



**2009
King County
Sexually Transmitted Diseases
Epidemiology Report**

**Public Health – Seattle and King County
2009 Sexually Transmitted Diseases Epidemiology Report**

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Executive Summary

In this 2009 Sexually Transmitted Diseases Epidemiology Report, we describe recent trends in chlamydial infection, gonorrhea, and early syphilis among King County residents. Left untreated, these infections may cause serious long-term health consequences. We also provide information about patients using the Public Health – Seattle and King County STD Clinic, as well as trends in diagnoses of several other sexually transmitted infections in the STD Clinic. We hope that 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 2009 include:

- **Gonorrhea rates among heterosexuals declined to their lowest level since case report data became available in electronic format in 1992, but rose among men who have sex with men (MSM).** The overall incidence¹ of gonorrhea in King County declined slightly in 2009 (58 cases per 100,000 persons). However, among heterosexual men and women, incidence of gonorrhea declined by 38% (from 65.2 per 100,000 in 2008 to 40.1 per 100,000 in 2009). In contrast, among MSM incidence rose 55% in 2009 (from 750 per 100,000 in 2008 to 1,106 per 100,000 in 2009), a reversal in the decline in gonorrhea incidence among MSM that occurred between 2005 and 2008. The cause for the recent increase in incidence among MSM and decrease in heterosexuals is unclear; providers should maintain current gonorrhea testing and treatment practices.
- **Chlamydia incidence is stable, with the highest rates of reported infection observed among young women.** The incidence of chlamydial infection was similar in 2009 (308 per 100,000 persons) to that observed in 2008 (314 per 100,000). Among young women (ages 15-29), historically the group with the highest rates of chlamydial infection, measures of both incidence and prevalence² 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), provided at no cost through Public Health.

- **Early syphilis incidence remains stable.** Early syphilis incidence has been stable in King County for the past several years; incidence was 8 per 100,000 persons in 2009. Early syphilis in King County continues to be concentrated among MSM (341.8 per 100,000), but from 2008 to 2009 incidence of early syphilis fell somewhat among MSM (2008 incidence: 473 per 100,000). Early syphilis incidence is particularly high among HIV-positive MSM (1669 per 100,000). Public Health recommends that all MSM test for syphilis 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.
- **The Public Health STD Clinic diagnosed a substantial proportion of all reportable STDs diagnosed in King County in 2009.** This included 57 (36%) of the 160 cases of early syphilis, 358 (33%) of the 1,084 cases of gonorrhea, 71 (22%) of the 324 cases of HIV, and 493 (8%) of the 5,807 cases of chlamydial infection. As in past years, the Public Health STD Clinic diagnosed more cases of HIV in 2009 than any other single clinical site in Washington state. The Public Health STD Clinic remains a vital resource for residents and health care providers in King County.
- **Public Health family planning clinics diagnosed 725 (12%) of 5,807 King County chlamydial infection cases in 2009.** As a group, family planning clinics diagnosed 1,489 (26%) of the total reported cases of chlamydial infections in King County. Family planning clinics play a critical role in the control of chlamydial infection in King County.
- **MSM continued to experience high rates of all reportable STDs relative to heterosexuals.** In 2009, the estimated rates of gonorrhea, chlamydia and early syphilis among MSM were 1,106, 1,092 and 342 cases per 100,000, respectively. For comparison, rates of these infections among

heterosexuals were 91, 692, and one per 100,000, respectively. Behavioral surveillance data obtained through the Public Health STD Clinic suggest that the sexual behavior of MSM evaluated in the clinic has remained relatively stable since 2000. The continued disproportionate impact of STD on MSM should be a strong impetus for ensuring that MSM test for STD, including HIV, at least annually.

- **Rates of all STD continue to show marked racial and ethnic disparities.** In 2009, the incidence of gonorrhea was 19.4 times higher among African American women (225 per 100,000), and 5.9 times higher among Native American women (68.7 per 100,000), than among white women (12 per 100,000). The incidence of chlamydial infection was also significantly higher among African American (1,542 per 100,000), Native American (1,206 per 100,000), and Latina (1,018 per 100,000) women than among white women (232 per 100,000). While the marked decline in gonorrhea rates among women observed over the last three years represents progress that particularly benefited racial and ethnic minorities, the persistence of racial disparities should prompt providers to ensure that existing screening guidelines are rigorously applied.

¹ 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.

² 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.

³ Some of the 56 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 1992-2009 and reported through March 14, 2009.

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 2009 are not yet available; for these years, population data from 2008 were utilized to calculate incidence figures for 2009.

Population estimates for men who have sex with men (MSM), as well as HIV-positive and negative MSM, were provided by the Public Health HIV/AIDS Epidemiology Unit. The overall population estimate used for MSM (43,150 men) represents 5.8% of men ages 15 and older in King County in 2006; this figure is comparable to the estimates for the percent of the male population that is MSM from several population-based studies.¹⁻³

Data limitations: Notifiable disease data are subject to 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.

