia, headaches, weight loss, muscle aches, swollen lymph nodes, or fatigue. Like the chancre, symptoms of secondary syphilis will resolve without treatment.

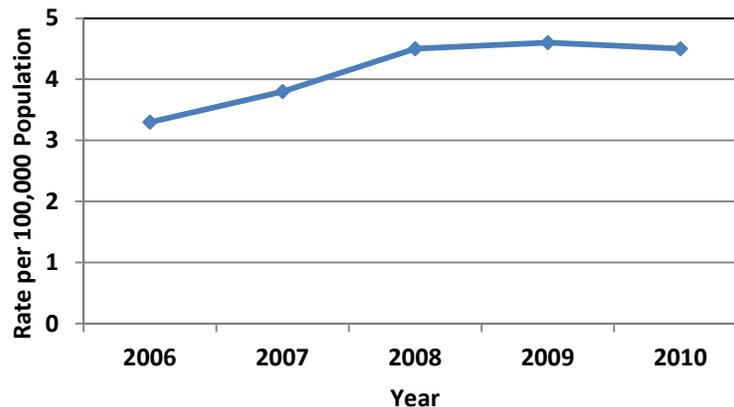
If left untreated syphilis may lay dormant in the body for several years. This is called latent syphilis. If left untreated syphilis may damage organs and other body parts such as the brain, kidneys, eyes, nerves, blood vessels, bones, joints, and heart. Signs and symptoms of this late stage of syphilis may include difficulty coordinating muscle movements, blindness, dementia, numbness, paralysis, and death.

Syphilis rates are low in Wyoming and screening is recommended for MSM, HIV positive individuals, individuals who are symptomatic, or have a history of incarceration of greater than six months. During the period 2006-2010, eleven cases of early (primary, secondary, or early latent) syphilis were reported in Wyoming. Males accounted for 64% of the total reported cases and females accounted for the remaining 36%.

Most cases (45%) were reported in individuals aged 45-54 years (n=5). Two cases each were reported in those aged 30-34 years and 25-59 years. One case each was reported in individuals aged 20-24 years and 15-19 years.

The rate of primary and secondary syphilis in the United States has been relatively stable for the past three years but has increased overall since 2006.⁷⁻¹¹ The rate of primary and secondary syphilis among men (7.9 per 100,000) was greater than seven times that of women (1.1 per 100,000).

Figure 36. Primary and secondary syphilis rate per 100,000 population, United States, 2006-2010.⁷⁻¹¹



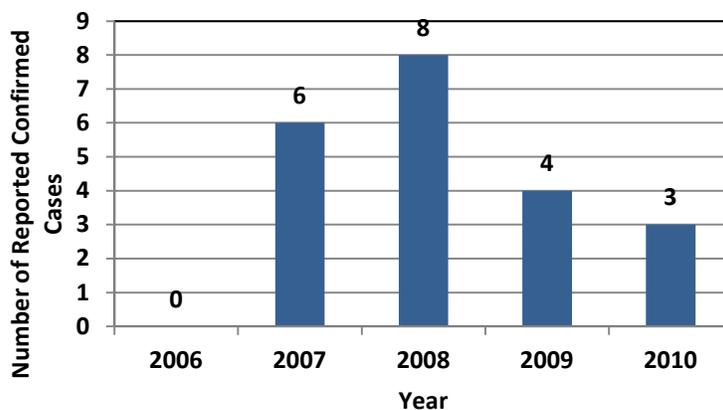
HEPATITIS B

Hepatitis B is transmitted through infected blood products as well as seminal and vaginal fluids. Risk factors for hepatitis B infection include:

- Infants born to infected mothers
- Sex partners of infected individuals
- Persons infected with an STD
- Men who have sex with men
- Individuals with multiple sex partners
- Injection drug users
- Household contacts of infected individuals
- Individuals in healthcare settings who are exposed to blood on the job
- Hemodialysis patients
- Travelers to regions with a Hepatitis B antigen prevalence of 2% or greater
- Individuals who work for developmentally disabled persons¹²

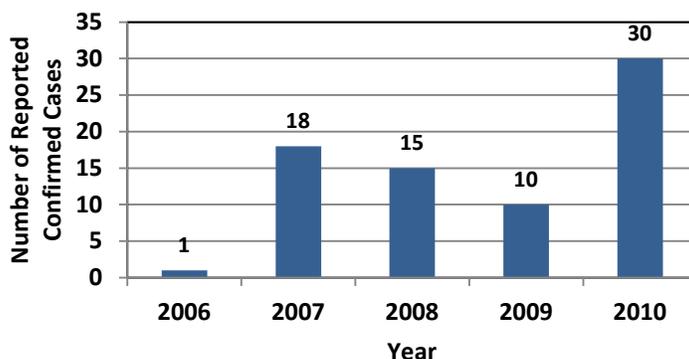
There were 21 cases of reported acute hepatitis B from 2006-2010. The average age of the cases was 38 years (range 18-57). Males accounted for 62% of the total reported cases.

Figure 37. Reported acute hepatitis B confirmed cases, Wyoming, 2006-2010.



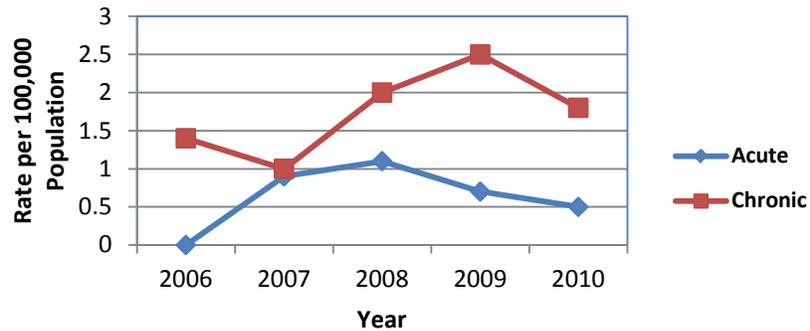
There were 74 cases of reported chronic hepatitis B from 2006-2010. The average age of the cases was 44 years (range 3-91) from 2006-2010. In 2011, 50-59 year olds accounted for the largest number of cases (29%). The number of reported cases increased threefold from 2009 to 2010. Males accounted for 53% of the total reported cases from 2006-2010.

Figure 38. Reported chronic hepatitis B confirmed cases, Wyoming, 2006-2010.



Wyoming has identified incarcerated individuals or persons with a history of incarceration as a priority population for hepatitis B vaccination and screening. As of October 2011, all state prisons have initiated mass inmate vaccinations. WDH has published hepatitis B screening and vaccination recommendations to include these populations as priority.

