



**2010  
King County  
Sexually Transmitted Diseases  
Epidemiology Report**

**Public Health – Seattle and King County  
2010 Sexually Transmitted Diseases Epidemiology Report**

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## Executive Summary

The 2010 Sexually Transmitted Diseases Epidemiology report describes recent trends in chlamydial infection, gonorrhea, and early syphilis among King County residents. Left untreated, these infections may cause serious long-term health consequences. The report also provides information about patients using the Public Health – Seattle & King County STD Clinic, as well as trends in diagnoses of several other sexually transmitted infections at the STD Clinic. The information contained in this report will be useful to providers, policy-makers, researchers and others interested in reducing the transmission of sexually transmitted infections in King County.

Key findings in the epidemiology of sexually transmitted diseases (STD) in King County in 2010 include:

- **Incidence of gonorrhea, chlamydial infection, and early syphilis increased among men who have sex with men (MSM) in 2010.<sup>1</sup>**

Between 2009 and 2010, the incidence of gonorrhea among MSM increased 46% and the incidence of syphilis increased 81%. In response to the upsurge in rates of gonorrhea and syphilis among MSM, Public Health undertook the following actions to promote awareness, STD testing and treatment, and behavior change:

- Sent direct mail alerts to King County medical providers and community partners;
- Launched a media campaign directed toward among MSM; and
- Increased STD testing through the GayCity Wellness Project.

Public Health recommends that all MSM test for bacterial STD at least annually, and that MSM with any of the following risks test for syphilis and other STDs every three months: 1) bacterial STD diagnosis in the last year; 2) methamphetamine or popper use; 3) unprotected anal sex with a partner of unknown or different HIV status; and 4) more than 10 sex

partners in the prior year. (MSM without an prior HIV diagnosis should test for HIV whenever testing for other STDs.)

- **Gonorrhea rates among heterosexuals rose by 42% from 2009 to 2010, but remain well below rates observed throughout most of the last decade.** The increase in gonorrhea rates in 2010 occurred following a period of declining rates over the last decade. The rate of gonorrhea among heterosexuals in 2009 was the lowest level recorded since case report data became available in an electronic format in 1992. The cause for the recent increase in incidence among MSM and heterosexuals is unclear; providers should maintain current gonorrhea testing and treatment practices.
- **Overall chlamydia incidence is stable, with the highest rates of reported infection observed among young women.** The incidence of chlamydial infection was similar in 2010 (311 per 100,000 persons) to that observed in 2009 (308 per 100,000). Among young women (ages 15-29), historically the group with the highest rates of chlamydial infection, measures of both incidence and prevalence<sup>2</sup> have remained stable for several years. However, this infection still occurs too often, and providers should be vigilant in screening sexually active women younger than 26 years of age and rescreening persons with chlamydial infection three months following initial therapy. Providers are also encouraged to use patient-delivered partner therapy (PDPT) to assure that all potentially exposed sex partners receive treatment. Public Health provides PDPT to medical providers throughout the county at no cost.
- **Rates of all STDs continue to show marked racial and ethnic disparities.** In 2010, the incidence of gonorrhea was 12.7 times higher among African American women (282 per 100,000), and 2.5 times higher among Native American women (56 per 100,000), than among white women. (22 per 100,000). The incidence of chlamydial infection was also significantly higher among African American (1,508 per 100,000), Native American (771 per 100,000), and Latina (810 per 100,000) women than among white

women (237 per 100,000). The persistence of racial disparities should prompt providers to ensure that existing screening guidelines are rigorously applied.

- **The Public Health STD Clinic remains a vital resource for residents and health care providers in King County, diagnosing a substantial proportion of all reportable STDs reported in King County in 2010.** This included 30% of early syphilis cases, 32% of gonorrhea cases, 21% of HIV cases, and 10% of chlamydial infection cases. As in past years, the Public Health STD Clinic diagnosed more cases of HIV in 2010 than any other single clinical site in Washington State.
- **Family planning clinics play a critical role in the control of chlamydial infection in King County.** As a group, family planning clinics diagnosed 20% of the total reported cases of chlamydial infections in King County in 2010. Public Health Family Planning Clinics diagnosed 12% of King County chlamydial infection cases in 2010.

<sup>1</sup> Incidence is a measure describing the number of new cases of disease in a specific population over a period of time. In King County, incidence of sexually transmitted infections is calculated by dividing the number of reported cases of an infection over the total King County population, and is usually expressed as a number of cases per 100,000 population per year.

<sup>2</sup> Prevalence is a measure of all cases of disease present in a population during a specified time period. Prevalence is often expressed as a percentage, calculated as the number of cases of a disease divided by the number of individuals at risk.

<sup>3</sup> Some of the 64 cases of HIV diagnosed in the STD Clinic may not have been King County residents.

## Data sources

### King County morbidity data:

This report describes case numbers and rates of infection for three sexually transmitted infections in King County. These three infections (chlamydial infection, gonorrhea and syphilis) are notifiable diseases in Washington state. Medical providers and laboratories are required by law to report all laboratory confirmed cases of these infections to Public Health – Seattle & King County (Public Health). The Public Health HIV/STD Program forwards these reports to the Washington State Department of Health. For this report, yearly infection totals are based on year of diagnosis, rather than year of report. The numbers contained in the chlamydial infection, gonorrhea and syphilis sections of this report are for cases diagnosed from 1992-2010 and reported through February 27, 2011.

### Population data:

Incidence rates were calculated using population estimates provided by the Washington State Office of Financial Management for intercensal years and U.S. census data for 2000. Population data for 2010 are not yet available; for these years, population data from 2009 were utilized to calculate incidence figures for 2010.

Overall population estimates used for MSM represent 5.8% of men ages 15 and older in King County per year; these figures are comparable to estimates for the percent of the male population that is MSM from several population-based studies.<sup>1-</sup>

<sup>3</sup> Population estimates for HIV-positive and negative MSM were provided by the Public Health HIV/AIDS Epidemiology Unit.

**Data limitations:** Notifiable disease data have several limitations. In some cases, considerable differences in numbers and rates of infection between subgroups are attributable in large part to screening and testing practices. For example, the rate of chlamydial infection in King County is substantially higher among women than men, reflecting national recommendations that young women be screened for

chlamydia annually, and the absence of corresponding recommendations for young men.

While chlamydial infection, gonorrhea and syphilis are all notifiable diseases in Washington state, these data are subject to under-reporting by physicians and laboratories. Additionally, because undiagnosed infections cannot be reported, infections which are frequently experienced with no symptoms, such as chlamydia, may exist at higher levels in the population than notifiable disease data indicate.

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## Chlamydial Infection

In 2010, 5,946 cases of chlamydial infection were reported among King County residents, representing an overall reported incidence of 311 per 100,000 people (Table 1), similar to the incidence of 308 cases per 100,000 people in 2009 (Table 3). In 2010, 3,906 cases were reported among women, for a reported incidence of 408 per 100,000 women, and 2,309 cases were reported among men, for a reported incidence of 214 per 100,000 men (Table 1).

Historically, the incidence of chlamydial infection has varied substantially by age and race in King County. These patterns continued in 2010 (Throughout this report, Latino ethnicity is treated as a separate race group, and all other race groups exclude Latinos.):

- Among women, reported incidence was highest among black women (1,508 per 100,000 women), followed by Latina (810 per 100,000), Native American (771 per 100,000), Asian (380 per 100,000), and white (237 per 100,000) women (Table 2). This pattern of disparity was also evident when analysis was restricted to women ages 15-29 (Figure 4).
- Among men, black men had the highest reported incidence of chlamydial infection with an incidence of 884 per 100,000, followed by Latino men (338 per 100,000). Incidence of reported chlamydial infection was less variable among Native American (216 per 100,000), Asian (135 per 100,000), and white (138 per 100,000) men than was the case among women (Table 2).
- Among women, the incidence of chlamydial infection was highest among 15-19 year olds (2,155 per 100,000) and 20-24 year olds (2,031 per 100,000), while among men, reported incidence was highest among 20-24 year olds (832 per 100,000) followed by 15-19 and 25-29 year olds (468 and 519 per 100,000, respectively) (Table 2, Figure 3). Higher rates among women than men both overall and within most age and race groups largely reflect differential screening practices in King County, whereby asymptomatic women are frequently screened for chlamydial infection and men are not.

Public Health evaluates three sources of data to assess trends in chlamydial infection in the population:

- 1) Numbers of cases reported to Public Health by diagnosing providers and laboratories;
- 2) Prevalence in a sentinel population of women (the Infertility Prevention Project [IPP]);
- 3) Trends in infection in the Public Health STD Clinic.

The incidence of reported chlamydial infection among 15-29 year-old women in King County has remained stable since 2006, after a downward trend in reported incidence observed from 2004 through 2005 (Table 4, Figure 1). In contrast, the incidence of reported chlamydial infection among 15-19 year-old women rose sharply from 2007 to 2008 on a statewide basis, (Washington state excluding King County), and then remained stable from 2008 to 2010. The observed increase from 2007 to 2008 may be related in part to increased reporting of chlamydia cases as a result of a new web-based case reporting system introduced throughout Washington state from 2007-2008. (A similar system has been in place in King County since the late 1990s.) On a national basis, chlamydial infection incidence increased over time from 1997 to 2008, with a slowing of the increase from 2004 to 2006. National incidence in 2009 was similar to that observed in 2008 (Figure 1). National chlamydial infection incidence data were not available for 2010 at the time this report was prepared.

Public Health does not currently monitor the number of chlamydial tests performed in the population. Therefore, we cannot estimate the extent to which changes in the number of cases reported reflect true changes in incidence vs. increased case detection or ascertainment due to changes in the number of tests performed, changes in the sensitivity of the tests employed, or more complete reporting of diagnosed cases. The increase observed in national reported chlamydial incidence from 1997 through 2004 is likely due, at least in part, to increased screening among women in states that did not previously have screening programs. Changes in testing technology may also have influenced trends in reported incidence.

Locally, Public Health began pilot testing nucleic acid amplification tests (NAATs) for chlamydial infection in 1994; this more sensitive test may have resulted in increases in chlamydia diagnoses in the years following 1994. All Public Health clinics and sites participating in IPP were using NAATs by the end of 1999.

IPP is a national program that provides routine screening and treatment services for chlamydial infection to patients seen in family planning, sexually transmitted disease and selected other public clinics. Policy in these clinics is to test all patients meeting selective screening criteria, and the proportion of tests that are positive provides an estimate of the prevalence of infection among young women, regardless of symptoms. Figure 2 displays IPP chlamydia prevalence (the number of positive chlamydia tests divided by all chlamydia tests performed) among women ages 15-29 for King County and all other Washington counties for 1998-2010. Chlamydial infection prevalence has been stable among King County women since 2000, with a slight increase in prevalence from 2009 to 2010 (Figure 2). In contrast, among other women in Washington State, chlamydial prevalence increased rapidly from 2001 to 2004, was roughly stable from 2005 to 2008, dropped sharply in 2009, and remained relatively unchanged in 2010. The prevalence among women in other Washington state counties in 2010 (0.063) was much closer to that observed in King County (0.058) than has been the case for some years.

Among patients evaluated at the Public Health STD Clinic, the number of diagnoses of chlamydial infection among women declined from 2002 to 2010 (Figure 20). The number of men seeking evaluation for symptomatic chlamydial urethritis (Figure 21) decreased from 2003 to 2007, remained unchanged from 2007 to 2009, and increased somewhat in 2010. The increase among symptomatic chlamydial urethritis diagnoses among men in our STD Clinic in 2010 was observed only among MSM; the number of diagnoses among heterosexual men was constant. This is consistent with an observed increase in incidence of chlamydial infection among King County MSM over the past three years (Figure 31). The extent to which slightly divergent trends observed in the three data sources monitored by

Public Health reflect true differences in chlamydial morbidity vs. changing patterns in the populations tested is not certain.

Because reporting is likely more complete among women than among men and morbidity associated with chlamydial infection is concentrated in women, age, race and ethnicity trends for reported chlamydial infection over time are shown for women only (Figures 3 and 4). Incidence among women in most age groups remained stable over the past year, with a slight decrease in incidence among young women ages 15-19 (Figure 3). Analysis of trends over time in race and ethnicity are limited to women ages 15-29, the group in which incidence is highest. Reported 2010 incidence in all race groups was similar to the incidence observed in 2008 and 2009.

PHSKC and other family planning clinics play an important role in the control of chlamydial infection in King County. PHSKC family planning clinics diagnosed 470 (8%) of 5946 King County chlamydial infection cases in 2010. As a group, family planning clinics diagnosed 1161 (20%) of the total reported cases of chlamydial infections in King County. Among women, family planning clinics diagnosed an even larger percentage of cases (905 [23%] of 3899).

**Table 1: Number of Reported Cases  
and Chlamydia Incidence, King County, WA, 2010**

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	<u>Cases</u>	<u>Incidence per 100,000 population</u>
Sex		
Women	3,906	408
Men	2,039	214
Total cases	5,946	311

**Table 2: Number of Reported Cases and Chlamydia Incidence in Men and Women, by Age and Race King County, WA, 2010**

		Women (N=3,906)		Men (N=2039)	
		Cases	Incidence per 100,000 population	Cases	Incidence per 100,000 population
<b>Race/ethnicity* ^</b>					
	White, Non-Latino	1,411	237	807	138
	Black, Non-Latino	756	1,508	472	884
	Nat Am, Non-Latino	54	771	15	216
	Asian/PI, Non-Latino	452	380	149	135
	Latino	409	810	203	338
	Other	61		17	
	Multiple	121		43	
	Unknown	642		333	
<b>Age*</b>					
	0-9 years	3	3	0	0
	10-14 years	59	113	4	7
	15-19 years	1,224	2,155	276	468
	20-24 years	1,408	2,031	580	832
	25-29 years	660	828	438	519
	30-34 years	311	443	247	324
	35-44 years	192	140	317	219
	45-55 years	40	27	133	90
	>=56 years	9	4	43	22
	Unknown	0		1	

\* Cases with unknown race, ethnicity, or age were included in race/ethnicity and age-specific rates after being distributed among race/ethnicity/age categories based on the distribution of cases with known race, ethnicity, and age. In 2010, among women, 642 case reports were missing race and/or ethnicity, and among men, 333 case reports were missing race and ethnicity, and 1 was missing age.

^ Race/ethnicity specific rates exclude cases reported with "multiple" or "other" races.

**Table 3: Number of Reported Chlamydia Cases and Incidence among Men and Women King County, WA, 1992-2010**

Year	Women		Men		Total	
	Cases	Incidence per 100,000	Cases	Incidence per 100,000 population	Cases	Incidence per 100,000
1992	3,000	375	965	124	3,965	251
1993	2,563	316	813	102	3,376	210
1994	2,742	334	811	101	3,553	219
1995	2,410	291	802	98	3,212	196
1996	2,356	282	880	107	3,236	195
1997	2,247	266	903	108	3,150	188
1998	2,447	286	1,071	127	3,518	207
1999**	2,719	315	1,357	158	4,076	237
2000	3,388	388	1,653	191	5,041	290
2001	3,285	372	1,612	184	4,897	279
2002	3,483	391	1,750	198	5,233	295
2003	3,796	425	2,031	229	5,827	327
2004	4,108	457	2,061	232	6,172	345
2005	4,070	448	2,188	243	6,261	346
2006	3,956	429	2,016	221	5,974	325
2007	3,900	417	1,843	199	5,748	309
2008	3,972	420	2,031	216	6,003	319
2009	3,917	409	1,958	206	5,875	308
2010	3,906	408	2,039	214	5,946	311

\*\* Some PHSKC clinics began using NAATS testing for chlamydial infection in 1994, and all PHSKC clinics were using NAATs by 1999.

**Table 4: Number of Reported Chlamydia Cases and Incidence among Men and Women ages 15-29, \* King County, WA, 1992-2010**

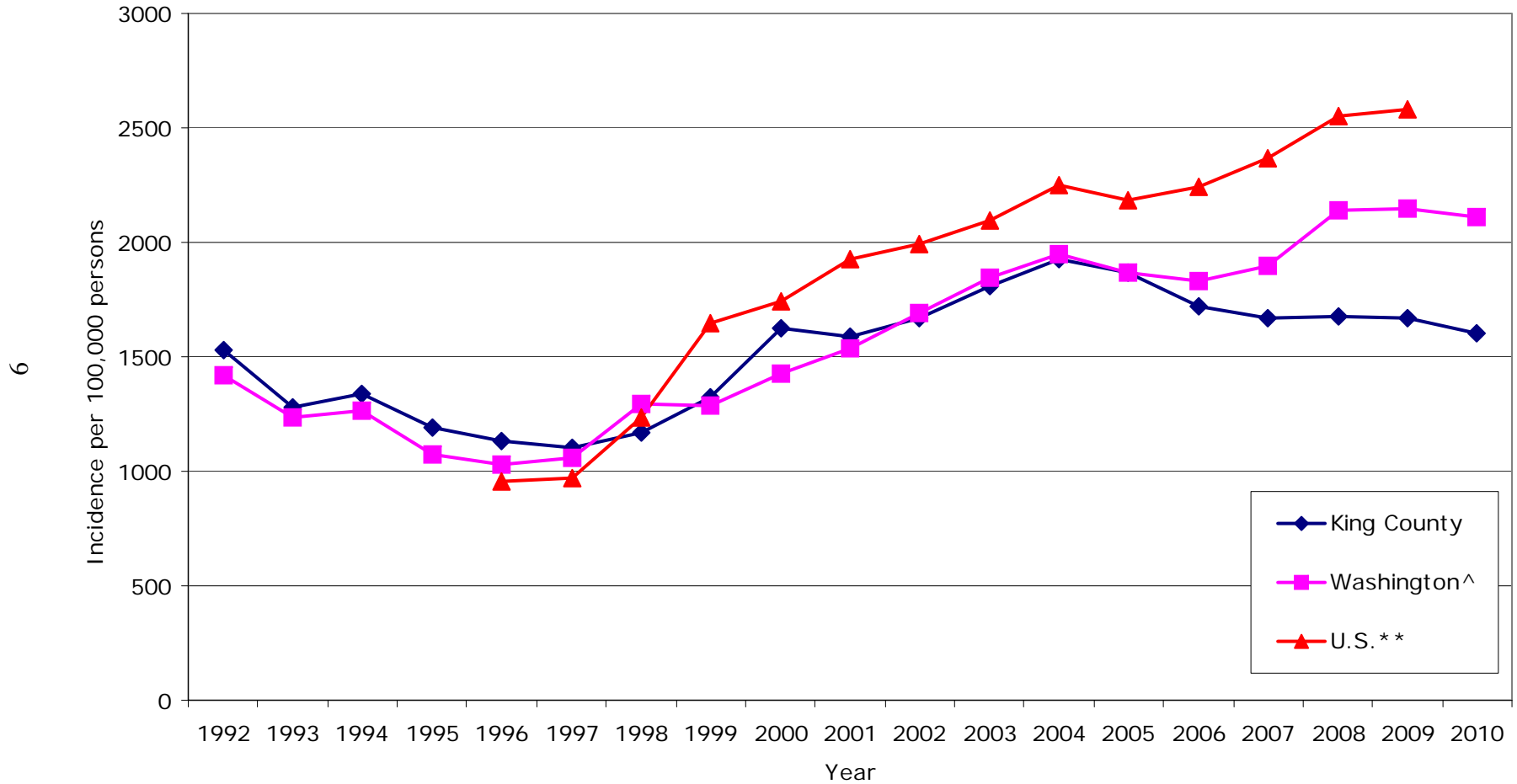
Year	Women, ages 15-29		Men, ages 15-29		Total, ages 15-29	
	Cases	Incidence per 100,000	Cases	Incidence per 100,000 population	Cases	Incidence per 100,000
1992	2,658	1,392	805	452	3,464	985
1993	2,212	1,160	695	390	2,908	827
1994	2,302	1,290	637	358	2,939	840
1995	2,051	1,149	642	359	2,693	766
1996	1,976	1,108	664	367	2,640	744
1997	1,942	1,093	644	353	2,586	722
1998	2,081	1,160	788	426	2,869	790
1999* *	2,357	1,291	934	502	3,291	903
2000	2,918	1,430	1,154	617	4,071	1,110
2001	2,877	1,397	1,065	566	3,942	1,069
2002	3,050	1,441	1,215	642	4,265	1,147
2003	3,312	1,634	1,385	727	4,698	1,256
2004	3,589	1,747	1,349	699	4,938	1,303
2005	3,536	1,721	1,508	692	5,045	1,307
2006	3,359	1,723	1,297	642	4,656	1,172
2007	3,334	1,671	1,179	570	4,513	1,111
2008	3,408	1,677	1,353	642	4,761	1,150
2009	3,440	1,671	1,338	628	4,778	1,140
2010	3,292	1,600	1,295	607	4,587	1,095

\* Cases with unknown age were included age specific counts and rates after being distributed among age categories based on the distribution of cases with known age.

\*\* Some PHSKC clinics began using NAATS testing for chlamydial infection in 1994, and all PHSKC clinics were using NAATs by 1999.



**Figure 1: Chlamydia Incidence among Women ages 15-29\*, 1992-2010  
King County, Washington State,^ and U.S.**

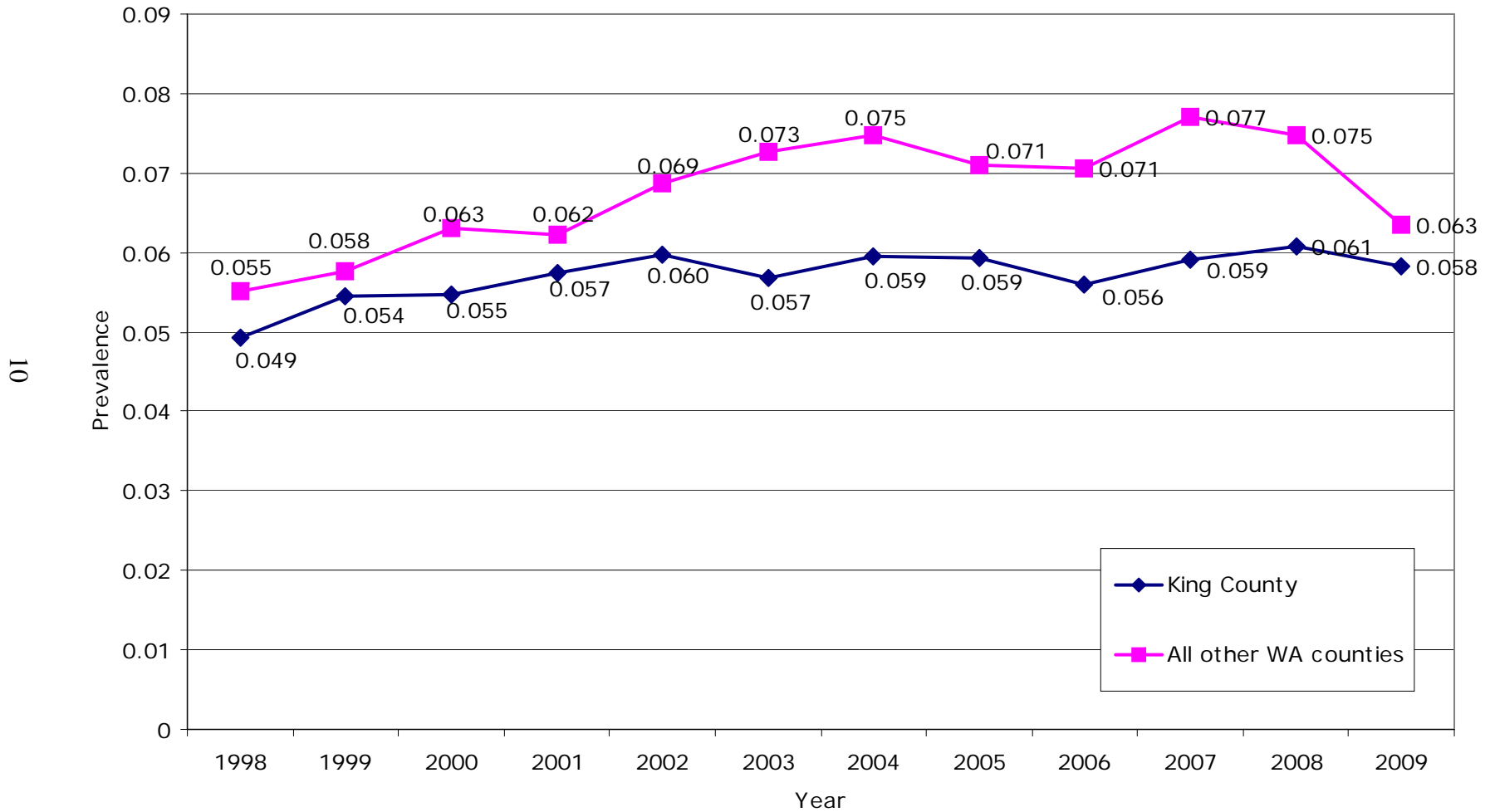


\* Cases with unknown age were distributed according to annual age distributions among cases with known age and included in age-specific rates.