For further information, please contact:

Roxanne Pieper Kerani, PhD
Public Health - Seattle & King County STD Control Program
Harborview Medical Center
325 9th Avenue, Box 359777
Seattle, WA 98104-2499

Phone: 206-744-8769

E-mail: rkerani@u.washington.edu

Chlamydial Infection

In 2009, 5,807 cases of chlamydial infection were reported among King County residents, representing an overall reported incidence of 308 per 100,000 people (Table 1), similar to the incidence of 320 cases per 100,000 people observed in 2008 (Table 3). In 2009, 3,899 cases were reported among women, for a reported incidence of 412 per 100,000 women, and 1,908 cases were reported among men, for a reported incidence of 203 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 2009 (Latino ethnicity was treated as a separate race group, and all other race groups exclude Latinos.):

- Among women, reported incidence was highest among black women (1,459 per 100,000 women), followed by Native American (1,206 per 100,000), Latina (1,018 per 100,000), Asian (458 per 100,000), and white (232 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 896 per 100,000, followed by Latino men (409 per 100,000). Incidence of reported chlamydial infection was less variable among Native American (165 per 100,000), Asian (130 per 100,000), and white (121 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 (2,369 per 100,000) and 20-24 year olds (2,000 per 100,000), while among men, reported incidence was highest among 20-24 year olds (818 per 100,000) followed by 15-19 and 25-29 year olds (556 and 478 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 from since 2006, after a downward trend in reported incidence observed from 2004 through 2005 (Table 4, Figure 1). In contrast, 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 2009. 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 2007-2009. (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 2004, but has remained relatively stable since (Figure 1). National chlamydial infection incidence data were not available for 2009 at the time this report was prepared.

Public Health does not currently monitor the number of chlamydial tests performed in the population, and 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. All patients meeting selective screening criteria are tested in these clinics, thereby providing 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 1998-2009. Chlamydial infection prevalence has been stable among King County women since 2000 (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, and dropped sharply in 2009. The prevalence among women in other Washington state counties (0.063) was much closer to that observed in King County (0.058) in 2009 than it has been for some years. At present, the reasons for the sharp decline in chlamydial prevalence observed in 2009 in Washington state counties other than King County in 2009 are uncertain.

Among patients evaluated at the Public Health STD Clinic, the prevalence of chlamydial infection in women declined from 2002 to 2009. The number of men seeking evaluation for symptomatic chlamydial urethritis (Figure 21) decreased from 2003 to 2007, but did not change from 2007 to 2009. 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 across all age groups remained stable over the past year (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 chlamydia incidence increased somewhat among 15-29 year-old Native American women from 2008 to 2009 (Figure 4), but small numbers in this race group may account for some of the variability. Reported 2009 incidence among other race groups was similar to the incidence observed in 2007 and 2008.

PHSKC and other family planning clinics play an important role in the control of chlamydial infection in King County. PHSKC family planning clinics diagnosed 725 (12%) of 5807 King County chlamydial infection cases in 2009. As a group, family planning clinics diagnosed 1489 (26%) of the total reported cases of chlamydial infections in King County. Among women, family planning clinics diagnosed an even larger percentage of cases (1165 [30%] of 3899).

Table 1: Number of Reported Cases and Chlamydia Incidence, King County, WA, 2009

	Cases	Incidence per 100,000 population
Sex		
Women	3,899	412
Men	1,908	203
Total cases	5,807	308

Table 2: Number of Reported Cases and Chlamydia Incidence in Men and Women, by Age and Race King County, WA, 2009

		Women (N=3,899)		Men (N=1,908)	
		Cases	Incidence per 100,000 population	Cases	Incidence per 100,000 population
Race/ethnicity*^					
	White, Non-Hispanic	1,422	232	747	121
	Black, Non-Hispanic	757	1,459	504	896
	Nat Am, Non-Hispanic	87	1,206	12	165
	Asian/PI, Non-Hispanic	458	373	151	130
	Latino	532	1,018	259	409
	Other	50		14	
	Multiple	145		42	
	Unknown	448		179	
Age*					
	0-9 years	1	1	2	2
	10-14 years	52	100	6	11
	15-19 years	1,347	2,369	329	556
	20-24 years	1,375	2,000	567	818
	25-29 years	701	904	393	478
	30-34 years	215	312	224	300
	35-44 years	148	107	252	172
	45-55 years	44	30	107	73
	>=56 years	15	7	28	15
	Unknown	1		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, 448 case reports were missing race and/or ethnicity, and among men, 179 cases reports were missing race and/or 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, 1992-2009**

Year	Women		Men		Total	
	Cases	Incidence per 100,000 population	Cases	Incidence per 100,000 population	Cases	Incidence per 100,000 population
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	3,901	418	1,845	199	5,751	309
2008	3,971	420	2,031	216	6,002	319
2009	3,899	412	1,908	203	5,807	308