Figure 39. Reported acute and chronic hepatitis B confirmed cases, Wyoming, 2006-2010.



HEPATITIS C

Hepatitis C virus (HCV) is spread primarily through contact with contaminated blood and blood products, but has also recently been documented to be transmitted through sexual activity.

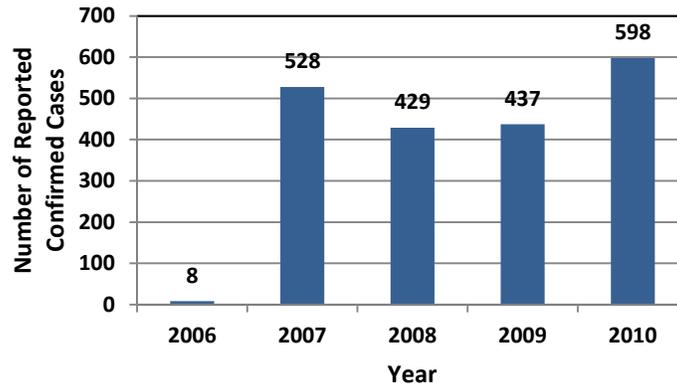
Populations at high risk for exposure to hepatitis C include:

- Current or former injection drug users
- Recipients of clotting factor concentrates before the year 1987
- Recipients of blood transfusions or donated organs before July of 1992
- Long-term hemodialysis patients
- Individuals with a known exposure to HCV
- HIV-infected individuals
- Infants born to infected mothers¹²

Approximately 75%-85% of individuals newly infected with HCV will develop a chronic infection while the remaining 15%-25% will clear the virus without treatment. Of individuals infected with HCV, 60%-70% will develop chronic liver disease. It is therefore recommended that those diagnosed with chronic HCV get vaccinated for HBV and hepatitis A virus to prevent poor medical outcomes from these secondary liver infections¹².

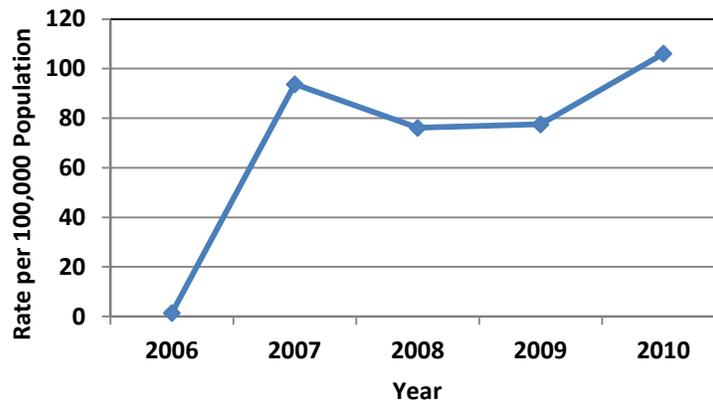
Wyoming has identified incarcerated individuals or persons with a history of incarceration as a priority population for hepatitis C screening and risk reductions measures. In fiscal year 2012, WDH plans to launch a pilot for peer educators within the department of corrections to kick off this initiative.

Figure 40. Newly reported chronic hepatitis C confirmed cases, Wyoming, 2006-2010.



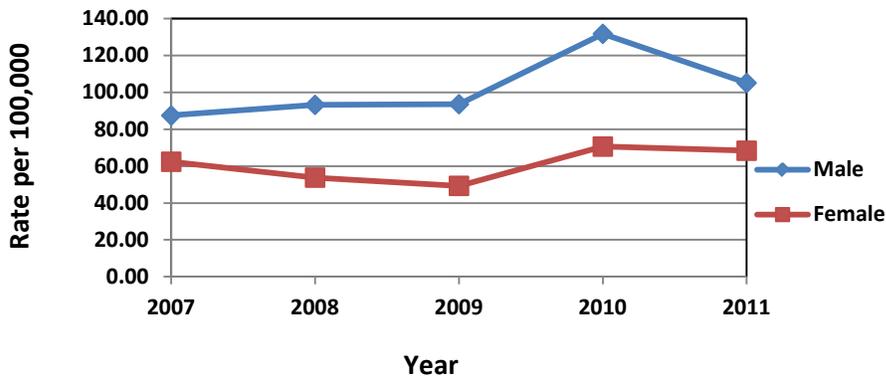
The rate of chronic hepatitis C increased 137% from 2009 (77.5 cases per 100,000 population) to 2010 (106.1 per 100,000 population). The rate of chronic hepatitis C in 2006 is very low (1.4 cases per 100,000 population) due to incomplete surveillance data.

Figure 41. Newly reported chronic hepatitis C rates per 100,000 population, Wyoming, 2006-2010.



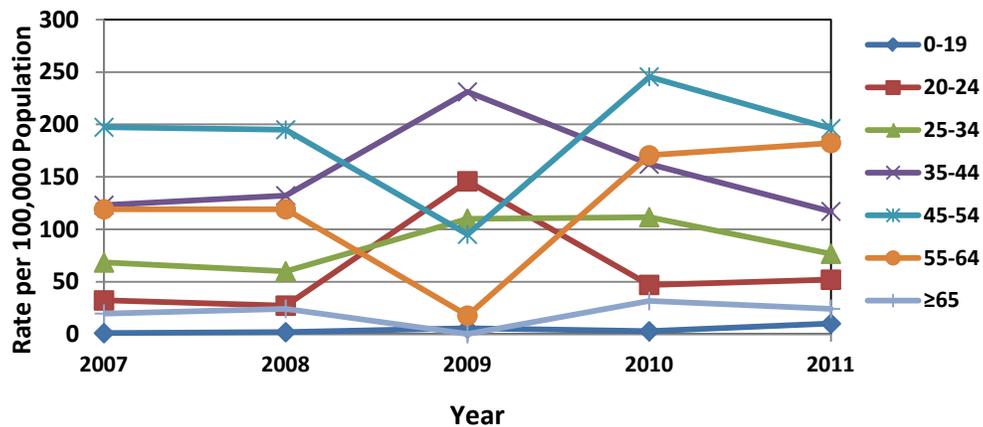
From 2007-2011, males consistently had a higher rate of infection than females (Figure 40). The rate of newly reported chronic hepatitis C infection decreased in both males and females from 2010 to 2011.

Figure 42. Newly reported chronic hepatitis C confirmed rates per 100,000 population by gender, Wyoming, 2007-2011.



Individuals age 45-64 had the highest rate of hepatitis C infection in 2011. This information is consistent with the information from the CDC regarding an increased risk of infection in individuals born between 1945 and 1965.¹⁶ Individuals aged 0-19 years had the lowest reported infection rate in 2011.