\*\* National data for 2010 were not available at the time this report was prepared.

^ Washington State rates exclude King County.

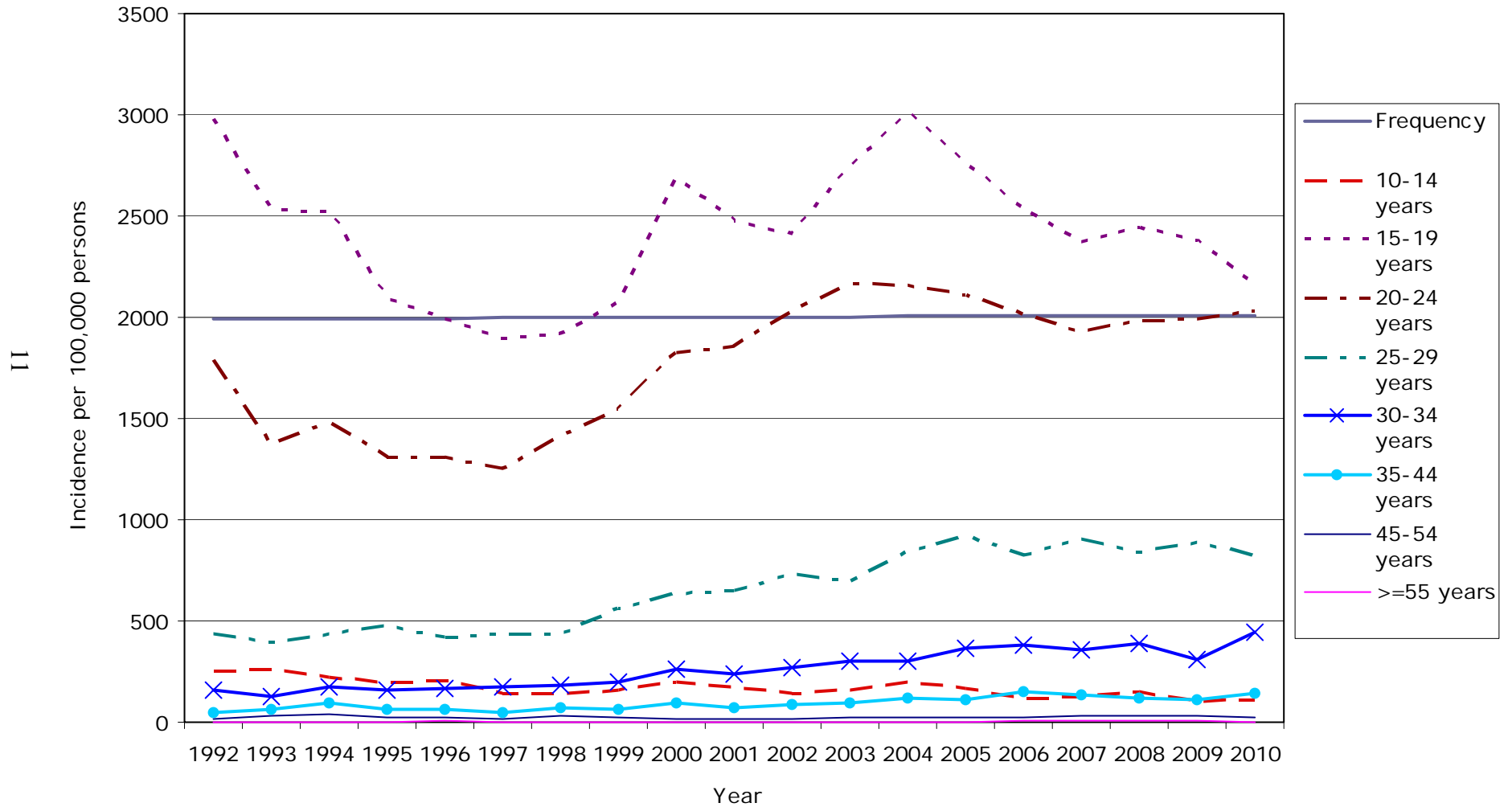
Figure 2: Chlamydia Prevalence among Women ages 15-29 tested in King County and All Other Washington Counties\*  
 Infertility Prevention Project, 1998-2010\*\*



\* County is based on the zip code of the reporting clinic

\*\* The population tested through the IPP has changed over time; these changes, in addition to true changes in positivity, may influence trends in prevalence over time.

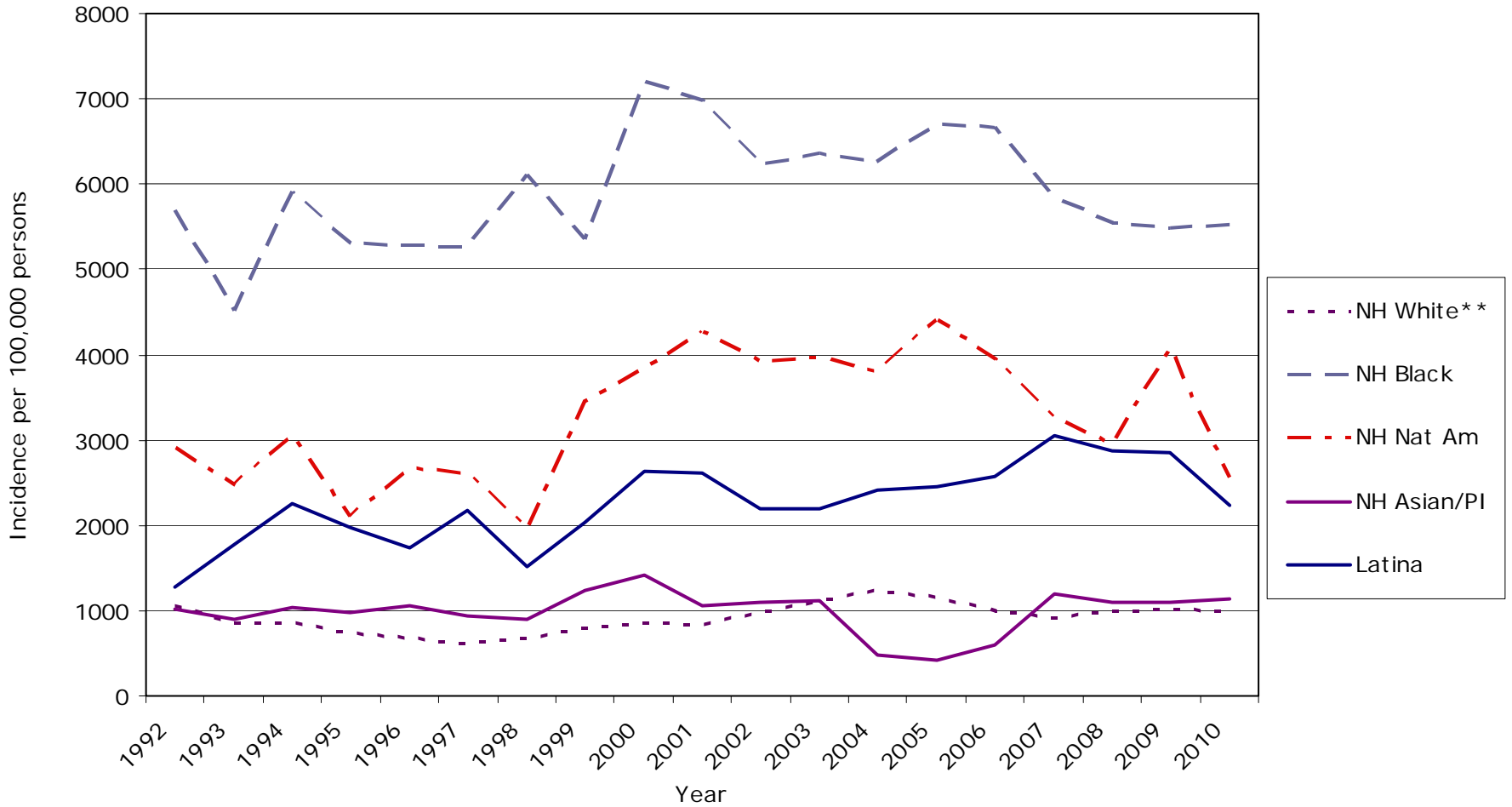
Figure 3: Reported Chlamydial Infection by Age\* Among Women  
King County, WA, 1992-2010



\* Cases with unknown age were distributed according to annual age distributions among cases with known age and included in age-specific rates

Figure 4: Reported Chlamydial Infection by Race and Ethnicity Among Women Ages 15-29\*  
King County, WA, 1992-2010

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\* Cases with unknown race, ethnicity, and age were distributed according to annual race, ethnicity and age distributions among cases with known race, ethnicity and age and included in race-specific rates.

\*\* NH: Non-Hispanic

## **Gonorrhea**

In 2010, there were 1,570 reported cases of gonorrhea in King County, resulting in an overall incidence of 82 per 100,000 persons (Table 5). The overall incidence of gonorrhea increased 43% from 2009 to 2010, reversing a sharp decline in the incidence of gonorrhea from 2006 to 2009. Incidence of gonorrhea increased among men (45%) and women (40%) from 2009 to 2010 (Table 7, Figure 5). Among women, 404 cases of gonorrhea were reported in 2010, for an incidence of 42.2 per 100,000. Among men, 1166 cases were reported in 2010 (122.6 per 100,000, Table 7). While gonorrhea incidence increased almost equally among heterosexual men (from 45.8 to 64.6 per 100,000) and MSM (from 1,089.8 to 1,598.6) from 2009 to 2010, gonorrhea incidence remains substantially higher among MSM (Figure 5).

Interpreting King County epidemiologic gonorrhea data is complicated by the fact that there are two ongoing, substantially separate epidemics, one among MSM and another among heterosexuals. Because case report data on sexual orientation are incomplete, Public Health cannot reliably determine the sexual orientation of all male cases. As a result, the heterosexual epidemic is best monitored by concentrating on the occurrence of gonorrhea in women, while the epidemic among MSM is best monitored using data collected in sentinel populations, like STD clinic patients among whom sexual orientation data are complete, in combination with case report data.

### *Age*

The incidence of gonorrhea was highest in the 15-19 and 20-24 year age groups among women in 2010, while in men incidence was highest in the 20-24, 25-29, and 30-34 year-old age groups (Table 6). Women aged 15-29 years account for most of the gonorrhea morbidity among women in King County. In this group, incidence of gonorrhea fell sharply from 2006 to

2009, but increased from 2009 to 2010, mirroring the overall trend in gonorrhea incidence in King County (Figure 6).

In contrast, among women ages 15-29 in Washington counties outside of King County, gonorrhea incidence remained stable from 2009 to 2010. Nationally, incidence among women in this age group was stable from 1998 through 2008, but decreased from 2008 to 2009 (Figure 6). National data were not available for 2010 at the time this report was prepared.

### *Race and ethnicity*

Similar to historical trends observed both nationally and in King County, large racial disparities in gonorrhea incidence were observed in 2010, with the highest incidence observed among African American men and women, and the lowest incidence occurring among white women and Native American men (Table 6). Incidence among young African American women was 17.0 times that of white women of the same age in 2010. (Figures 7 and 8 include women only to better illustrate trends in gonorrhea among heterosexuals.)

### *Trends*

Historically, gonorrhea incidence in women has been highest among 15-19 and 20-24 year olds. This pattern continued in 2010, with incidence increasing among 15-19 year olds and decreasing slightly among 20-24 year olds (Figure 7). Reported gonorrhea incidence increased in most age groups from 2009 to 2010 (Figure 7). In contrast, among women ages 15-29 incidence rose in white and African-American women from 2009 to 2010, but remained stable or fell slightly in other race/ethnicity groups from 2009 to 2010 (Figure 8).

## MSM

In addition to surveillance data gathered through case reports, data from the Public Health STD Clinic also suggest that gonorrhea morbidity among MSM increased over the past year. The total number of gonorrhea diagnoses among MSM STD Clinic patients was 272 cases in 2009 and 417 cases in 2010, the largest number of gonorrhea cases diagnosed among MSM STD Clinic patients in a calendar year to date (Figure 17). Monitoring symptomatic urethral gonorrhea among men provides a measure of morbidity that is relatively unaffected by changes in screening and testing practices from year to year. The number of STD Clinic diagnoses among MSM patients with symptomatic urethral gonorrhea also increased substantially from 2009 to 2010, while the number of cases among heterosexual men increased only slightly (Figure 18).

**Table 5: Number of Reported Gonorrhea Cases and Gonorrhea Incidence, King County, WA, 2010**

		Cases	Incidence per 100,000 population
Sex			
	Women	404	42
	Men	1166	123
Total cases		1570	82

**Table 6: Number of Reported Gonorrhea Cases and Incidence, in Men and Women, by Age and Race, King County, WA, 2010**

		Women (N=404)		Men (N=1166)	
		Cases	Incidence per 100,000 population	Cases	Incidence per 100,000
<b>Race/ethnicity* ^</b>					
	White, Non-Hispanic	136	22	594	95
	Black, Non-Hispanic	145	282	269	473
	Nat Am, Non-Hispanic	4	56	10	135
	Asian/PI, Non-Hispani	20	16	57	48
	Hispanic	21	41	100	156
	Other	20		4	
	Multiple	4		25	
	Unknown	54		107	
<b>Age*</b>					
	0-9 years	0	0	0	0
	10-14 years	2	4	0	0
	15-19 years	120	211	51	86
	20-24 years	93	134	207	297
	25-29 years	70	88	210	249
	30-34 years	53	75	200	262
	35-44 years	34	25	275	190
	45-55 years	23	15	168	114
	>=56 years	9	4	55	28
	Unknown	0		0	

\* Cases with unknown race, ethnicity, or age were included in race/ethnicity and age specific rates after being distributed among race/ethnicity/age categories based on the distribution of cases with known race, ethnicity, and age. In 2009, among women, 54 case reports were missing race and/or ethnicity, and among men, 107 case reports were missing race and/or ethnicity. No cases were missing age.

^ Race/ethnicity specific rates exclude cases reported with "multiple" or "other" races.



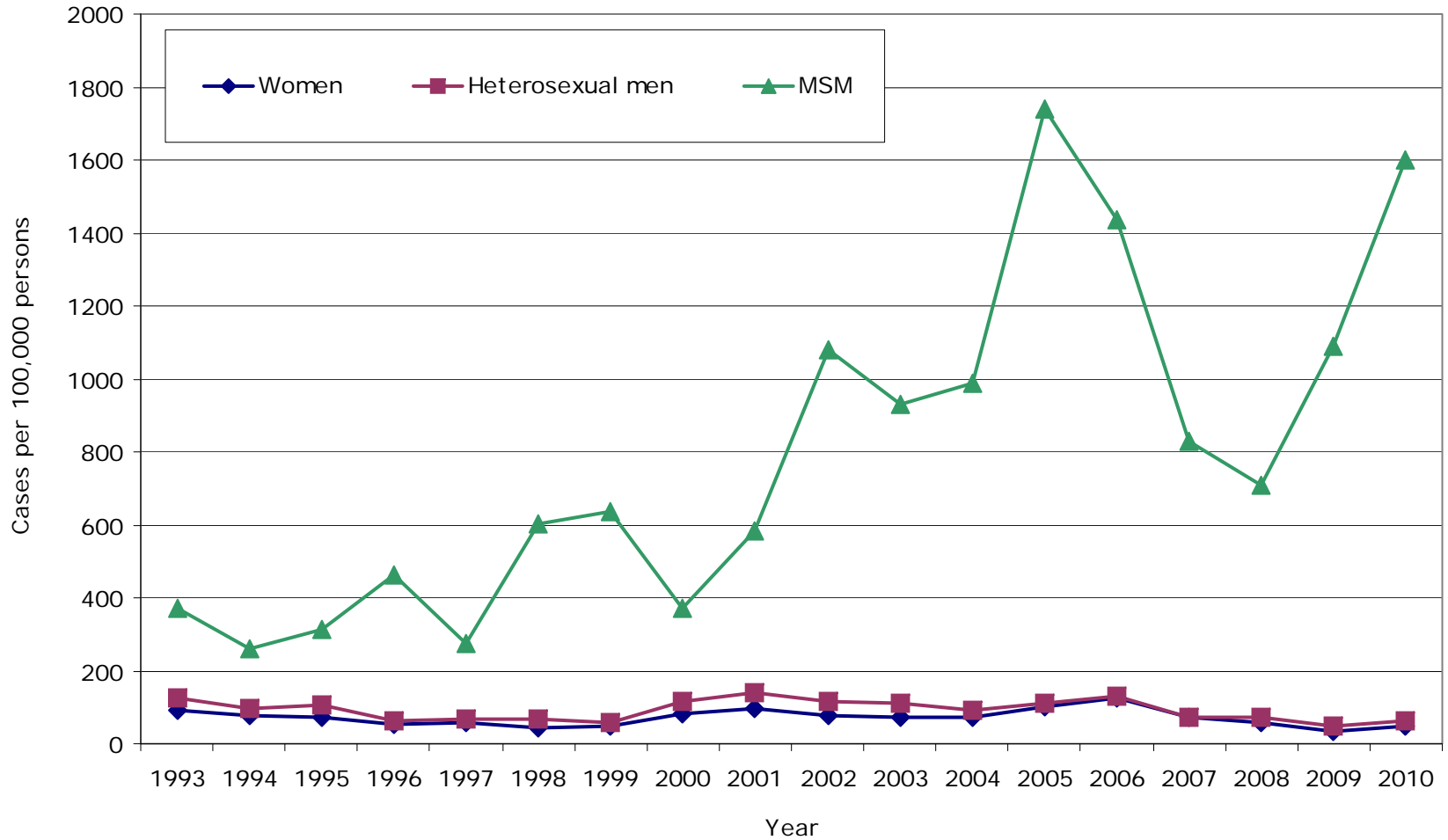
**Table 7: Number of Reported Gonorrhea Cases and Incidence among Men and Women  
King County, WA, 1992-2010**

Year	Women		Men		Total	
	Cases	Incidence per 100,000	Cases	Incidence per 100,000	Cases	Incidence per 100,000
1992	900	112.6	1052	134.8	1952	123.8
1993	649	80.0	878	110.5	1527	95.1
1994	543	66.2	675	83.9	1218	74.9
1995	516	62.3	762	93.6	1278	77.9
1996	354	42.4	559	67.9	913	55.0
1997	395	46.7	519	62.2	914	54.5
1998	324	37.9	655	77.4	979	57.6
1999	347	40.2	608	71.0	955	55.1
2000	583	66.8	894	103.4	1477	70.6
2001	727	82.3	1164	133.0	1891	88.0
2002	584	65.5	1197	135.6	1781	81.9
2003	528	59.1	1119	126.3	1647	75.8
2004	556	61.9	1021	114.7	1577	72.3
2005	788	86.8	1457	161.8	2245	99.0
2006	962	104.4	1506	164.8	2468	134.5
2007	554	59.3	856	92.3	1413	75.9
2008	489	51.7	815	86.8	1304	69.2
2009	288	30.1	808	84.9	1084	57.5
2010	404	42.2	1166	122.6	1570	82.2

**Table 8: Number of Reported Gonorrhea Cases and Incidence  
Among Men and Women ages 15-29,\* King County, WA, 1992-2010**

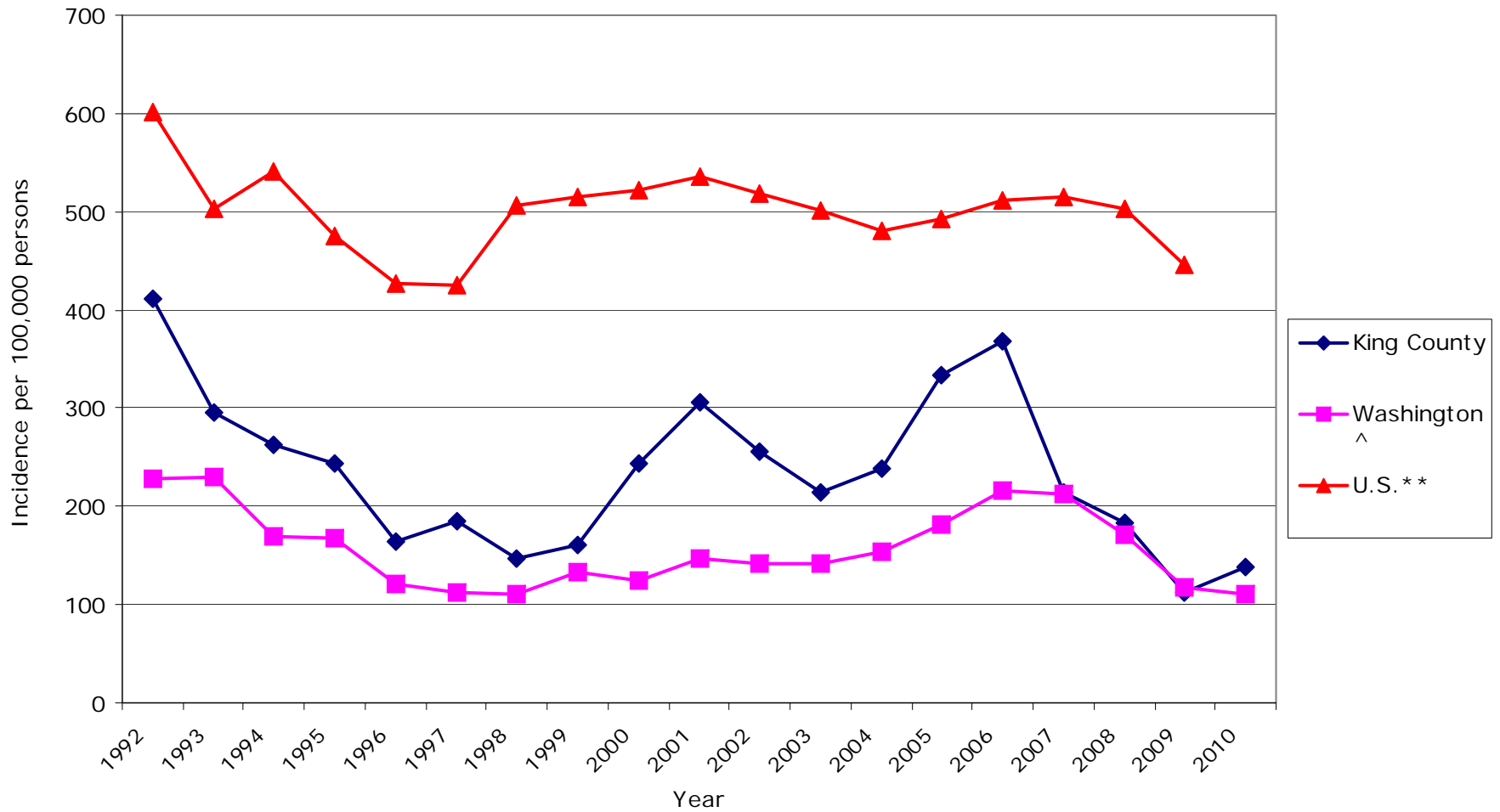
Year	Women, ages 15-29		Men, ages 15-29		Total, ages 15-29	
	Cases	Incidence per 100,000 population	Cases	Incidence per 100,000 population	Cases	Incidence per 100,000 population
1992	713	410.7	706	396.0	1419	403.3
1993	514	296.4	530	297.0	1044	296.7
1994	451	261.9	421	236.9	872	249.2
1995	420	243.0	422	236.2	842	239.5
1996	287	165.0	302	167.0	589	166.0
1997	325	185.1	258	141.2	583	162.7
1998	262	147.5	334	180.2	596	164.2
1999	286	160.3	317	170.6	603	165.6
2000	436	242.9	378	202.2	815	222.2
2001	552	305.2	549	292.2	1101	298.6
2002	466	255.2	557	294.2	1023	275.0
2003	392	213.5	464	243.9	856	229.0
2004	444	238.9	419	217.3	864	227.9
2005	630	332.8	648	329.7	1278	331.2
2006	716	367.5	699	345.9	1416	356.5
2007	429	215.0	424	205.0	853	209.9
2008	373	183.6	402	190.8	775	187.2
2009	231	112.2	410	192.3	641	153
2010	283	137.5	468	219.5	751	179.2

Figure 5: Incidence of Reported Gonorrhea among Women, Heterosexual Men, and MSM\* 15 years and older, King County, WA, 1992-2010



\* In 2004, a field for gender of sex partners was added to the STD case report form. Before 2004, ascertainment of MSM status was likely less complete than in 2004 and after

Figure 6: Gonorrhea Incidence among Women ages 15-29,\* 1992-2010  
King County, Washington State,^ and U.S.

