
2005 Report on Minnesota Adolescents:

STD, HIV, and Pregnancy

**Minnesota Department of Health
STD and HIV Section**

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INTRODUCTION

Purpose

The purpose of this report is to examine the following topics as they relate to the health of Minnesota's adolescent population:

- Sexual behavior
- Contraception use
- Bacterial STDs
- HIV/AIDS
- Teen pregnancy
- Disparities
- Risk and Protective Factors

Although each of these topics has been examined separately, the goal of this report is to present coordinated information on these topics and help generate new ideas for prevention.

Data Sources

The data, charts, and graphs presented in this report were collected from a variety of sources, including surveillance reports from the Minnesota Department of Health, surveys from the Minnesota Department of Education, the Minnesota Student Survey, the Centers for Disease Control and Prevention, literature searches, and personal interviews with department staff. See the reference section at the end of this report for the complete bibliography.

Complete data sets are available online at the following links:

Minnesota Student Survey data can be found at
<http://www.mnschoolhealth.com/resources.html?ac=data>

School Health Education Profiles can be found at
<http://www.mnschoolhealth.com/resources.html?z=696026&s=3&ac=data>

Minnesota STD Prevalence Study data can be found at
<http://www.health.state.mn.us/divs/idepc/dtopics/stds/repo-rpt1.html>

Minnesota STD Surveillance data can be found at
<http://www.health.state.mn.us/divs/idepc/dtopics/stds/stdstatistics.html>

Minnesota HIV/AIDS Surveillance data can be found at
<http://www.health.state.mn.us/divs/idepc/diseases/hiv/hivstatistics.html>

Minnesota Center for Health Statistics data can be found at
http://www.health.state.mn.us/divs/chs/top_2.htm

Acknowledgments

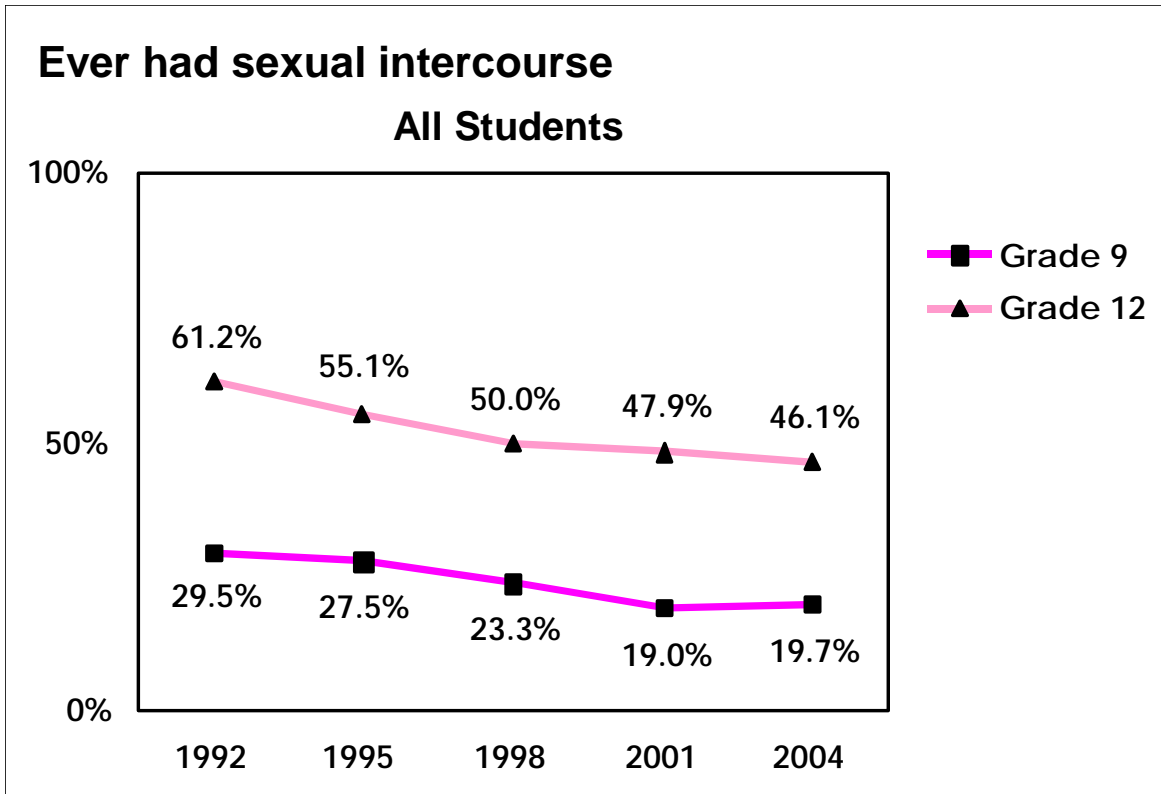
The Minnesota Department of Health, the Minnesota Department of Education and the University of Minnesota, School of Public Health provided time, resources, and/or staff to make this report possible. However the most significant contribution was made by **Brennan O'Dell** who completed the majority of this work during a summer internship at the Minnesota Department of Health.

SEXUAL BEHAVIOR

Sexual Intercourse

Similar to the trend in the rest of the United States, self-reported rates of sexual activity among Minnesota teens have dropped significantly since the early 1990s (Figure 1). For example, according to the Minnesota Student Survey, the percentage of 12th graders who reported having ever engaged in sexual intercourse decreased from 61.2% in 1992 to 46.1% in 2004. For 9th graders, the percentage dropped from 29.5% to 19.7%¹.

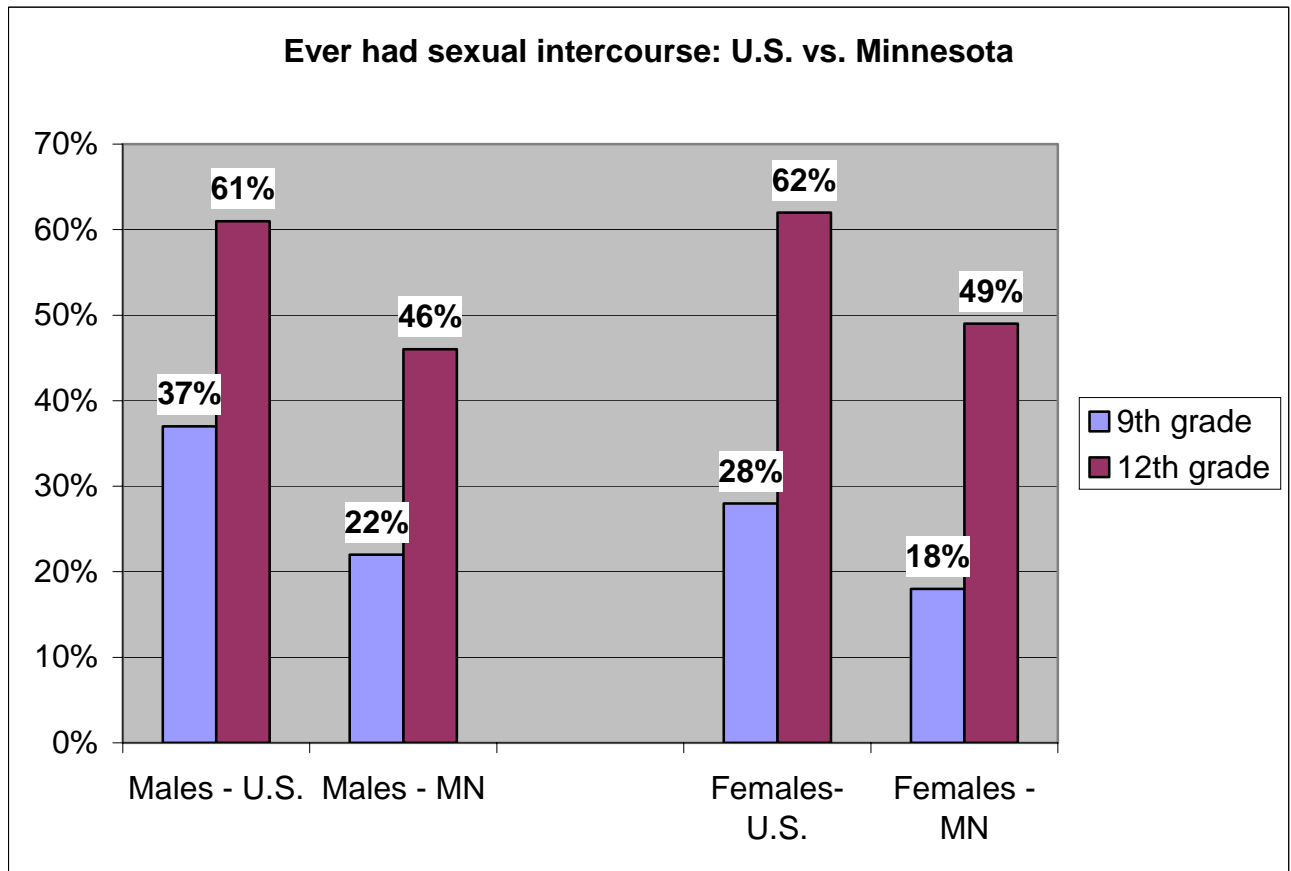
Figure 1



*Minnesota Student Survey, 2004*¹

When the most recent national-level data from the 2003 Youth Risk Behavior Survey (YRBS) is compared to 2004 data from the Minnesota Student Survey, a substantially smaller number of Minnesota teens report ever having sexual intercourse (Figure 2).

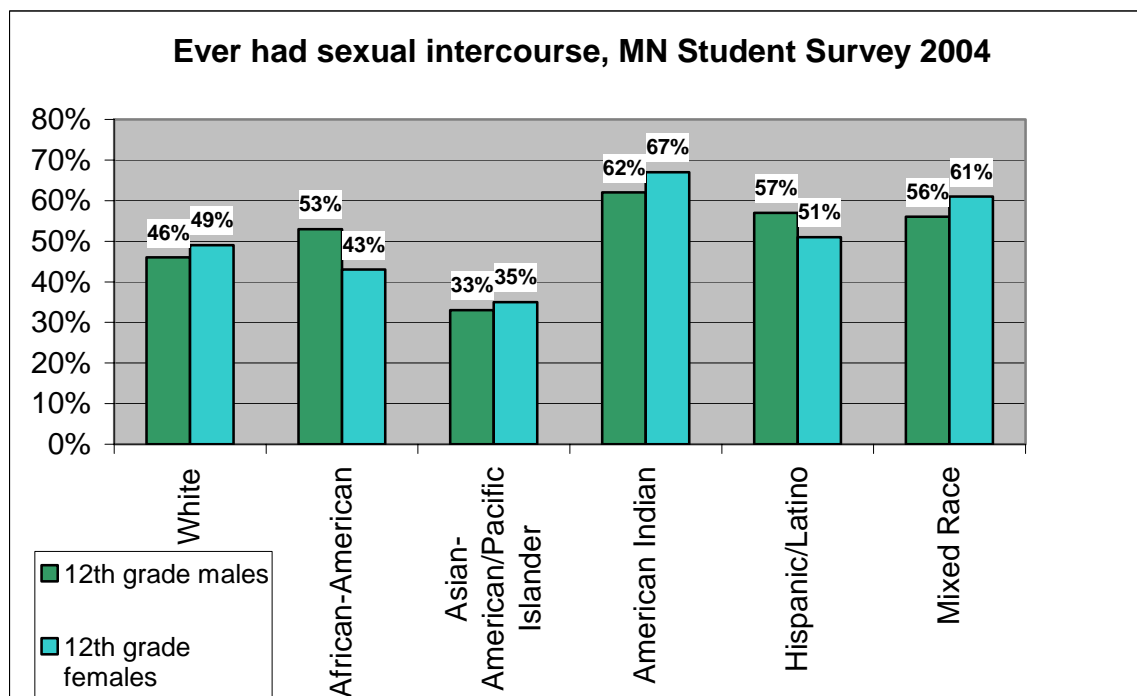
Figure 2



YRBS 2003 and 2004 Minnesota Student Survey^{2,3}

Although rates have been generally declining, evidence indicates differences in sexual intercourse rates by race/ethnicity (Figure 3). By their senior year in high school, a smaller percentage of White and Asian/Pacific Islander students have had sexual intercourse compared to other races/ethnicities in the same cohort.

Figure 3



Minnesota Student Survey, 2004¹

Oral Sex

Most of the readily available data regards only penile-vaginal sexual intercourse. For example, adolescents may engage in oral sex because they perceive it to be less risky than intercourse. Reasons that adolescents have cited for engaging in oral sex include avoiding pregnancy, reducing their risk of contracting an STD, or believing oral sex not to truly be “sex”⁴. Studies have estimated that between 33% and 59% of high school teens have engaged in oral sex⁵. A 2002 national study estimated that among teenage boys, the percentage that had engaged in any oral sex ranged from 35% for 15 year-olds to 74% for 19-year olds. The same study estimated that for girls, the same percentage ranged from 26% for 15 year-olds to 74% for 19 year-olds. Additional information was available on teens that engaged only in oral sex and not vaginal sex. For boys the percentage reporting only oral sex ranged from 13% for 15 year-olds to 11% for 19 year-olds and for girls the percentages were 8% and 10% respectively^{4,3}. Although less risky than intercourse, oral sex is still a viable mode of transmission for gonorrhea, herpes, syphilis, and Chlamydia^{6,7}. A 2003 study of a group of 10th-graders found that they were more likely to engage in oral sex than intercourse, had a greater number of oral sex partners than intercourse partners, and were unlikely to report the use of barrier protection during oral sex⁵.

The Minnesota STD Prevalence Study, conducted by the Minnesota Department of Health between 1998 and 2001, attempted to quantify rates of STDs among adolescents and young adults. In the process, they also collected data regarding types of sexual behaviors in which teens and young adults were engaging. A total of 3,021 participants from diverse racial backgrounds were sampled from a convenience sample of 17 clinical and correctional sites across the state. It is important to note that 92 percent of males and 95 percent of females reported ever having had sex, which means that the following behavioral characteristics essentially describe a group of sexually active adolescents and young adults. While the results are not generalizable to all

Minnesota adolescents and young adults they do provide some insight into sexual behavior in this age group. Seventy-two percent of males and 75% of females indicated that they had ever engaged in oral sex. Of those who engaged in oral sex, 81% of males and 89% of females indicated they had engaged in oral sex within the last six months (Figure 4).

Figure 4

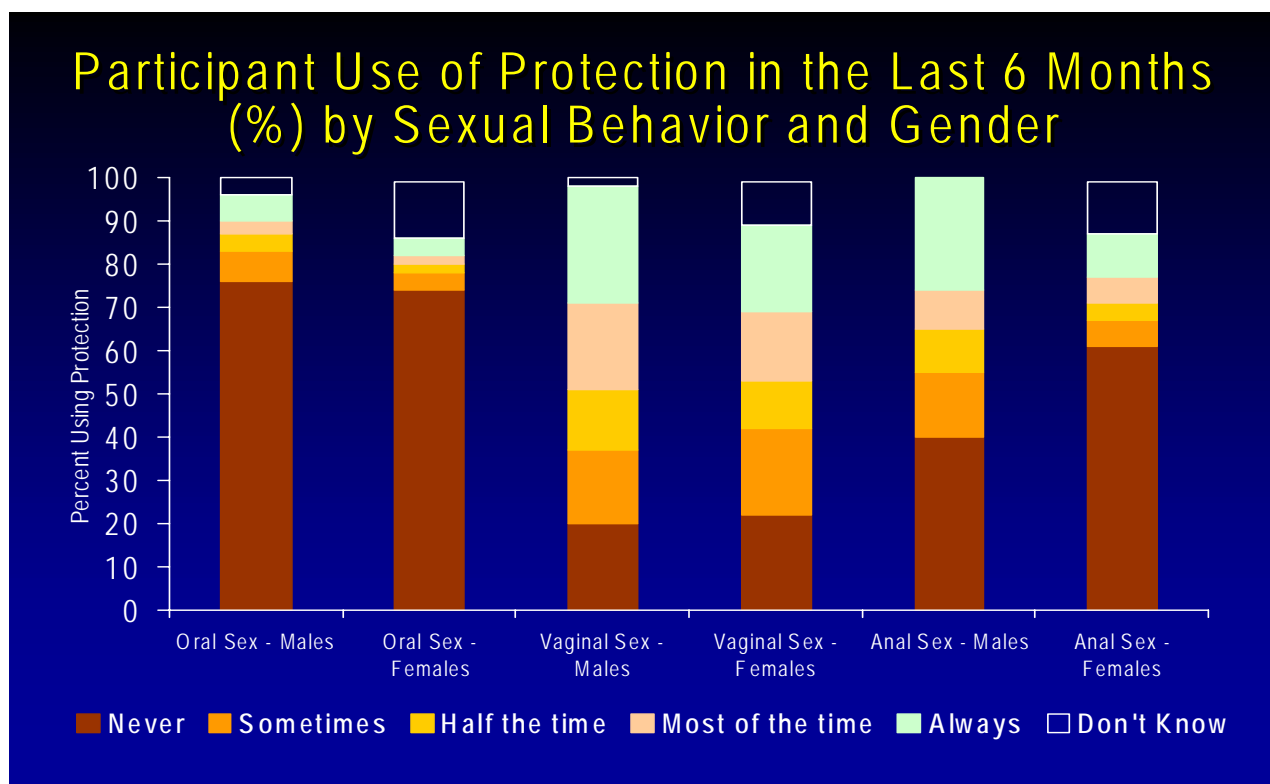
Participant Sexual Behavior				
	Males		Females	
	N	%	N	%
Ever had oral sex	957	72	1,108	75
Ever had vaginal sex	1,230	92	1,381	93
Ever had anal sex	236	18	290	19
Had sex in last 6 months	N	%	N	%
Oral sex	779	81	985	89
Vaginal sex	1,069	92	1,297	94
Anal sex	143	61	152	52

*Minnesota STD Prevalence Study, 2003*⁸

Compared to other types of sexual behaviors, a greater number of both male and female respondents in the Minnesota STD Prevalence Study indicated that they “never” use protection for oral sex (Figure 5). Despite evidence for the high and mostly unprotected prevalence of this behavior, it remains largely unexamined by any national or statewide surveys of adolescent health. Neither the National Youth Risk Behavior Survey nor the Minnesota Student Survey contains questions about the degree to which teens are engaging in this behavior.