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

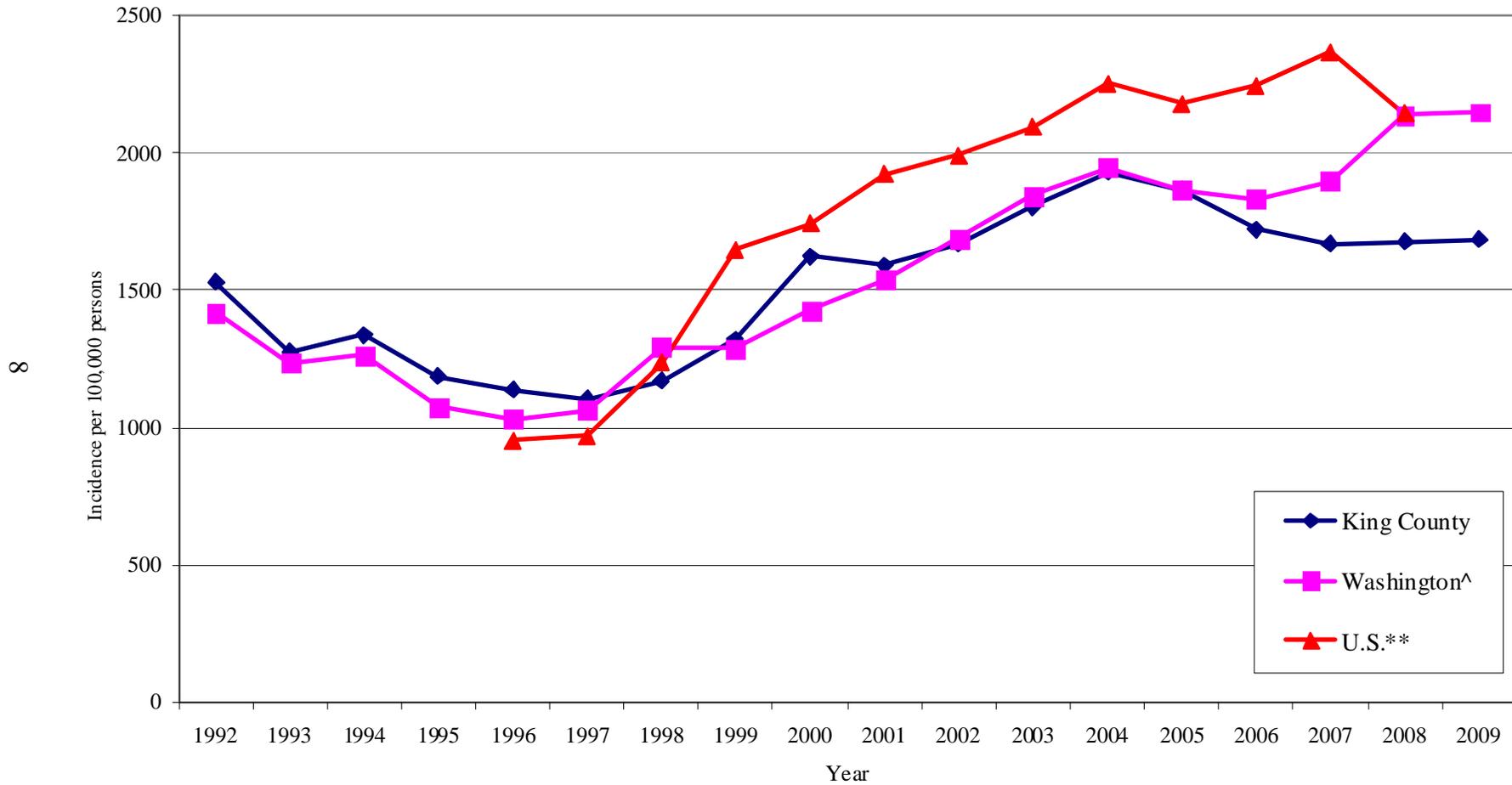
Table 4: Number of Reported Chlamydia Cases and Incidence among Men and Women ages 15-29,* King County, WA, 1992-2009

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	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	3,335	1,671	1,179	570	4,514	1,111
2008	3,407	1,677	1,353	642	4,760	1,150
2009	3,424	1,685	1,289	612	4,713	1,139

* 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*, 1992-2009
King County, Washington State,^ and U.S.**