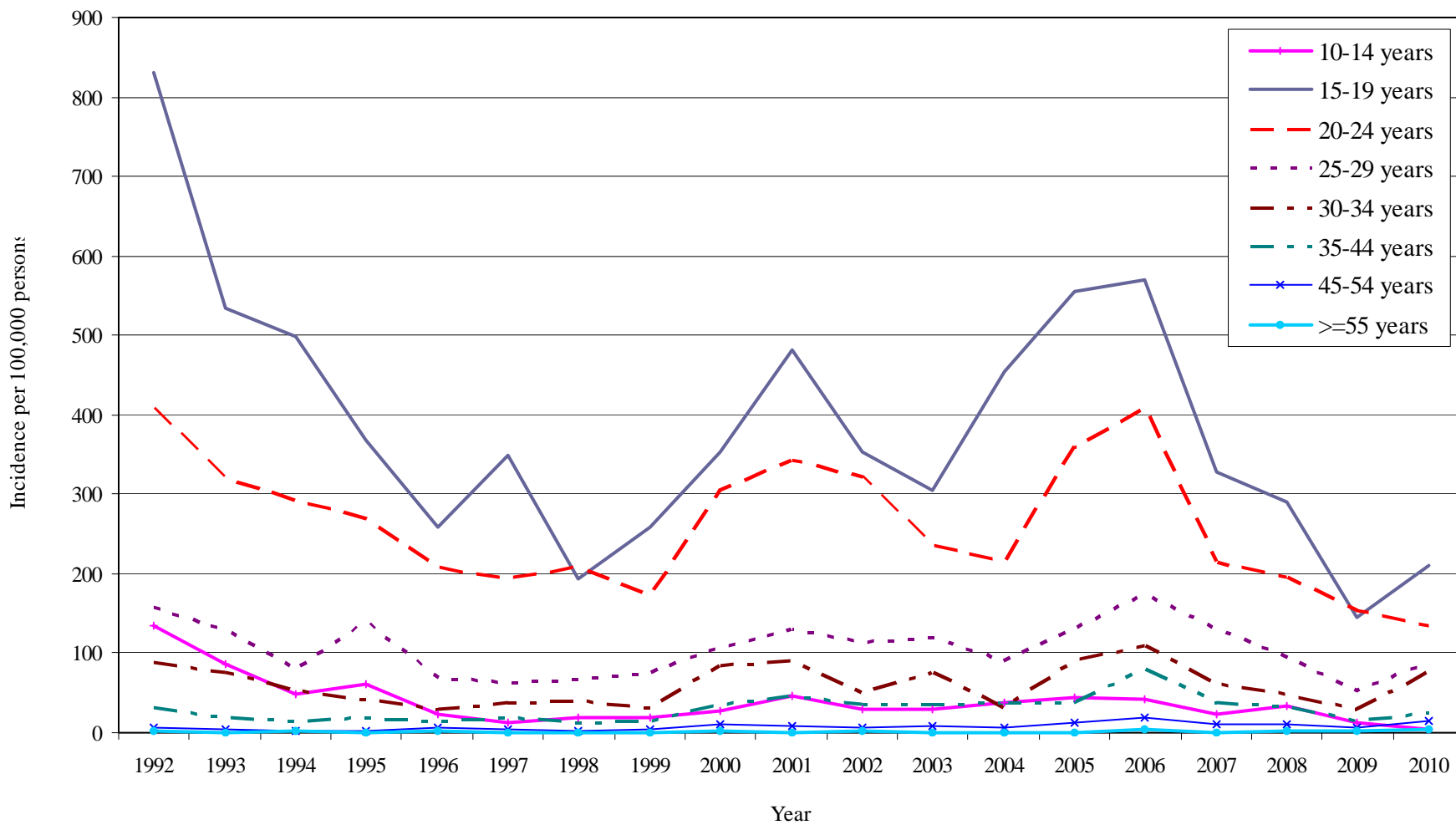


\* Cases with unknown age were distributed according to annual age distributions among cases with known age and included in age-specific rates.

\*\* National data for 2009 were not available at the time this report was prepared.

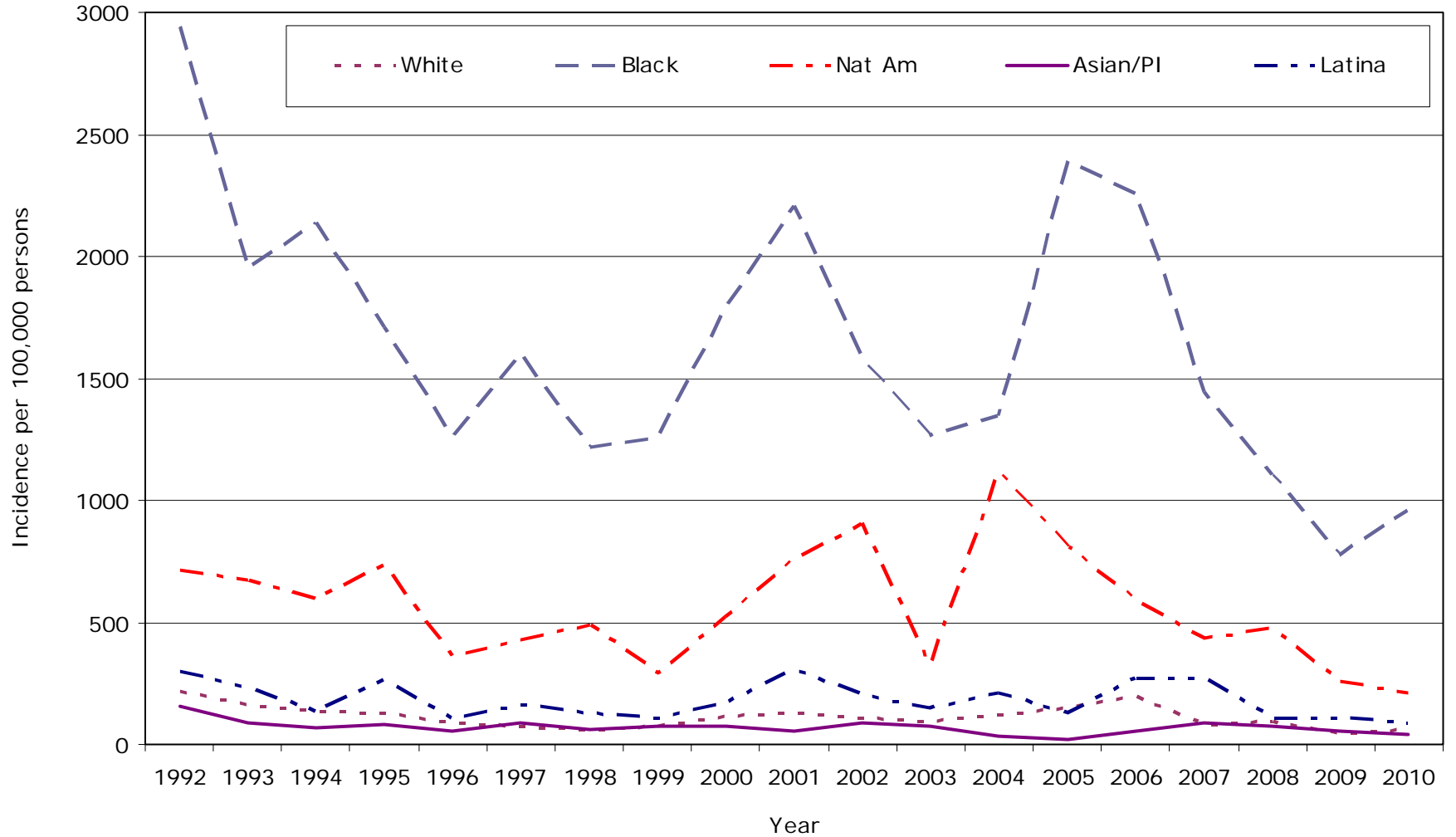
^ Washington State rates exclude King County.

**Figure 7: Gonorrhea Incidence by Age\* Among Women  
King County, WA, 1992-2010**



\* Cases with unknown age were distributed according to annual age distributions among cases with known age and included in age-specific rates.

Figure 8: Gonorrhea Incidence by Race and Ethnicity Among Women Ages 15-29\*  
King County, WA, 1992-2010



\* Cases with unknown race, ethnicity, and age were distributed according to annual race, ethnicity and age distributions among cases with known race, ethnicity and age and included in race-specific rates.

## Syphilis

King County is experiencing an ongoing epidemic of syphilis among MSM. The total number of early syphilis (primary, secondary and early latent) cases reported in King County increased 80% from 2009 to 2010, from 160 cases in 2009 to 289 cases in 2010 (Tables 9 and 12). Of the 2010 cases, 91% (263) were among MSM (Table 10, Figure 10). The overall 2010 incidence of early syphilis among King County residents was 15 per 100,000 persons (Table 9). The early syphilis incidence among MSM was over 500 times greater (611.1 per 100,000) than among heterosexual men (1.0 per 100,000) [Table 13] in 2010.

### *Syphilis epidemic*

HIV-positive MSM have been disproportionately affected by the epidemic of syphilis among MSM since it began in 1997. In 2010, the estimated incidence of early syphilis among HIV-positive MSM was 3,016 per 100,000 men, compared to 195 per 100,000 among HIV-negative MSM (Figure 12). Since 2005, this disparity between HIV-positive and negative MSM has grown, primarily due to steadily increasing incidence among HIV-positive MSM. Despite the widening gap in incidence between HIV-positive and negative MSM, MSM who are HIV negative or have an unknown HIV status have accounted for between 41-50% of early syphilis cases diagnosed among MSM since 2002 (Figure 11).

Early syphilis incidence among heterosexuals remained very low in 2008, with only 13 of 289 cases occurring among heterosexual men (9 cases) and women (4 cases) (Tables 10, 12, and 13). In 2010, 59% of MSM syphilis cases were HIV positive, in contrast to 31% of heterosexual cases. The percentage of MSM cases reporting using the Internet to find sex partners

increased to 42% in 2010, after falling to 27% in 2009 from 40-50% in 2006-2008. In contrast, the percentage of MSM cases reporting the use of bathhouses to meet sex partners has remained roughly stable over time (37% in 2010, Table 10).

### *Syphilis diagnosis*

Figure 13 displays the reason for visit among MSM early syphilis cases from 1993-2010. Heterosexuals are excluded from this figure because of the small number of cases among heterosexuals occurring during this period. In 2010, 62% of MSM cases were diagnosed after seeking care for symptoms. The proportion of cases diagnosed after seeking care for symptoms decreased gradually from 2000 to 2008, but in 2009 this trend ended when the percentage of cases diagnosed in this manner increased to 71.0% from 51.3% in 2008. In 2010, this percentage fell somewhat to 62%.0 (Figure 13). The proportion of early syphilis cases diagnosed via routine care has been relatively stable for the past several years, while the proportion of syphilis cases diagnosed as the result of partner notification fell from 2007 to 2009, then increased to roughly 13% in 2010 (Figure 13). The trend observed in the proportion of cases diagnosed as a result of seeking care for symptoms is related to the proportion of cases of early latent syphilis (Figure 9). From 2002 to 2008 the proportion of all early syphilis cases with early latent syphilis increased substantially, but fell in 2009, concurrent with the increase in the percentage of patients seeking care for symptoms. (Early latent syphilis is usually diagnosed through screening.) The reasons for this shift in syphilis epidemiology is uncertain and under investigation. While early latent syphilis is less transmissible than primary or secondary syphilis, the fact that it is experienced without symptoms may delay diagnosis and thereby increase the period of time a patient is potentially infectious.



Figure 14 displays the reporting source for all cases of syphilis from 1997-2010. In 2008, HIV care providers were added as a separate category of provider in this figure; in previous years, most HIV care providers fell into the “other” provider category (primarily private practice). In 2010, “other” providers reported 138 (48.3%) early syphilis cases (Figure 14). This is the first year since 1997 that providers in this category have diagnosed less than half the syphilis cases in King County; clearly, removing HIV care providers from this group accounts for some of this change. The Public Health STD Clinic reported 88 (30.8%) new early syphilis cases in 2010. Family planning clinics, community clinics, county jails and other public health clinics combined have consistently accounted for less than 15% of the annual total reported early syphilis cases in King County since 1996, and in 2010 accounted for less than 6% of cases combined.

**Table 9: Reported Cases and Incidence of Early Syphilis  
King County, WA, 2010**

		Cases	Percent	Incidence per 100,000 population
<b>Sex</b>	Men	285	99	30
	Women	4	1	0.4
<b>Total cases</b>		289		15

**Table 10: HIV Status and Risk Behaviors among Syphilis Cases  
By Sexual Orientation, King County, WA, 2010**

		MSM* (N=263)		Heterosexual Men and Women (N=13)	
		Number	Percent	Number	Percent
<b>Stage</b>	Primary	58	22%	5	38%
	Secondary	132	50%	5	38%
	Early latent	73	28%	3	23%
<b>HIV</b>	Positive	155	59%	4	31%
	Negative	74	28%	8	62%
	Unknown	34	13%	1	8%
<b>Methamphetamine Use</b>					
	Yes	77	29%	2	15%
	No	150	57%	11	85%
	Unknown	36	14%	0	0%
<b>Anonymous sex partners during infectious period</b>					
	Yes	193	73%	7	54%
	No	58	22%	6	46%
	Unknown	12	5%	0	0%
<b>Partners met in bathhouses</b>					
	Yes	96	37%	0	0%
	No	140	53%	13	100%
	Unknown	27	10%	0	0%
<b>Internet use to meet partners</b>					
	Yes	111	42%	1	8%
	No	125	48%	12	92%
	Unknown	27	10%	0	0%
<b>Has traded sex for money or drugs (sex worker) **</b>					
	Yes	10	4%	1	25%
	No	107	41%	3	75%
	Unknown	46	17%	1	25%
<b>Sex with a known sex worker ^</b>					
	Yes	5	2%	0	0%
	No	215	82%	8	89%
	Unknown	43	16%	1	11%
<b>Reason for Visit</b>					
	Routine exam	60	23%	2	15%
	Symptoms	180	68%	8	62%
	Exposed	20	8%	0	0%
	None/other	3	1%	3	23%

\* MSM: all men who acknowledged sex with a man. These data exclude 13 men for whom gender of sex partners is unknown

\*\* Among heterosexuals, limited to women, ^ Among heterosexuals, limited to men

<b>Table 11: Total and Anonymous Sex Partners Reported by Syphilis Cases</b>								
<b>By Gender and Sexual Orientation</b>								
<b>King County, WA, 2010</b>								
			MSM N=263*			Heterosexual Men and Women N=13		
			Total	Mean	Median	Total	Mean	Median
<b>Total sex partners during infectious period</b>			2,060	7.8	3	25	1.9	1.0
<b>Anonymous sex partners* during infectious period</b>			1,462	5.8	1	11	0.8	1

\* Twelve MSM were missing information on number of anonymous sex partners

**Table 12: Number of Reported Early Syphilis Cases and Incidence among Men and Women, King County, WA, 1992-2010**

Year	Women		Men		Total	
	Cases	Incidence per 100,000	Cases	Incidence per 100,000	Cases	Incidence per 100,000
1992	26	3.3	42	5.4	68	4.3
1993	21	2.6	15	1.9	36	2.2
1994	6	0.7	12	1.5	18	1.1
1995	1	0.1	4	0.5	5	0.3
1996	0	0.0	2	0.2	2	0.1
1997	10	1.2	10	1.2	20	1.2
1998	1	0.1	37	4.4	38	2.2
1999	3	0.3	67	7.8	70	4.1
2000	4	0.5	67	7.8	71	4.1
2001	1	0.1	51	5.8	52	3.0
2002	0	0.0	64	7.2	64	3.6
2003	2	0.2	80	9.0	82	4.6
2004	7	0.8	159	17.9	166	9.3
2005	7	0.8	186	20.7	193	10.7
2006	2	0.2	183	20.0	185	10.1
2007	1	0.1	193	20.8	194	10.4
2008	4	0.4	200	21.3	204	10.8
2009	5	0.5	155	16.3	160	8.4
2010	4	0.4	285	30.0	289	15.1

**Table 13: Number of Reported Early Syphilis Cases and Incidence Among MSM and Heterosexual Men, King County, WA, 1992-2010**

Year	MSM		Heterosexual Men	
	Cases	Incidence per 100,000 population**	Cases	Incidence per 100,000 population
1992*	0	0	0	0.0
1993*	1	3	5	0.8
1994	2	6	10	1.7
1995	2	6	2	0.3
1996	1	3	1	0.2
1997	5	14	5	0.8
1998*	32	86	3	0.5
1999*	60	159	6	0.9
2000*	58	151	8	1.2
2001	50	129	1	0.1
2002*	60	152	3	0.4
2003	77	194	3	0.4
2004	140	351	19	2.8
2005	179	442	6	0.9
2006	174	423	8	1.1
2007	188	449	4	0.6
2008	198	467	2	0.3
2009	145	337	3	0.4
2010	263	611	9	1.2

\* Men were missing sexual orientation data in the following years (numbers missing are included in parantheses): 1992 (42), 1993 (9), 1998 (2), 1999 (1), 2000 (1), and 2002 (1), 2005(1), 2006(1), 2007(1), 2009 (7), 2010 (13)

\*\* MSM incidence is calculated using an annual MSM population size estimate of 5.5% of the male population aged 15 and higher as the

Figure 9: Reported Cases of Primary and Secondary vs. Early Latent Syphilis  
King County, WA 1992-2010

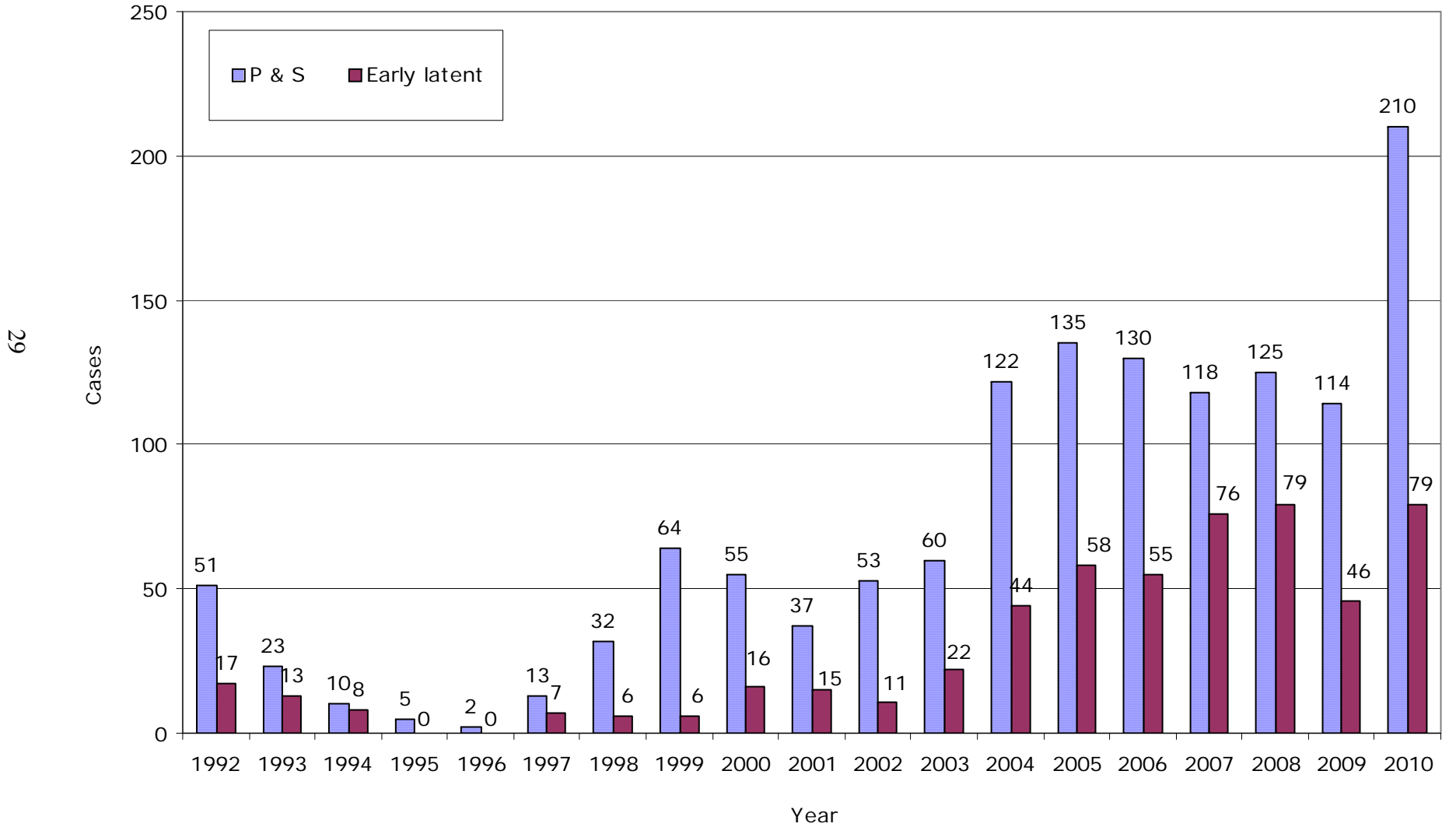
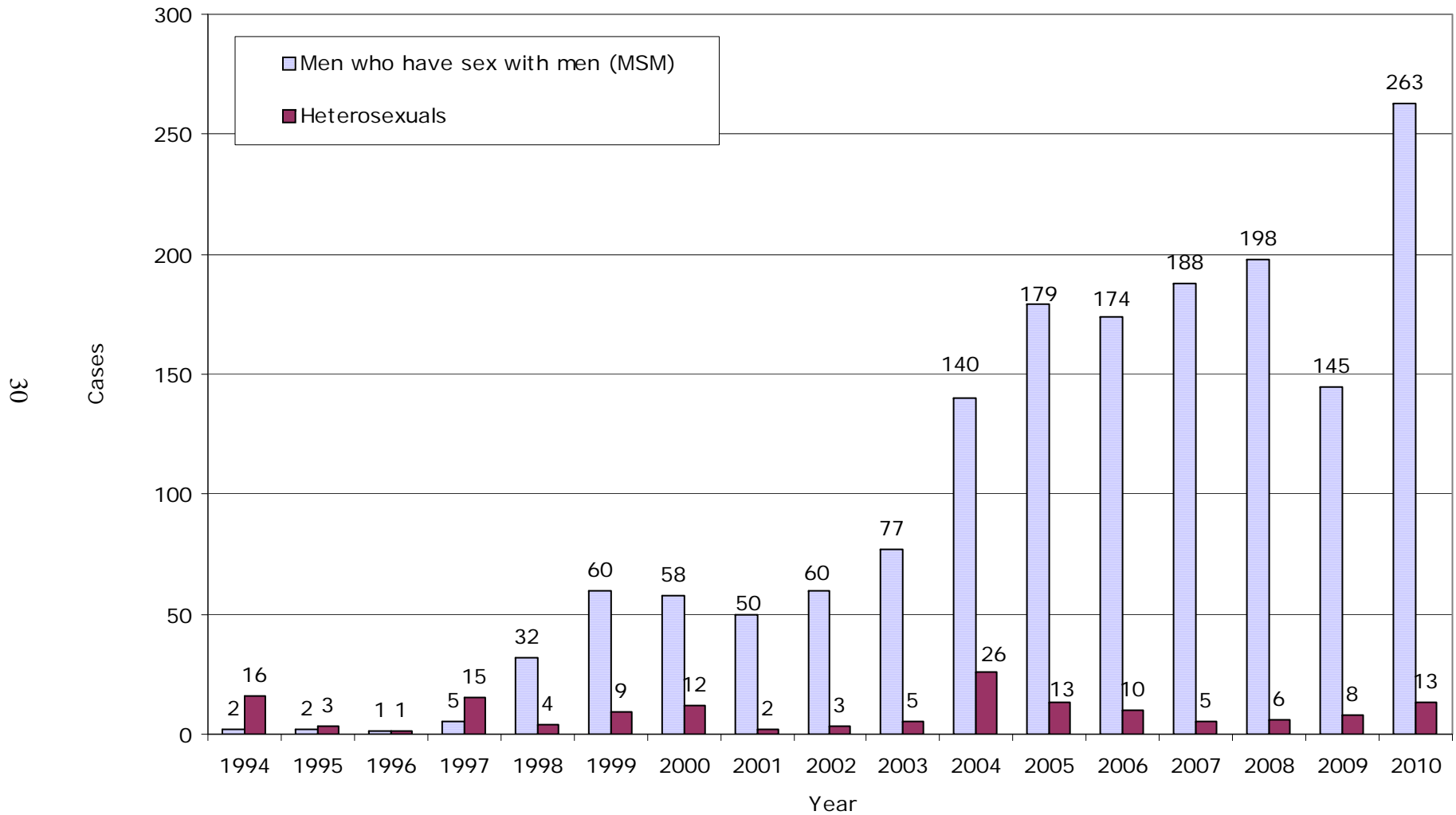


Figure 10: Reported Cases of Early Syphilis by Sexual Orientation\*,  
King County, WA, 1994-2010



\*Data on sexual orientation were missing for men in the following years: 2 men in 1998, and 1 man in 1999, 2000, 2002, 2005, 2006, and 2007, 7 in 2009, and 13 men in 2010.