Figure 43. Newly reported chronic hepatitis C confirmed cases by age group, Wyoming, 2007-2011.



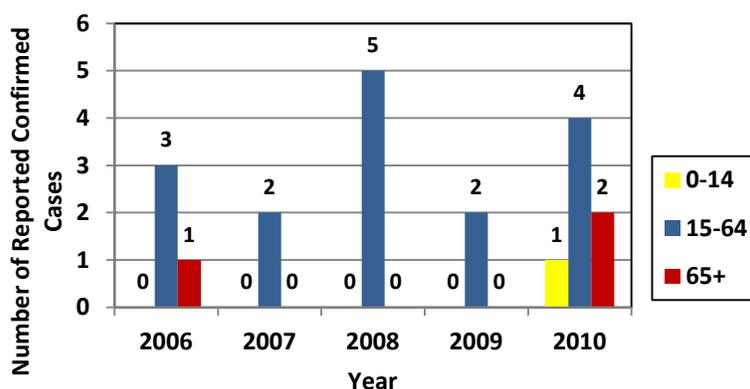
Section 5- Tuberculosis in Wyoming

TUBERCULOSIS

Tuberculosis (TB) is one of the leading causes of death worldwide attributed to an infectious disease. Worldwide approximately 9 million people develop active TB disease and 2 million people die from TB. TB is caused by *Mycobacterium tuberculosis* and is spread person to person through droplet nuclei in the air. An infected person expels the TB bacteria during coughing, sneezing, speaking, and singing. Transmission occurs when an individual inhales the contaminated droplet nuclei. The probability that TB will be transmitted depends on the infectiousness of the infected individual, the environment in which the exposure occurred, the length of the exposure, and the virulence of the tubercle bacilli. Transmission can be reduced by isolating the infected person and providing treatment for the infected person as soon as possible. Tuberculosis may develop in to active disease that is infectious, or can remain latent in the body which is not infectious but if not treated may develop into active disease.

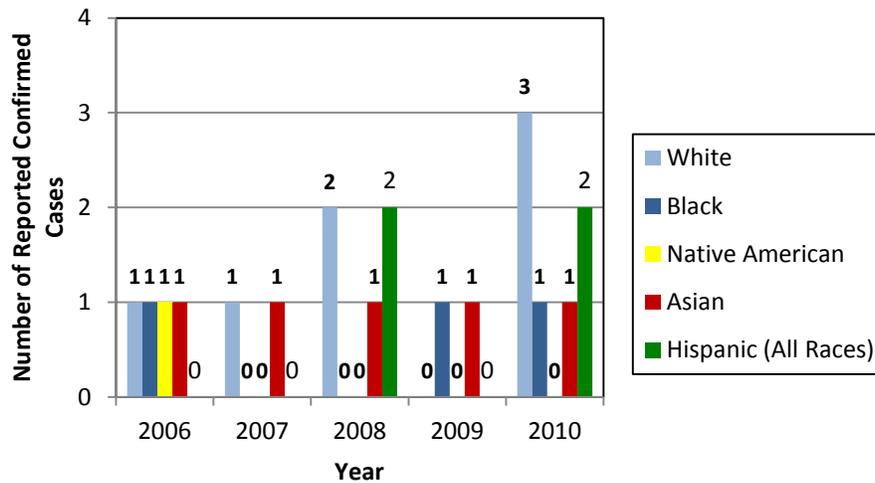
Wyoming is a low incidence state with only 20 cases reported from 2006-2010. Of these cases, 80% occurred in individuals aged 15-64 years.

Figure 44. Reported active tuberculosis confirmed cases by age group, Wyoming, 2006-2010.



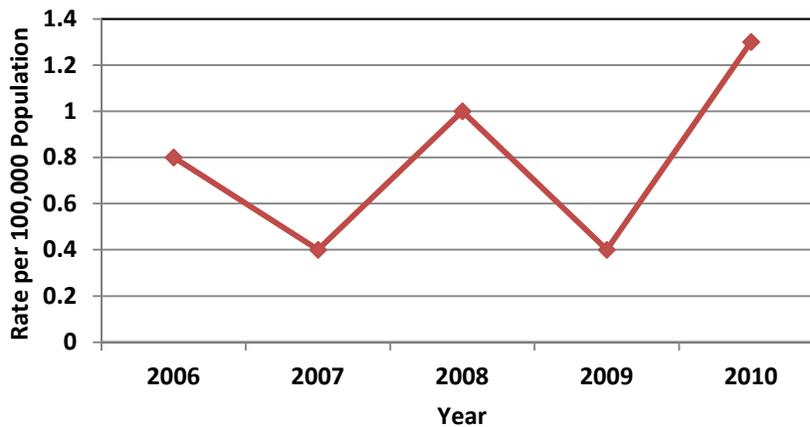
The largest number of cases occurred in Non-Hispanic White individuals who accounted for 35% of the total number of reported cases.

Figure 43. Reported active tuberculosis confirmed cases by race/ethnicity, Wyoming, 2006-2010.



The case rate of active TB disease has increased threefold from 2009 to 2010; however, this is difficult to interpret due to the low number of reported cases each year.

Figure 45. Active tuberculosis case rate* per 100,000 population, Wyoming, 2006-2010.



*A low number of cases (<20) causes unstable rates which are difficult to interpret

Targeted efforts are placed on detection and treatment of latent TB infection (LTBI). Populations in which there is a greater risk for TB infection in Wyoming include IDUs; homeless individuals; those born in Asia, Africa, or South America; those with parents born in Asia, Africa, or South America; and individuals that are members of a congregate setting (e.g., incarceration). If an individual has a latent infection, there is a 10% chance the infection will progress to active disease in his/her lifetime. To prevent the development of active disease in individuals with a latent infection, the Wyoming Department of Health TB program provides medication free of charge.

Table 9. Active and latent TB case rates per 100,000 population, Wyoming, 2011.

	Number	%	Case Rate (per 100,000 Population)
Sex			
Male	87	51.8	30.3
Female	81	48.2	29.3
Race*			
Asian	16	9.5	361.5
Black	11	6.5	231.7
Native	4	2.4	29.1
White	101	60.1	19.8
Other	27	16.1	-
Unknown	10	6.0	-
Ethnicity			
Hispanic	44	26.2	87.6
Non-Hispanic	111	66.1	21.6
Unknown	13	7.7	-
Total	168	100.0[^]	29.8

*Individuals may identify as one or more races

[^]Percentage may not add to 100.0 due to rounding

Table 10. Number of TB infected individuals started on TB medications annually, Wyoming, 1992-2011[^]

Year	Number	% of Infected Population Treated*
1992	300	6.6%
1993	322	7.1%
1994	231	5.1%
1995	219	4.8%
1996	220	4.5%
1997	194	3.9%
1998	248	5.0%
1999	272	5.5%
2000	212	4.3%
2001	262	5.3%
2002	194	3.9%
2003	204	4.1%
2004	201	4.1%
2005	167	3.4%
2006	220	3.9%
2007	153	2.7%
2008	200	3.5%
2009	148	2.6%
2010	171	3.0%
2011	167	3.0%

[^]Population sizes are based on census data for five years before and after the census years 1990, 2000, and 2010. Ex. 1996-2005 estimates are based on census data from 2000

*Percent of Infected Population Treated is based on the CDC estimate of 1.0% of the population is infected with LTBI.