Even less state data is available regarding anal sex although in the STD Prevalence Study a significant percentage of males and females report having anal sex (Figure 4 and 5). A 2002 national study reported that for teenage boys, the percentage engaging in anal sex with girls ranged from 5% for 15 year-olds to 15% for 19 year-olds. The percentage of boys reporting same-sex anal sex ranged from 2% of 15 year-olds to 5% of 19 year-olds. For girls, the percentage that reported engaging in anal sex ranged from 2% of 15 year-olds to 19% of 19 year-olds⁴³.

Figure 5



Minnesota STD Prevalence Study, 2003⁸

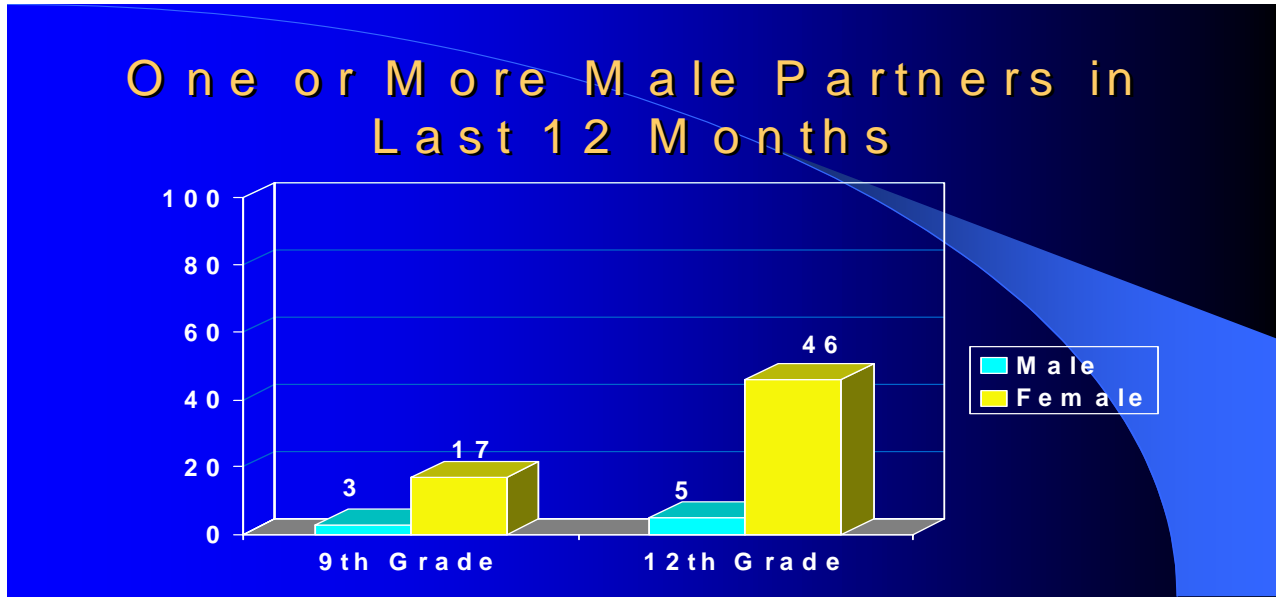
Sexual Minority (GLBT) Youth

Same-sex sexual behavior among adolescents has also been studied to a lesser degree. The most recent data from the Minnesota Student Survey showed that 3% of 9th grade males and 5% of 12th grade males had engaged in sexual intercourse with at least one other male (Figure 6). For females, 2% of both 9th and 12th graders reported same-sex behavior with another female (Figure 7). A 1992 study⁹, which surveyed 34,706 Minnesota students in grades 7-12, found that:

- 10.7% were “unsure” of their sexual orientation.
- 88.2% described themselves as predominantly heterosexual.
- 1.1% described themselves as bisexual or predominantly homosexual.
- 4.5% reported homosexual attractions, 2.6% homosexual fantasies, 1% homosexual behavior, and 0.4% affiliation.
- Increasing age corresponded to increasing affiliation as either as heterosexual or homosexual.

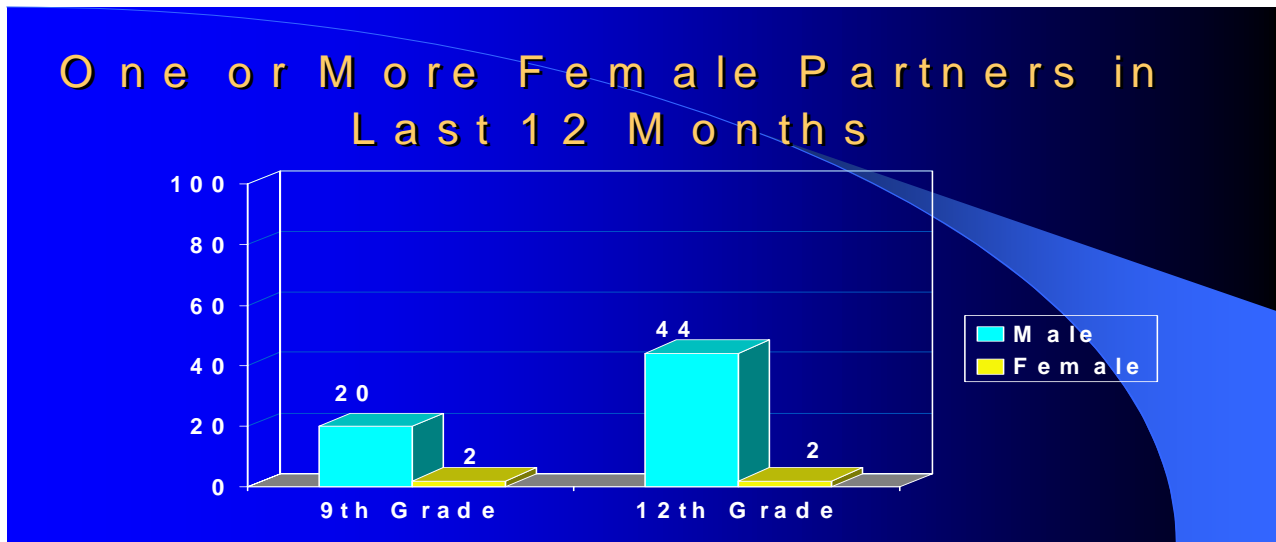
According to data from the 2004 Minnesota Student Survey, same-sex behavior occurs at some level in all racial categories (Figure 8 and 9). A national study reported that among teenage boys, same sex behavior ranged from 2% of 15 year-olds to 6% of 19 year-olds. The same figures for girls were 7% of 15 year-olds to 14% of 19 year-olds⁴³.

Figure 6



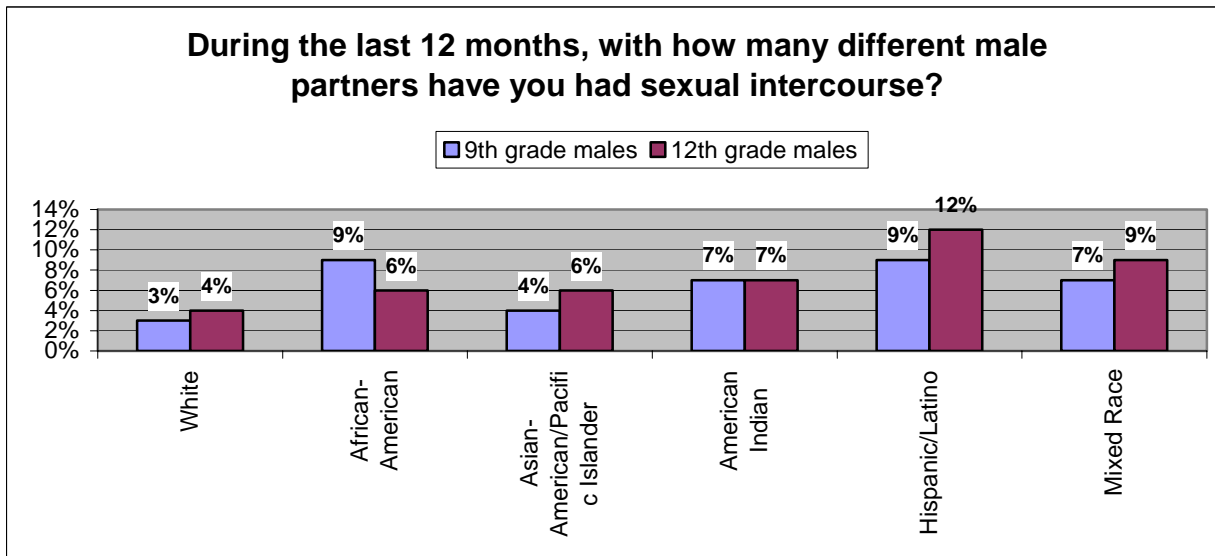
Minnesota Student Survey, 2004²

Figure 7



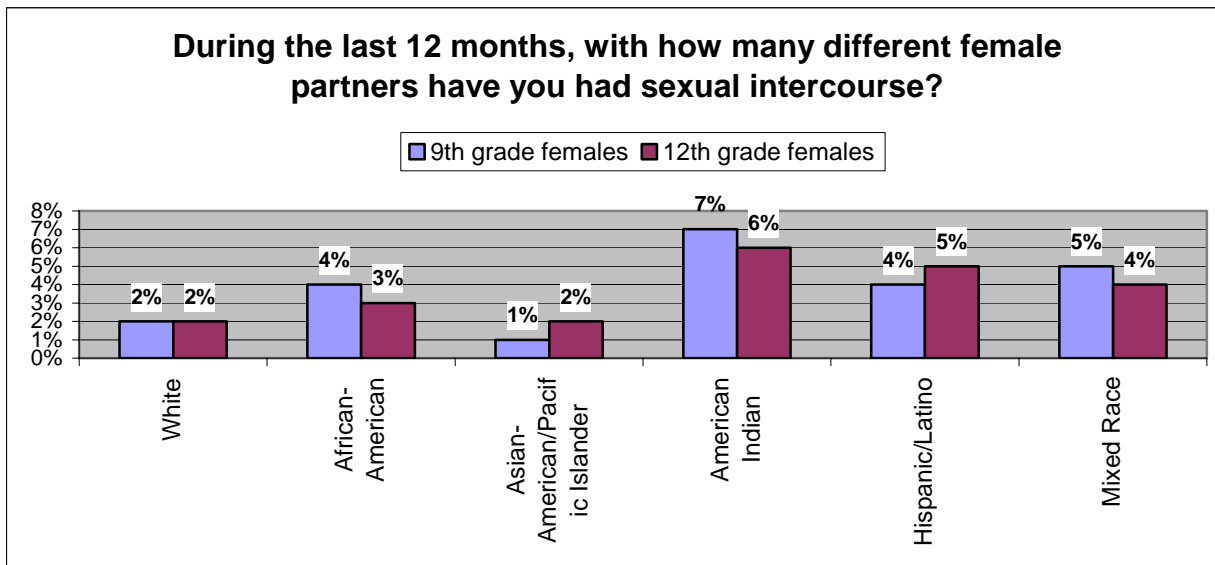
Minnesota Student Survey, 2004²

Figure 8



Minnesota Student Survey, 2004²

Figure 9



Minnesota Student Survey, 2004²

CONDOM USE AND CONTRACEPTION

Condom Use

In 2004, a majority of Minnesota’s 9th and 12th grade students who report that they have sexual intercourse indicate that they “always” or “usually” use a condom (Figure 10). However, about 20% of 9th graders report they “never” or “rarely” use a condom, and a slightly higher percentage of 12th graders report the same. When the trend is examined over time, 9th graders consistently report higher rates of condom usage at last intercourse than 12th-graders (Figure 11), though this could be attributed to the use of other methods of contraception as students get older.

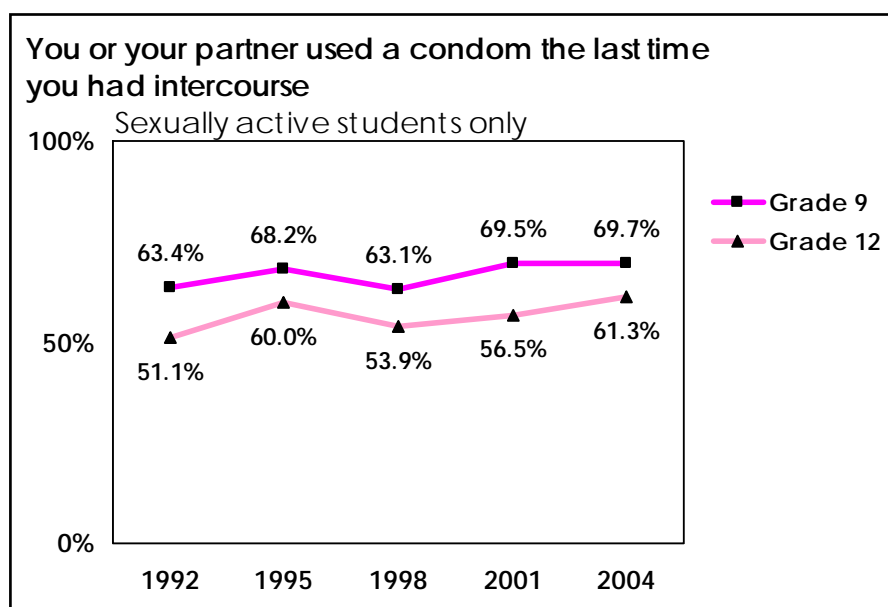
Encouragingly, the percentage that used a condom at last intercourse appears to have been increasing for both grades since 1998.

Figure 10

If you have sexual intercourse, how often is a condom used?				
<i>Response:</i>	<i>9th Grade</i>		<i>12th Grade</i>	
	Males	Females	Males	Females
Never	14%	11%	12%	16%
Rarely	7%	9%	10%	12%
Sometimes	7%	9%	10%	11%
Usually	12%	16%	18%	20%
Always	60%	56%	51%	41%

*2004 Minnesota Student Survey*¹⁰

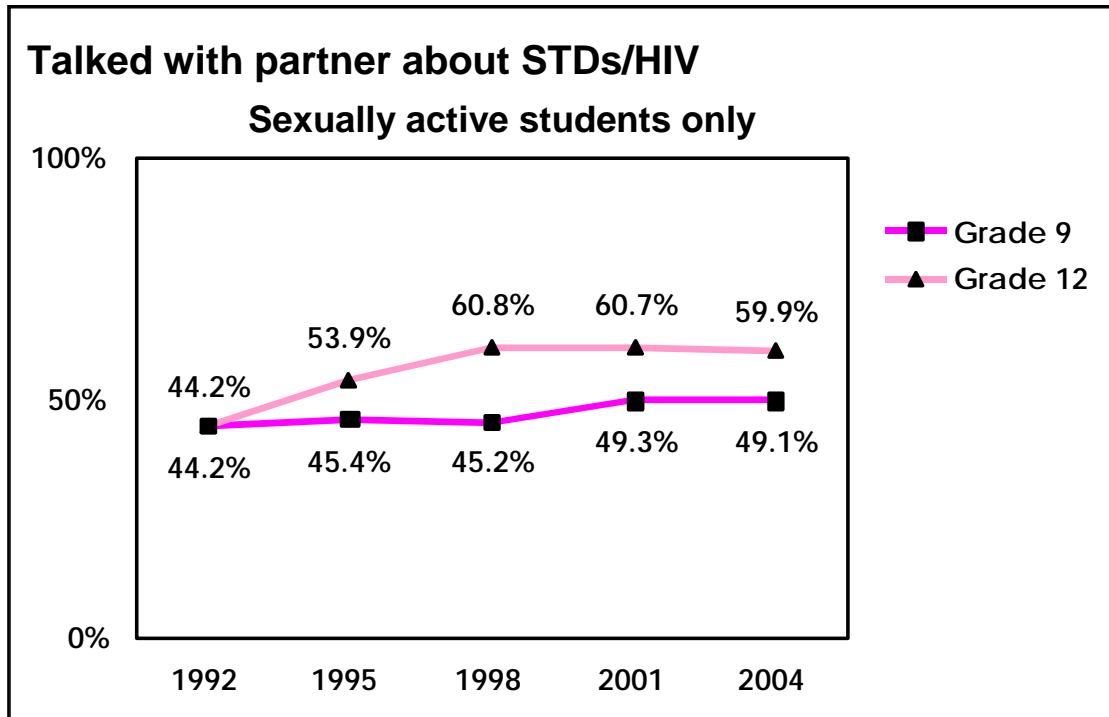
Figure 11



*Minnesota Student Survey, 2004*¹⁰

Compared to 1992, a greater number of sexually active Minnesota teens now indicate that they have talked with their partner about STDs and HIV; however, the upward trend seen in the 1990s leveled off between 1998 and 2004 (Figure 12). In fact, no significant improvement has been seen in this response over the past six years, with even a slight downturn noted between 2001 and 2004¹.