Figure 11: Percent of Reported Early Syphilis Cases Among MSM by HIV Status  
King County, WA, 1997-2010

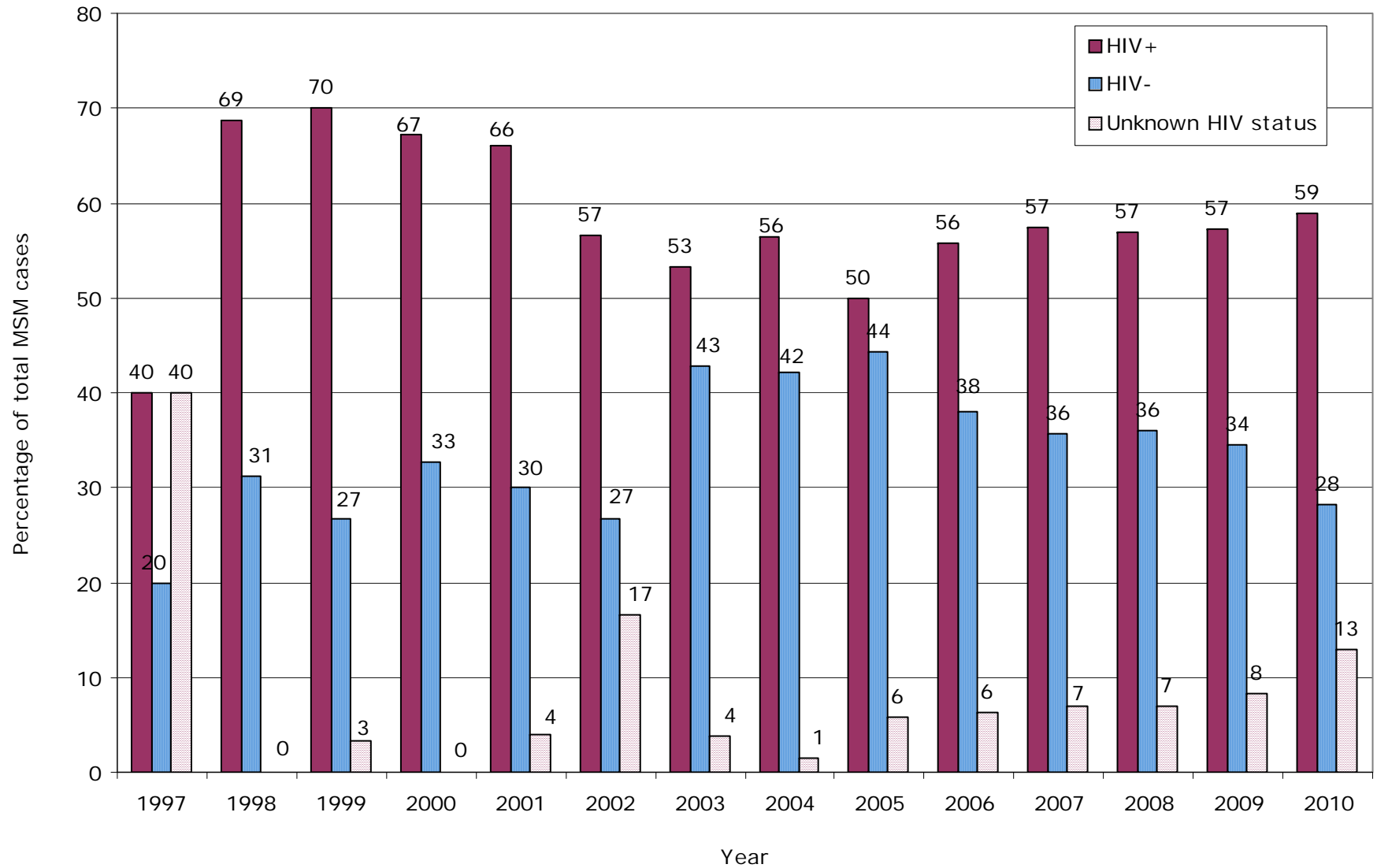


Figure 12: Early Syphilis Incidence Among MSM by HIV Status  
King County, WA, 1997-2010

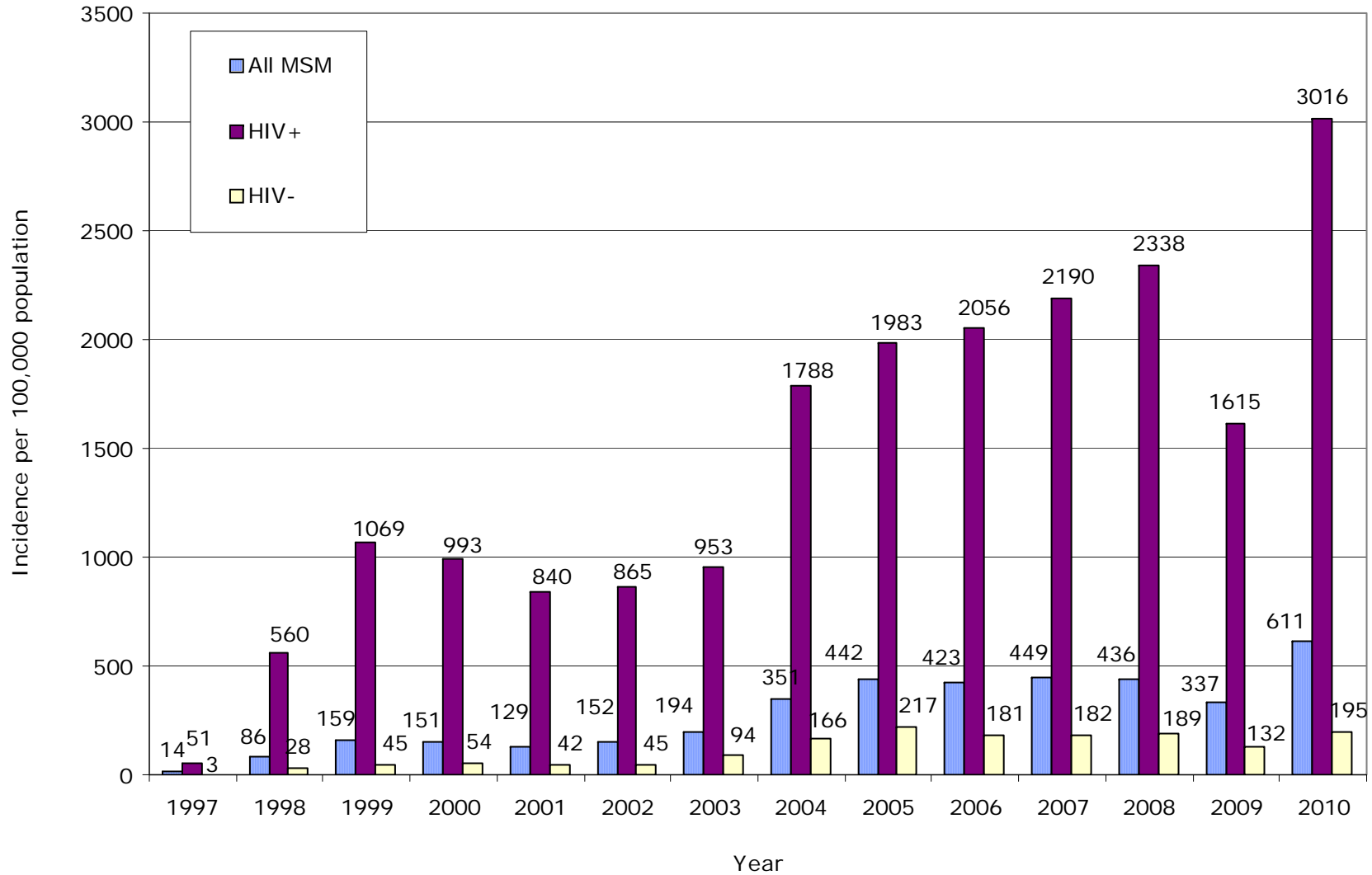
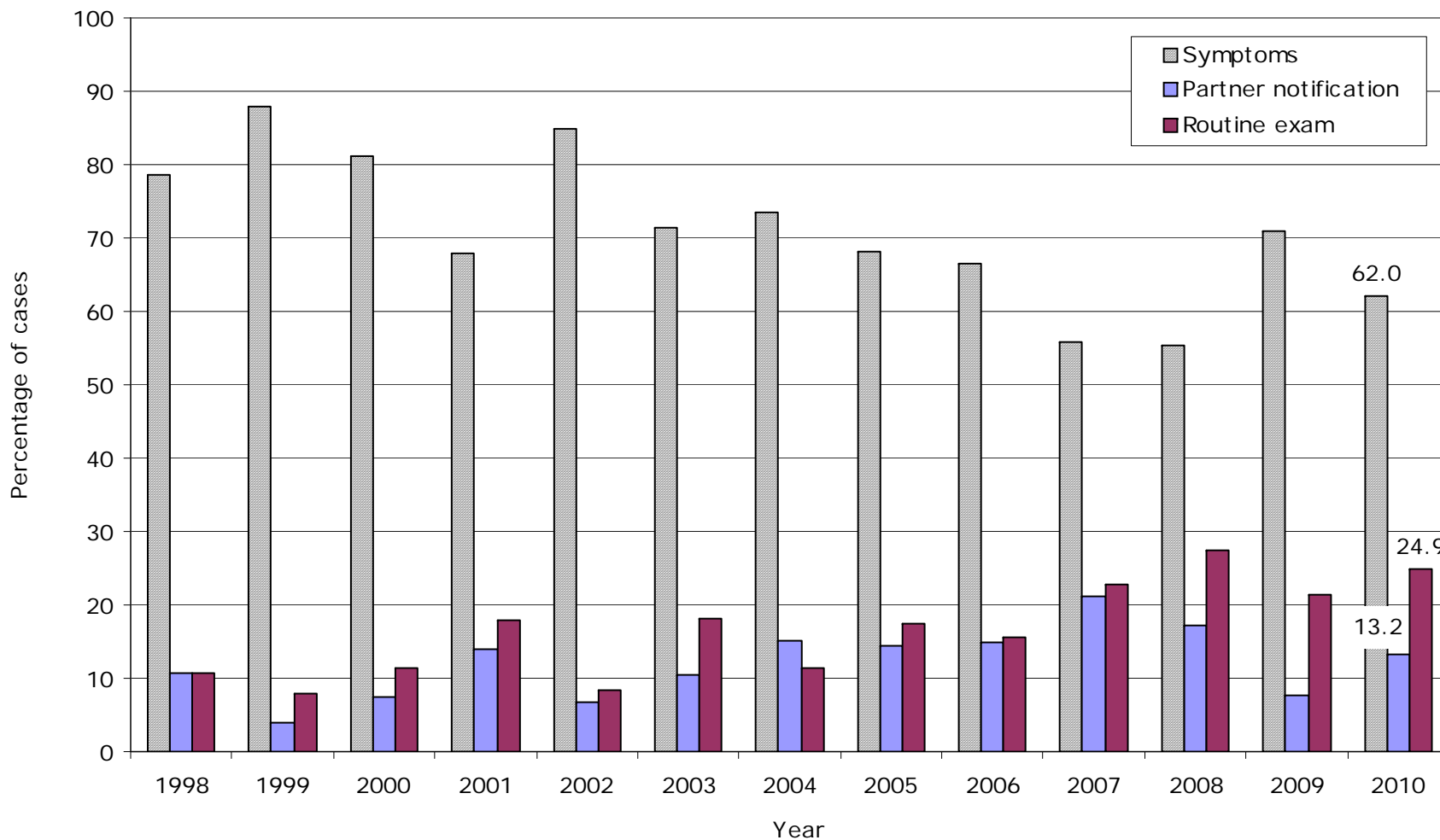


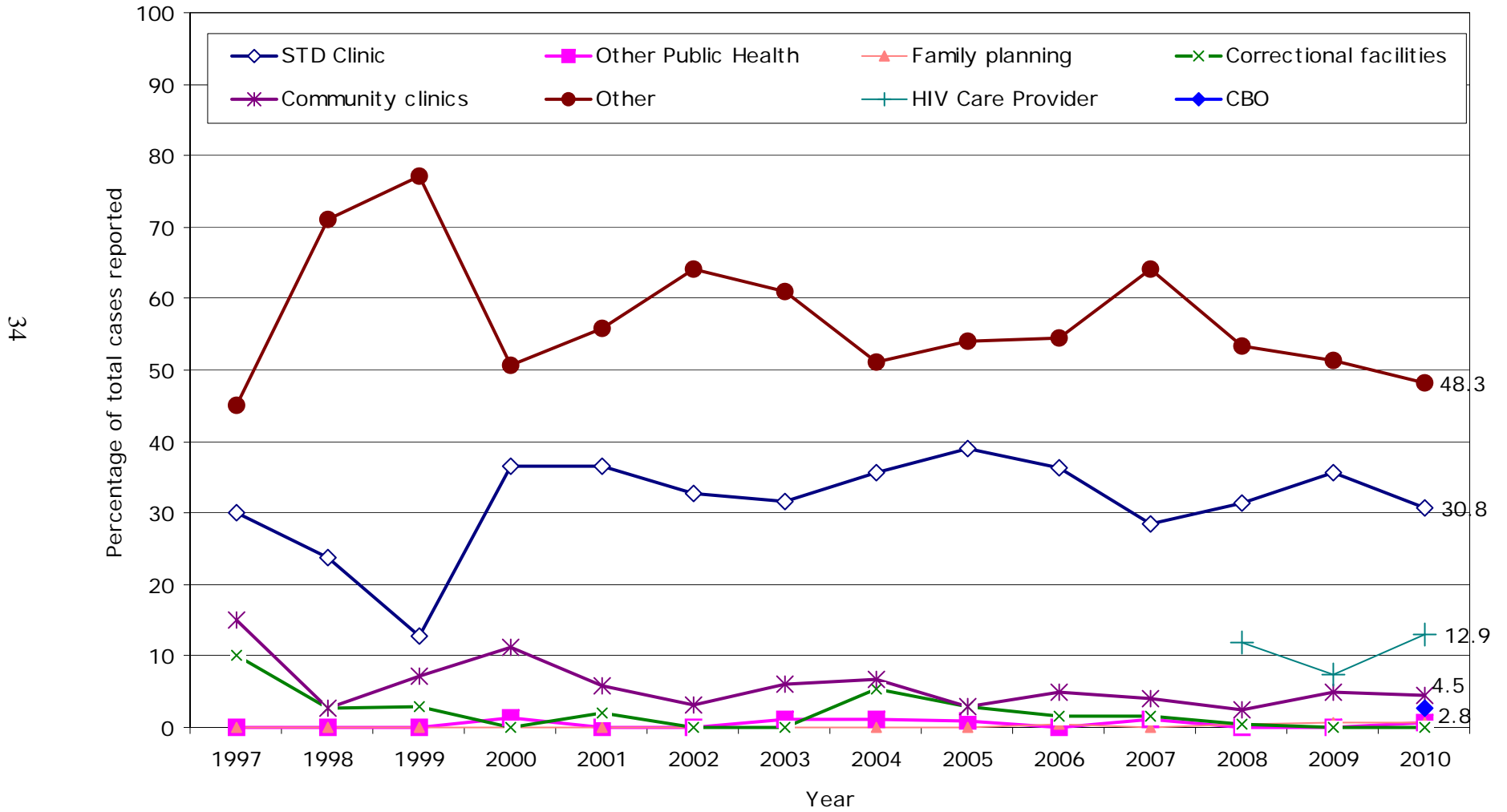


Figure 13: Reason for Visit among MSM reported with Early Syphilis\*  
King County, WA, 1993-2010



\* Percentages exclude MSM reported without a reason for visit and who were not interviewed

Figure 14: Reporting Provider for Reported Early Syphilis Cases, King County, WA 1992-2010



## **Public Health – Seattle & King County STD Clinic**

In 2010, 7,914 patients made 12,346 visits to the Public Health STD Clinic. Of these, 11,577 visits were made by patients seeking STD Clinic services, while 769 visits were made by patients seeking an HIV test only (Table 14). Patients seeking only HIV testing were seen by disease intervention specialists (DIS), public health staff that perform HIV testing and counseling among other functions. Prior to 2006, data on patients tested for HIV by DIS were not a part of the Public Health STD Clinic database and did not contribute to annual counts of STD Clinic visits. In 2010, heterosexual men made 37% of the visits among patients seeking STD Clinic services, while MSM and women accounted for 34% and 26% of these visits respectively. Among clients seeking only HIV testing, 41% of visits were made by heterosexual men, 29% by MSM, and 26% by women. Among patients seeking STD Clinic services, the number of visits made by MSM increased in 2010, while the number of visits made by heterosexual men decreased and the number made by women remained roughly stable (Table 18, Figure 15). The number of visits to the clinic for STD services by MSM patients has increased each year since 2007, and the clinic provided services to MSM during more visits in 2010 (3,879) than in any previous year for which we have data (Table 18).

Tables 15-17 display the race/ethnicity (categories include Latinos as a separate race group) and age distribution for STD Clinic patients in 2010. Of note, 21% of all patients seen in the clinic, including 26% of heterosexual patients receiving care in the clinic, were African American. Only 6% of all King County residents are African American. Eighty-two percent of patients in 2010 were uninsured.

The Public Health STD Clinic diagnosed a substantial proportion of all reportable STDs diagnosed in King County in 2010. This included 30% (86 of 289) of the cases of early syphilis, 32% (503 of 1,568) of the cases of gonorrhea, 21% (64 of 311) of the cases of HIV, and 10% (568 of 5,946) of the cases of chlamydial infection. As in past years, the Public Health STD Clinic diagnosed more cases of HIV in 2010 than any other single clinical site in Washington state. In addition to cases diagnosed among King County residents, the STD Clinic serves many patients living in neighboring counties as well. Clinic diagnoses described below include all patients diagnosed at the STD Clinic, regardless of county of residence.

### *Gonorrhea*

Similar to patterns observed for gonorrhea overall in King County in 2010 (Table 7), the total number of cases of gonorrhea diagnosed in the Public Health STD Clinic increased from 2009 (373 cases) to 2010 (542 cases), with small increases in diagnoses among heterosexual men and women, and a much larger increase among MSM (Figure 17). The number of cases of gonorrhea in MSM remains substantially higher than numbers observed in the late 1990s. Some of the observed increase may be related to increased screening for rectal and pharyngeal gonorrhea among MSM implemented in the late 1990s. Additionally, in 2010, screening for rectal and pharyngeal gonococcal and chlamydial infections with nucleic acid amplification tests (NAATS) was implemented, potentially increasing the number of diagnoses for these two infections, especially among MSM. In order to examine trends in gonorrhea diagnoses among MSM not influenced by this increase in screening, Figure 18 displays urethral gonorrhea diagnoses among men experiencing symptoms. The increasing trend in the number of symptomatic urethral gonorrhea diagnoses is similar to the trend observed for gonorrhea diagnoses overall, indicating that the increase observed in gonorrhea

diagnoses overall in 2010 cannot be fully explained by this increase in screening.

### *Chlamydial infection*

In 2010, the STD Clinic diagnosed 573 cases of chlamydial infection (Figure 20), a slight increase from 2009 (507 cases). The overall number of chlamydia diagnoses increased for the first time since 2005, driven for the most part by an increase in chlamydial infection among MSM clinic patients. Chlamydial infection diagnoses increased only slightly among heterosexual men, while diagnoses among women were stable from 2009 to 2010. As noted above, routine screening with NAATS for rectal and pharyngeal chlamydial infection was implemented in 2010 and may have contributed to increases in the overall number of diagnoses of chlamydial infections. While this change may have had some impact on the total number of diagnoses, the number of MSM with symptomatic chlamydial urethritis increased 44% from 2009 to 2010 (Figure 21). The prevalence of chlamydial infection diagnoses among asymptomatic women fell somewhat from 2009 to 2010 (Figure 22).

### *Syphilis*

There were 91 early syphilis diagnoses in 2010 among individuals for whom the gender of sex partners could be determined in the STD Clinic (Figure 23); 95% of these occurred among MSM, reflective of an ongoing syphilis epidemic among MSM in King County (Figure 10).

### *HIV*

Figure 24 displays new HIV diagnoses from the STD Clinic (1993-2010) and through other HIV testing performed by HIV/STD program staff (2000-2010). While the overall number of new HIV diagnoses has been variable

for the past several years, MSM continue to account for the majority of new HIV diagnoses made via the STD and HAP programs.

### *Trichomoniasis and Bacterial Vaginosis*

Following a long-term decreasing trend in trichomoniasis, the number of trichomoniasis cases diagnosed in the STD Clinic remained relatively stable from 2003 to 2006, but then increased from 2006 to 2008, with a decrease in trichomoniasis diagnoses from 2008 (124) to 2010 (90, Figure 25). Trichomoniasis prevalence also dropped from 2008 to 2010, after increasing for several years. In contrast, the number of women diagnosed with bacterial vaginosis and the prevalence of bacterial vaginosis among women in the clinic has increased somewhat since 2008 (Figure 26). (Bacterial vaginosis prevalence is calculated as the total number of bacterial vaginosis diagnoses divided by the number of women tested for vaginal PH and the presence of vaginal clue cells on wet preparations.)

### *Genital Herpes*

While the number of initial and recurrent genital herpes diagnoses has remained relatively unchanged since 2006 (143 initial genital herpes diagnoses in 2010) the number of recurrent diagnoses fell slightly in 2010, from 170 in 2009 to 138 in 2010, Figures 27 and 28). The number of diagnoses of initial genital herpes was stable among women, heterosexual men, and MSM from 2009 to 2010 (Figure 27), while the number of recurrent genital herpes diagnoses fell in all three of these groups during the same period. The majority of both initial and recurrent herpes diagnoses were in heterosexual men (40% and 53% of cases, respectively) followed by women (33% and 23%) and MSM (28% and 22% respectively, Figures 27 and 28). Among 2,066 asymptomatic patients tested for HSV-2 in 2010, there were 53 HSV-2 diagnoses among MSM, 102 among heterosexual men,

and 114 in women (Figure 29). Increases in the number of HSV-2 diagnoses observed in 2010 are likely related to implementation of a research project in April of 2010, through which HIV-uninfected patients were offered free serologic testing for HSV-2.