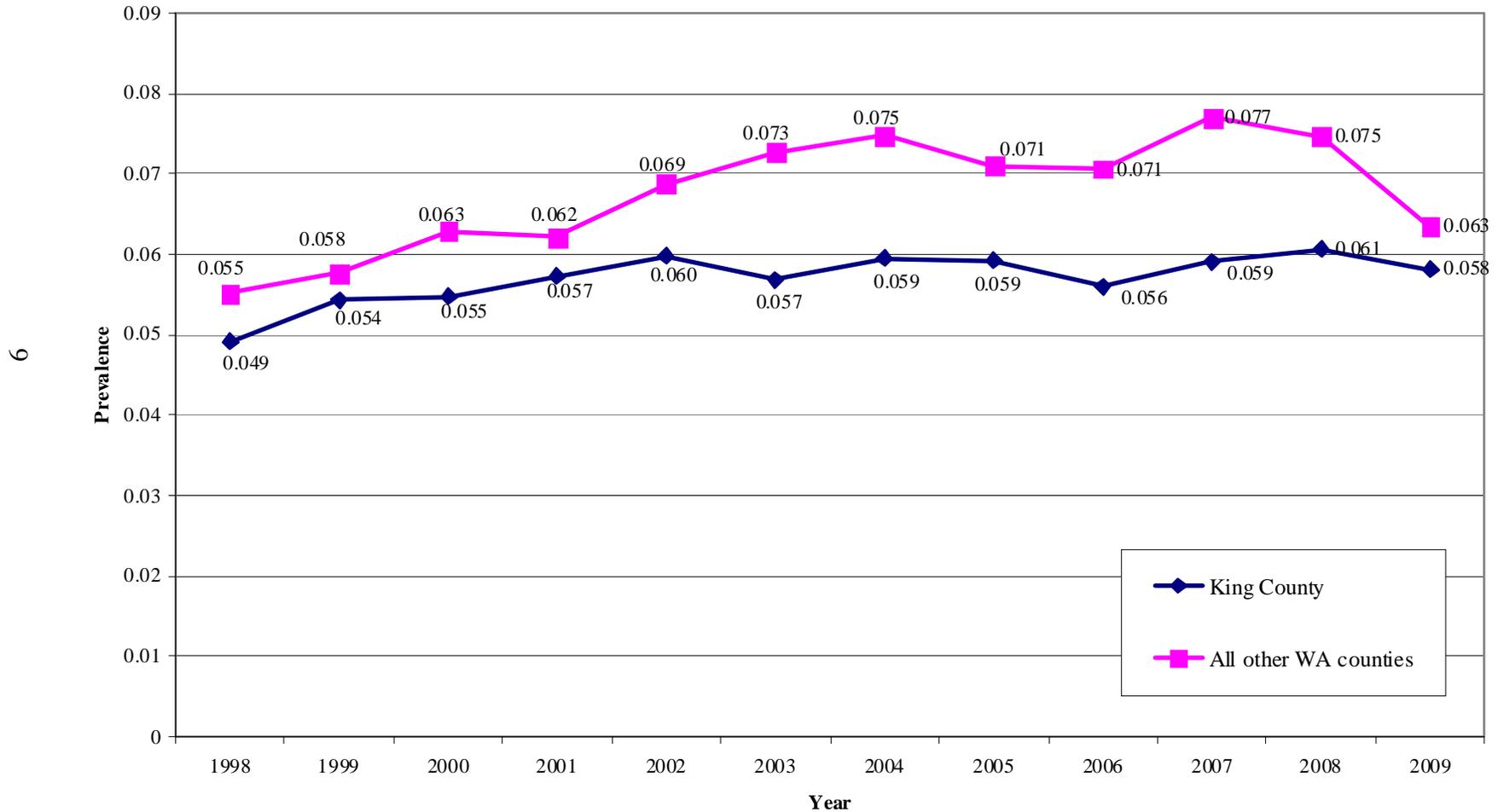


* Cases with unknown age were distributed according to annual age distributions among cases with known age and included in age-specific rates.

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

^ Washington State rates exclude King County.