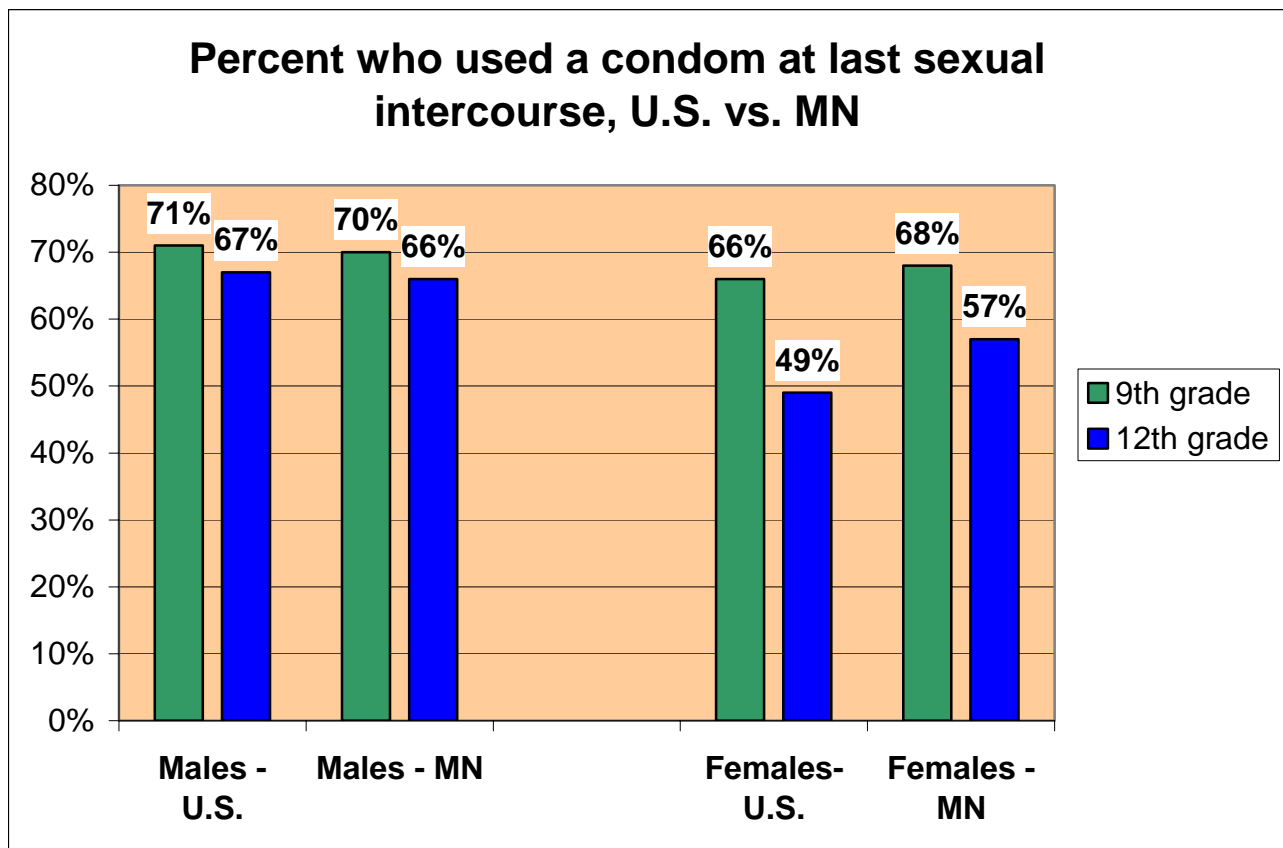
Figure 12



Minnesota Student Survey, 2004

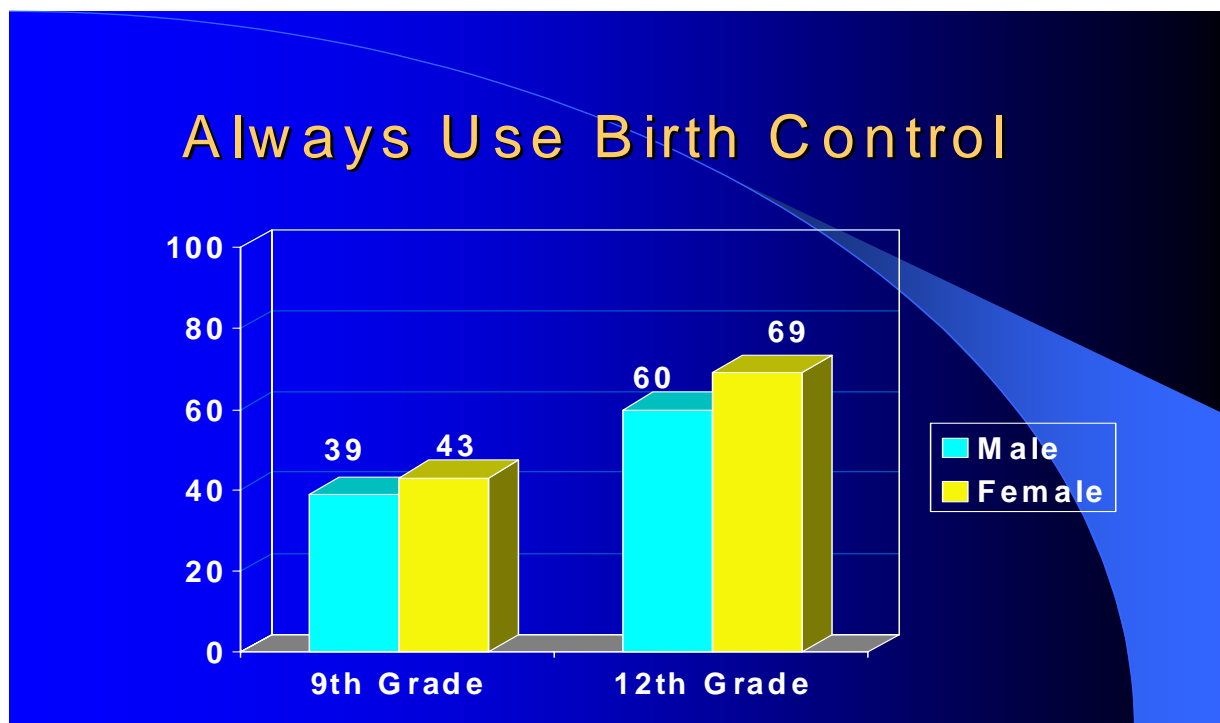
Comparing national level data from YRBS to state level data from the Minnesota Student Survey, similar percentages of sexually active teens indicate that they used a condom at last sexual intercourse (Figure 13). Of sexually active students who responded to the 2004 Minnesota Student Survey, less than half of 9th-graders reported that they “always used birth control.” For 12th-graders, about 40% of males and 30% of females do not always use birth control (Figure 14).

Figure 13



YRBS 2003 and 2004 Minnesota Student Survey^{3,10}

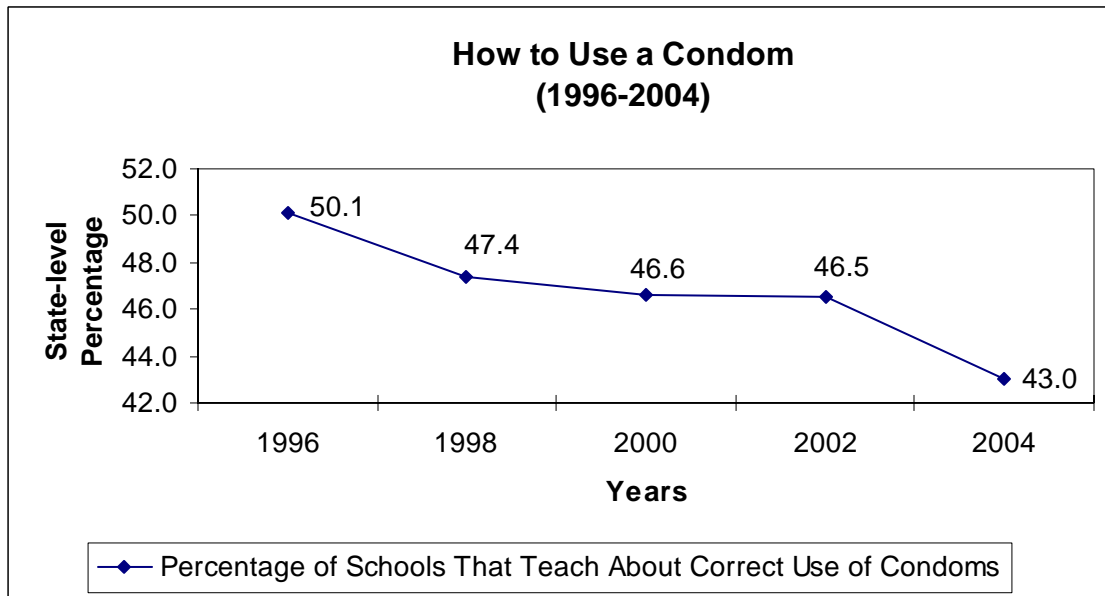
Figure 14



Minnesota Student Survey, 2004

According to 2004 survey of Minnesota health education teachers, only 43% responded that they taught “how to correctly use a condom.”¹¹ The percentage of schools that teach about correct use of condoms has decreased 7% between 1996 and 2004 (Figure 15).

Figure 15



School Health Education Profile Survey, 2004¹¹

SEXUALLY TRANSMITTED DISEASES (STDs)

In the United States, STDs disproportionately affect young people. Consider that:

- Nationally, 15-24 year olds represent about one-fourth of the sexually active population age 15-44, but account for almost one-half of all new STDs^{12,13}.
- One out of two youth will acquire a bacterial or viral STD before the age of 25¹².
- Lifetime medical costs of STDs acquired by young people in the year 2000 are estimated to be \$6.5 billion¹².

Adolescents who contract an STD can suffer substantial consequences, both in the short and long term. Physically, bacterial STDs can cause pain, discomfort, possible future infertility, possible harm to infants born to infected mothers, and can increase susceptibility to HIV infection¹⁴. These adolescents, who are already going through a difficult emotional transition period in their lives, may feel shame and stigmatization that makes them less likely to seek medical care. Their personal relationships may also suffer. Feelings of betrayal or blame about STD infection can disrupt personal relationships, and as a result they may have great fear about telling new partners or beginning new relationships¹². From an economic perspective, one study concluded that if STD rates among youth could be reduced by just 10%, \$650 million in medical costs could be saved¹².

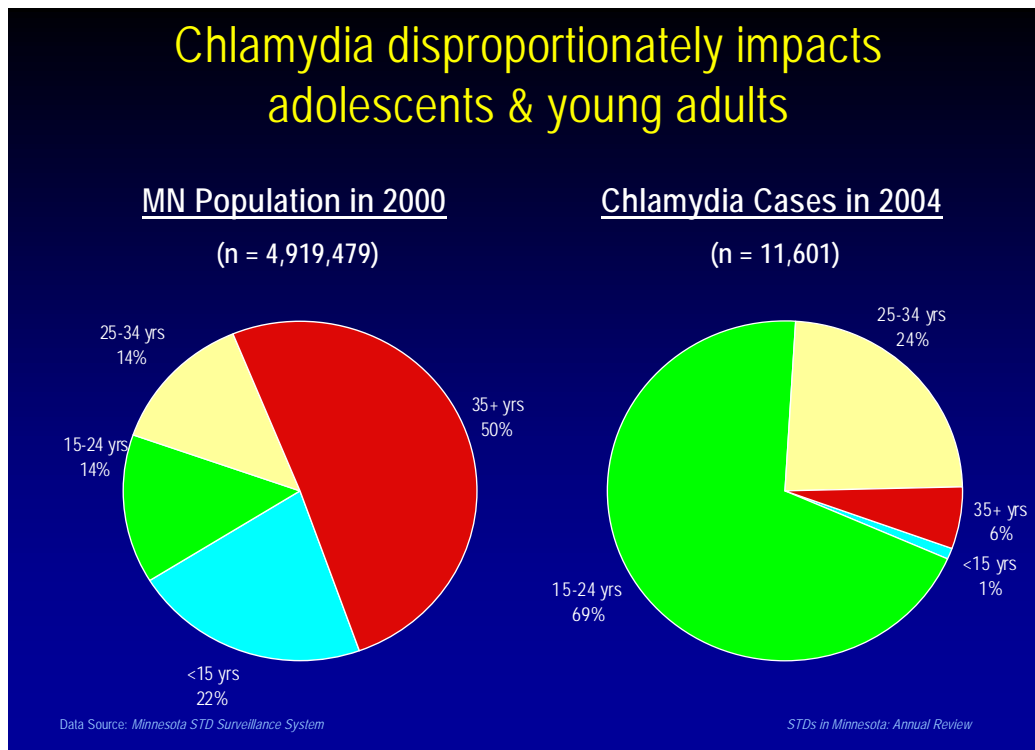
This report will focus on the two reportable bacterial STDs that have the greatest impact on adolescent health: chlamydia and gonorrhea. In addition, HIV/AIDS data is included as it relates to adolescents. While other types of sexually transmitted agents exist, including human papilloma virus (HPV), herpes-simplex virus (HSV), and *Trichomonas vaginalis*. These infections are not reportable, and therefore no population-level data are available. The only other reportable bacterial STD, syphilis, has an extremely low incidence in the adolescent population and is not considered to place a heavy burden on this population¹⁵.

Chlamydia

Chlamydia is the most commonly reported STD in the U.S. for all age groups¹⁶ and the most commonly reported STD in Minnesota¹⁵. This disease, which is more likely to be diagnosed in women, is frequently asymptomatic. As a result, according to the CDC, untreated chlamydia infection can potentially lead to more severe health problems, most notably pelvic inflammatory disease, which can increase the risk for infertility, ectopic pregnancy, and chronic pelvic pain¹⁶.

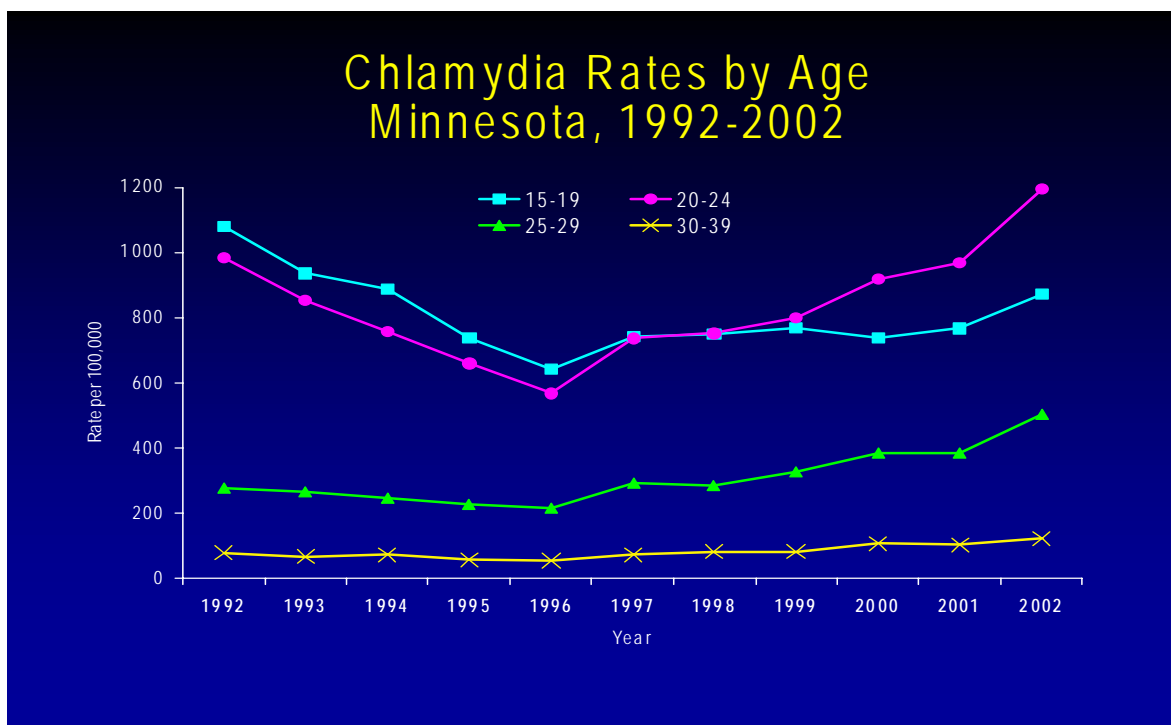
Chlamydia disproportionately affects adolescents and young adults, both nationwide and in Minnesota (Figures 17a and 17b). In the United States in the year 2000, nearly 75% of new chlamydia infections occurred in 15-24 year olds¹³, and in 2003, 15-19 year old females had the highest rates of reported chlamydia (2,687.3 per 100,000 females)¹⁶. In Minnesota, 15-19 year olds have the second highest rate of any age group, behind 20-24 year-olds. Only 14% of the population in Minnesota is estimated to be between the ages of 15 and 24, yet this age group accounts for 69% of chlamydia cases (Figure 16). Also, rates among adolescents and young adults have increased 1.5 times between 1996 and 2004 (Figure 17b). This increase is a result of increased use of improved, more sensitive STD test technology, increased screening, increased surveillance efforts, and/or a true increase in the incidence of the disease.