**Table 14: Number of PHSKC STD Clinic Visits and Patients, 2010**

**(A) Clients seen for services other than HIV tests only**

	Women	Heterosexual Men	MSM*	Men with Unknown Sexual Orientation	Total
Visits	3063	4285	3879	350	11577
Patients (unduplicated visits)	1968	3076	2147	266	7457

**(B) Clients seen for HIV tests only**

	Women	Heterosexual Men	MSM*	Men with Unknown Sexual Orientation	Total
Visits	203	280	265	21	769
Patients (unduplicated visits)	135	154	158	10	457

**(C) Clients seen for all services**

	Women	Heterosexual Men	MSM*	Men with Unknown Sexual Orientation	Total
Visits	3266	4565	4144	371	12346
Patients (unduplicated visits)	2103	3230	2305	276	7914

\* Men who have sex with men are men who acknowledged sex with another man in the preceding year during any clinic visit.



**Table 15: Age and Race of PHSKC STD Clinic Patients, 2010**

	Women		Heterosexual Men <sup>^</sup>		MSM* <sup>^</sup>		Total <sup>^</sup>	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
<b>Race</b>								
White	1031	(49.0)	1782	(55.2)	1570	(68.1)	4558	(57.6)
Black	556	(26.4)	846	(26.2)	197	(8.5)	1651	(20.9)
Native American	35	(1.7)	28	(0.9)	19	(0.8)	85	(1.1)
Asian & Pacific	189	(9.0)	171	(5.3)	160	(6.9)	530	(6.7)
Latino	127	(6.0)	226	(7.0)	230	(10.0)	605	(7.6)
Multiple Race	99	(4.7)	59	(1.8)	58	(2.5)	218	(2.8)
Unknown	66	(3.1)	110	(3.7)	71	(3.1)	267	(3.4)
<b>Age</b>								
10-14 years	10	(0.5)	9	(0.2)	0	(0.0)	20	(0.2)
15-19 years	218	(9.9)	113	(3.0)	60	(2.7)	395	(4.7)
20-24 years	534	(24.2)	644	(16.9)	317	(14.4)	1512	(18.0)
25-29 years	496	(22.5)	797	(20.9)	429	(19.5)	1764	(21.0)
30-34 years	294	(13.3)	624	(16.4)	320	(14.6)	1265	(15.1)
35-44 years	357	(16.2)	903	(23.7)	588	(26.8)	1895	(22.6)
45-55 years	232	(10.5)	506	(13.3)	350	(15.9)	1115	(13.3)
>=56 years	68	(3.1)	216	(5.7)	130	(5.9)	419	(5.0)
Unknown	0	(0.0)	1	(0.0)	1	(0.0)	2	(0.0)

\* Men who have sex with men are men who acknowledged sex with men in the current visit, or follow-up visits, the associated new problem visit

<sup>^</sup> 170 men with unknown sexual orientation are excluded from the race/age distributions for he men and MSM, but are included in total race and age distributions

**Table 16: Age and Race of PHSKC STD Clinic Patients  
Seen for Services Other than HIV Tests Only, 2010**

	Women		Heterosexual Men <sup>^</sup>		MSM* <sup>^</sup>		Total <sup>^</sup>	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
<b>Race</b>								
White	962	(48.9)	1701	(55.3)	1473	(68.6)	4308	(57.8)
Black	522	(26.5)	802	(26.1)	180	(8.4)	1551	(20.8)
Native American	32	(1.6)	28	(0.9)	15	(0.7)	78	(1.0)
Asian & Pacific Islander	180	(9.1)	161	(5.2)	149	(6.9)	499	(6.7)
Latino	120	(6.1)	216	(7.0)	211	(9.8)	568	(7.6)
Multiple Race	94	(4.8)	58	(1.9)	54	(2.5)	208	(2.8)
Unknown	58	(2.9)	110	(3.6)	65	(3.0)	245	(3.3)
<b>Age</b>								
10-14 years	1	(0.1)	1	(0.0)	0	(0.0)	2	(0.0)
15-19 years	160	(8.1)	61	(2.0)	70	(3.3)	298	(4.0)
20-24 years	544	(27.6)	457	(14.9)	379	(17.7)	1427	(19.1)
25-29 years	443	(22.5)	672	(21.8)	457	(21.3)	1619	(21.7)
30-34 years	271	(13.8)	516	(16.8)	304	(14.2)	1121	(15.0)
35-44 years	316	(16.1)	722	(23.5)	501	(23.3)	1610	(21.6)
45-55 years	173	(8.8)	441	(14.3)	300	(14.0)	956	(12.8)
>=56 years	60	(3.0)	206	(6.7)	136	(6.3)	424	(5.7)
Unknown	0	(0.0)	0	(0.0)	0	(0.0)	7457	(0.0)

\* Men who have sex with men are men who acknowledged sex with men in the current visit, or for follow-up visits, the associated new problem visit

<sup>^</sup> 155 men with unknown sexual orientation are excluded from the race/age distributions for heterosexual men and MSM, but are included in total race and age distributions

**Table 17: Age and Race of PHSKC STD Clinic Patients Seen for HIV Tests Only, 2010**

	Women		Heterosexual Men <sup>^</sup>		MSM* <sup>^</sup>		Total <sup>^</sup>	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
<b>Race</b>								
White	69	(51.1)	81	(52.6)	97	(61.4)	250	(54.7)
Black	34	(25.2)	44	(28.6)	17	(10.8)	100	(6.8)
Native American	3	(2.2)	0	(0.0)	4	(2.5)	7	(21.9)
Asian/Pacific Isl	9	(6.7)	10	(6.5)	11	(7.0)	31	(1.5)
Latino	7	(5.2)	10	(6.5)	19	(12.7)	37	(2.2)
Multiple Race	5	(3.7)	1	(0.6)	4	(2.5)	10	(4.8)
Unknown	8	(5.9)	8	(5.2)	6	(3.8)	22	(8.3)
<b>Age</b>								
10-14 years	0	(0.0)	2	(1.3)	0	(0.0)	2	(0.4)
15-19 years	7	(5.2)	8	(5.2)	5	(3.2)	20	(4.4)
20-24 years	24	(17.8)	13	(8.4)	16	(10.1)	55	(12.0)
25-29 years	26	(19.3)	19	(12.3)	28	(17.7)	75	(16.4)
30-34 years	21	(15.6)	25	(16.2)	25	(15.8)	73	(16.0)
35-44 years	30	(22.2)	36	(23.4)	42	(26.6)	111	(24.3)
45-55 years	23	(17.0)	33	(21.4)	31	(19.6)	87	(19.0)
>=56 years	4	(3.0)	18	(11.7)	11	(7.0)	34	(7.4)
Unknown	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)

\* Men who have sex with men are men who acknowledged sex with men in the current visit, or follow-up visits, the associated new problem visit

<sup>^</sup> 35 men with unknown sexual orientation are excluded from the race/age distributions for heterosexual men and MSM, but are included in total race and age distributions

**Table 18: Number of PHSKC STD Clinic Visits, 1993-2010**

	Women	Heterosexual Men	MSM*	Men with Unknown Sexual Orientation	HIV Test Only Visits	Total
1993	6826	9003	1386	514		17729
1994	7017	8986	1829	578		18410
1995	6951	8567	2377	509		18404
1996	6117	7635	2152	292		16196
1997*	4929	6340	1753	333		13355
1998	4541	6111	2106	248		13006
1999**	4085	5879	2550	189		12703
2000	3904	5671	2769	218		12562
2001	4244	5725	2878	299		13146
2002	4208	5909	2752	325		13194
2003	3812	5874	2906	257		12849
2004	3681	5781	2949	316		12727
2005	3603	5670	3274	295		12842
2006	3388	5366	3347	297	1726	14124
2007	3172	5046	2989	260	1388	12855
2008	3108	5112	3262	193	1137	12812
2009	2981	4449	3605	213	1036	12284
2010	3063	4285	3879	350	769	12346

\* In 1997, the PHSKC STD Clinic eliminated its Saturday and evening clinic hours.

\*\* PHSKC's satellite Broadway STD Clinic was in operation from 1993-1998.

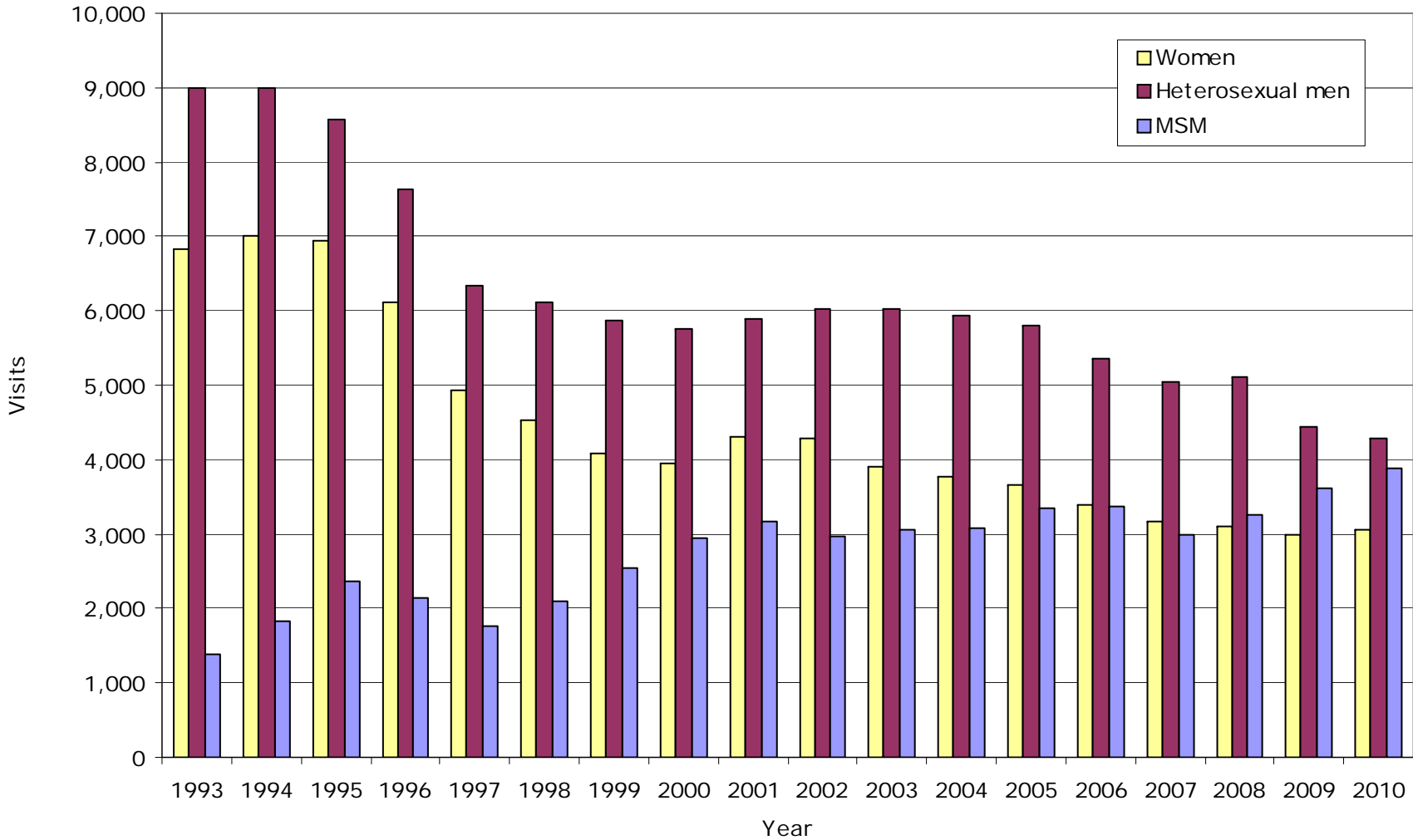
**Table 19: Number of PHSKC STD Clinic Patients (Unduplicated Visits per Year), 1993-2010**

	Women	Heterosexual Men	MSM*	Men with Unknown Sexual Orientation	HIV Test Only Patients	Total
1993	3902	5639	843	443		10827
1994	3770	5406	891	398		10465
1995	3935	5383	1102	305		10725
1996	3629	5067	1161	184		10041
1997*	3000	4252	993	222		8467
1998	2830	4101	1099	198		8228
1999**	2503	3986	1236	150		7875
2000	2446	3918	1243	169		7776
2001	2561	3987	1401	230		8179
2002	2728	4156	1562	248		8694
2003	2534	4256	1686	200		8676
2004	2451	4112	1726	193		8482
2005	2422	4110	1875	173		8580
2006	2365	3993	1845	199	1028	9430
2007	2144	3689	1690	172	889	8584
2008	2054	3543	1871	155	659	8282
2009	1977	3207	2003	161	601	7949
2010	1968	3076	2147	266	457	7914

\* In 1997, the PHSKC STD Clinic eliminated its Saturday and evening clinic hours.

\*\* PHSKC's satellite Broadway STD Clinic was in operation from 1993-1998.

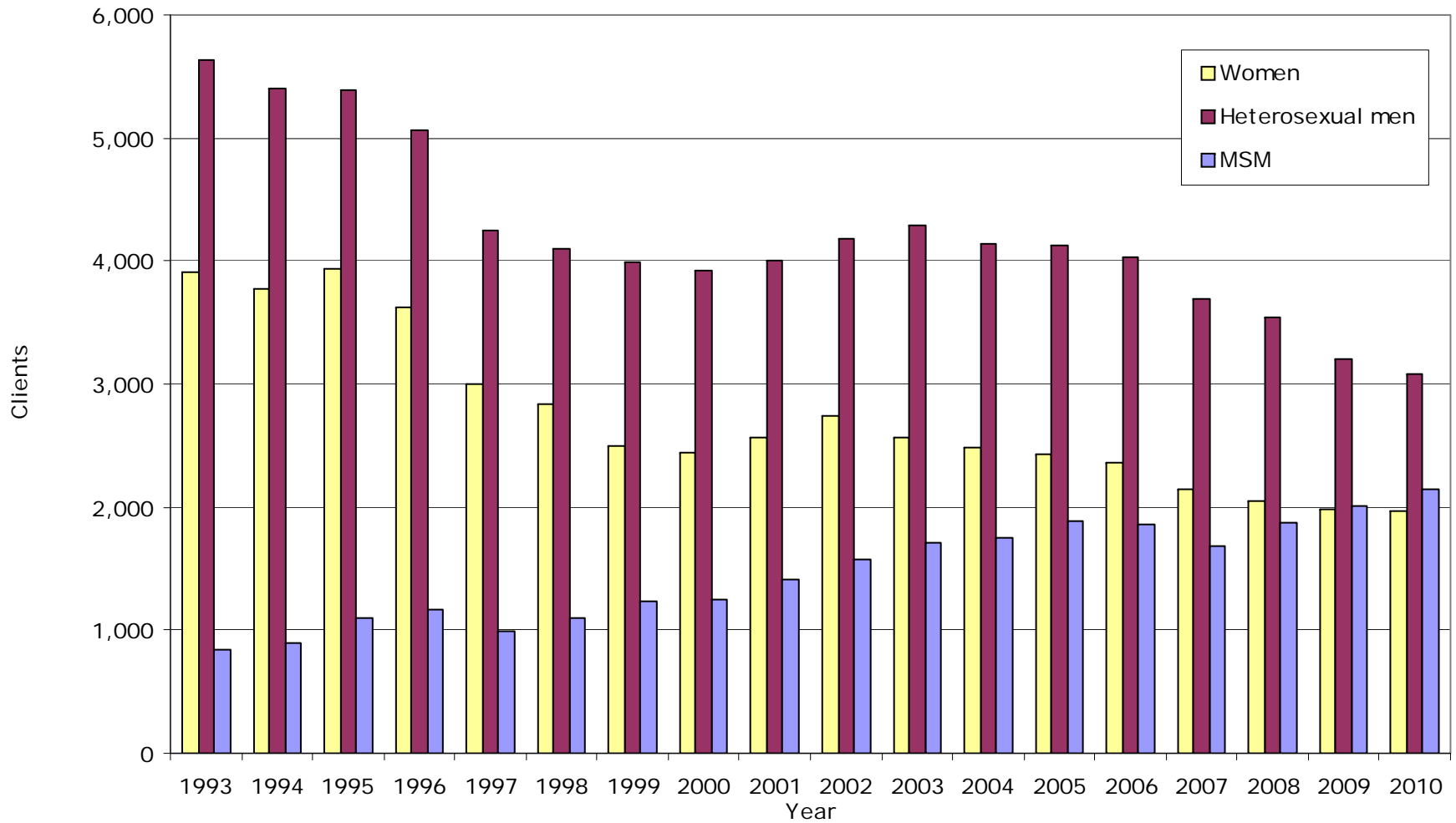
Figure 15: Visits\* to Public Health - Seattle and King County STD Clinics\*\*, 1993-2010



\*This figure excludes men with missing sexual orientation data, and HIV testing visits provided through the HIV/AIDS Program (HAP).

\*\* PHSKC's satellite Broadway STD Clinic was in operation from 1993-1998.

Figure 16: Patients\* Visiting the PHSKC STD Clinics by Year  
(Unduplicated Visits), 1993-2010

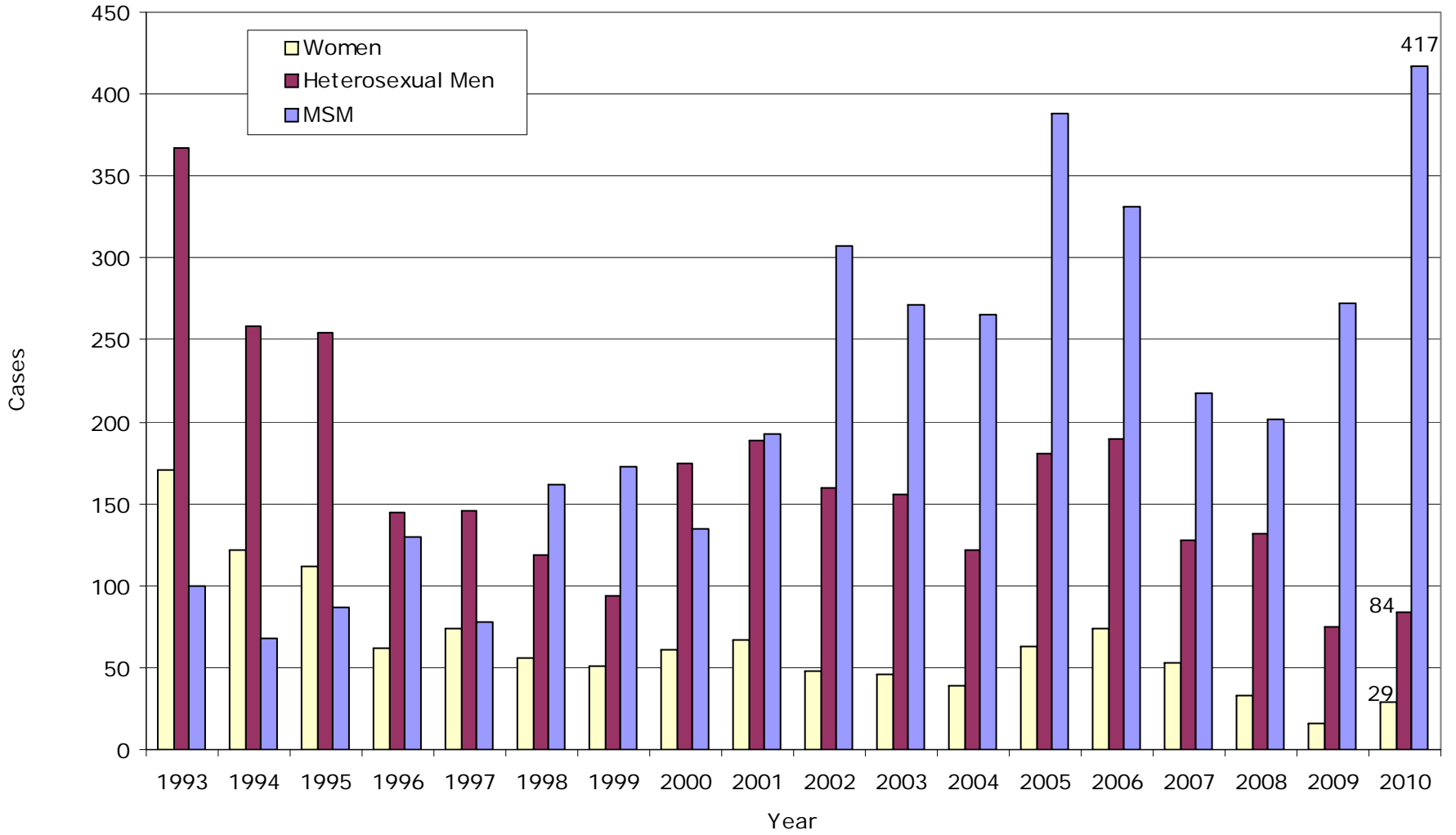


\*This figure excludes men with missing sexual orientation data, and HIV testing visits provided through the HIV/AIDS Program (HAP).

\*\* PHSKC's satellite Broadway STD Clinic was in operation from 1993-1998.