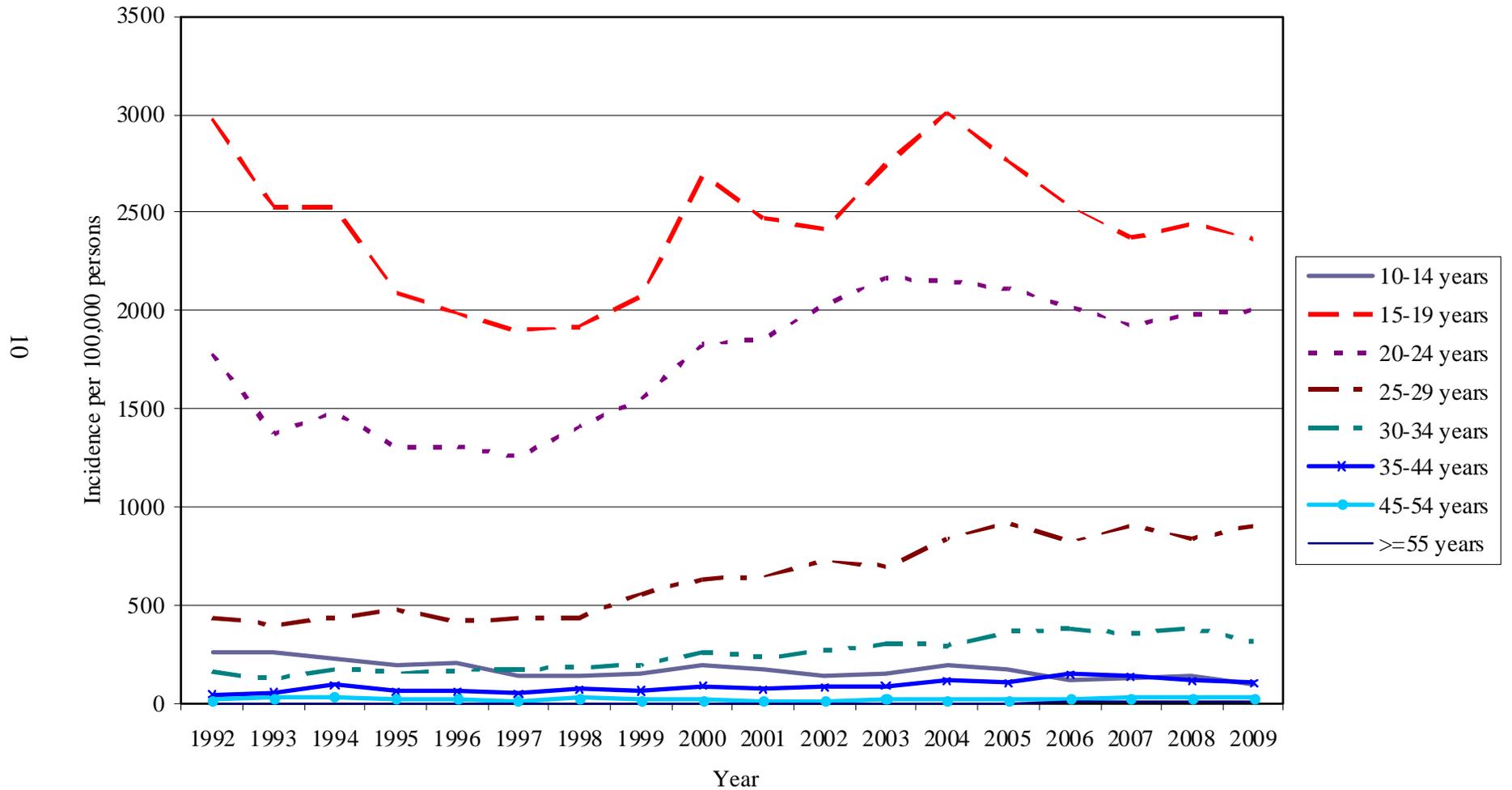
Figure 2: Chlamydia Prevalence among Women ages 15-29 tested in King County and All Other Washington Counties* Infertility Prevention Project, 1998-2009**



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

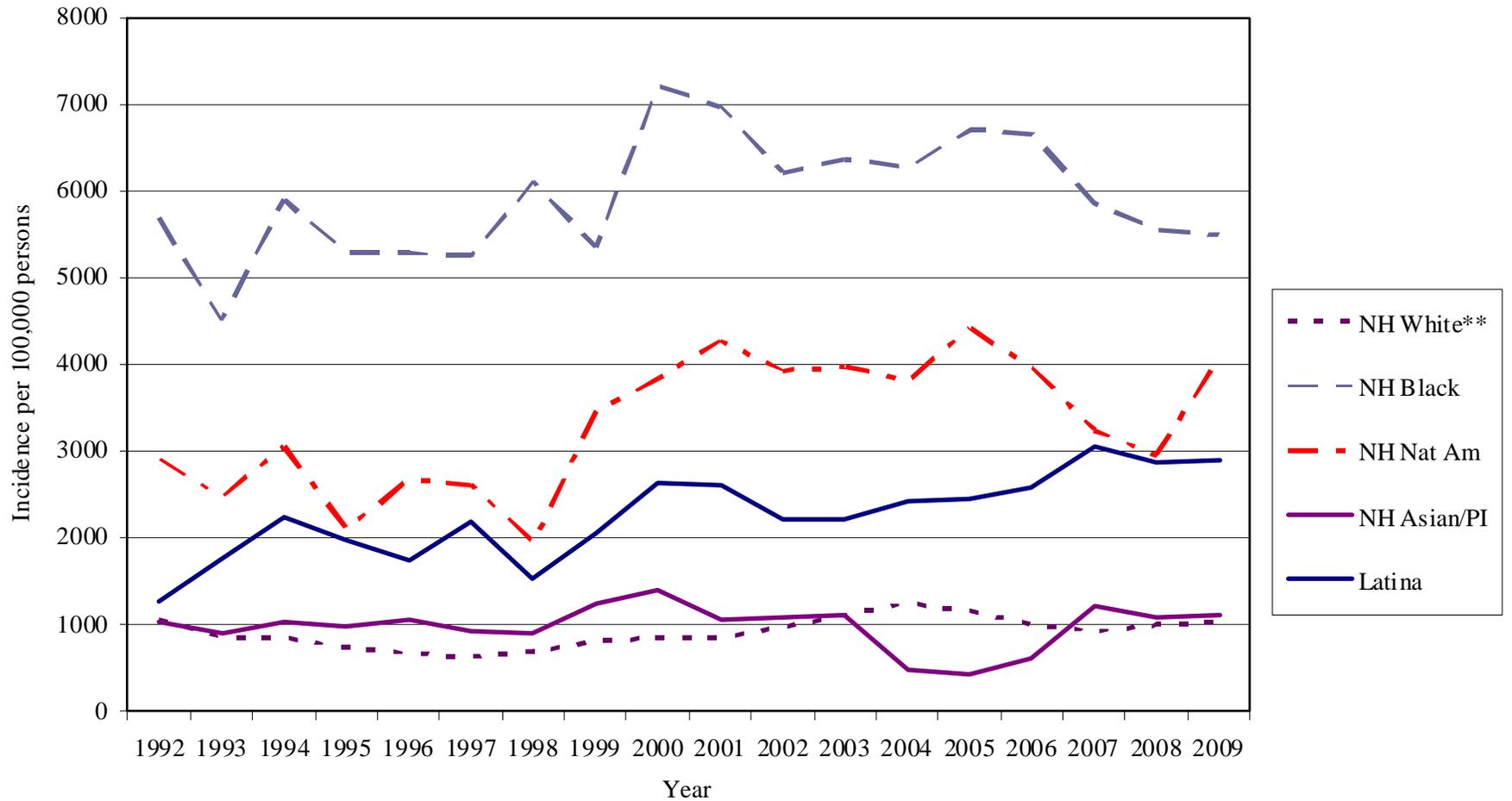
** The population tested through the IPP has changed over time; these changes, in addition to true changes in positivity, may influence trends in prevalence over time.