Section 6- Coinfection in Wyoming

TB AND HIV

Though Wyoming has a low incidence of tuberculosis, it still remains a threat in individuals infected with HIV. TB is one of the leading causes of death in HIV positive individuals worldwide. Individuals who are infected with HIV and latent TB are much more likely to develop active TB disease. An individual who has both an HIV infection and active TB disease has an AIDS-defining condition. Newly diagnosed HIV individuals should be tested for TB, and those with active TB disease should be tested for HIV.¹³ In 2010, Wyoming reported its first two cases of TB and HIV coinfection.

HIV AND VIRAL HEPATITIS B & C

Injection drug use is one of the main ways to become infected with HIV as well as hepatitis C virus (HCV). Between 50%-90% of HIV positive injection drug users are coinfecting with HCV. Because coinfection with HCV may affect treatment of HIV infection, it is imperative that HIV positive individuals know their HCV status. Hepatitis C can be successfully treated in HIV individuals. HIV positive individuals who are not infected with Hepatitis C should take preventive steps against HCV.¹⁴

As of June, 2012, 2.5% of HIV infected persons in Wyoming were also infected with hepatitis C. An additional 1.0% of HIV infected persons were co-infected with hepatitis B. The Wyoming Department of Health recommends hepatitis A & B vaccinations for all HIV infected individuals. The following table represents the vaccination status of HIV infected persons enrolled in HIV services through the Wyoming Department of Health.

Table 11. Hepatitis A and B vaccination status of HIV-infected persons currently enrolled in HIV services, Wyoming, 2011.

Vaccinations	% Vaccinated
Fully Vaccinated for Hepatitis A and B	15.5
Fully Vaccinated for Hepatitis A	5.4
Fully Vaccinated for Hepatitis B	7.7
Received one or more doses of vaccine, not fully vaccinated	16.7
No Vaccination Record in the WyIR*	67.9

*WyIR- Wyoming Immunization Registry is a database in which immunizations of Wyoming residents are documented.

STDS AND HIV

Individuals infected with a STD are up to five times more likely to acquire HIV infection than those uninfected. An individual with HIV infection and another STD is more likely to spread the HIV infection through sexual contact than an HIV infected individual with no additional STD. There is significant biological evidence which shows that HIV is more likely to be transmitted and acquired if other STDs are present. STDs have been shown to increase susceptibility through genital ulcers and

inflammation. Individuals infected with HIV and other STDs are likely to shed HIV in their genital secretions.¹⁵

As of December, 2011, only 1.7% of HIV infected persons enrolled in care were tested for chlamydia, gonorrhea and/or syphilis through the Wyoming Public Health Laboratory. Of all individuals infected with HIV, 1.0% have had a past chlamydia infection, 1.0% have had a past gonorrhea infection, and 0.5% have had a previous syphilis infection.

Section 7 – Characteristics of High-Risk Populations in Wyoming

CHLAMYDIA/GONORRHEA

Adolescents

In this report adolescents are defined as individuals age 13-24 years while adults are those over 24 years old. Individuals age 15-24 have the highest rates of chlamydia and gonorrhea infection compared to any other age group. Adolescents tend to have more risk behaviors for acquiring a chlamydia and/or gonorrhea infection such as multiple partners, new partners, and incorrectly or inconsistently using condoms. Adolescents are also at a greater biological risk for acquiring chlamydia or gonorrhea.

Women

Women consistently accounted for more cases of chlamydia and gonorrhea infection from 2006-2010. Screening efforts for chlamydia and gonorrhea are targeted at all sexually active females under the age of 25 and women 25 and older that report risks. The CDC recommends all pregnant women be screening for chlamydia and gonorrhea at their first prenatal care visit.

SYPHILIS

Men who have sex with men

The Wyoming Department of Health has identified men who have sex with men to be at increased risk of syphilis infection. In the US, the CDC reported that MSMs accounted for more cases of syphilis than men who have sex with women and women who have sex with men and/or women. From 2006 to 2010, males accounted for 64% of reported syphilis infections.

Incarceration > 6 months

The CDC reports that persons entering correctional facilities have high rates of STDs including syphilis, especially those under the age of 35 years. Risk factors such as having unprotected sex, multiple sex partners, and using drugs and alcohol are common in incarcerated populations.

HIV Infected

Of those infected with HIV in Wyoming, 0.5% report coinfection with syphilis. Syphilis chancres can make transmission and acquisition of HIV infection easier. Individuals with syphilis are two to five times more likely to acquire HIV if exposed.

HIV

Men who have sex with men

By exposure and transmission categories, MSMs continue to account for the largest number of newly diagnosed cases of HIV infection in Wyoming. Between 2006 and 2010, 49% of all adult and adolescent HIV disease was among MSM. Among males, 62% of cases were MSM.

During the same time period, 37% of newly diagnosed HIV disease among MSMs were between 25 and 34 years of age at diagnosis. By race/ethnicity, 76% of cases among MSM were White and 12% were of Hispanic.

Men who have sex with other men who also reported inject drug use, represented 6% of male cases during 2001-2005 and 12% of cases among males during 2006-2010.

Injection drug users

Between 2006 and 2010, 14% of newly identified adult and adolescent HIV disease was among injection drug users (IDUs). By gender, 12% of HIV disease among males was attributed to injection drug use while 22% of newly diagnosed HIV disease among females was attributed to IDU. Among male IDUs, 38% were aged 25 to 34 years at diagnosis and 38% were aged 35 to 44 years.

Women

Twenty-one percent of newly identified HIV disease was among adult and adolescent females between 2001 and 2010. Among females, 61% were white and 72% of cases were attributed to heterosexual sex. Among adult and adolescent females whose infection was attributable to heterosexual sex, 46% reported having sex with an IDU, and 54% reported sex with a male who had been diagnosed with HIV infection. Among newly diagnosed females for the period 2006 through 2010, 28% were 15 to 24 years old at diagnosis, 33% were between 25 and 34 years of age, and 22% were aged 35 to 44 years.