Figure 17: Gonorrhea Diagnoses\*, PHSKC STD Clinic  
1993-2010

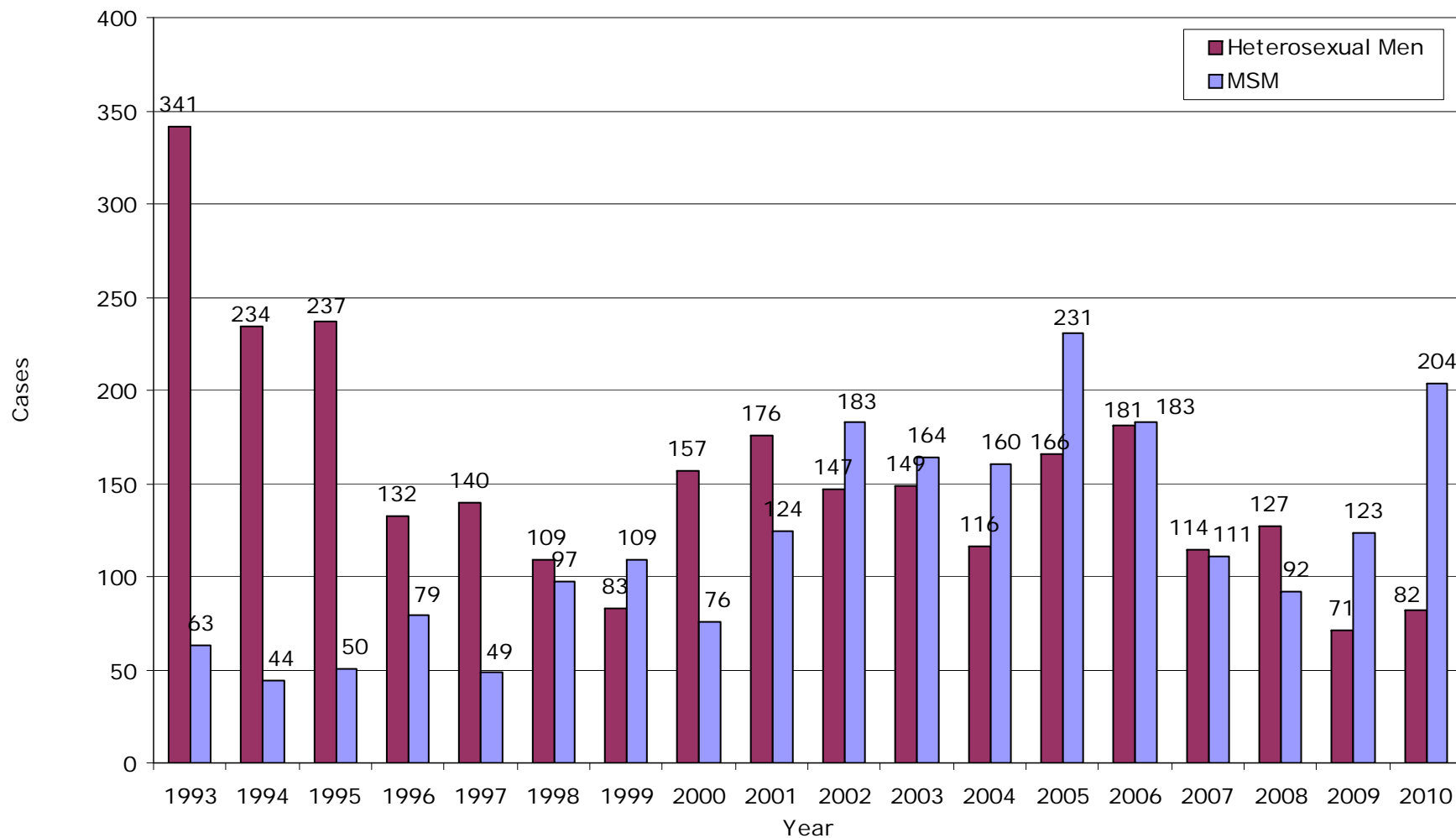
48



\* These data exclude 63 cases of gonorrhea among men who were missing sexual orientation information across all years



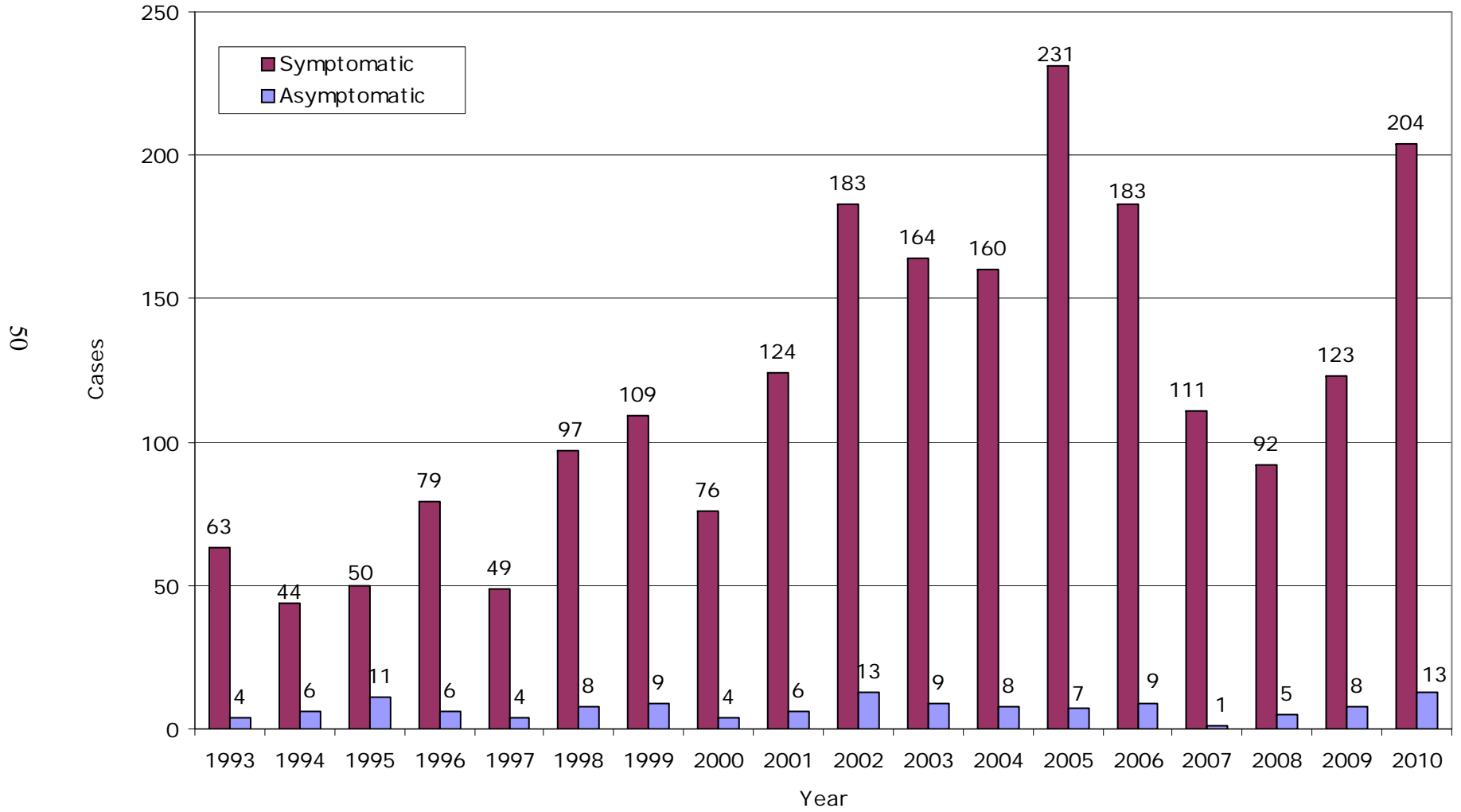
Figure 18: Symptomatic \* Gonococcal Urethritis among Men\*\*  
PHSKC STD Clinic, 1993-2010



\* Symptoms include urethral discharge and/or dysuria

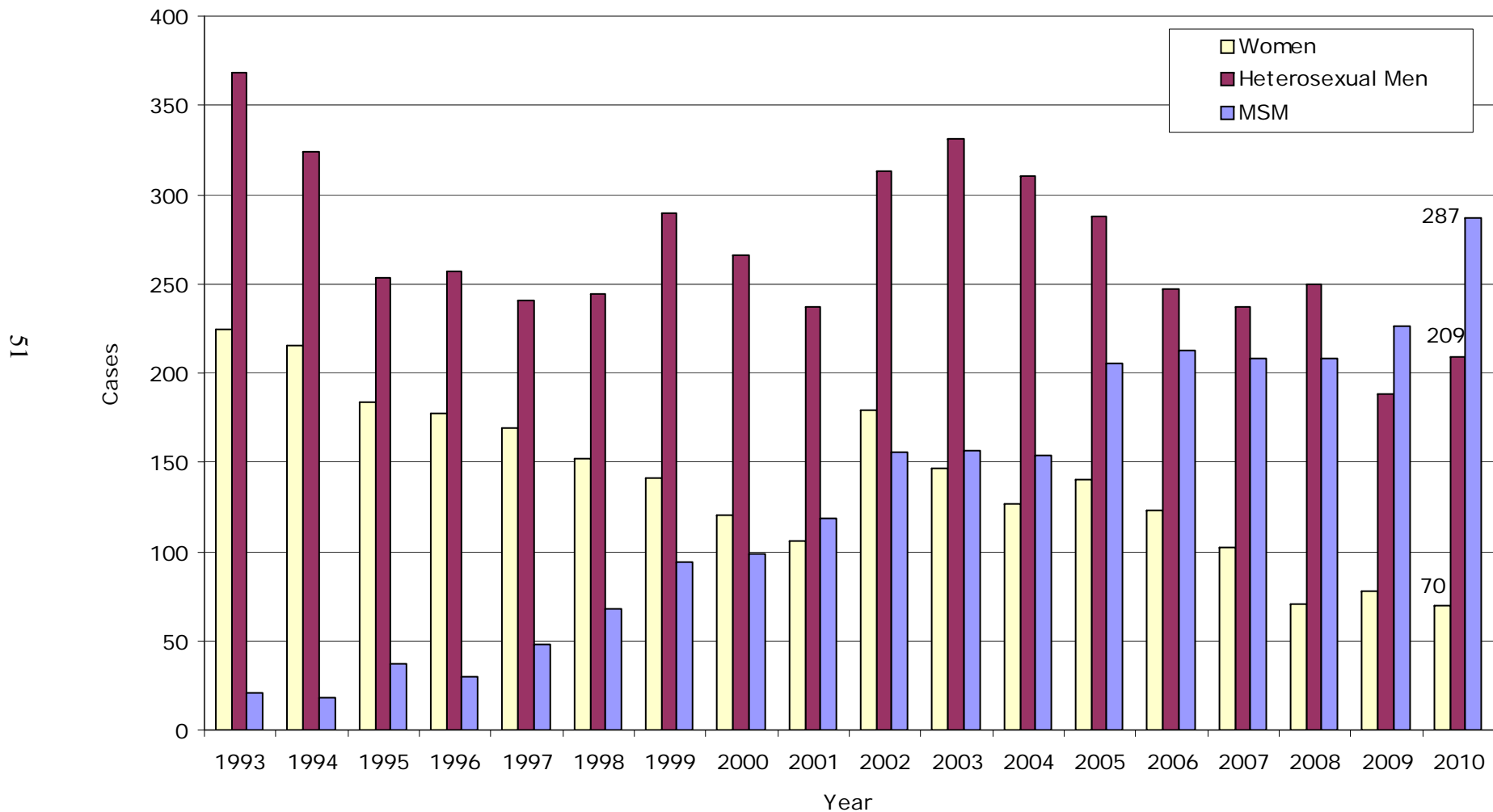
\*\* These data exclude 53 cases of symptomatic urethral gonorrhoea among men who were missing sexual orientation information across all years

Figure 19: Symptomatic\* and Asymptomatic Gonococcal Urethritis among MSM  
PHSKC STD Clinic, 1993-2010



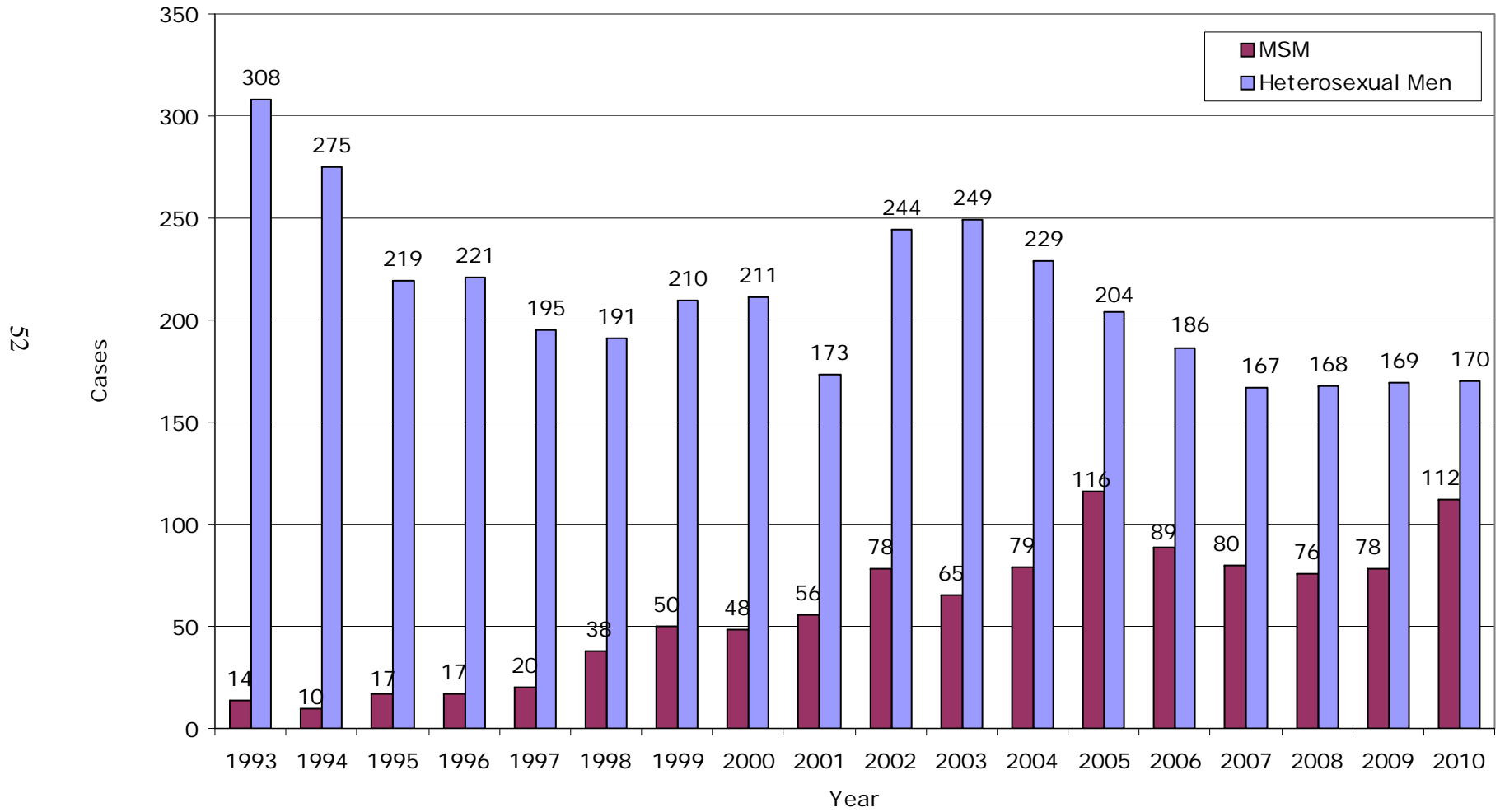
\* Symptoms include urethral discharge and/or dysuria

Figure 20: Chlamydial Infection Diagnoses\*, PHSKC STD Clinic  
1993-2010



\* These data exclude 179 cases of chlamydial infection among men who were missing sexual orientation information across all years

Figure 21: Symptomatic Chlamydial Urethritis\* among Men  
PHSKC STD Clinic, 1993-2010



\* Symptoms include urethral discharge and/or dysuria

Figure 22: Chlamydia Prevalence among Asymptomatic Women Ages 15-29  
PHSKC STD Clinic, 1993-2010

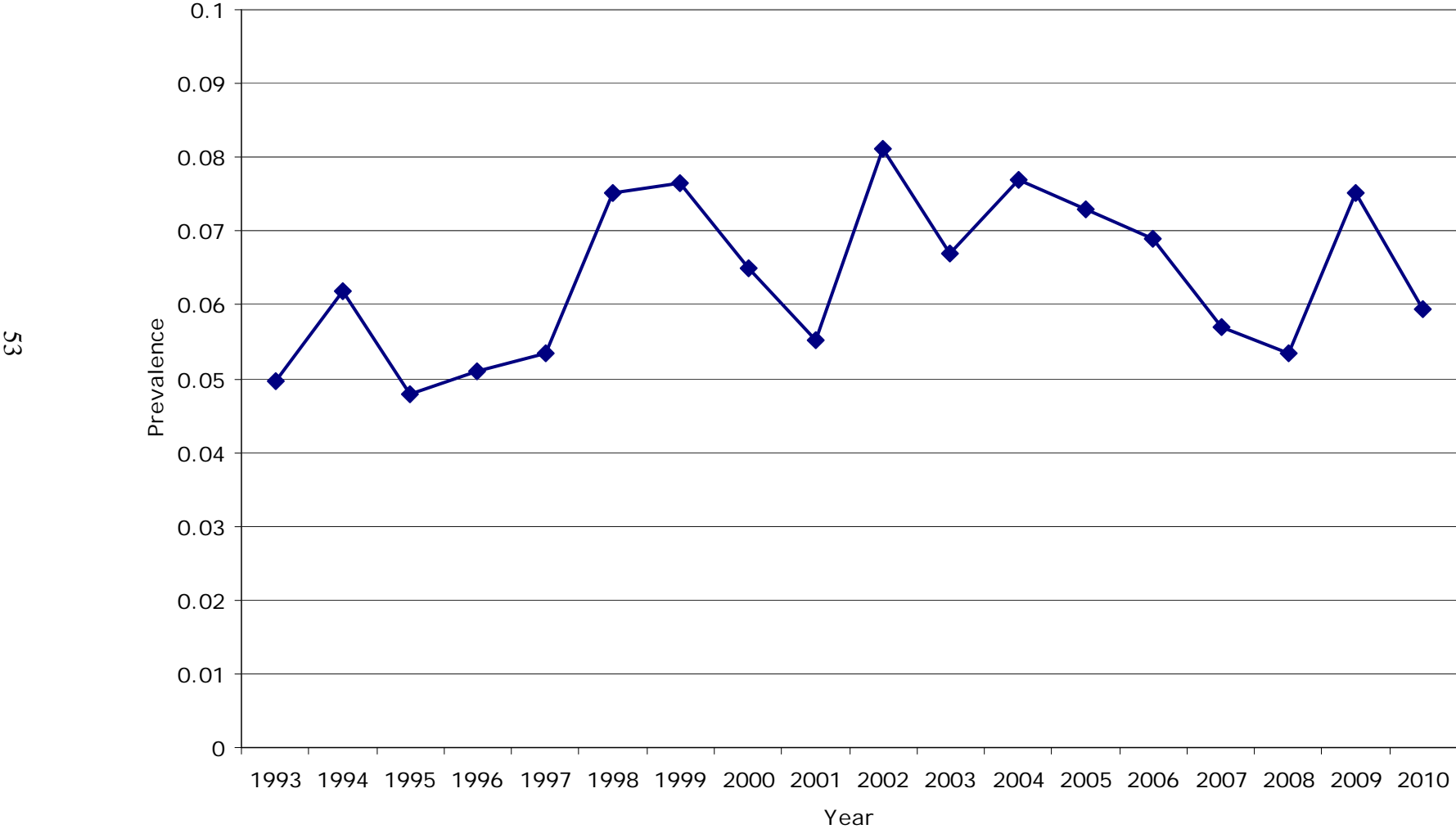
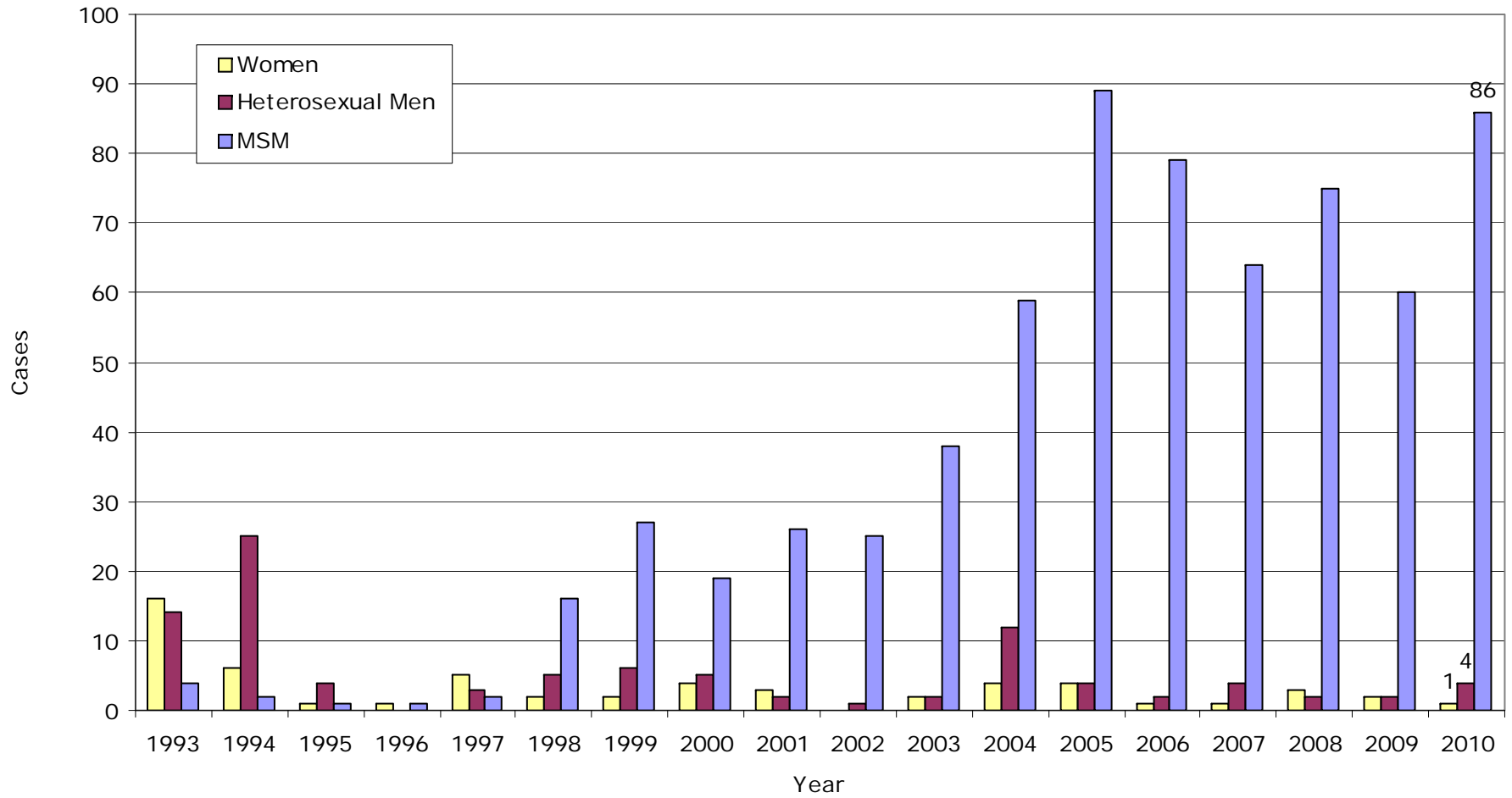


Figure 23: Early\* Syphilis Diagnoses\*\* ^  
PHSKC STD Clinic, 1993-2010

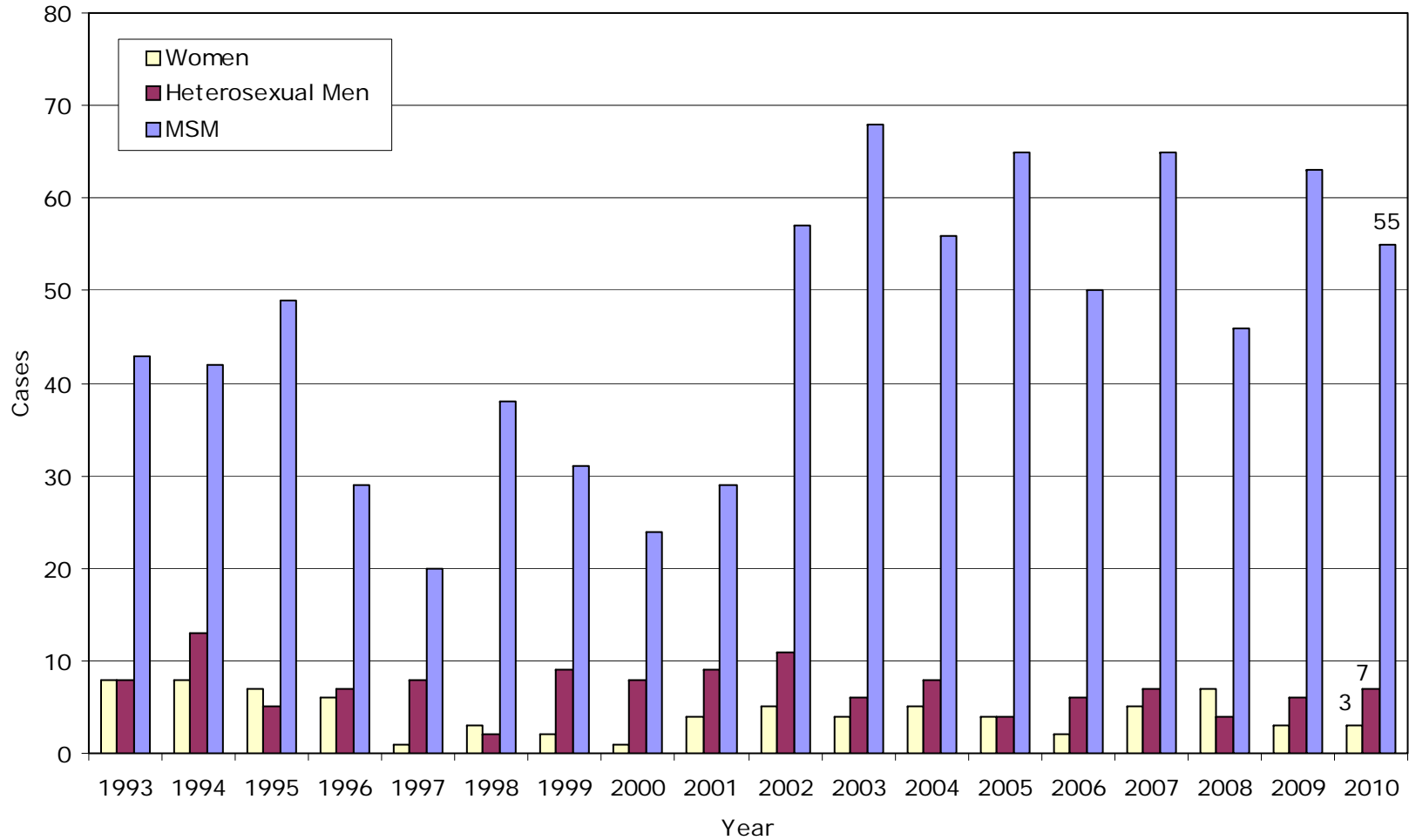


\* Includes primary, secondary, and early latent syphilis diagnoses

\*\* These data exclude 58 cases of early syphilis among men who were missing sexual orientation information across all years