**Figure 3: Reported Chlamydial Infection by Age* Among Women
King County, WA, 1992-2009**



* 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, 1992-2009**



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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 2009, there were 1,084 reported cases of gonorrhea in King County, resulting in an overall incidence of 59 per 100,000 persons (Table 5). This represents a 57% decrease in the incidence of reported gonorrhea in King County since 2006 (134.5 per 100,000 in 2006). However, counter to observed declines in 2007-2008 among both men and women, in 2009 a decline in incidence was observed only among women (Table 7, Figure 5). Among women, 286 cases of gonorrhea were reported in 2009, for an incidence of 30.2 per 100,000, the lowest incidence among women since the implementation of electronic case report records in 1992. Gonorrhea incidence was stable among men in 2009 (796 cases, 85.0 per 100,00, Table 7); however, this masks a decline in the incidence of gonorrhea among heterosexual men and a sharp increase among MSM (Figure 5). While gonorrhea incidence fell by 38% (from 65.2 to 40.1 per 100,000) in heterosexuals in 2009, incidence increased among MSM from 709.6 in 2008 to 1105.7 in 2009 (Figure 4).

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.

The incidence of gonorrhea was highest in the 15-19 and 20-24 year age groups among women in 2009, while in men incidence was highest in the

20-24 and 25-29 year-old age groups (Table 6). Similar to historical trends observed both nationally and in King County, large racial disparities in gonorrhea incidence were observed in 2009, 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). Women aged 15-29 years account for most of the gonorrhea morbidity among women in King County. In this group, incidence of gonorrhea has fallen steeply from 2006 to 2009 (Figure 5). Among women in Washington state counties outside of King County, gonorrhea incidence fell in both 2008 and 2009 after a period of stable incidence in 2006 and 2007. Since 2007, rates among 15-29 year old women in King County have been essentially the same as rates observed among women in this age group in the rest of Washington state, ending a long pattern of increased incidence among King County women when compared to women in other counties. Nationally, incidence among women in this age group has been stable since 1998 (Figure 5). National data were not available for 2009 at the time this report was prepared.

Figures 7 and 8 include women only to better illustrate trends in gonorrhea among heterosexuals. Historically, gonorrhea incidence in women has been highest among 15-19 and 20-24 year olds. This pattern continued in 2009. Incidence in both groups declined in 2009, but the rate of the decline was sharpest in 15-19 year olds, resulting in essentially the same incidence for both groups in 2009 (Figure 7). Reported gonorrhea incidence fell substantially in most age groups from 2008 to 2009 (Figure 7). The only group in which incidence did not fall was older women (55 years of age and older); however, this group accounted for very few gonorrhea cases in 2009. Similarly, among women ages 15-29 incidence fell in most race/ethnicity groups from 2008 to 2009 (Figure 8). The exception was among Latinas, for whom reported gonorrhea incidence was stable from 2008 to 2009. While

incidence fell by approximately 30% among African American women, incidence declined 50% among white women, yielding incidence among young African American women 17.6 times that of white women of the same age in 2009.

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 205 cases in 2008 and 286 cases in 2009 (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 from 2008 to 2009, while the number of cases among heterosexual men declined, a finding that further illustrates the divergent trends evident in the case report data (Figure 18).