HEPATITIS B

Globally, 350 million people are infected with hepatitis B, 1.2 million of which occur in the US. In 2010, 30 chronic and 3 acute cases of hepatitis B were reported. Risk factor data for individuals infected with hepatitis B in Wyoming is incomplete.

Asian and Pacific Islanders (API)

APIs make up 5% of the US population but account for more than 50% of hepatitis B infections. An estimated 70% of APIs that reside in the US were either born in or have parents who were born in a

hepatitis B endemic country. The CDC estimates that 1 of every 12 APIs are living with hepatitis B and do not know it.

Injection drug users

Injection drug users are at risk for hepatitis B from sharing needles and other drug equipment. In 2003, an outbreak of hepatitis occurred among injection drug users. As a result of the outbreak, the Wyoming Department of Health added the recommendation for hepatitis B vaccinations for anyone over the age of 18 that has not or has no record of receiving vaccination.

Men who have sex with men

The CDC reports men who have sex with men account for 15-25% of new infections. The CDC and Wyoming Department of Health recommend hepatitis B screening for MSM.

HEPATITIS C

Injection drug users

The CDC reports that the largest group of individuals with hepatitis C in which risk factors were identified were IDUs in 2009. Of the 339 reported cases with risk factor data, 241 (71%) reported injecting drugs.

Individuals born between 1945 and 1965

The CDC reports individuals born between 1945 and 1965 account for approximately 75% of hepatitis C cases in the U.S.¹⁶ The Wyoming Department of Health does not recommend age-based screening and only recommends screening for those who have a known risk for hepatitis C infection.

DIRECT MEASURES OF RISK BEHAVIOR

Sexual Behaviors: The Youth Risk Behavior Survey for Wyoming (YRBS-WY) is a self-administered questionnaire given to a representative sample of 6th through 12th grade students throughout the state every other year. Of the 55 eligible schools in 2011, all participated in the survey. A total of 2,715 students were sampled, of which 84% participated in the survey. The YRBS-WY is not without limitations. The survey is administered during school therefore potentially under-representing high risk populations which are more likely to be absent from school. The survey may also under-represent students in older grade levels as they are more likely to not be in school.

The 2011 YRBS-WY indicates that 12.9% (3.9 students per classroom of 30) of middle school students and 47.9% (14.4 students per classroom of 30) of high schools students have engaged in sexual intercourse. Overall, 5.0% of students indicated three or more sex partners in their lifetime. Of those who have had sexual intercourse, 67.2% indicated using a condom during their most recent time. Over half (51.8%) of students who participated in the survey indicated they have been taught about STDs and HIV at some point in their life.

The Wyoming Behavioral Risk Factor Surveillance System (BRFSS) assesses risk for HIV infection in Wyoming. High risk for HIV infection includes one or more of the following: 1) Intravenous drug use in the past year, 2) Treated for a sexually transmitted disease in the past year, 3) given or received money or drugs in exchange for sex in the past year, and 4) had anal sex without a condom in the past year. A total of 3,681 people were questioned about their risk of HIV infection. Of the total population surveyed, 3.5% were determined to be at high risk of HIV infection. More males (3.9%) were at high risk for HIV infection than females (3.2%). The age group most at risk for HIV infection was 18-24 year olds (Table 12).

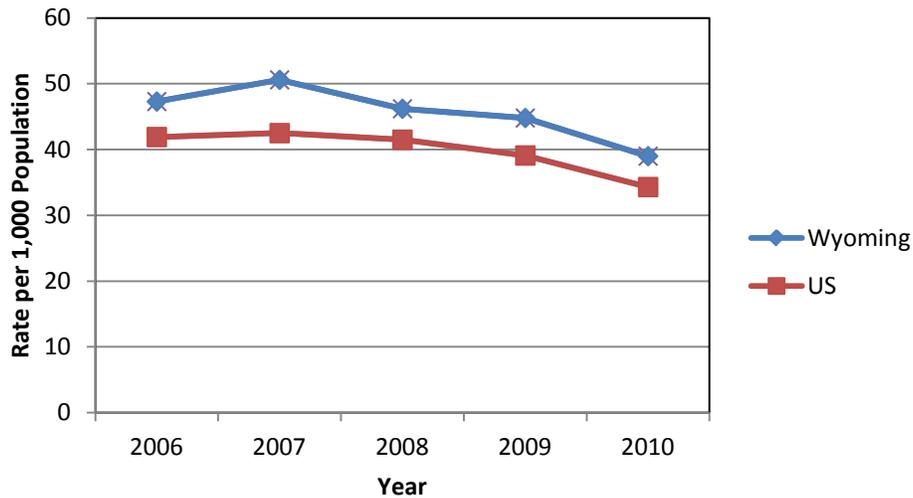
Table 12. Characteristics of those at risk of HIV infection in adults age 18-64 years, BRFSS, Wyoming, 2010.

Population Group	Number (%*)	Sample Size
Gender		
Male	35 (3.9)	1,543
Female	45 (3.2)	2,138
Age Group (years)		
18-24	15 (8.8)	149
25-34	20 (5.1)	430
35-44	11 (1.7)	645
45-54	19 (2.0)	1,073
55-64	15 (1.2)	1,384
Race/Ethnicity		
White (Not Hispanic)	65 (3.3)	3,344
Hispanic (All Races)	4 (5.0)	168
Other	10 (6.3)	134
Total	80 (3.5)	3,618

*Percent is calculated from of total sample size

The Wyoming Department of Health Maternal and Child Health Program routinely collects data on teen birth rates. Teen birth rates declined from 2007 to 2010 from 50.6 to 39.0 cases per 1,000 population. Though teen birth rates have been declining in Wyoming since 2007, Wyoming rates are consistently higher than teen birth rates for the United States. (Figure 45).

Figure 45. Teen (15-19 yrs) birth rates per 1,000 population, Wyoming, 2006-2010.



Substance Use: The National Survey on Drug Use and Health (NSDUH) and the YRBS provide data on risk behaviors related to substance use. The NSDUH is conducted by SAMHSA’s Office of Applied Studies (OAS) and is a source of information on the prevalence, patterns, and consequences of alcohol, tobacco, and illicit drug use of U.S. civilians age 12 years and older.

The NSDUH defines illicit drugs as marijuana/hashish, cocaine, inhalants, hallucinogens, heroin, and any other prescription-type psychotherapeutic drug used non-medically. From 2006-2007, the population with the highest percentage of drug use (of any type) in the past month was the 18-25 year old age group. An estimated 10.75% of the 12-17 year old population had used illicit drugs in the past month and 20.36% indicate the use of alcohol during the past month (Table 13).