Figure 16



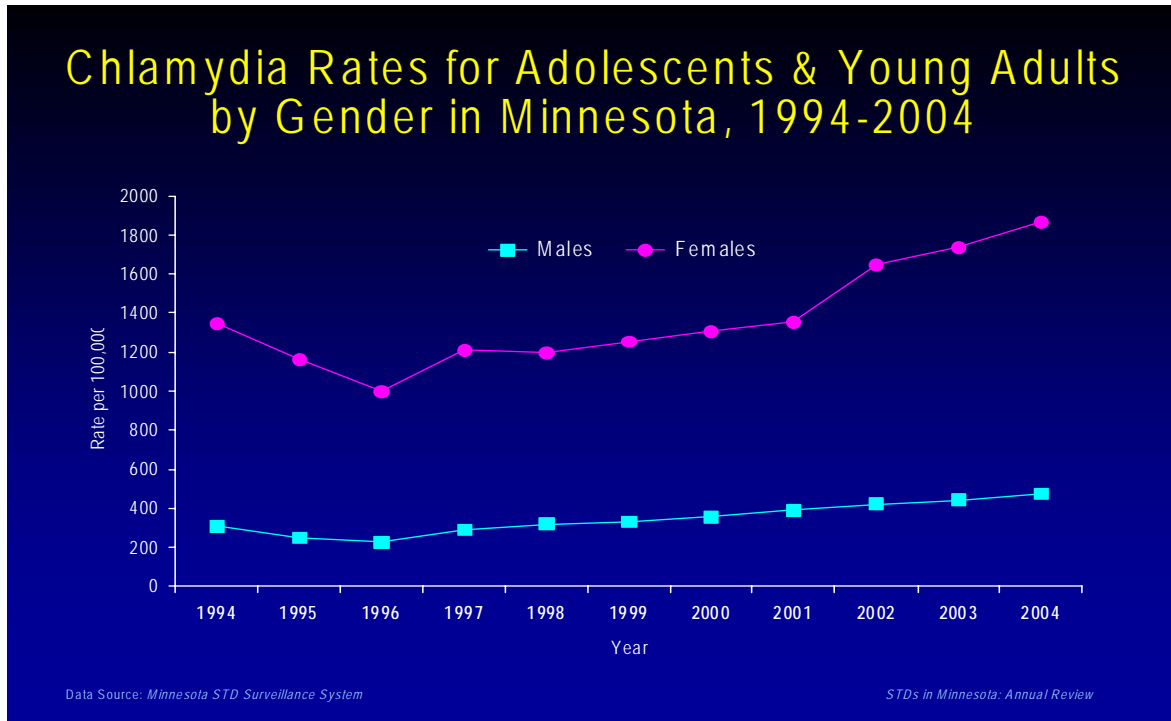
*MDH STD Surveillance Report, 2004*¹⁷

Figure 17a



MDH STD Surveillance Report, 2004

Figure 17b



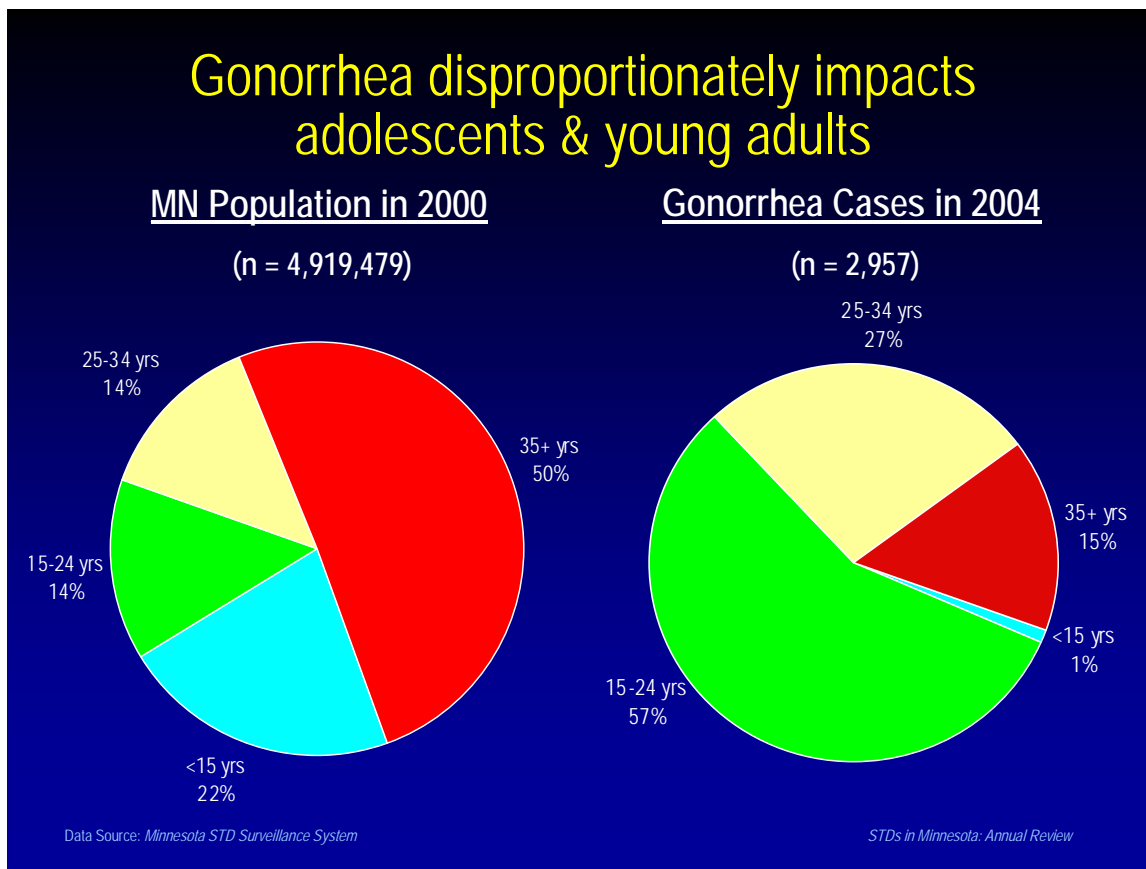
MDH STD Surveillance Report, 2004¹⁷

Gonorrhea

Gonorrhea is the second most commonly reported notifiable STD in the U.S. among all age groups¹⁶ and the second most commonly reported STD in Minnesota¹⁵. Much like chlamydia, if untreated, gonorrhea can eventually lead to other, more serious, health problems, including pelvic inflammatory disease, ectopic pregnancy, infertility, and chronic pelvic pain. If passed from mother to child through the birth canal, it can cause severe eye disease in newborns. And as with other STDs, infection with gonorrhea can facilitate transmission of HIV¹⁶.

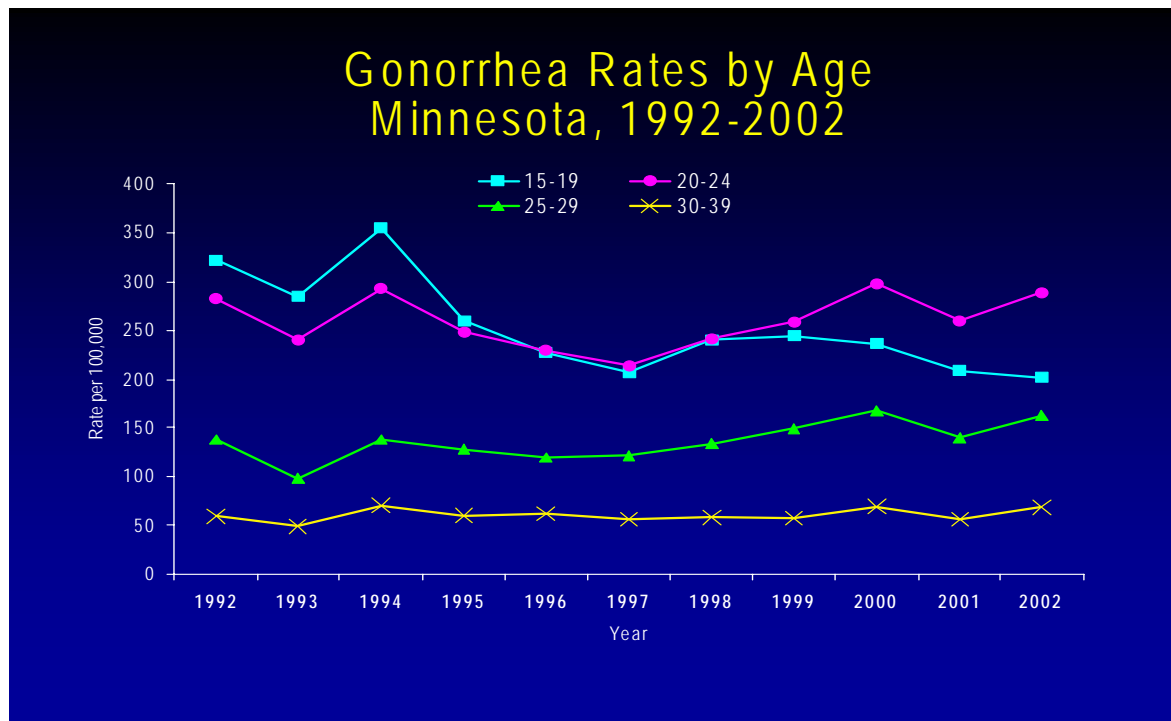
Nationally, in 2003, 15-19 year old women had the highest rate of gonorrhea compared to all other age categories (634.7 cases per 100,000 females), although this rate reflected an 11.7% decline from the 1999 rate of 718.4. National rates for 15-19 year old males have decreased 21.0% between 1999 and 2003 (from 332.2 per 100,000 down to 262.4)¹⁶. In Minnesota, gonorrhea also has a disproportionate impact on adolescents and young adults (Figures 19a and b). While 15-24 year olds comprise only 14% of the state's population, they comprise 57% of gonorrhea cases (Figure 18). Compared to young men, young women have consistently higher rates of diagnosis, which may be due in part to higher levels of testing, increased biological susceptibility, and higher actual rates of the disease.

Figure 18



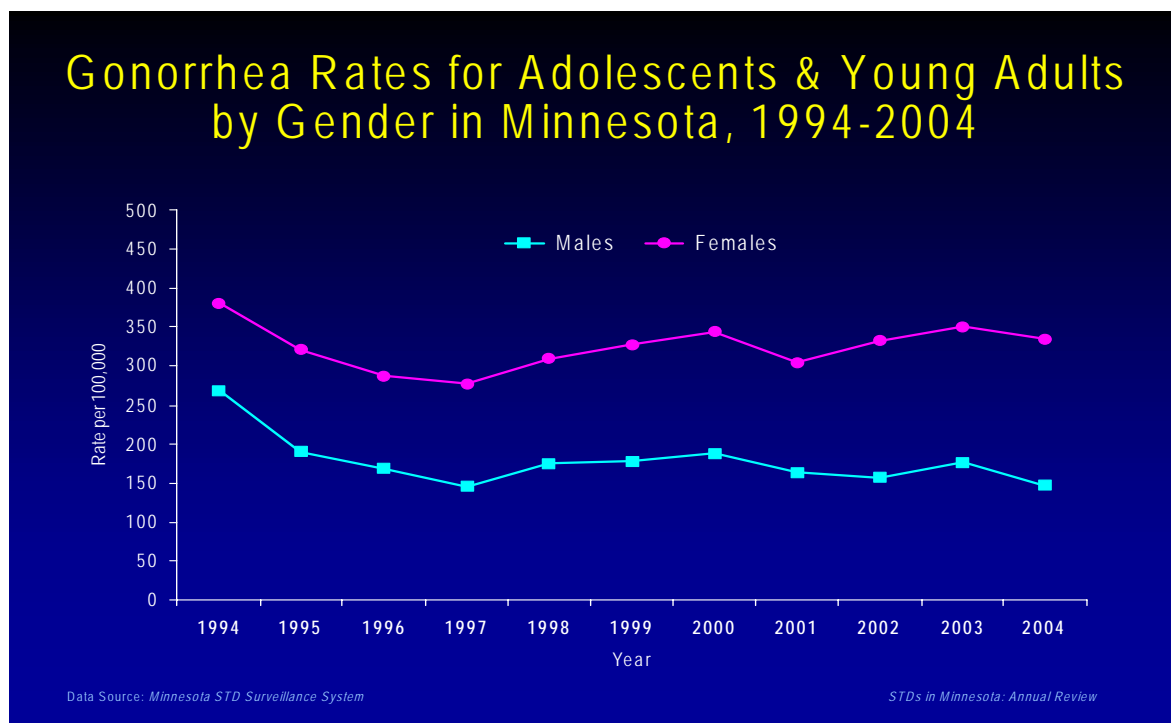
MDH STD Surveillance Report, 2004¹⁷

Figure 19a



MDH STD Surveillance Report, 2004¹⁷

Figure 19b



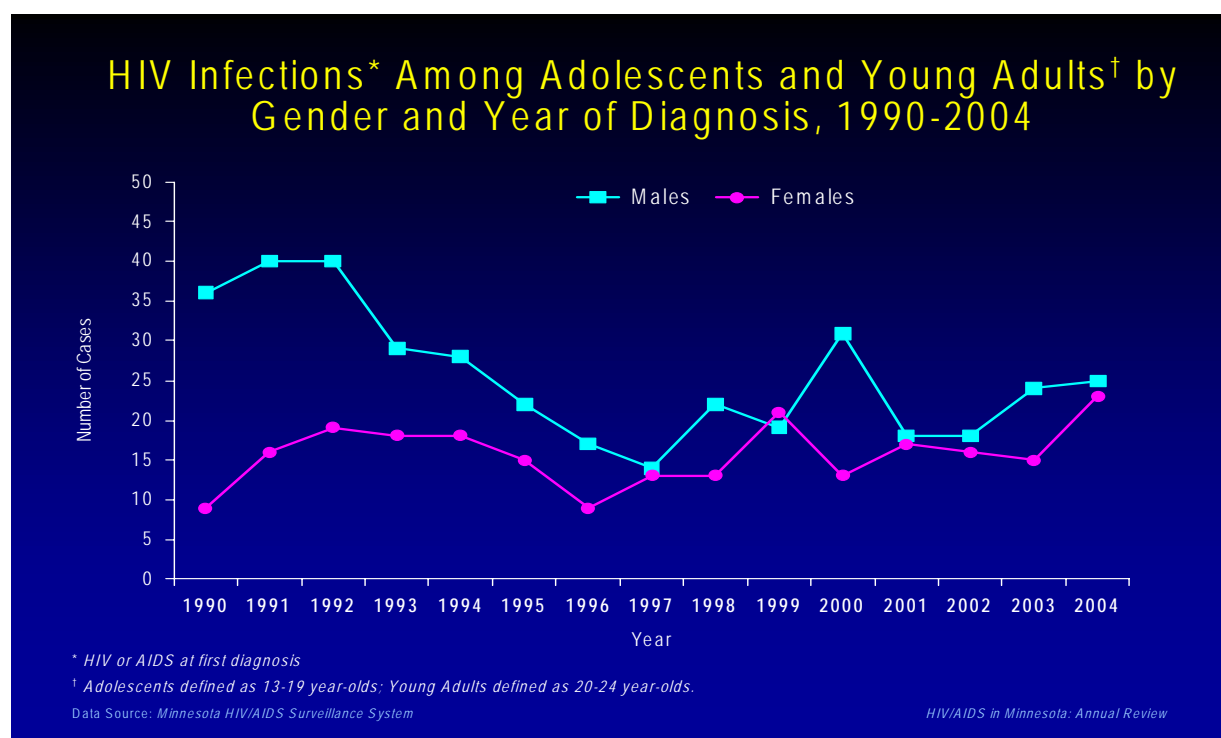
MDH STD Surveillance Report, 2004¹⁷

HIV/AIDS

The adolescent years can be a very risky time period for contracting HIV, but infection may often go unrecognized until years later due to the long and often asymptomatic nature of the initial stage of HIV infection. Consequently, data on the number of cases of HIV/AIDS among adolescents may considerably underestimate the true number of infections in this population.