^ Some patients may have been diagnosed by outside providers and referred to the PHSKC STD Clinic for follow up

Figure 24: HIV Diagnoses\*, PHSKC STD Clinic \*\*  
1993-2010

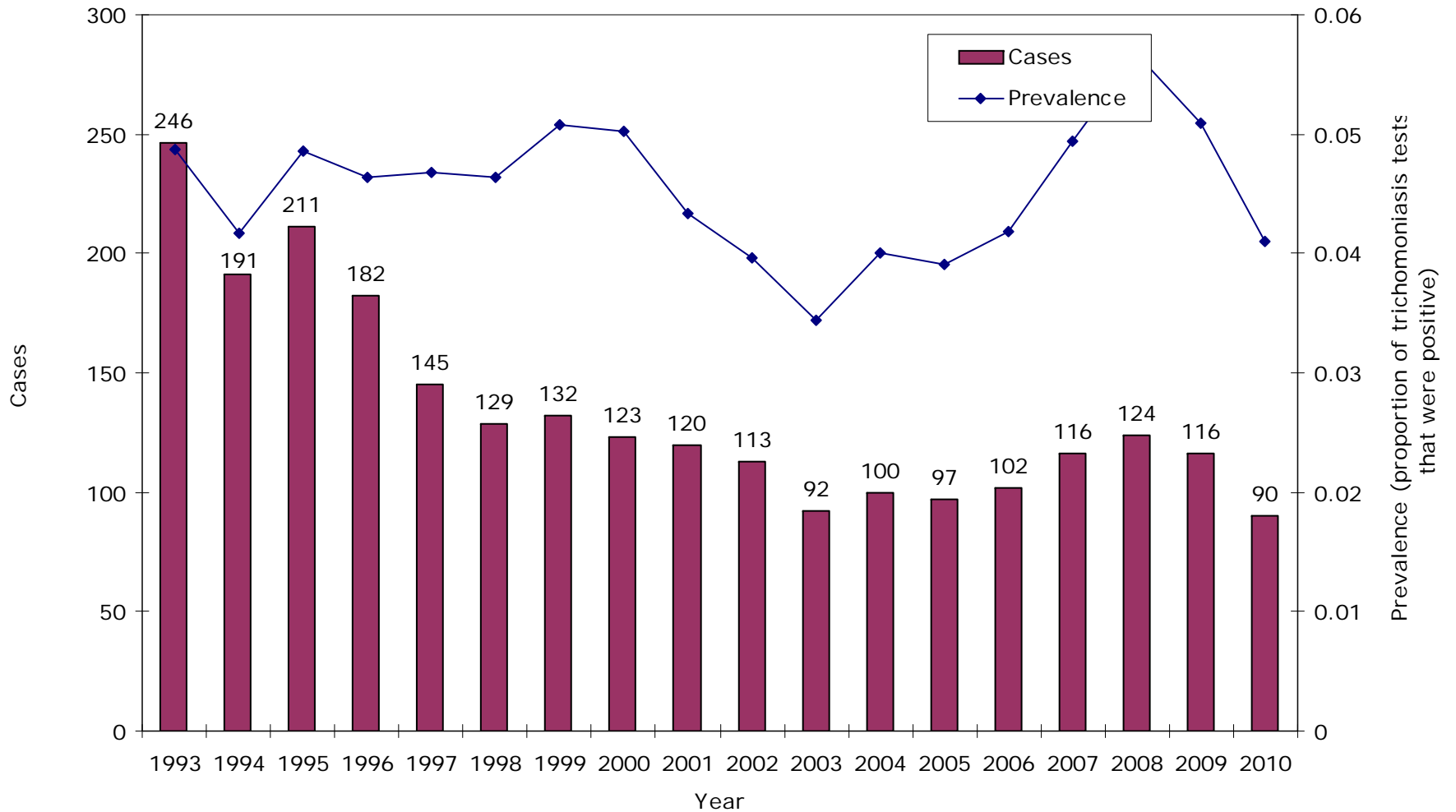


55

\* These data exclude 6 cases of HIV among men who were missing sexual orientation information  
 \*\* Includes tests performed through the HIV AIDS Program (HAP), which joined the PHSKC STD Clinic in 2000.  
 ^ As of September 2003, all MSM tested for HIV in the PHSKC STD Clinic also received an HIV RNA test.

Figure 25: Trichomoniasis Diagnoses\* and Prevalence\*\* Among Female Patients  
PHSKC STD Clinic, 1993-2010

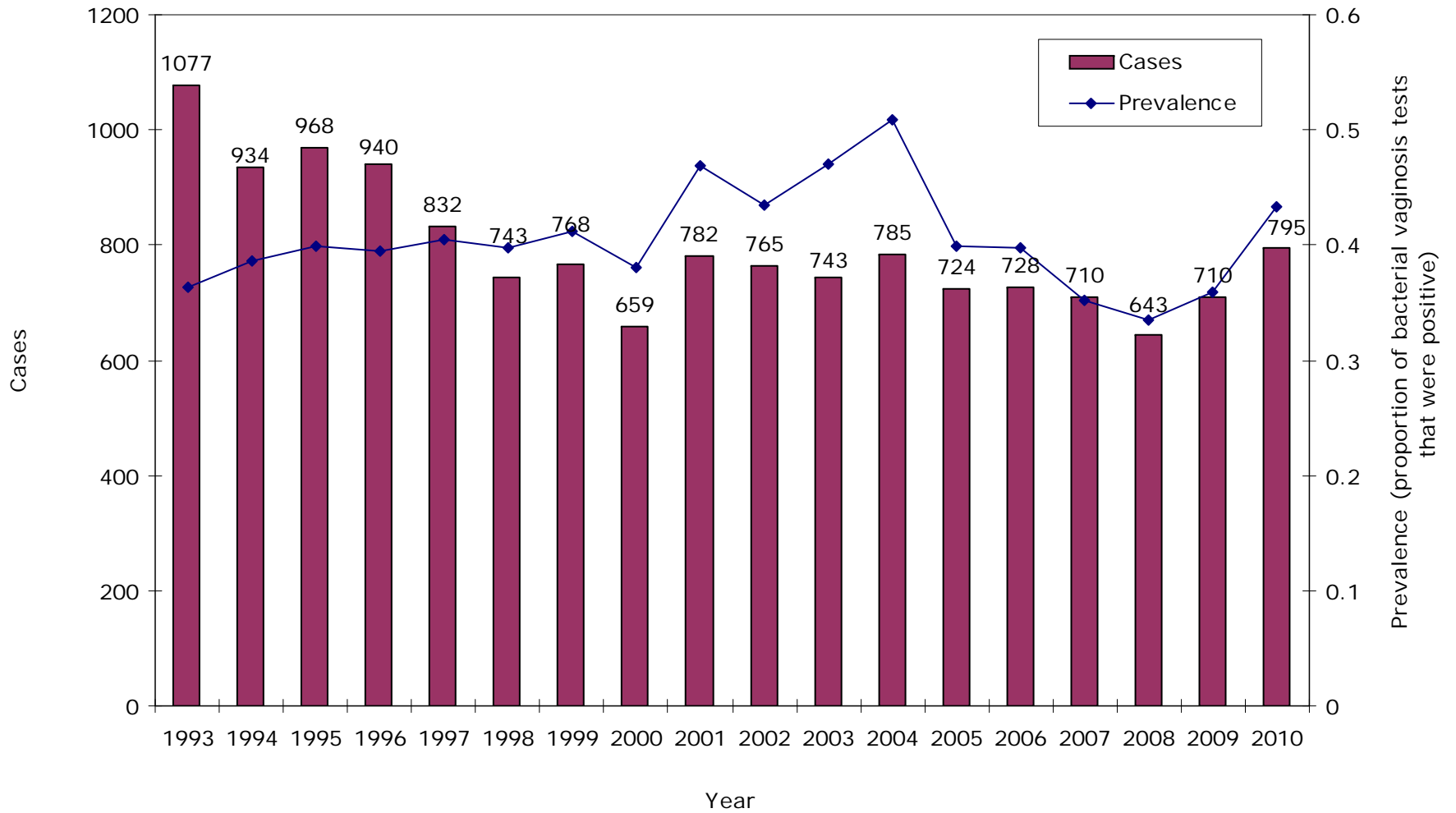
95



\*Diagnoses are based on culture and/or wet mount tests

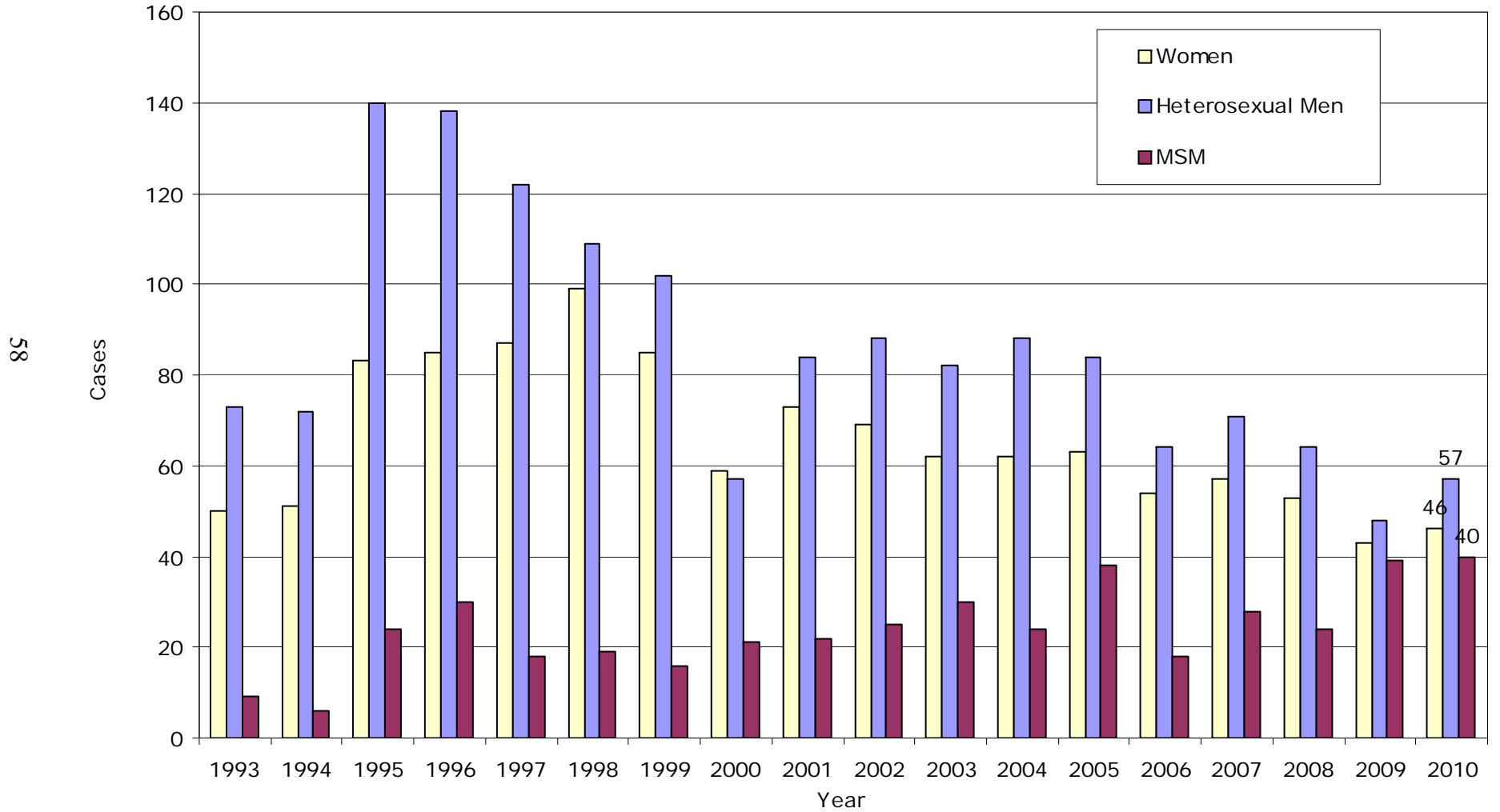
\*\*Prevalence is calculated as total annual diagnoses/total annual tests (culture and/or wet mount)





\*Prevalence is calculated as total annual diagnoses/annual patients with tests for both vaginal PH and clue cells.

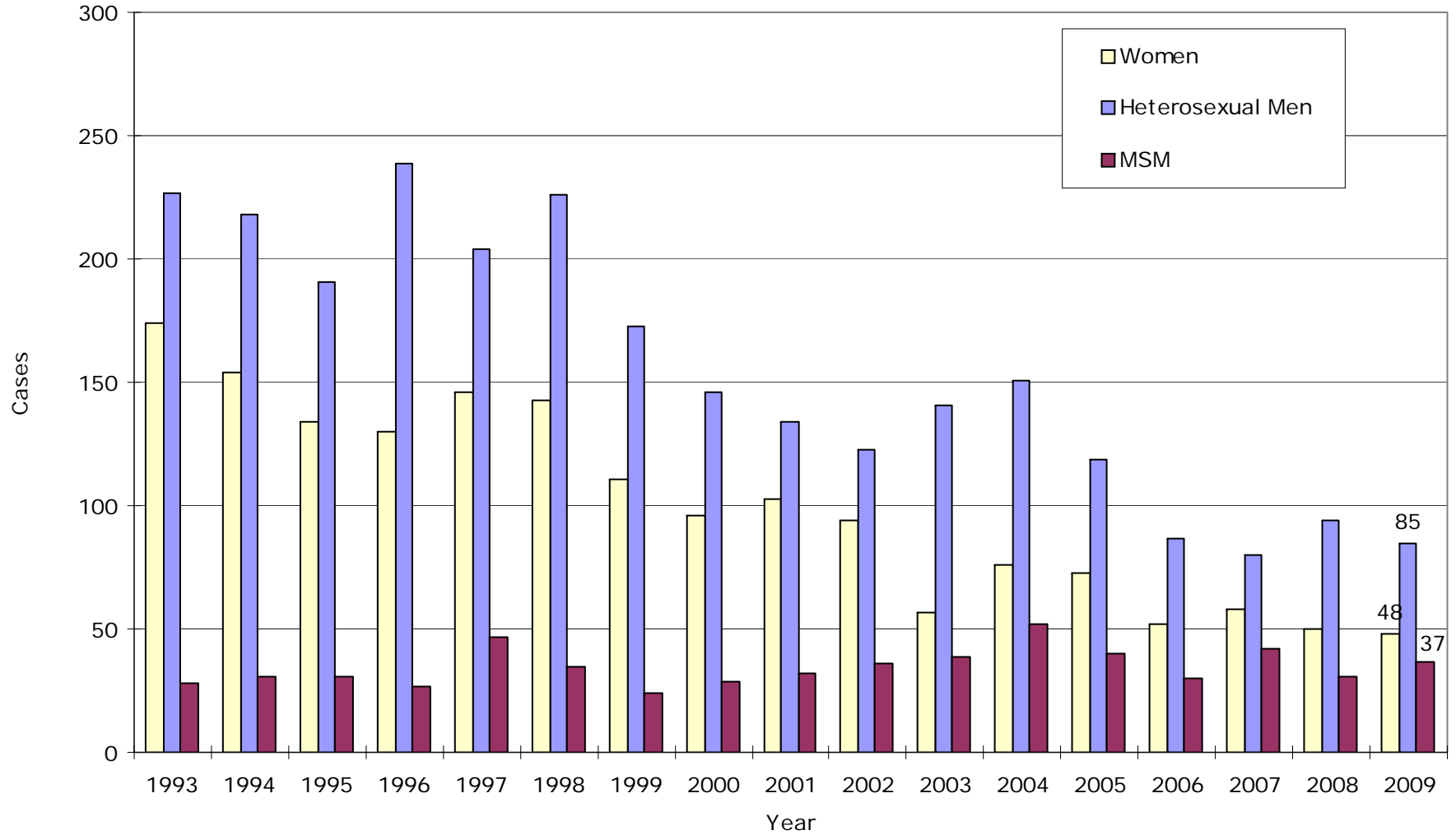
Figure 27: Initial Genital Herpes Diagnoses\*  
PHSKC STD Clinic, 1993-2010



\* These data exclude 38 cases of initial genital herpes among men who were missing sexual orientation information across all years

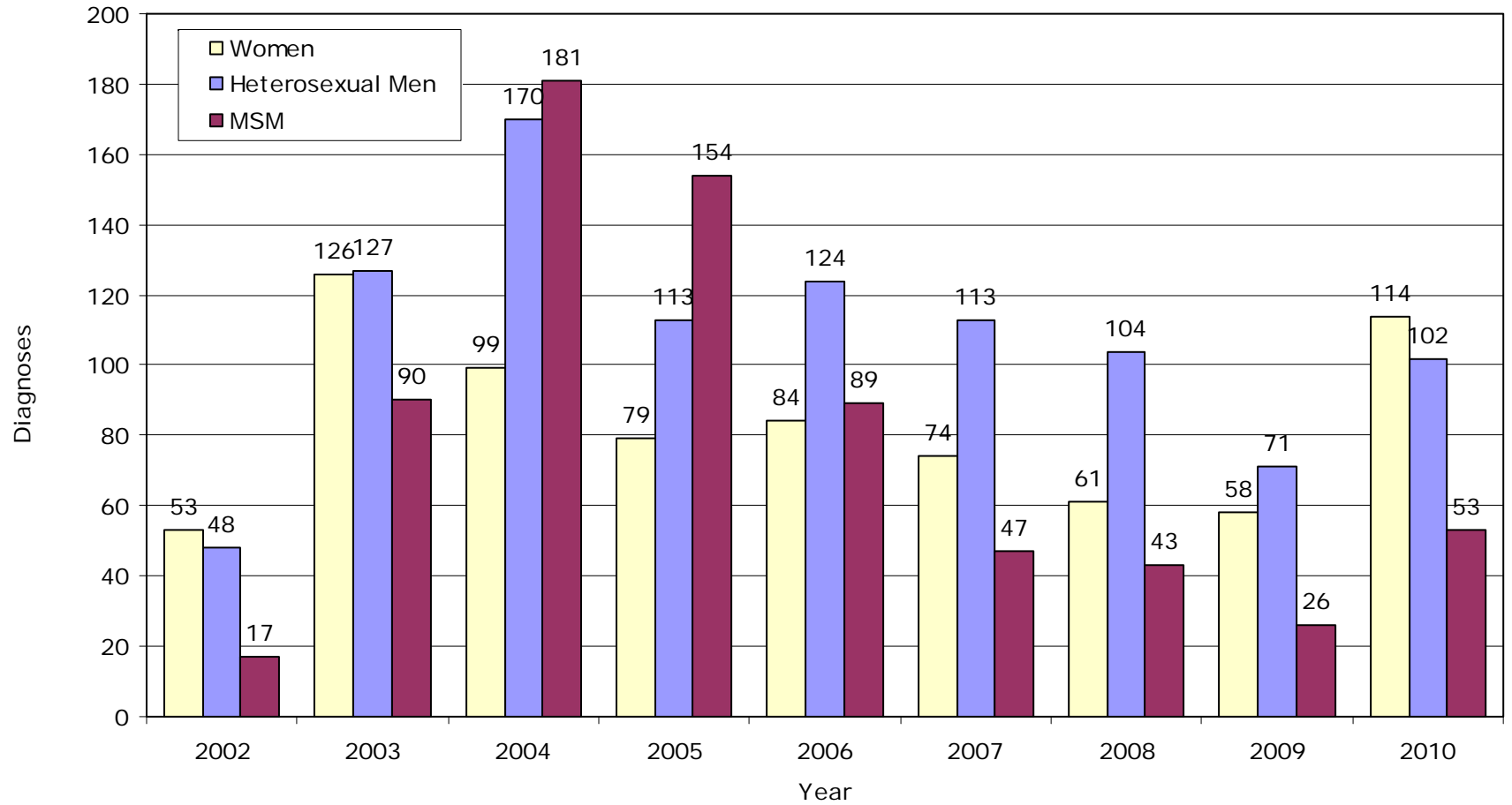
Figure 28: Recurrent Genital Herpes Diagnoses\*  
PHSKC STD Clinic, 1993-2010

69



\* These data exclude 98 cases of recurrent genital herpes among men who were missing sexual preference information across all years

Figure 29: Serologic Diagnoses of HSV-2 in Patients\* without Symptoms  
PHSKC STD Clinic, 1993-2010\*\*



\* These data exclude 44 cases of serologic herpes among men who were missing sexual orientation information across all years

\*\* Free serologic testing for HSV-2 was available for MSM STD Clinic patients through research projects from October 15, 2003 - April 30, 2006 and for HIV-uninfected patients from April 20, 2010 - Dec 31, 2010.

## **STDs in King County Men Who Have Sex with Men (MSM)**

The incidence and number of cases of chlamydial infection and gonorrhea reported among MSM rose between 2009 and 2010, a pattern also observed from 2008 to 2009 (Figures 30-31). The rise in gonorrhea has been particularly sharp and represents a reversal in the decline in the rate of gonorrhea among MSM from 2005 through 2008 (Figure 32). The number of early syphilis cases reported among MSM also increased considerably from 2009 (145 cases) to 2010 (263 cases).

Interpreting recent data on reported numbers of STD cases among MSM is complicated by recent changes in reporting practices. In 2007, the algorithm used to determine whether King County gonorrhea and chlamydial infection cases occurred among MSM or heterosexual men changed. This change affected data collected since 2004 when the state's case report form began collecting data on the gender of cases' sex partners. Between 2004 and 2006, providers often did not report this information. Thus, until 2007 the number of MSM cases was estimated by adding the numbers of each infection diagnosed among Public Health STD Clinic MSM patients to the number of rectal gonorrhea and chlamydia infections in men reported by non-Public Health STD Clinic providers. These earlier estimates were an underestimate of MSM cases for these two infections, as they excluded non-rectal infections among MSM diagnosed by non-Public Health STD Clinic providers. In 2007, interview data (including information regarding the gender of sex partners) from partner management interviews became available in combination with case report data, making it feasible to more completely identify MSM cases using combined case report and interview data back to 2004. Therefore, ascertainment of MSM status is more complete from 2004 onward than in previous years. The completeness of reporting for gender of sex partners has improved over time; in 2010,

gender of sex partners was reported on 77% of case reports for gonococcal and chlamydial infections among men.