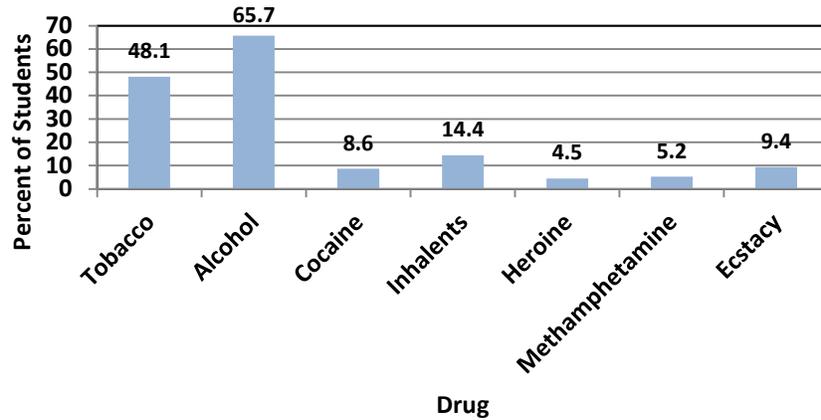
Table 13. Percentage of population with select substance use by age group, NSDUH, Wyoming, 2006-2007.

Age Group (years)	Any Illicit Drug Use in the Past Month	Marijuana Use in the Past Month	Illicit Drug use Other Than Marijuana in the Past Month	Alcohol Use in the Past Month	Tobacco Use* in the Past Month
12-17	10.75	8.11	4.88	20.36	21.21
18-25	20.49	18.11	9.49	70.96	55.28
≥26	6.26	4.67	2.72	58.27	35.31

*Tobacco Use include cigarettes, cigars, smokeless tobacco, and pipe tobacco

The YRBS also collects information on substance use of middle and high school students. Figure 22 shows the percentage of students who have ever used select drugs in their lifetime. Alcohol is the most commonly used drug among middle and high school students in Wyoming, followed by smoking tobacco. In addition, the YRBS indicates that 4.0% of middle and high school students have ever used needles to inject drugs.

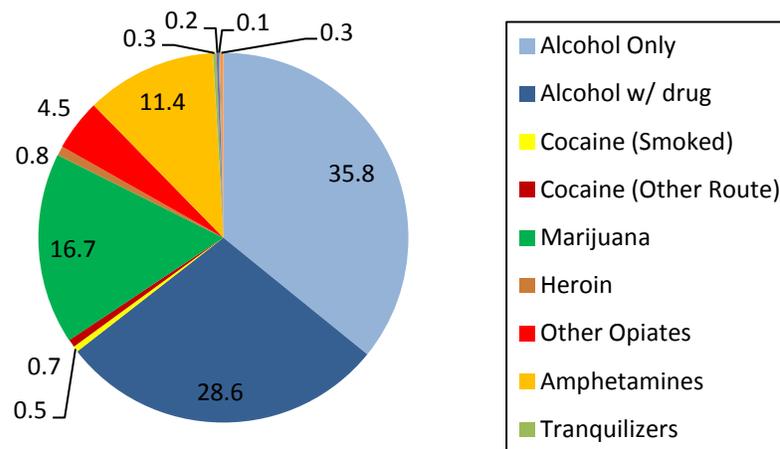
Figure 46. Percentage of middle and high school students who report select drug use* in their lifetime, YRBS, Wyoming, 2011.



* Tobacco includes only smoking tobacco. Cocaine include powder, crack, and freebase. Inhalants include aerosols, paints, & sprays.

The Treatment Episode Data Set (TEDS) provides data that may identify behaviors related to injection drug use. TEDS is maintained by the Substance Abuse and Mental Health Services Administration. TEDS quarterly updates routinely reported substance use treatment admission data from state and federally funded facilities in the state of Wyoming. Of those admitted into a treatment facility in 2010, the largest percentage (35.8%) reported using alcohol only while 28.6% reported using alcohol and a secondary drug. No one reported using PCP, hallucinogens, or other stimulants.

Figure 47. TEDS drug use data, Wyoming, 2010.⁶



Appendix A: Profile Data Sources

1. Population Data

U.S. Census Bureau

Overview: The Census Bureau collects and provides timely information about the people and economy of the U.S. The Census Bureau's website (<http://www.census.gov>) includes data on demographic characteristics of the population, family structure, educational attainment, income level, and housing status. Data are available for all geographic areas to the block level. Summaries of the most requested information for states and counties are provided, as well as analytical reports on population changes, race, age, family structure, and apportionment.

Population: The U.S. Population.

Strengths: The Census provides data on the entire U.S. Population which is available in smaller subgroups such as states, counties, and cities.

Limitations: The Census is only taken every ten years which may under-represent changes in data through time. This also makes it difficult to compare changes in HIV/STD and risk factor data with demographic and economic changes in the population.

2. Core HIV/AIDS Surveillance

AIDS Surveillance

Overview: AIDS is a reportable condition in all states and territories. The AIDS Surveillance system was established to monitor incidence of the disease and the demographic profile of AIDS cases; to describe the modes of HIV transmission among persons diagnosed with AIDS; to guide the development and implementation of public health intervention and prevention programs; and to assist in the evaluation of the efficacy of public health interventions. AIDS surveillance data are also used to allocate resources for Titles I and II of the Ryan White CARE Act.

In Wyoming, both providers and laboratories are required to report any new HIV positive test. Standardized case report forms are used to collect socio-demographic information, modes of exposure, laboratory and clinical information, vital statistics, and referrals for treatment services.

Population: All persons who meet the CDC AIDS surveillance case definition. CDC case definitions can be found at <http://www.cdc.gov/std/stats09/app-casedef.htm>.

Strengths: The data reflect the impact of AIDS on communities and trends of the epidemic within communities. AIDS surveillance has been determined to be >85% complete. The data include all demographic groups (age, race/ethnicity, sex).

Limitations: Due to the prolonged and variable period from infection to development of AIDS, trends in AIDS surveillance do not represent recent HIV infections. Conversely, asymptomatic HIV-infected persons also are not represented by AIDS case data. In addition, incomplete HIV or CD4+ t-cell may interfere with the completeness of reporting. Further, the widespread use of HAART

complicates the interpretation of AIDS case surveillance data and estimation of the impact of HIV disease in an area. Newly reported AIDS cases may reflect treatment failures or the failure of the health care system to halt progression of HIV infection to AIDS. AIDS cases represent late stage HIV infections.