In Minnesota, the percentage of HIV/AIDS cases diagnosed among youth (in this case youth is defined as 13-24 years-old) has slowly increased over the past 15 years. In 1990 youth represented 10% of reported HIV infections; and by 2004 this percentage increased to 16%. Among young men, the number of cases has declined from a peak of 46 in 1992 to a low of 14 in 1997 (Figure 20). Since 1997, diagnoses among young men has fluctuated, but most recently increased from 18 cases in 2002 to 25 cases in 2004¹⁸. For young women, the annual number of new infections has remained more stable, but overall young women accounted for one-fourth of all new infections among females in 2004. Interestingly, the gender distribution for HIV among adolescents and young adults is nearly equal (48% female, 52% males in 2004). This is in stark contrast to the ratio among adult cases, in which females account for only about one-fourth of new infections (26% females, 74% males in 2004).

Figure 20

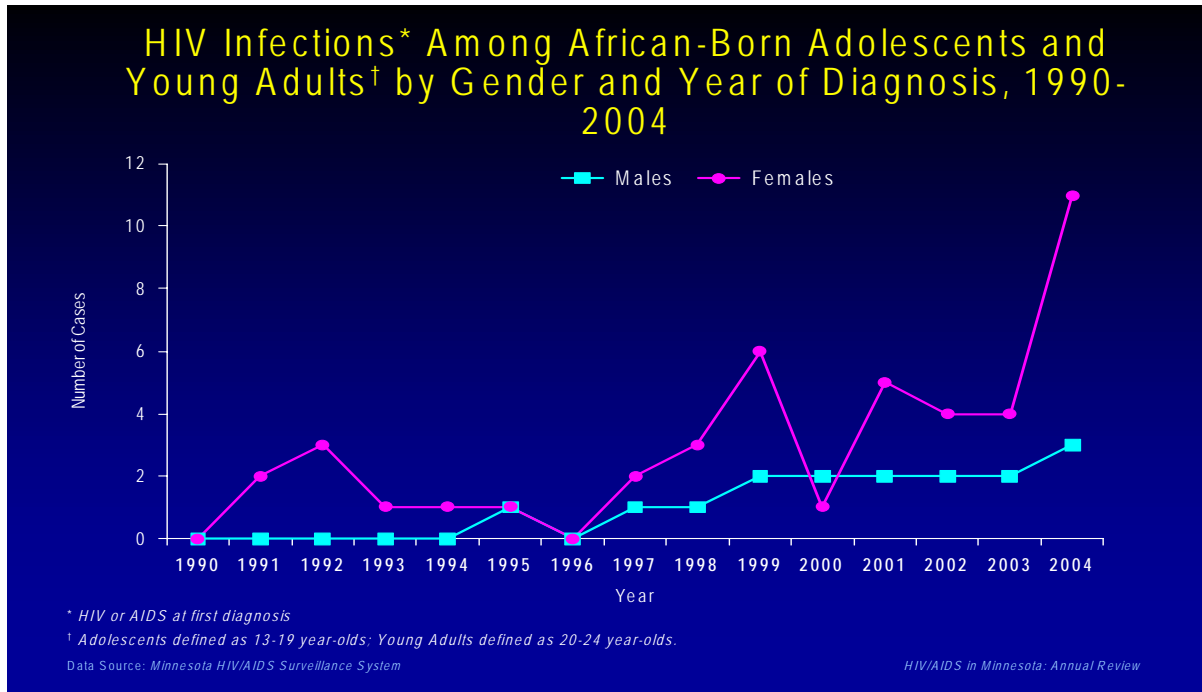


MDH HIV Surveillance Report, 2004¹⁸

There is evidence of an emerging epidemic of HIV among African immigrants, especially young women in this population (Figure 21). Since 1996, there has been a notable increase in the number of cases among young African women. In 2004, more than three-quarters of newly diagnosed young Africans were female, which is much greater than the 48% female cases among

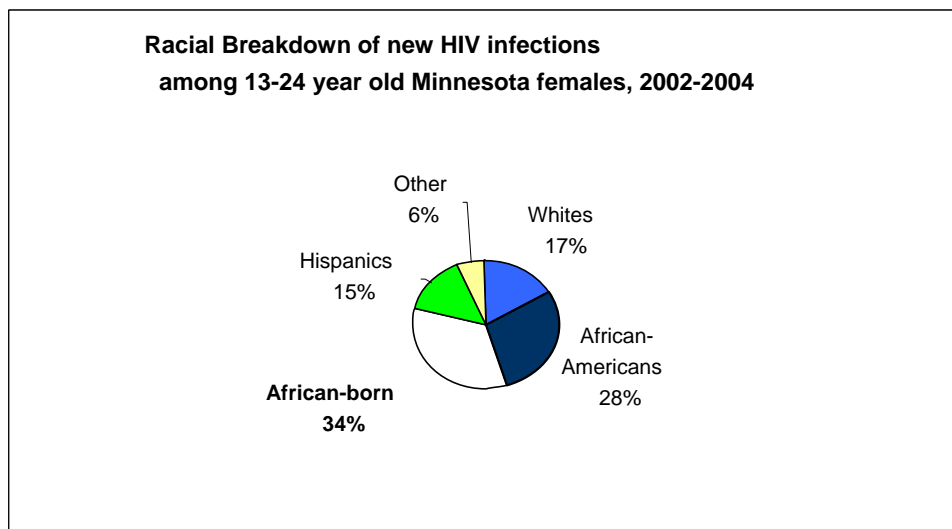
all adolescents and young adults diagnosed with HIV that year¹⁸. Between 2002 and 2004, African-born women accounted for the highest percentage of new infections among 13-24 year old females (Figure 22). The predominant mode of exposure for young African-born persons is heterosexual sex.

Figure 21



MDH HIV Surveillance Report, 2004¹⁸

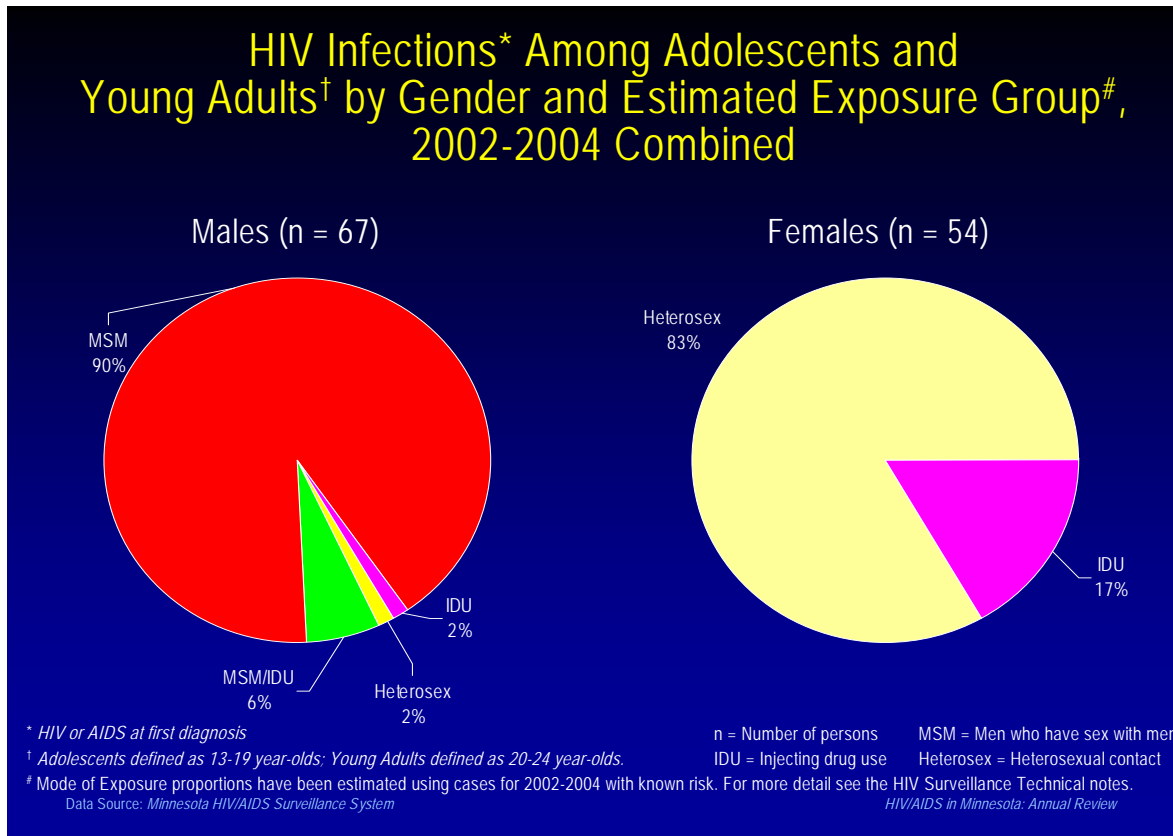
Figure 22



MDH HIV Surveillance Report, 2004¹⁸

The predominant mode of HIV exposure for adolescent males is male-to-male sex, and this group accounted for 90% of new HIV infections among young men diagnosed between 2002 and 2004 (Figure 23). For adolescent females, heterosexual sex was the predominant mode of exposure (83% of new infections), followed by injection drug use (17%).

Figure 23



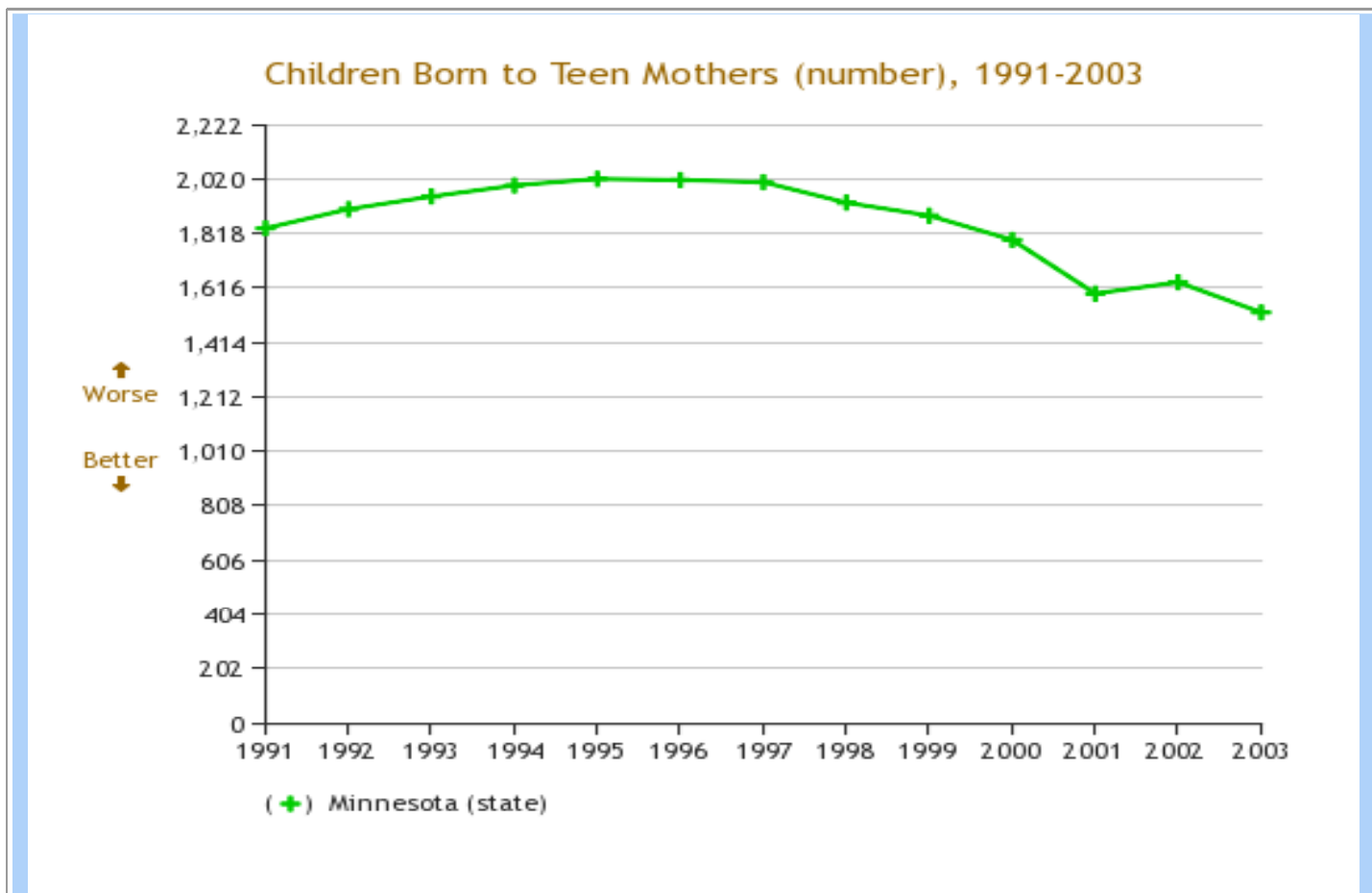
MDH HIV Surveillance Report, 2004¹⁸

TEEN PREGNANCY

Trends

Globally, the U.S. still has the highest teen pregnancy rate among industrialized countries. However, similar to the trend within the rest of the United States, the number of children born to teenage mothers has fallen in Minnesota since the 1990s (Figure 24). In fact, the teen pregnancy rate in Minnesota is one of the lowest in the nation, ranking 47th nationally. Nonetheless, in 2003, an average of 19 adolescent women became pregnant each day²⁰. In 2000, almost 18% of teen births were to girls who already had at least one child. As this report later discusses under the “Disparities” section, the primary issue of concern regarding teen pregnancy in Minnesota is the differential rates of teen pregnancy among racial and ethnic groups.

Figure 24



Children Born to Teen Mothers (number)¹⁹

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Minnesota (state)	1,840	1,911	1,958	1,999	2,023	2,019	2,011	1,935	1,887	1,797	1,598	1,640	1,528

Minnesota Department of Health, Center for Health Statistics⁴¹

Figures 25 and 26 show the distribution of births among counties in Minnesota in 2003. Figure 27 shows the counties that had the top 10 highest teen birth rates in the state between 2001 and 2003.

Figure 25

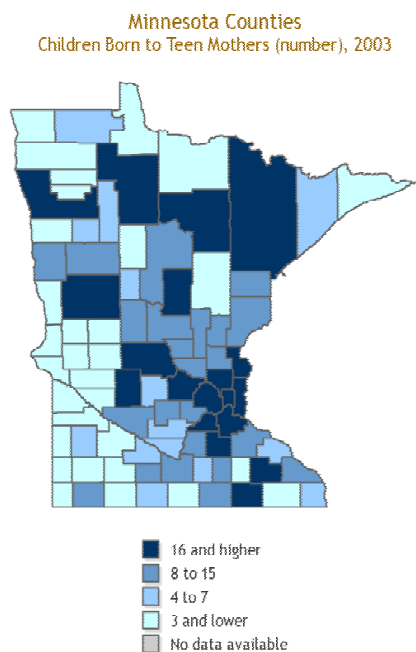


Figure 26

Children Born to Teen Mothers (number), 2003		
Rank	County	Number
1	Hennepin	378
2	Ramsey	230
3	Dakota	77
4	Anoka	74
5	St. Louis	62
6	Beltrami	36
7	Olmsted	32
8	Washington	31
9	Stearns	26
10	Scott	23

Minnesota Department of Health, Center for Health Statistics and the US Census¹⁹

Figure 27

Highest Teen Birth Rates by County, Minnesota 2001-2003

Rank	County	Birth Rate
1	Mahnomen	75.7
2	Watonwan	52.6
3	Beltrami	47.3
4	Mower	45.7
5	Nobles	45.7
6	Clearwater	42.6
7	Kandiyohi	41.1
8	Cass	40.3
9	Pine	39.6
10	Freeborn	39.3

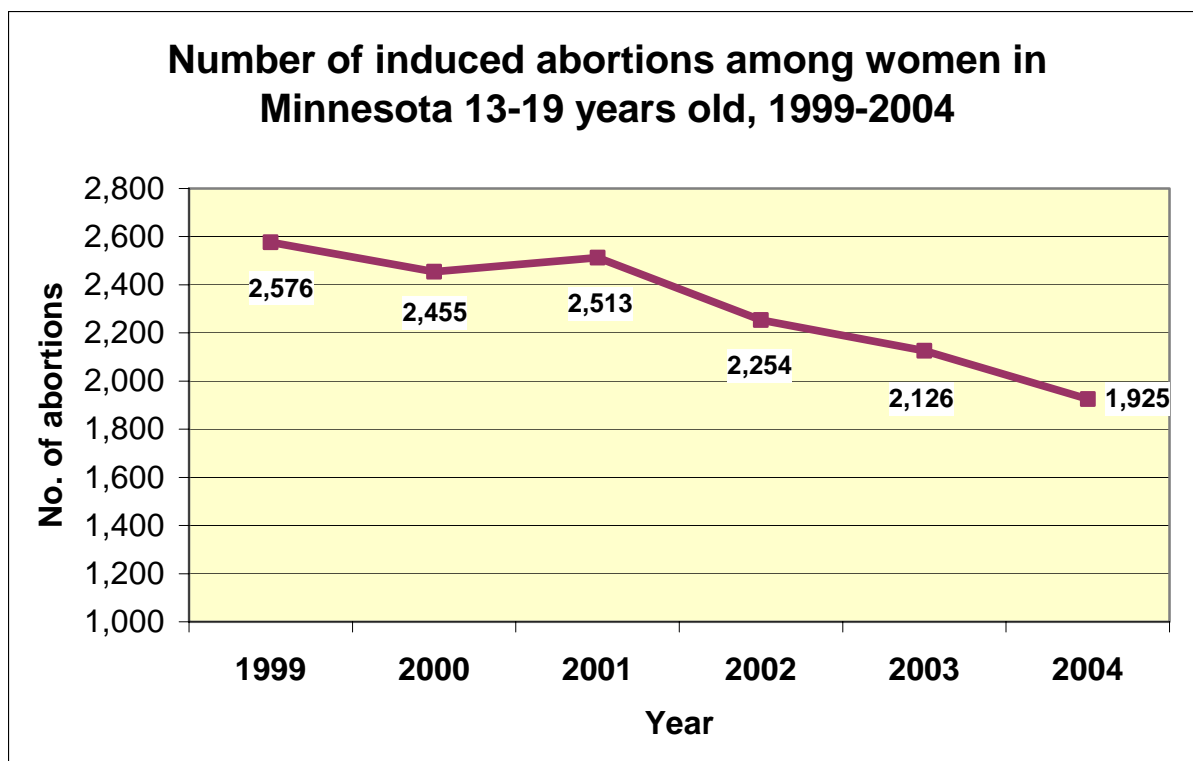
Minnesota Department of Health, Center for Health Statistics and the US Census¹⁹

Between 2001 and 2003, the three Minnesota counties with the highest teen birth rates were Mahnomen, Watonwan, and Beltrami. However, in terms of absolute number of teen births (2003 data), Hennepin and Ramsey counties led the state by a wide margin in 2003, with 378 and 230 respectively (Figure 25).