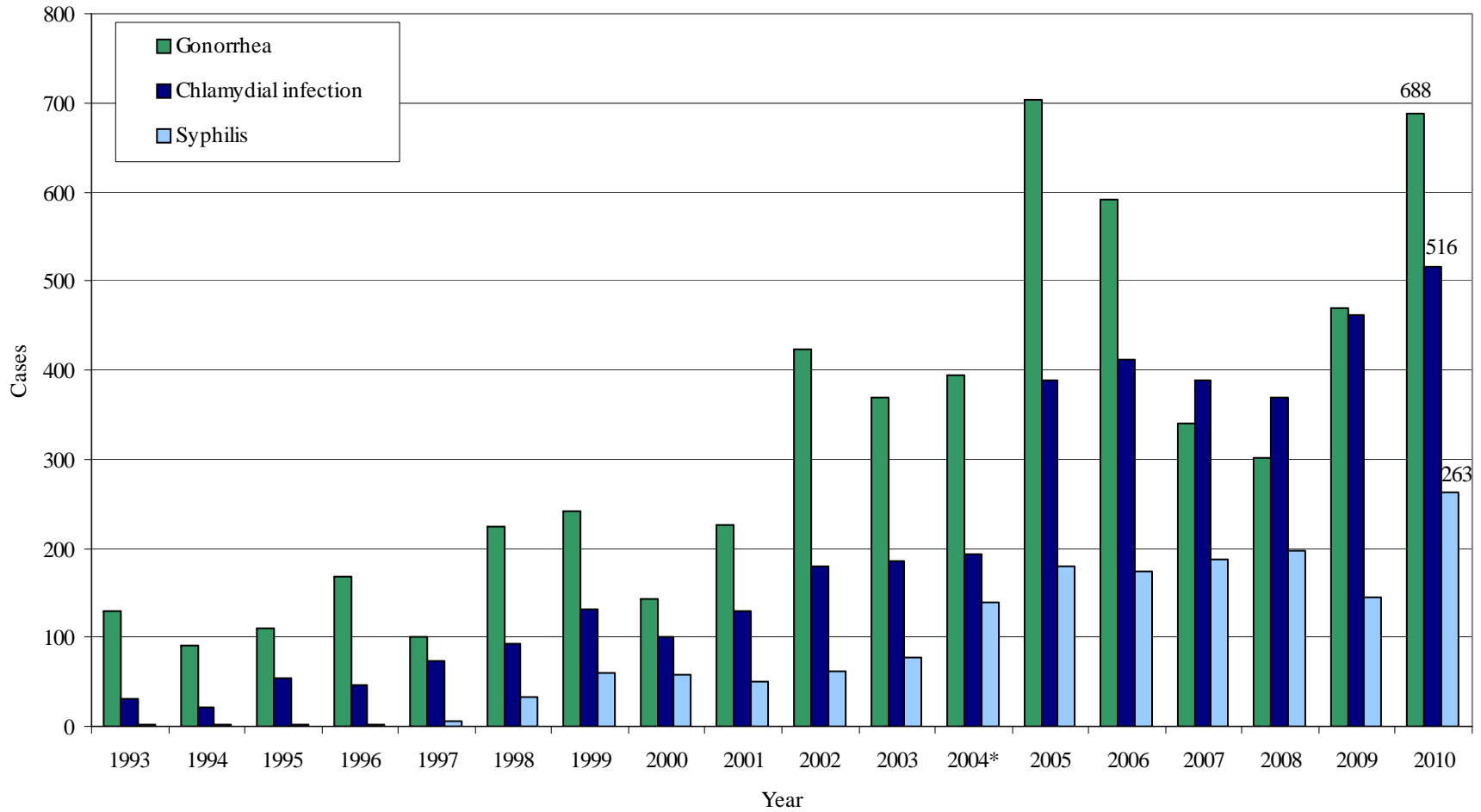
The number of gonorrhea, chlamydia, and early syphilis cases diagnosed among King County MSM all increased in 2010. Although these trends can be affected by changes in testing or STD reporting, the observed increase in the number of MSM presenting with symptomatic syphilis and gonococcal and chlamydial urethritis suggests that observed trends represent a true increase in all the incidence of all three STDs in 2010

In addition to observed increases in reported sexually transmitted infections among MSM, Public Health collects data on the sexual behavior of MSM seen in the Public Health STD Clinic. These behavioral data suggest an increasing pattern of risk between 1993 and 2000, more stable patterns of behavior from 2000 to 2009, and increases in reported risk behaviors from 2009 to 2010. Increases observed in the proportion of MSM STD Clinic patients reporting two or more sex partners in the preceding two months (Figure 33) and the proportion of MSM STD Clinic patients reporting unprotected anal intercourse in the preceding two months (Figure 34) are likely due at least in part to changes in the way sexual behavior data were collected in 2010. In October of 2010, a computerized kiosk system was implemented to collect demographic, sexual history, and other data from most clinic patients in the STD Clinic waiting room. Entering sexual behavior data into a computer may have resulted in somewhat more accurate reporting of sexual behaviors than when patients reported behaviors to a clinician.

While sexual behavior data were roughly constant from 2001 to 2009, the recent increases in observed in syphilis, gonorrhea, and chlamydial infections among MSM suggest that some of the increases observed in

sexual behavior among MSM STD Clinic patients may reflect true changes in behavior. The generalizability of these data to MSM in the larger population is uncertain.

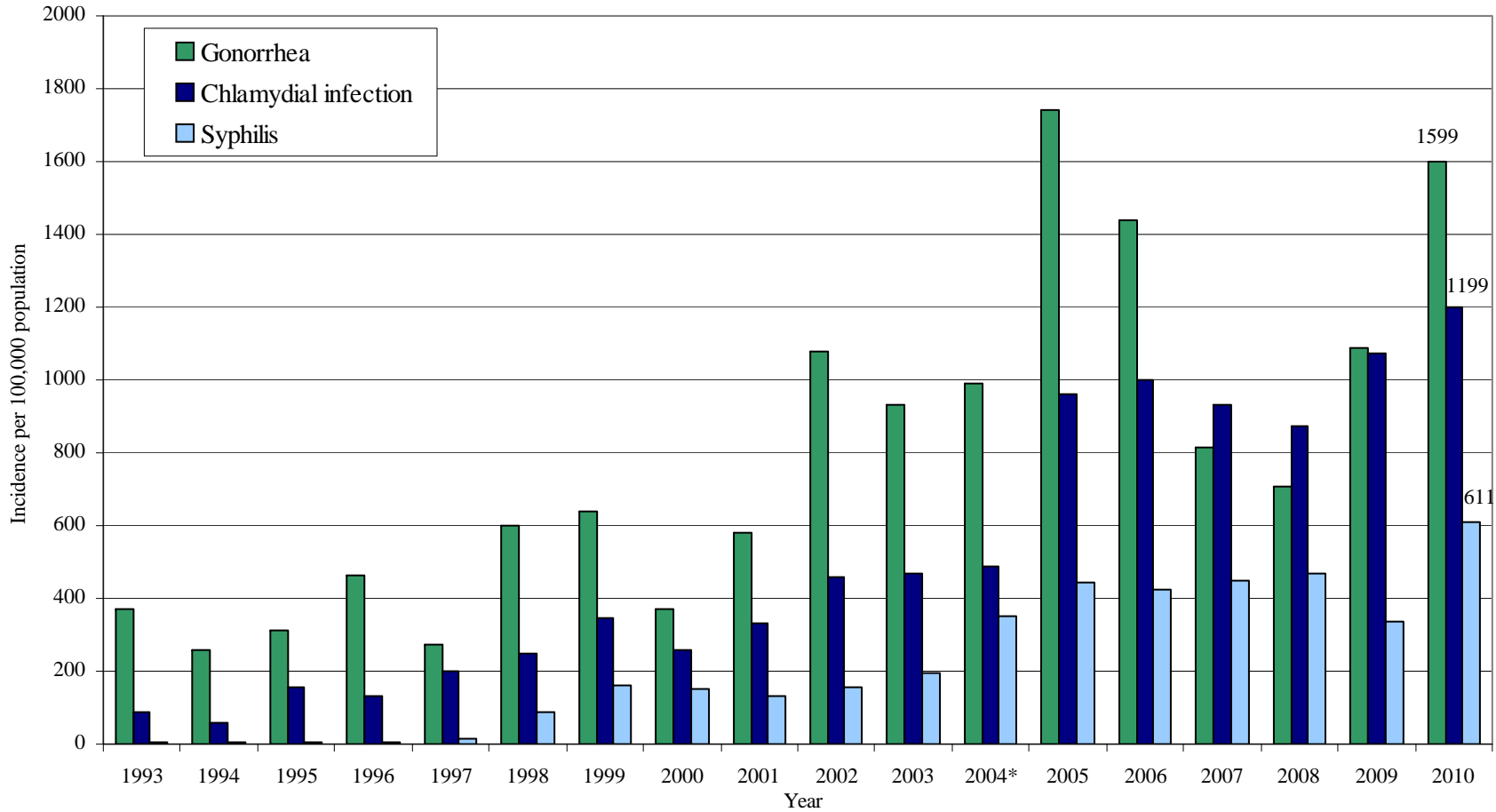
**Figure 30: Number of Cases of Gonorrhea, Chlamydia, and Early Syphilis among MSM\*  
King County, WA, 1993-2010**



\*From 1993-2003, MSM gonorrhea and chlamydial infection cases were calculated by summing all PHSKC STD Clinic diagnoses among MSM with all rectal infections reported to PHSKC by other providers. Since 2004, men have been assigned MSM status if the reporting provider indicated they had male sex partners, or they had a rectal infection.

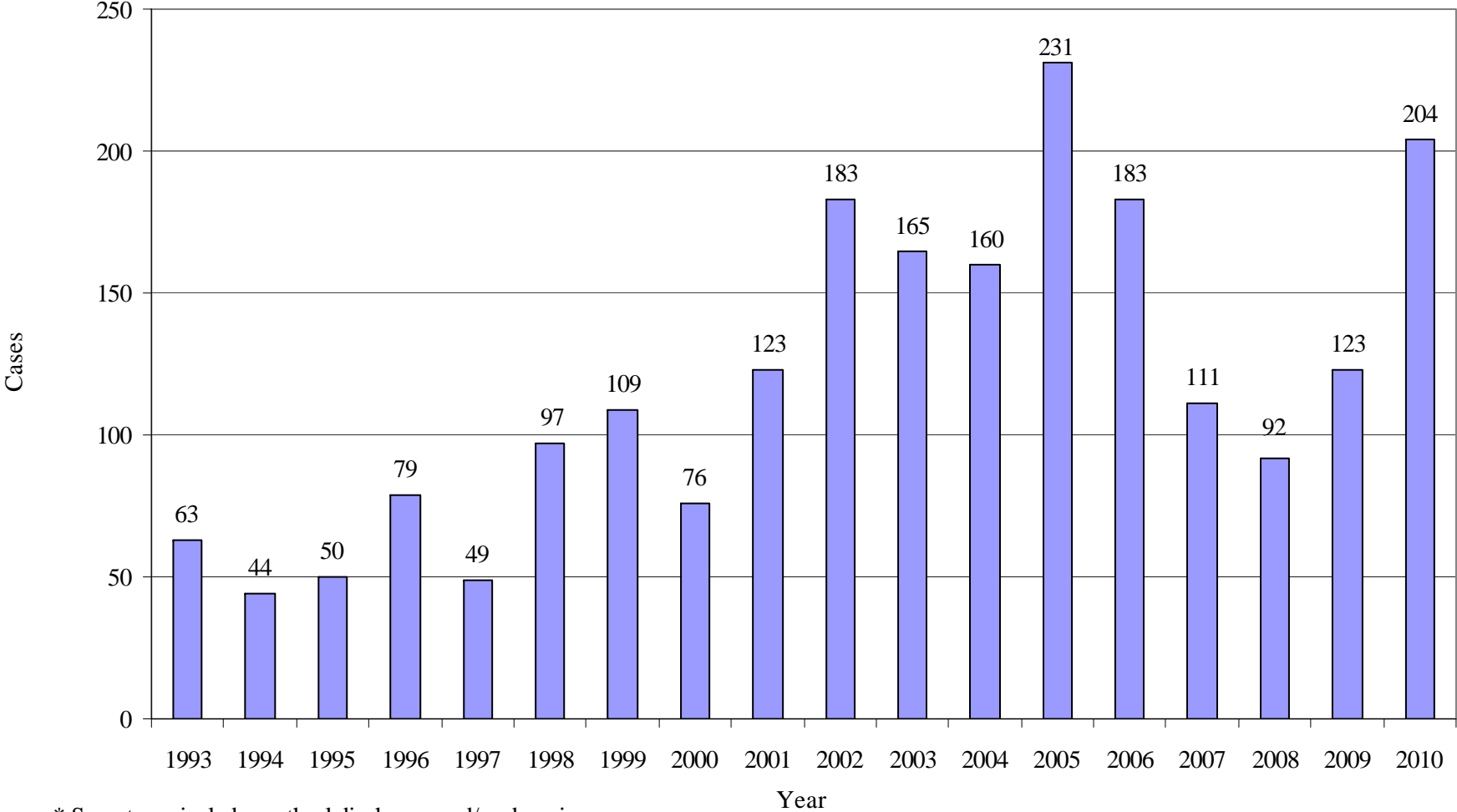


**Figure 31: Incidence of Gonorrhea, Chlamydial Infection, and Early Syphilis Among MSM\*  
King County, WA 1993-2010**



\*From 1993-2003, MSM gonorrhea and chlamydial infection cases were calculated by summing all PHSKC STD Clinic diagnoses among MSM with all rectal infections reported to PHSKC by other providers. From 2004 onward, men were assigned MSM status if the reporting provider indicated they had male sex partners, or they had a rectal infection.

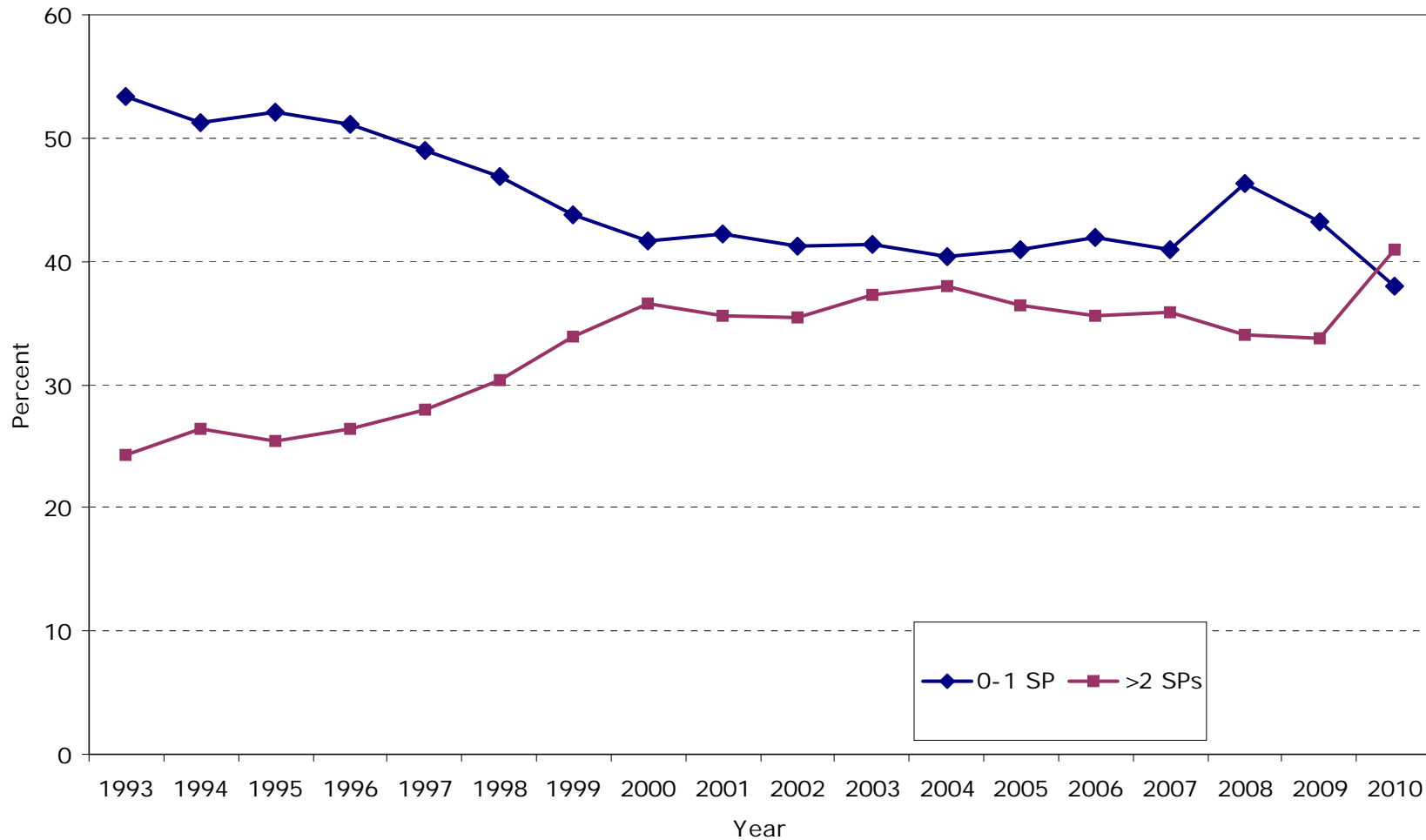
**Figure 32: Symptomatic\* Gonococcal Urethritis among MSM\*\*  
PHSKC STD Clinic, 1993-2010**



\* Symptoms include urethral discharge and/or dysuria

\*\* These data exclude 50 cases of symptomatic urethral gonorrhea among men who were missing sexual orientation information across all years

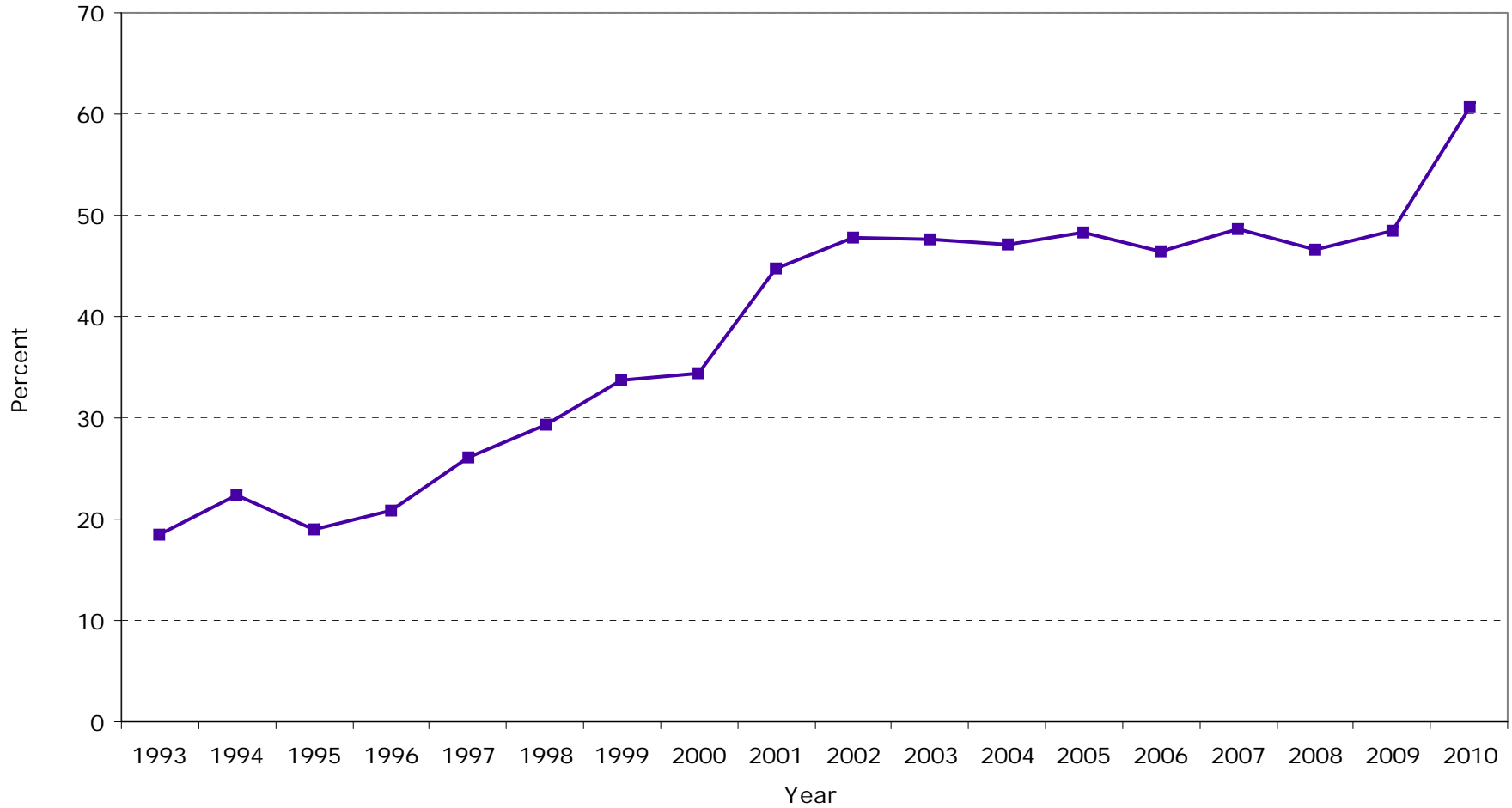
Figure 33: Numbers of sex partners in preceding 2 months among MSM\* seen at the PHSKC STD Clinic, 1993-2010\*\*



\* Patients are unduplicated; each patient is represented only once per year.

\*\* In September, 2010, some patients began entering sexual history data into a computer kiosk in the waiting room

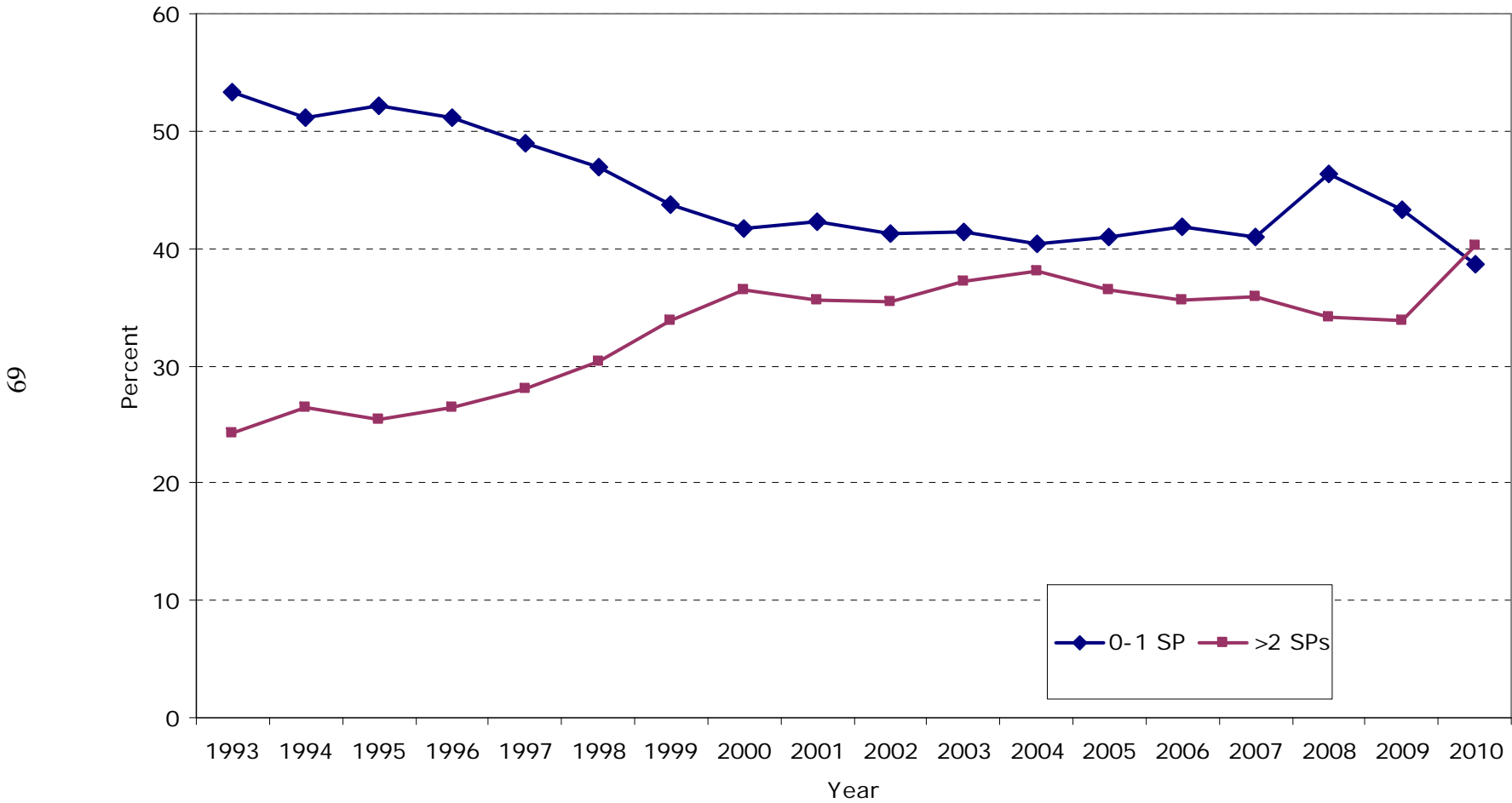
Figure 34: Percent of MSM Patients\* Reporting Unprotected Anal Intercourse in Preceding 2 Months  
PHSKC STD Clinic, 1993-2010\*\*



\* Patients are unduplicated; each patient is represented only once per year.

\*\* In September, 2010, some patients began entering sexual history data into a computer kiosk in the waiting room

Figure 33: Numbers of sex partners in preceding 2 months among MSM\* seen at the PHSKC STD Clinic, 1993-2010\*\*



\* Patients are unduplicated; each patient is represented only once per year.

\*\* In late October, 2010, most patients began entering sexual history data into a computer kiosk in the waiting room. Data shown here for 2010 exclude visits from October 26-December 31, 2010.

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