HIV Surveillance

Overview: Since the human immunodeficiency virus was identified, the CDC and other professional organizations have recommended reporting of HIV infections to health authorities as an integral part of AIDS surveillance activities. As part of ongoing HIV surveillance, health departments educate providers on reporting requirements and establish liaisons with laboratories that test for HIV infection. Moreover, HIV/AIDS surveillance programs routinely evaluate the completeness of HIV reporting and conduct follow-up on HIV cases.

Population: All persons who test positive for Human Immunodeficiency Virus (HIV).

Strengths: HIV surveillance data represent more recent infections, compared with AIDS surveillance data. Based upon previous evaluations, HIV infection (non-AIDS) reporting in Wyoming was found to be 99% complete within six months of diagnosis.

Limitations: HIV surveillance data may underestimate the level of recently infected persons as people may not seek testing and may not know they are infected. Reporting of behavioral risk information may not be complete as these data are self-reported.

3. Behavioral Surveys

Behavioral Risk Factor Surveillance System (BRFSS)

Overview: The BRFSS is a state-based random digit-dialed telephone survey of adults that monitors state-level prevalence of the major behavioral risks associated with premature morbidity and mortality. Currently all 50 states participate in the BRFSS with help from the CDC. The BRFSS includes home telephones and cellular telephones. Each month, a sample of households is contacted and one person in the household who is 18 years or older is randomly selected for an interview. In Wyoming, approximately 6,000 interviews are conducted. Multiple attempts are made to contact the selected household. The interview can be done in English or Spanish. Information regarding the Wyoming BRFSS can be found at <http://www.health.wyo.gov/phsd/brfss/index.html>.

Population: All non-institutionalized adults, 18 years and older that reside in Wyoming with a home or cellular telephone.

Strengths: Data from the BRFSS survey are population-based; thus, estimates about testing attitudes and practices can be generalized to the adult population of Wyoming. Information collected from the BRFSS survey may be useful for planning community-wide education programs.

Limitations: BRFSS data are self-reported and may be subject to recall bias or refusal. BRFSS respondents are contacted by telephone and are therefore not representative of those without telephones. BRFSS does not interview those who are incarcerated, in nursing homes, or other institutionalized settings. The extent of HIV behavioral risk information collected by the BRFSS is limited and inferences can only be made at the state level.

Youth Risk Behavior Survey (YRBS)

Overview: The YRBS was established to monitor six priority high-risk behaviors that contribute to the leading causes of morbidity, mortality, and social problems among youth and young adults in the United States. YRBS was developed to collect data that are comparable nationally, statewide, and locally. It is a state-wide, self-administered questionnaire given to a representative sample middle and high school students (6th-12th grade). The survey includes information on sexual behaviors which contribute to STDs including HIV, and unintentional pregnancy. Questions are also asked about exposure to HIV prevention education materials, sexual activity (age of debut, number of partners, condom use, preceding drug or alcohol use), contraceptive use, and pregnancy history. Information about the YRBS in Wyoming can be found at <http://edu.wyoming.gov/DataInformationAndReporting/YouthRiskBehaviorSurvey.aspx>.

Population: The YRBS surveys a representative sample of 6th-12th grade students at the state level.

Strengths: The YRBS is a population-based sample of adolescents in public school systems in Wyoming. The YRBS questionnaire is administered to students anonymously during school. Efforts are made to survey students who are not in attendance. Inferences from YRBS estimates can be drawn about behaviors and attitudes of adolescents in public schools, which make information useful for developing community-wide prevention programs aimed at younger persons. The YRBS uses a standardized questionnaire so comparisons can be made across participating jurisdictions. Jurisdictions have the opportunity to ask specific questions to meet their needs.

Limitations: The YRBS relies on self-reported information which may lead to under- or over-reporting. Since the YRBS questionnaire is administered in school, the data are only representative of children who are enrolled in school and cannot be generalized to all youth. Students at highest risk may be more likely to be absent from school or to have dropped out of school and therefore might be underrepresented. The YRBS does not ask about different types of sex or sexual orientation.

4. Substance Abuse Data

Treatment Episode Data Set (TEDS)

Overview: TEDS is a national data set maintained by the Office of Applied Studies, Substance Abuse and Mental Health Services Administration (SAMHSA). Data are captured annually on more than 1.5 million records of treatment admissions for substance abuse. TEDS is comprised of data that are routinely collected by States to help monitor their individual substance abuse treatment programs. TEDS collects information on client demographics, information about the number of prior treatments, usual route of administration for each problem substance, frequency of use, age at first use, and services provided. Facilities that report TEDS data usually receive state funding for the provision of substance abuse treatment.⁶

Population: Individuals admitted to substance abuse treatment facilities reporting to TEDS.

Strengths: While TEDS does not represent the total demand for substance abuse treatment, it does include a significant proportion of all admissions to substance abuse treatment. TEDS includes admissions that constitute a burden on public funds.

Limitations: TEDS is based on admission records and does not represent individuals, as on individual receiving treatment within the same calendar year would be considered two admissions.

Also, TEDS is unable to follow individual clients through a sequence of treatment episodes because individuals are given unique IDs at the state level to protect confidentiality. TEDS data does not include data from private entities as well as federal agencies and can under represent individuals receiving treatment from those facilities.

The National Survey on Drug Use and Health (NSDUH)

Overview: The NSDUH is a source of information on the prevalence, patterns, and consequences of alcohol, tobacco, and illegal drug use and abuse in the general U.S. civilian, non-institutionalized population, age 12 years and older. The survey is currently conducted by SAMHSA's Office of Applied Studies (OAS).

Population: Non-institutionalized, civilian U.S. population age 12 years and older.

Strengths: NSDUH is a national, standardized survey of drug use behaviors among the general population. To increase the level of honest reporting, since 1999, information has been collected using a combination of computer-assisted interviewing methods. This provides respondents with a more private and confidential means of responding to questions about substance use and other sensitive behaviors.

Limitations: States must rely on statistical estimates as direct data is only available for some states. NSDUH estimates represent behaviors in the general population, thus the survey may underestimate the level of substance use in the population at highest risk for HIV. Furthermore, the data for the NSDUH are self-reported and are subject to recall bias or refusal which can result in under- or over-reporting.

5. HIV Services Data

Wyoming HIV Services Data

Overview: The Wyoming Department of Health provides services to individuals infected with HIV through Ryan White Part B, AIDS Drug Assistance Program (ADAP), Ryan White Part C-EIS (Early Intervention Services) and the Housing Opportunities for Persons with AIDS (HOPWA) programs.

Population: Wyoming HIV Services Data includes individuals infected with HIV or with an AIDS diagnosis, residents of Wyoming with permanent Wyoming addresses and a valid Wyoming driver's license or ID, and meet the income guidelines.

Strengths: All individuals enrolled in Care in Wyoming are represented by these data.