Consequences

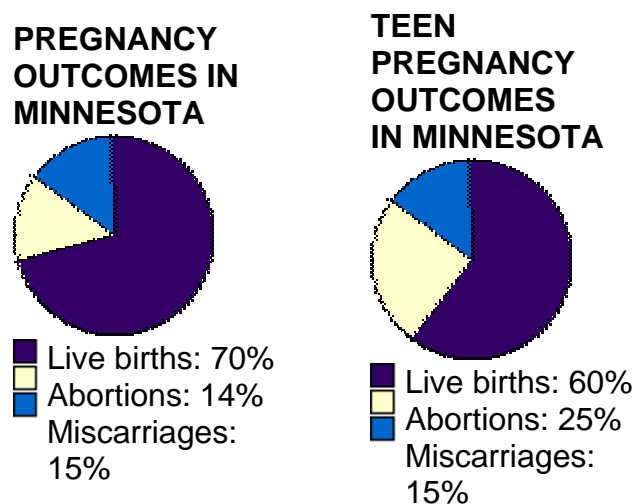
Two additional measurements can help shed light on some of the consequences that may directly follow teen pregnancy: abortion rates and high school drop out rates. Data reflect that these rates are decreasing among Minnesota teens. In 2000, for women aged 15-19, the abortion rate in Minnesota was 13 per 1,000 women compared to 24 per 1,000 in the overall U.S.²¹. In that same year, 15-19 year olds accounted for 15% of all abortions performed in the state. The number of 13-19-year-old women who have had an abortion has been dropping since 2001 (Figure 28). The year 2004 had the lowest number of abortions in the last five years²². However, when compared to overall pregnancies in the state of Minnesota, a larger percentage of teen pregnancies result in abortions (Figure 29).

Figure 28



*Minnesota Department of Health, Center for Health Statistics, 1999-2004*²²

Figure 29

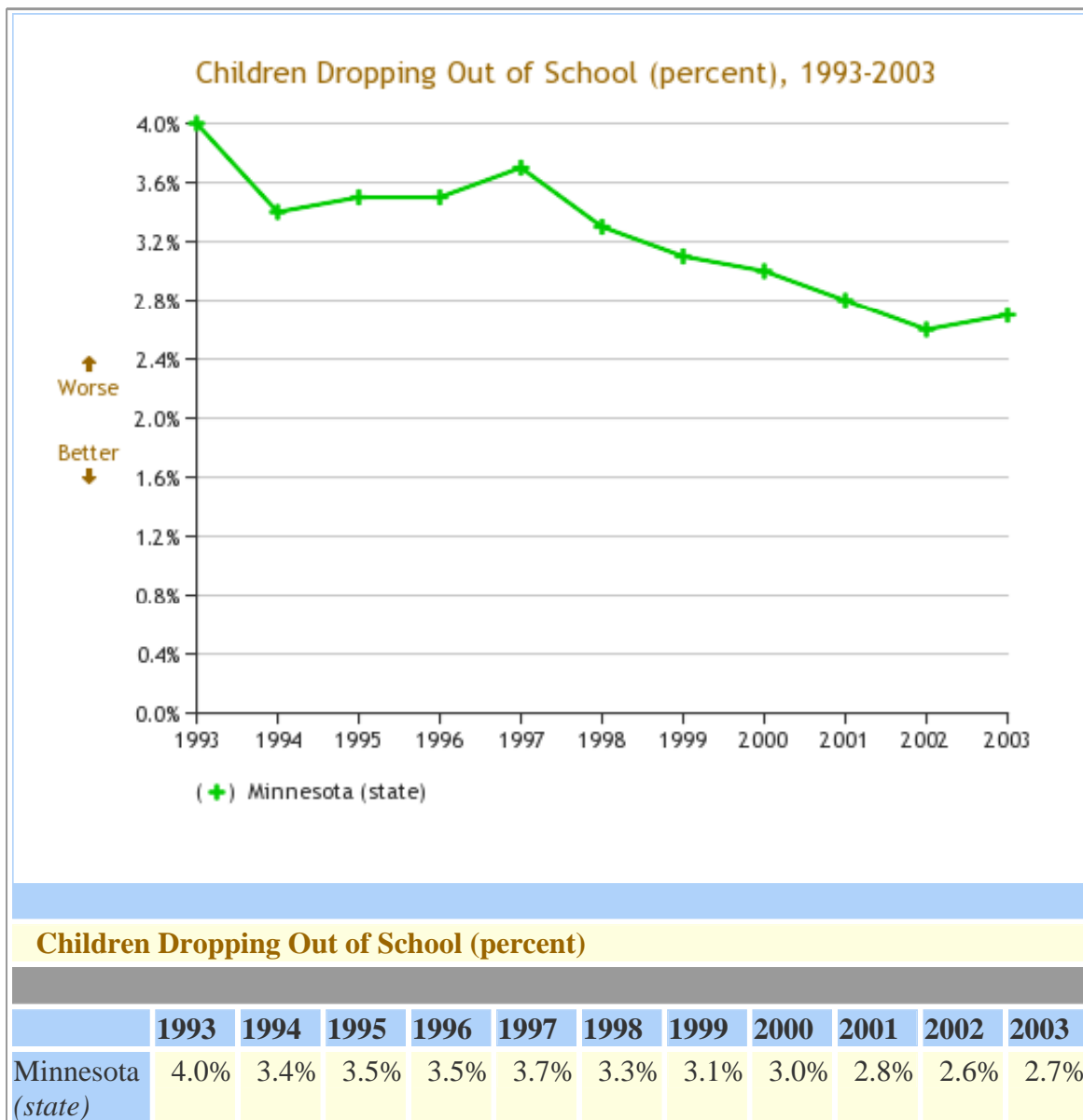


http://www.guttmacher.org/pubs/state_data/states/minnesota.html

Nationally, up to 70% of teen mothers drop out of high school²³. In Minnesota, the overall percent of high school students who drop out has steadily decreased from 1997 to 2002 (Figure 30). The rate declined from a high of 4.0% in 1993 to a current level of 2.7%. While numerous reasons probably exist for this observed decline, the corresponding decline in teen pregnancy may have had a positive impact.

A lack of educational attainment for teen parents can lead to substantial economic consequences for society as well. At the end of 1999, close to one-half of Minnesota families on welfare began with a teen birth²⁴. In 2001, such families accounted for 53% of all welfare expenditures, specifically \$13.3 million each month.

Figure 30



*Minnesota Department of Education*⁴²

DISPARITIES

As with so many other health issues in our society, disparities exist among adolescents in terms of their sexual health. Race, gender, family income level, sexual orientation, and place of residence are all factors that can have a strong impact on the quality of adolescent health in terms of STDs, HIV, and unintended pregnancy.

Racial Disparities

Many minority adolescents are at a greater risk for poor health care due to lack of insurance, poverty, and a lack of culturally competent health care²⁵. These disadvantages can contribute to higher rates of STD and a greater incidence of teen pregnancy. In addition, many non-sexual antecedents have been shown to be related to both youth of color and subsequently to teen pregnancy²⁵.

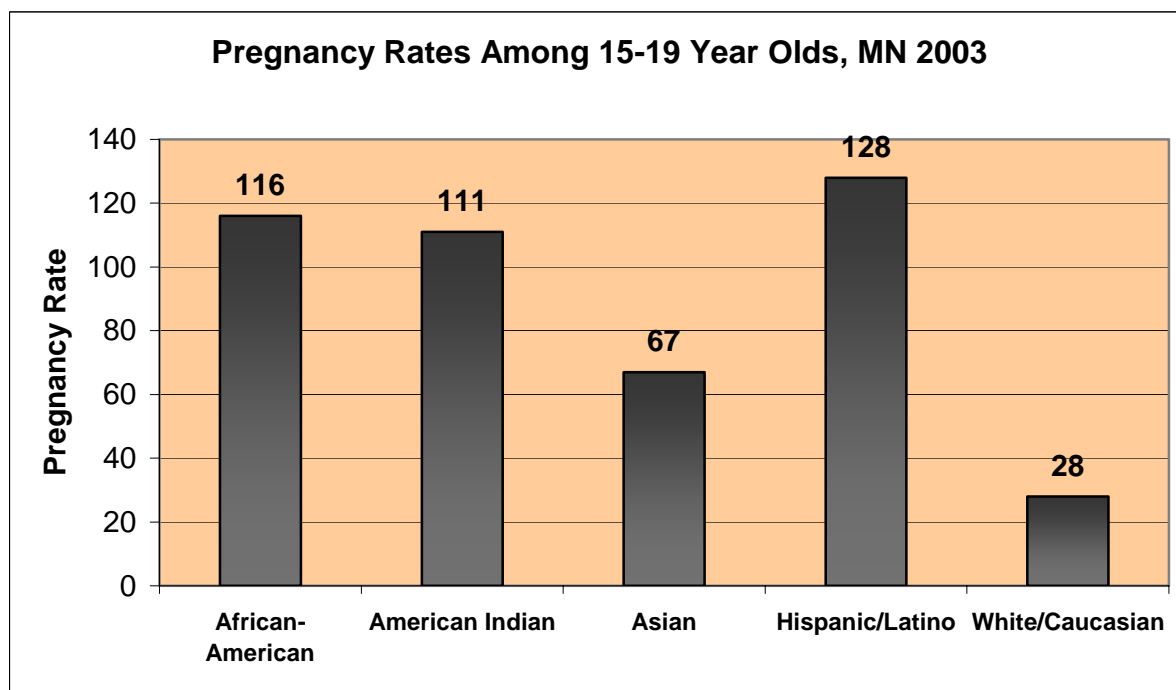
Compared to white adolescents, racial minority youth are:

- Twice as likely to respond “yes” to indicators of emotional stress.
- More likely to be threatened on school grounds.
- More likely to be injured by a weapon.
- More likely to skip school because they feel unsafe.

Factors that might protect against these outcomes show disparity as well. For example, among 9th graders in Minnesota, 15% more White students participate in after-school sports programs than African-American or American Indian counterparts²⁵.

Although the overall rate of teen pregnancy has dropped, it remains substantially higher for non-White adolescents (Figure 31).

Figure 31



*MOAPPP, 2005 Adolescent Sexual Health Report*²⁰

While the overall birth rate to teen mothers has fallen substantially over the past 15 years in Minnesota, births to Latina mothers have increased almost 50% between 1990 and 2002 (Figure 32). This is in stark contrast to the 17% reduction seen in the United States overall among Hispanics. While Minnesota's teen birth rate for Non-Hispanic Whites was lower than the national rate (18 vs. 29), the state's rate was substantially higher for all other races (Figure 33).

Figure 32

Change in Teen Birth Rates by Race/Ethnicity, Girls 15-19, 1990-2002

Statistic	Minnesota	United States
Non-Hispanic Whites	-38%	-33%
Hispanics	49%	-17%
Non-Hispanic Blacks	-48%	-41%
Native Americans	-28%	-34%
Asian/Pacific Islanders	-15%	-31%

U.S. Department of Health and Human Services. (2004)²⁶. 2002 Natality Data Set [CD-ROM]. CD-ROM Series, 21.¹⁶

Figure 33

Teen Birth Rate for Girls Aged 15-19, by Race/Ethnicity, 2002

Statistic	Minnesota	United States
Non-Hispanic Whites	18	29
Hispanics	118	83
Non-Hispanic Blacks	82	68
Native Americans	96	54
Asian/Pacific Islanders	50	18

U.S. Department of Health and Human Services. (2004)²⁶. 2002 Natality Data Set [CD-ROM]. CD-ROM Series, 21.¹⁶

Similar disparities exist in terms of STDs as well. Chlamydia rates among 15-24 year olds are 11 times higher in Blacks than Whites. In 2004, 15-24 year old Blacks comprised just 4% of the population in Minnesota but 26% of reported Chlamydia cases among 15-24 year olds in 2004¹⁵. Asian-Pacific Islanders, American Indians, and Hispanics, are at 1.5 to 5 times greater risk for Chlamydia than Whites. Also in 2004, 44% of gonorrhea cases in 15-24 year olds were reported among Blacks, and the incidence was 29 times higher for Blacks than for Whites. Gonorrhea rates for 15-24 year olds among American Indians, Hispanics and Asian-Pacific Islanders are 5, 3 and 1.5 times higher than the rate among Whites¹⁵.

The Minnesota STD Prevalence Study, which investigated STD rates among teens visiting clinics statewide, also found racial disparities for HSV-2 (herpes simplex virus, type 2), chlamydia and gonorrhea (Figures 34 a, b, and c). The prevalence of these STDs was substantially higher for minorities than for Whites, especially African-Americans.