Table 5: Number of Reported Gonorrhea Cases and Gonorrhea Incidence, King County, WA, 2009

	Cases	Incidence per 100,000 population
Sex		
Women	286	30
Men	798	85
Total cases	1,084	58

Table 6: Number of Reported Gonorrhea Cases and Incidence, in Men and Women, by Age and Race, King County, WA, 2009

	Women (N=286)		Men (N=798)	
	Cases	Incidence per 100,000 population	Cases	Incidence per 100,000 population
Race/ethnicity* ^				
White, Non-Hispanic	72	12	377	60
Black, Non-Hispanic	118	225	214	371
Nat Am, Non-Hispanic	5	69	2	27
Asian/PI, Non-Hispanic	22	18	43	36
Hispanic	27	51	85	131
Other	11		5	
Multiple	1		18	
Unknown	30		54	
Age*				
0-9 years	0	0	0	0
10-14 years	7	13	0	0
15-19 years	83	146	55	93
20-24 years	106	154	184	266
25-29 years	40	52	163	198
30-34 years	20	29	99	133
35-44 years	19	14	183	125
45-55 years	8	5	96	65
>=56 years	3	1	18	9
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, 30 case reports were missing race and/or ethnicity, and among men, 54 cases 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, 1992-2009**

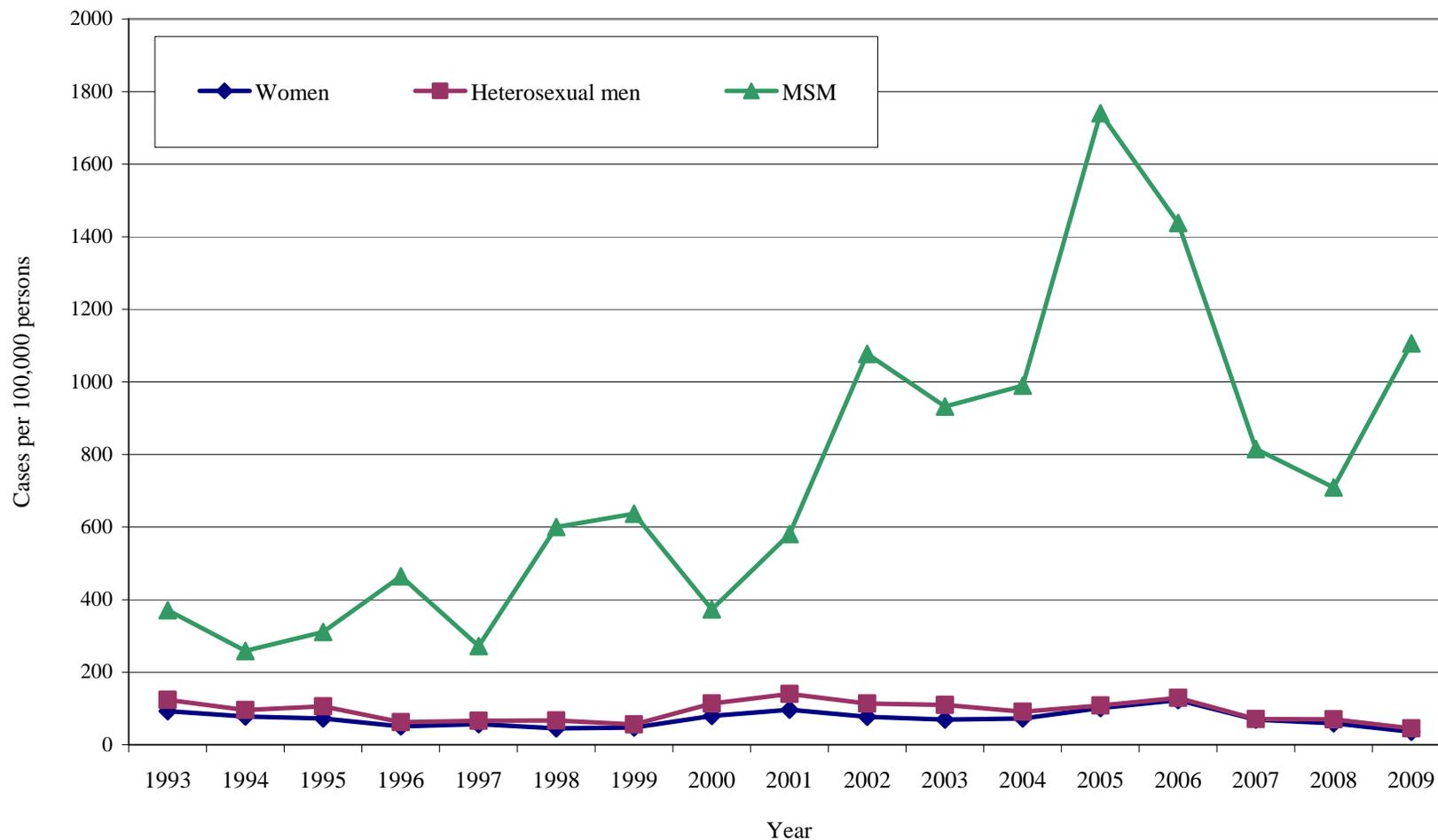
Year	Women		Men		Total	
	Cases	Incidence per 100,000	Cases	Incidence per 100,000	Cases	Incidence per 100,000
1992	900	112.6	1052	134.8	1952	123.8
1993	649	80.0	878	110.5	1527	95.1
1994	543	66.2	675	83.9	1218	74.9
1995	516	62.3	762	93.6	1278	77.9
1996	354	42.4	559	67.9	913	55.0
1997	395	46.7	519	62.2	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	286	30.2	798	85	1084	57.5