Limitations: It is unknown if individuals not enrolled in care are receiving adequate medical services. Data from the HIV Services Program cannot be generalized to all individuals with HIV/AIDS in Wyoming.

6. STD Surveillance

STD Case Reporting

Overview: The Wyoming Department of Health STD Program conducts statewide surveillance to determine sexually transmitted disease (STD) incidence and to monitor trends. In Wyoming, chlamydia, gonorrhea, and syphilis are reportable STDs.

Population: All persons who are diagnosed with an infection that meets the CDC case definition for the infection and are reported to the STD Program. CDC case definitions can be found at <http://www.cdc.gov/std/stats09/app-casedef.htm>.

Strengths: STD surveillance data can serve as the surrogate marker for unsafe sexual practices and demonstrate the prevalence of STDs in the state. STD data are widely available at the state and county level. Because of shorter incubation time and periods between exposure and infection, STDs can serve as a marker of recent unsafe sexual behavior. In addition, STDs can facilitate transmission or acquisition of HIV infection.

Limitations: STDs are reportable, but requirements vary across states. Reporting of STDs from the private sector providers may be less complete.

Appendix B: Glossary of Terms

AIDS: AIDS stands for acquired immunodeficiency syndrome. An HIV-infected person receives a diagnosis of AIDS after developing one of the CDC-defined AIDS indicator illnesses (see *opportunistic infection*) or on the basis of certain blood tests (i.e. having a CD4+ count of less than 200 or a CD4+ percent of less than 14). A positive HIV test result does not automatically indicate AIDS.

Bias: Bias occurs when there is a systematic error in data that leads to erroneous results.

CDC: The Center for Disease Control and Prevention (CDC), within the U.S. Department of Health and Human Services, is the lead federal agency for protecting the health and safety of the people of the United States. The CDC accomplishes its mission through developing and applying disease prevention and control, environment health, and health promotion and education activities designed to improve public health in the U.S. The CDC provides the majority of funding for HIV prevention, and all of the funding for HIV surveillance activities in Wyoming.

Cumulative Incidence Rate: A measure of the disease development in a defined population during a specified time period. The cumulative incidence rate is typically calculated by dividing the number of new events in a population by those at risk at the beginning of that time period and multiplied by a rate base.

Exposure Categories: In order to monitor how HIV is being transmitted, HIV/AIDS cases are classified into one of several exposure (risk) categories developed by the CDC.

- Men who have sex with men (MSM) refers to men who report having had sexual contact with other men.
- Injection drug user (IDU) cases are those who report ever using drugs that require injection.
- High-risk heterosexual contact (HRH) cases have reported heterosexual contact with a partner who is at increased risk for HIV infection, i.e., a homosexual or bisexual man or an IDU, or a partner with documented HIV infection.
- Hemophilia/Transfusion/Transplant cases are those who report having received a transfusion of blood or blood products prior to 1985.
- Perinatal cases are cases of HIV infection in children resulting from transmission from an HIV positive mother.
- Unspecified or “no identified risk (NIR)” cases are those cases who have no reported history of exposure at the time of publication. This category includes persons for whom the surveillance protocols to document risk information have not yet been completed, persons whose exposure history is incomplete because they have died, persons who have declined to disclose their risk behavior or who deny any risk behavior, and persons who do not know the HIV status or risk behaviors of their sexual partners.

HAART: Highly Active Antiretroviral Therapy (HAART) refers to aggressive anti-HIV treatments that usually include a combination of protease and reverse transcriptase inhibitors, which interrupt the HIV life cycle, and whose purpose is to reduce a person’s viral load to undetectable levels.

HIV: HIV is an acronym for “Human Immunodeficiency Virus,” which is the virus that causes AIDS. A person who has contracted the virus is said to be HIV-positive or HIV-infected.

HIV Disease: In the context of this document, HIV disease describes both individuals who have been diagnosed as HIV positive only and those diagnosed with AIDS. Individuals with either carry the HIV virus.

Incidence: Incidence refers to the number of new cases of disease that occur in a population during a specified time period, usually a year.

Perinatal: The word “Perinatal” means “around birth” and is used to describe events that occur during labor and birth, and immediately following delivery. When “Perinatal” is used to describe communicable disease transmission, however, this word applies more broadly and describes any time that a mother may pass the communicable disease to her child – either while she is pregnant, during birth, or through breast-feeding.

Prevalence: Prevalence refers to the total number of persons with a specific disease or condition at any given time.

Proportion (percentage): A proportion is a type of ratio in which the numerator is included in the denominator. Since the numerator is a subset of the denominator, a proportion can be thought of as a ration of a “part” of the “whole”. A proportion is usually expressed as a percentage.

Rate: A rate is a special type of ratio that includes a specification on time. In epidemiology, rates express the probability or risk of disease or other events in a defined population over a specified time period, often one year.

Ryan White CARE Act: The Ryan White Comprehensive AIDS Resources Emergency Act was created to provide federal assistance to increase the availability of primary health care and support services for persons living with HIV disease, to increase access to care for underserved populations, and to improve the quality of life for those affected by HIV. The CARE Act was first enacted by Congress in 1990 and was reauthorized in 1996 and 2000.

HRSA implements the CARE Act and directs assistance through the following channels:

- **Title I** provides support to Eligible Metropolitan Areas (EMAs) with the largest numbers of reported AIDS cases, to meet emergency service needs of persons living with HIV;
- **Title II** provides support to all states and territories to improve the quality, availability, and organization of health care and support services for persons living with HIV and their families;
- **Title III** supports outpatient early intervention HIV services through funding to public and private nonprofit entities;
- **Title IV** funds public and private nonprofit entities to conduct projects to coordinate services to children, youth, women, and families with HIV/AIDS; and
- **Part F** provides support for Special Projects of National Significance (SPNS) to develop and evaluate innovative models of HIV/AIDS care, for AIDS Education and Training Centers (AETC) and to conduct education and training for health care

providers, and for the HIV/AIDS Dental Reimbursement Program to assist with providing oral health services to HIV-infected patients.

Surveillance: In a public health context, surveillance refers to the routine, systematic collection of data on diseases or other important health conditions in order to monitor where the condition occurs and to determine the risk factors associated with the condition.

Testing (anonymous, confidential): In Wyoming until 2012, an individual can choose to test anonymously or confidentially for HIV in a publicly funded testing site. Both anonymous and confidential HIV-positive test results are reported to the health department where information is maintained under the strictest security and confidentiality measures. Persons who are tested anonymously do not provide their names when taking the HIV test. Persons who are tested confidentially do provide their names when taking the HIV test. After 2012, anonymous testing will no longer be accepted in Wyoming.

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