Figure 34a

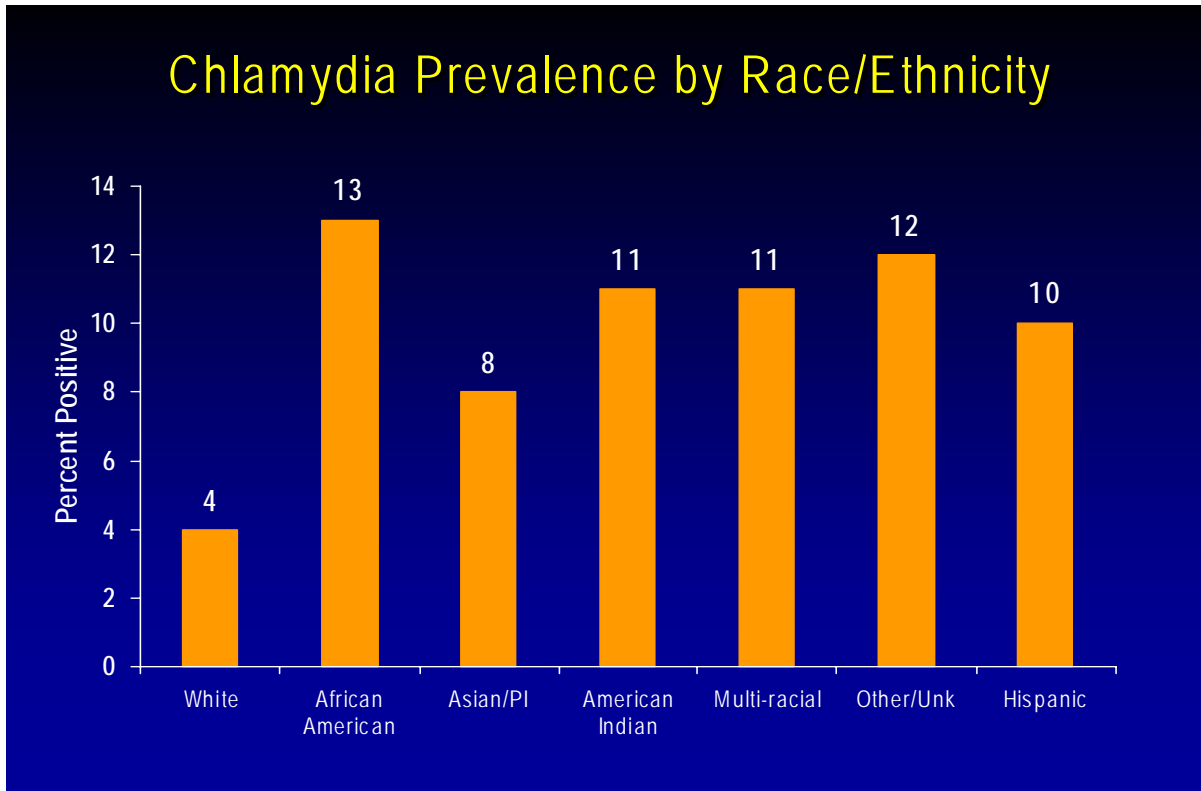


Figure 34b

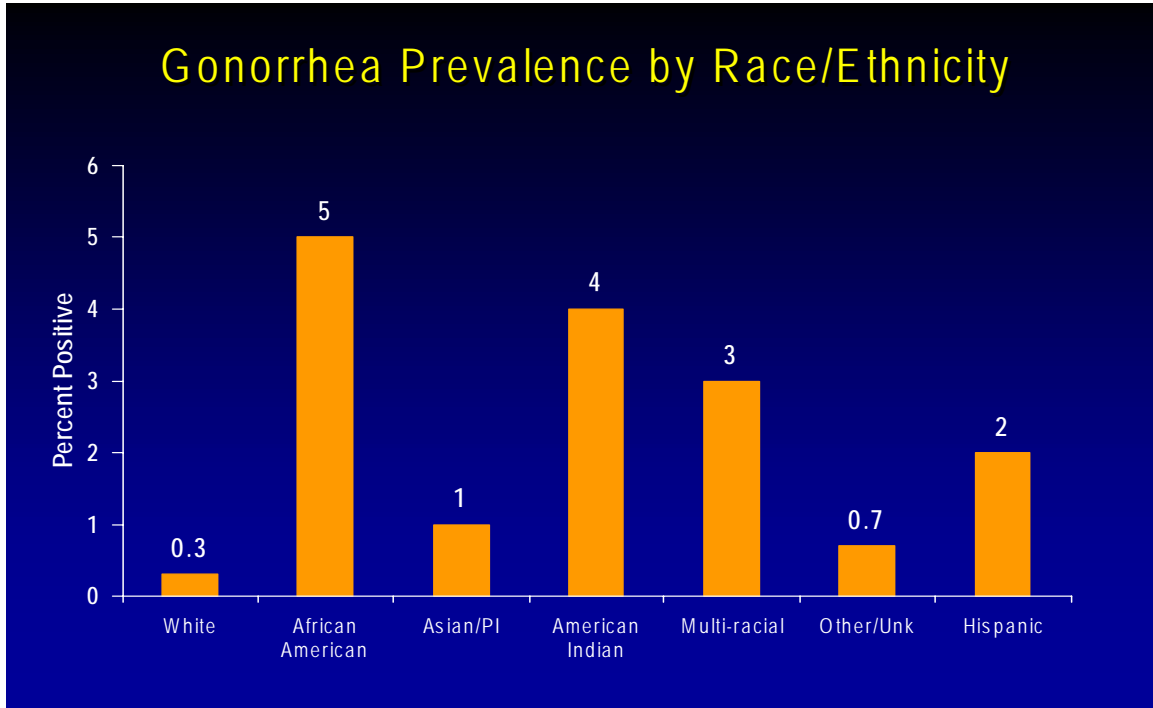
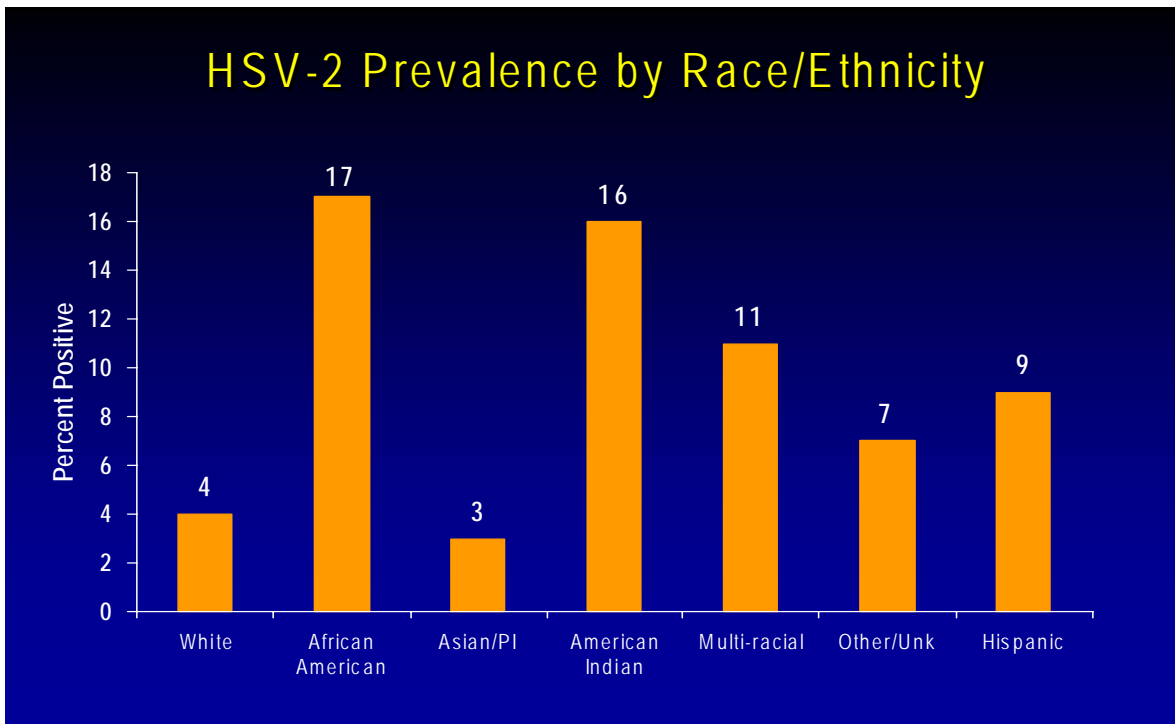


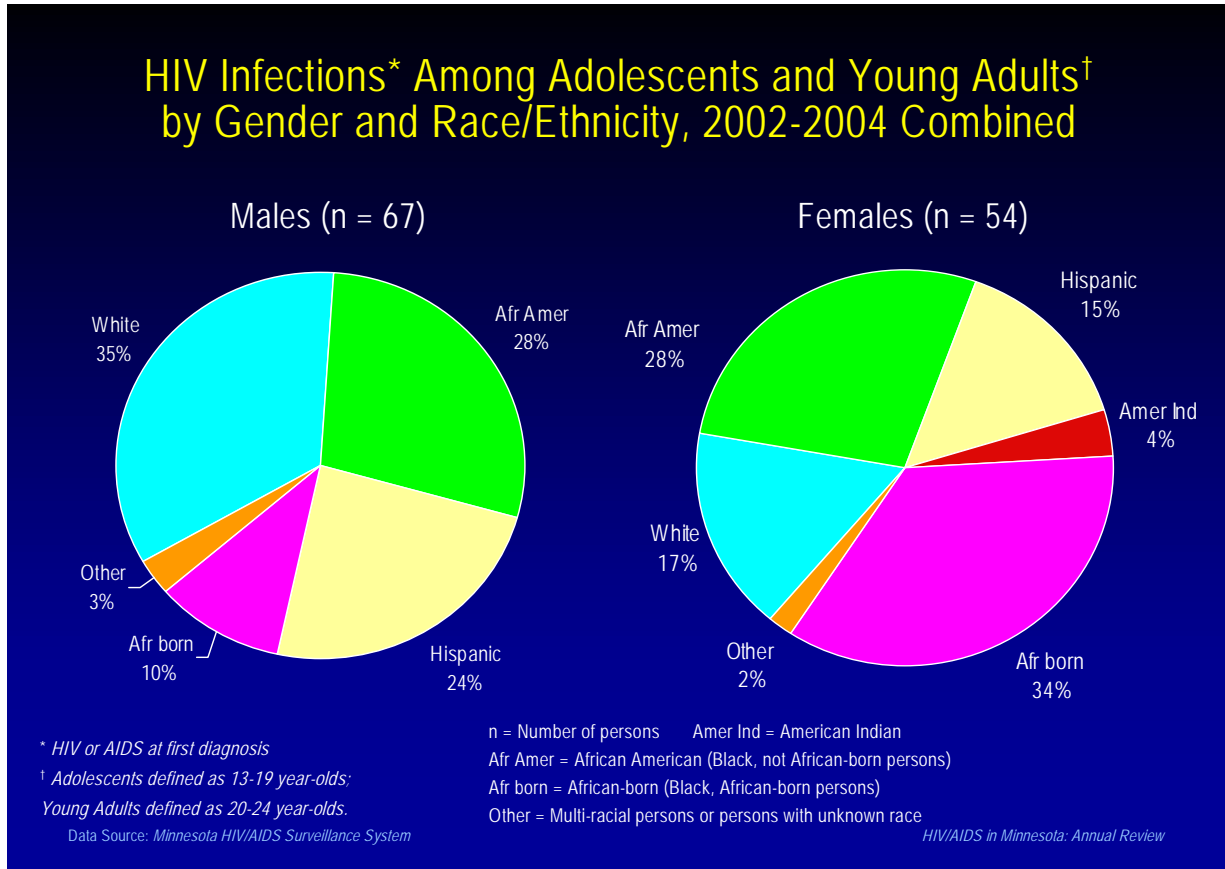
Figure 34c



*Minnesota STD Prevalence Study, 2003*⁸

HIV infection also disproportionately impacts adolescents of color. For young men, between 2002 and 2004, 35% of new infections were among Whites, 28% were among African-Americans, 24% were among Hispanics, and 10% were among African-born young men (Figure 35). As previously mentioned, an emerging epidemic of HIV is being witnessed among young African-born women¹⁸.

Figure 35



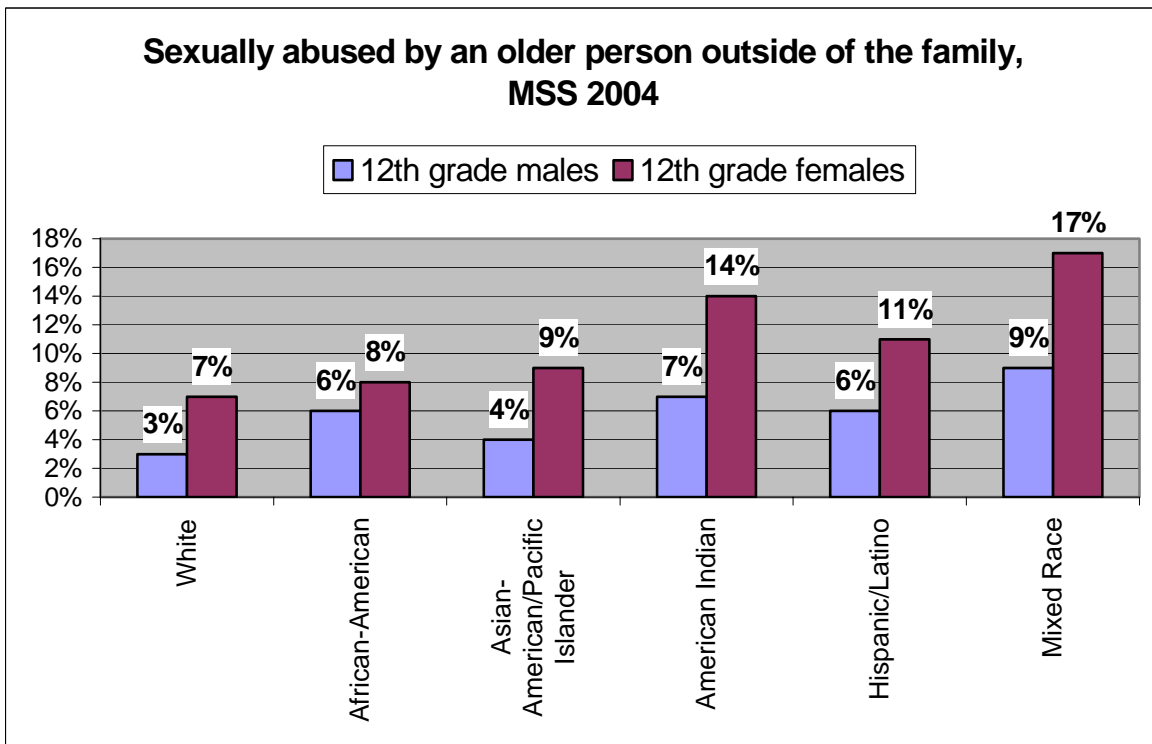
Minnesota HIV/AIDS Surveillance System¹⁸

Gender

Biologically, females experience the consequences of pregnancy and childbirth and are more frequently diagnosed with STDs than males. In 2004, for example, 77% of Minnesota adolescents and young adults reported with chlamydia or gonorrhea were female (7,020 out of 9,089)¹⁷.

Females are also more frequently victims of forced and unwanted sex. In the Minnesota STD Prevalence Study, 27% of young females reported that they had ever been forced to have sex compared to 6% of males⁸. Nationally, while 93% of teenage females report that they voluntarily engaged in intercourse the first time they had sex, about 25% reported that it was unwanted²⁷. According to the 2004 Minnesota Student Survey, females of all races were more likely than males to have been sexually abused by an older person outside of the family (Figure 36). Childhood sexual abuse has been linked to earlier sexual debut, having multiple sexual partners, and teen pregnancy²⁸.

Figure 36



Minnesota Student Survey, 2004 ¹

Sexual Minority Youth

Studies have shown that sexual minority youth report higher rates of high-risk sexual behavior²⁹ and a greater number of lifetime sexual partners³⁰, thereby increasing their risk of contracting STDs and/or HIV. Compared to heterosexual teens, GLBT youth have also reported greater degrees of substance abuse, suicidal thoughts/attempts, and personal safety issues. Interestingly, one study found that GLBT youth had a higher likelihood of becoming pregnant or getting someone else pregnant³⁰. This same study examined differences in GLBT teens in schools with and without gay-sensitive sexual health instruction and found that those in schools *with* such instruction had fewer sex partners, less recent sex, and less substance abuse than those in schools *without* such instruction.

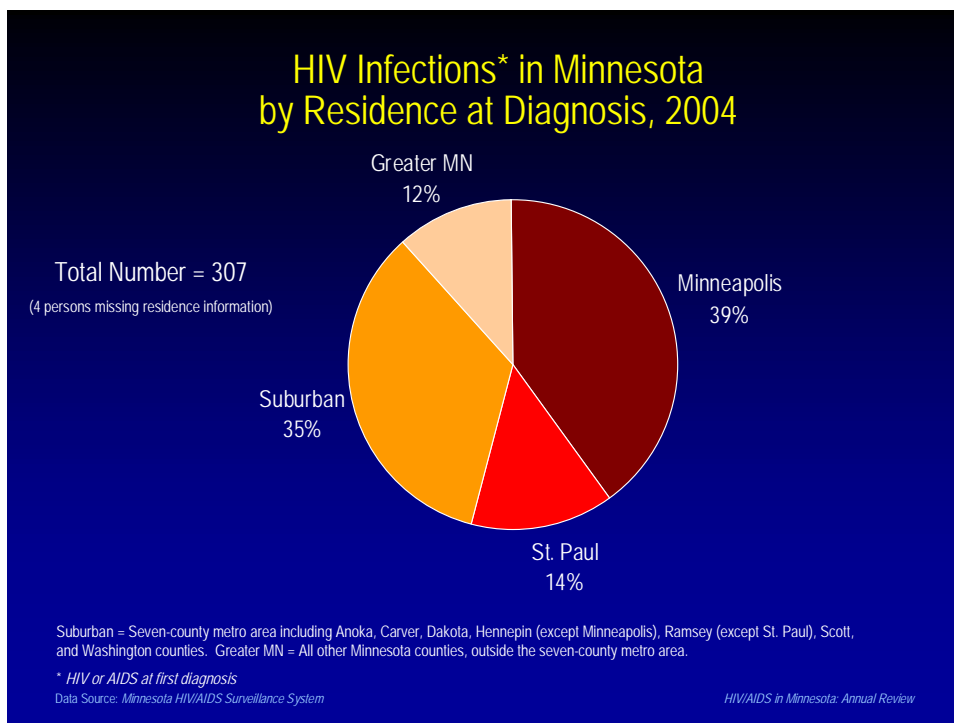
As previously stated, young men who have sex with men (YMSM) are at especially increased risk for contracting STDs and HIV. YMSM comprised 90% of new HIV infections among young men from 2002-2004. Nationally, YMSM, especially racial minorities, are more likely to have unrecognized HIV infection³¹. A 1994 study by Remafedi of 239 YMSM in Minnesota found that 63% were at “extreme risk” for contracting HIV due to high-risk behavior³².

Data are near non-existent for risk behaviors among young women who have sex with women and transgender youth. Further exploration of these populations is needed to determine the needs of these often ignored groups of young people.

Location/Place of Residence

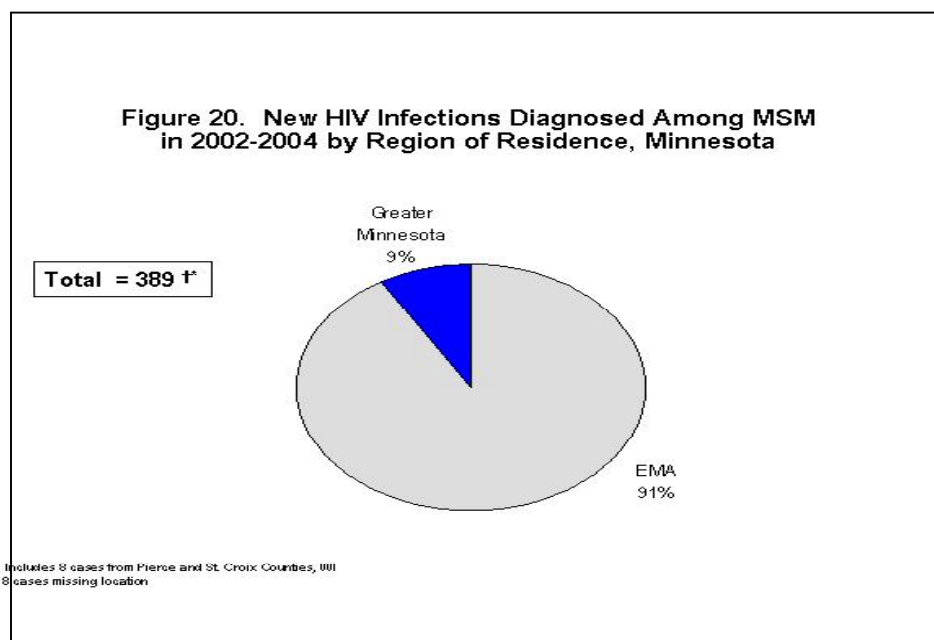
Where an adolescent lives within Minnesota can also have an impact on sexual health issues. Although data that address this issue solely among the adolescent population is not directly available, several overall population trends still merit attention. According to the Minnesota Department of Health, in 2003, the incidence of chlamydia was about 5 times as high in the cities of Minneapolis and St. Paul as in the suburban Twin Cities area and greater Minnesota¹⁵. Gonorrhea rates that year were the highest in Minneapolis--2 times higher than St. Paul, 9 times higher than the suburban Twin Cities, and 18 times higher than greater Minnesota. Hennepin and Ramsey counties, home to Minneapolis and St. Paul, also had the greatest *number* of births to teens in 2003, although some rural counties had higher *rates* of teen birth based on population size (Figure 26). Since the beginning of the HIV epidemic, close to 90% of cases have been diagnosed in Minneapolis/St. Paul and the surrounding seven-county area, although HIV or AIDS has been diagnosed in over 80% of Minnesota counties¹⁸. In 2004, 88% of all new HIV infections were diagnosed in the Twin Cities metro-area (Figure 37). For men who have sex with men, the contrast between the Twin Cities area and greater Minnesota is even more striking (Figure 38).

Figure 37



Minnesota HIV/AIDS Surveillance System¹⁸

Figure 38



*Minnesota HIV/AIDS Surveillance System*¹⁸

Although STD and HIV rates may show a marked difference between urban and rural areas, the prevalence of sexual behaviors in these areas appears to be relatively equal, according to data from the Minnesota STD Prevalence Study (Figure 39). Attention needs to be paid to this fact, and prevention and education efforts in both urban and rural areas of Minnesota should be maintained or strengthened.

Figure 39

	Urban		Rural		p
	N	%	N	%	
Had sex in past 6 months					
Oral sex	1,402	85	350	86	n.s.
Vaginal sex	1,940	90	410	92	n.s.
Anal sex	237	57	54	54	< 0.001
Mean number of lifetime sexual partners (median)	11 (5)		7 (4)		n.s.
Average number of partners in past 6 months (median)	2.4 (1)		2.1 (1)		n.s.

Minnesota STD Prevalence Study, 2003⁸

RISK AND PROTECTIVE FACTORS

Teens receive information about sex from a wide variety of sources, including parents, peers, school, and the media. Each of these sources may reflect very different views about sex and sexual behavior, either in terms of factual information or values. Such seemingly mixed messages can often cause adolescents confusion, uncertainty, and fear about their sexuality. If reducing the occurrence of STDs and unintended pregnancy is to be achieved, the factors that both protect teens and put them at risk must be understood.

Risk Factors

In addition to racial and economic disparities, the following other characteristics and behaviors have been shown to influence sexual risk taking among teens³³:

- Alcohol and drug use
- Low self-esteem
- Depression
- Emotional distress

Also, initiating sex at an early age appears to be a risk factor for subsequent risky behavior. For example, in a study of urban minority youth, those who reported having sex before the 10th grade were more likely to have had multiple sex partners, been involved in a pregnancy, forced a partner to have sex, had frequent intercourse, and had sex while drunk or high³⁴. Specifically for young women, negative outcomes can occur if they perceive they lack control in a relationship, if they are having sex with an older sex partner, and if they are afraid to talk about sexual issues and/or condoms in general³⁵.

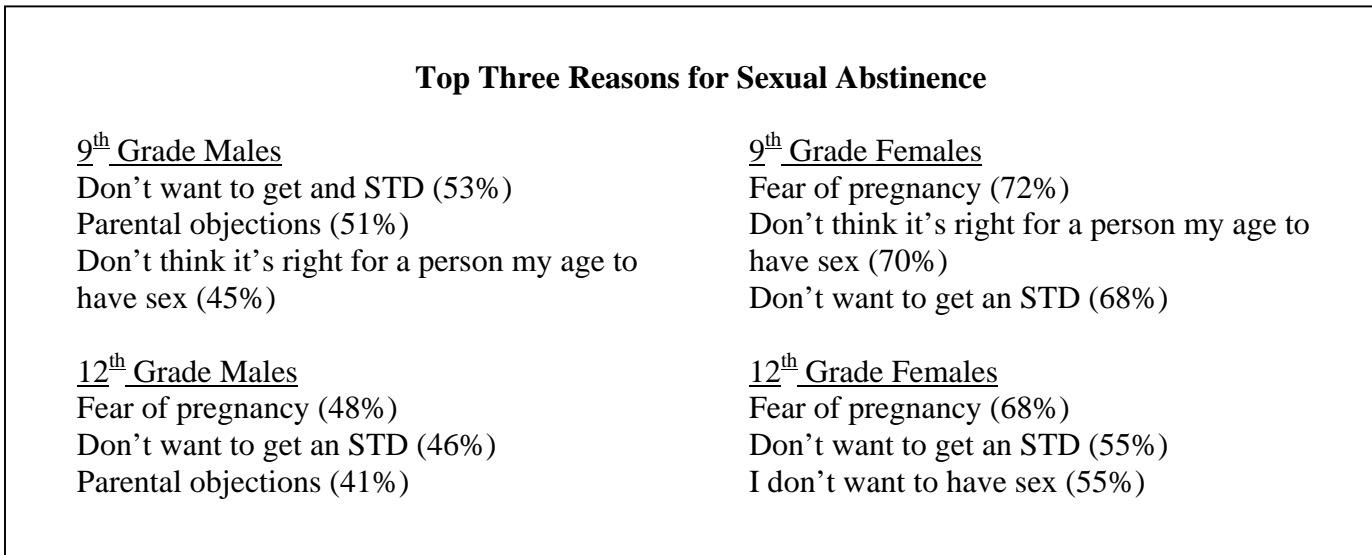
Protective Factors

On the other hand, certain characteristics and behaviors of adolescents can lessen the likelihood that they will engage in risky sexual behavior. Some of these include¹²:

- Believing that an STD or unwanted pregnancy could happen to them personally
- Having a supportive family who engages in frequent communication
- Parental monitoring
- Peer norms around abstinence and/or safer sex
- Participating in after school or youth organizations

The 2004 Minnesota Student Survey asked the following question, “If you do not have sexual intercourse, what factors influence your choice not to? (Mark all that apply).” Both fear of pregnancy and fear of contracting an STD were consistently mentioned as one of the top 3 reasons among both 9th and 12th grade males and females (Figure 40).

Figure 40



*Minnesota Student Survey, 2004*³⁶

Media

Various types of media in modern society influence adolescents' thoughts and attitudes towards sex. Music, movies, television, magazines, and the Internet are all gateways through which teens access information about the world in general and about sex in particular. Media can have both a positive and a negative influence. Negative images include the portrayal of sexual relationships without consequences or unrealistic examples of sexual relationships. However, these very same media outlets can play a vital and important part in broadcasting positive educational messages and increasing awareness around issues such as STDs and HIV¹².

Sexual Health Education

Sex education in schools remains a heavily debated topic, mainly over whether school programs should take an abstinence-only approach or a more comprehensive approach (which includes information on contraception and condom use). The state of Minnesota, via statute 121A.23 in 1999, requires school districts to have a program that aims to prevent and reduce the risk of STDs and HIV among students; however, it does not specify in which grade levels this instruction should occur nor for what length of time³⁷. It also does not mandate any certain type of curriculum. Research efforts are underway that are attempting to empirically evaluate whether abstinence-only or comprehensive programs result in better outcomes.

It is worth noting that a recent evaluative report from the American Psychological Association³⁸ concluded that abstinence-only programs did not delay the onset of sexual intercourse and had the unintended effect of reducing the likelihood that contraception was used at first intercourse. To further complicate the matter, agreement upon the exact definitions of the terms "abstinence" and even "sexual activity" is still needed.

Minnesota received close to half a million federal dollars in fiscal year 2004 to use for abstinence-only-until-marriage programs, which were then matched by state funds²¹. An independent study and program evaluation by the Minnesota Department of Health found that the ENABL (abstinence-focused) program resulted in both positive and negative outcomes. The positive outcomes included such things as increased communication between parents and teens and better community organizing; however, the program was found to be ineffective at delaying sexual activity. Criticisms included that the program contained too few lessons to have a significant impact. The program had also been used in California from 1992-1996 but was discontinued there because evaluations found it to be ineffective as well. Additionally, the Minnesota evaluation found that 77% of parents wanted both abstinence and contraception taught, while only 20% wanted abstinence-only taught.²

REFERENCES

- (1) Minnesota Student Survey Interagency Team. 2004 Minnesota Student Survey. 2004.
- (2) Minnesota Student Survey Interagency Team. 2004 Minnesota Student Survey Statewide Tables - Table 42A. 2004.
- (3) Centers for Disease Control and Prevention. *Surveillance Summaries*, May 21, 2004. MMWR2004;53(No. SS-2).
- (4) Boekeloo BO, Howard DE. Oral sexual experience among young adolescents receiving general health examinations. *Am.J.Health Behav.* 2002 Jul-Aug;26(4):306-314.
- (5) Prinstein MJ, Meade CS, Cohen GL. Adolescent oral sex, peer popularity, and perceptions of best friends' sexual behavior. *J.Pediatr.Psychol.* 2003 Jun;28(4):243-249.
- (6) Centers for Disease Control and Prevention (CDC). Transmission of primary and secondary syphilis by oral sex--Chicago, Illinois, 1998-2002. *MMWR.Morbidity & Mortality Weekly Report* 2004;53(41):966-968.
- (7) Bouscarat F. Sexually transmitted infections. Current clinical and therapeutic data. [Review] [72 refs. *Med.Mal.Infect.* 2005 May;35(5):290-298.
- (8) Minnesota Department of Health. STD Prevalence Study. November 5, 2003.
- (9) Remafedi G, Resnick M, Blum R, Harris L. Demography of sexual orientation in adolescents. *Pediatrics* 1992 Apr;89(4 Pt 2):714-721.
- (10) Minnesota Student Survey Interagency Team. 2004 Minnesota Student Survey Statewide Tables - Table 42B. 2004.
- (11) Minnesota Department of Education. 2004 School Health Education Profile Survey Report. 2004.
- (12) Cates JR, Herndon NL, Schulz SL, Darroch JE. *Our Voices, Our Lives, Our Futures: Youth and Sexually Transmitted Diseases*. Chapel Hill, NC: School of Journalism and Mass Communication, University of North Carolina at Chapel Hill.
- (13) Weinstock H, Berman S, Cates W,Jr. Sexually transmitted diseases among American youth: incidence and prevalence estimates, 2000. *Perspectives on Sexual & Reproductive Health* 2004 Jan-Feb;36(1):6-10.
- (14) Fleming DT, Wasserheit JN. From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to sexual transmission of HIV infection. [Review] [81 refs]. *Sex.Transm.Infect.* 1999 Feb;75(1):3-17.
- (15) Minnesota Department of Health. Sexually Transmitted Diseases, 2003. 2004.

- (16) Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance, 2003*. Atlanta, GA: U.S. Department of Health and Human Services, September 2004.
- (17) Minnesota Department of Health, STD Surveillance System. Sexually Transmitted Disease (STD) Surveillance Report, 2004. 2004.
- (18) Minnesota Department of Health. Minnesota HIV Surveillance Report, 2004. 2005.
- (19) The Annie E. Casey Foundation. CLIKS: Community-Level Information on Kids. 2003; Available at: <http://www.aecf.org/cgi-bin/cliiks.cgi>. Accessed 08/05, 2005.
- (20) Minnesota Organization on Adolescent Pregnancy, Prevention and Parenting (MOAPPP). 2005 Minnesota State Adolescent Sexual Health Report. 2005.
- (21) Sexuality Information and Education Council of the United States (SIECUS). State Profile: Minnesota. Available at: <http://www.siecus.org/policy/states/2004/mandates/MN.html>. Accessed 08/04, 2005.
- (22) Minnesota Department of Health, Center for Health Statistics. Report to the Legislature: Induced Abortions in Minnesota (compiled data from 1999 -2004). 1999-2004.
- (23) National Association of School Boards of Education (NASBE). The Impact of Adolescent Pregnancy and Parenthood on Educational Achievement. 2000. 12/2000.
- (24) Minnesota Department of Human Services, Program Assessment and Integrity Division. Minnesota Family Investment Program Longitudinal Study: Special Report on Teen Mothers. 2003.
- (25) mnstateplan.org. Building a Minnesota State Plan for Teen Pregnancy Prevention and Parenting. 2003; Available at: <http://www.mnstateplan.org/StatePlan.pdf>. Accessed 08/04, 2005.
- (26) U.S. Department of Health and Human Services. 2002 Natality Data Set. 2004.
- (27) The Alan Guttmacher Institute. Facts in Brief: Teen Sex and Pregnancy. 1999; Available at: http://www.guttmacher.org/pubs/fb_teen_sex.html#4a. Accessed 08/11, 2005.
- (28) Saewyc EM, Magee LL, Pettingell SE. Teenage pregnancy and associated risk behaviors among sexually abused adolescents. *Perspectives on Sexual & Reproductive Health* 2004 May-Jun;36(3):98-105.
- (29) Feldmann J, Middleman AB. Adolescent sexuality and sexual behavior. [Review] [21 refs]. *Curr.Opin.Obstet.Gynecol.* 2002 Oct;14(5):489-493.
- (30) Blake SM, Ledsy R, Lehman T, Goodenow C, Sawyer R, Hack T. Preventing sexual risk behaviors among gay, lesbian, and bisexual adolescents: the benefits of gay-sensitive HIV instruction in schools. *Am.J.Public Health* 2001 Jun;91(6):940-946.

- (31) Centers for Disease Control and Prevention (CDC). HIV prevalence, unrecognized infection, and HIV testing among men who have sex with men--five U.S. cities, June 2004-April 2005. *MMWR.Morbidity & Mortality Weekly Report* 2005;52(24):597-601.
- (32) Remafedi G. Predictors of unprotected intercourse among gay and bisexual youth: knowledge, beliefs, and behavior. *Pediatrics* 1994 Aug;94(2 Pt 1):163-168.
- (33) Blum R. Contemporary threats to adolescent health in the United States. *JAMA* 1987 Jun 26;257(24):3390-3395.
- (34) O'Donnell BL, O'Donnell CR, Stueve A. Early sexual initiation and subsequent sex-related risks among urban minority youth: the reach for health study. *Fam.Plann.Perspect.* 2001 Nov-Dec;33(6):268-275.
- (35) Ralph J. DiClemente, Richard A. Crosby, Gina M. Wingood. HIV Prevention for Adolescents: Identified Gaps and Emerging Approaches. *Prospects* 2002 Jun 2002;32(2):135-153.
- (36) Minnesota Student Survey Interagency Team. 2004 Minnesota Student Survey Statewide Tables - Table 43. 2004.
- (37) National Association of State Boards of Education (NASBE). State-level School Health Policies: Minnesota. 2005; Available at: <http://www.nasbe.org/HealthySchools/States/states.asp?Name=Minnesota>. Accessed 08/04, 2005.
- (38) American Psychological Association Council of Representatives. Resolution in favor of empirically supported sex education and HIV prevention programs for adolescents. February 18-20, 2005;Agenda Item No. XII.
- (39) Advocates for Youth, Minnesota Organization on Adolescent Pregnancy, Prevention, and Parenting. Integrating Efforts to Prevent HIV, Other STIs, and Pregnancy among Teens in Minnesota. 2005.
- (40) The Society of State Directors of Health, Physical Education and Recreation, National Alliance of State and Territorial AIDS Directors, National Coalition of STD Directors, Association of Maternal and Child Health Programs. Preventing HIV, STD, and Teen Pregnancy in Schools - Strengthening State Health and Education Agency Partnerships. September 2004.
- (41) Minnesota Department of Health, Center for Health Statistics
<http://www.mnplan.state.mn.us/datanetweb/health.html>
- (42) Minnesota Department of Education <http://education.state.mn.us/datactr/>
- (43) Centers for Disease Control and Prevention, Sexual Behavior and Selected Health Measures: Men and Women 15-44 Years of Age, United States, 2002. Advance Data From Vital and Health Statistics, Number 362, 2005