**Table 8: Number of Reported Gonorrhea Cases and Incidence
Among Men and Women ages 15-29,* King County, WA, 1992-2009**

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	229	112.7	402	190.8	631	152.4

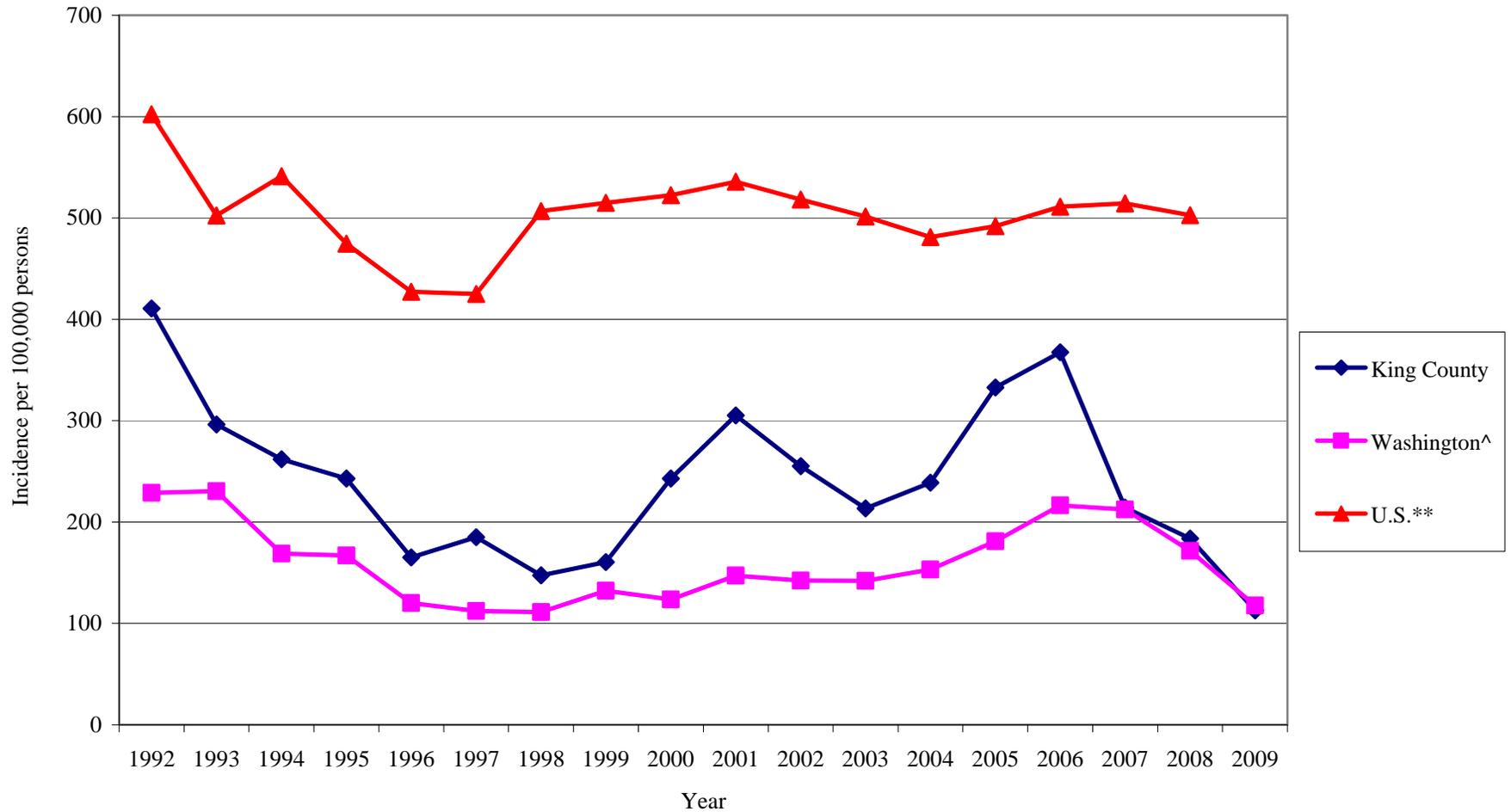
* Cases with unknown age were included age specific counts and rates after being distributed among age categories based on the distribution of cases with known age.

**Figure 5: Incidence of Reported Gonorrhea among Women, Heterosexual Men, and MSM,*
King County, WA, 1992-2009**



* 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,* 1992-2009
King County, Washington State,^ and U.S.**

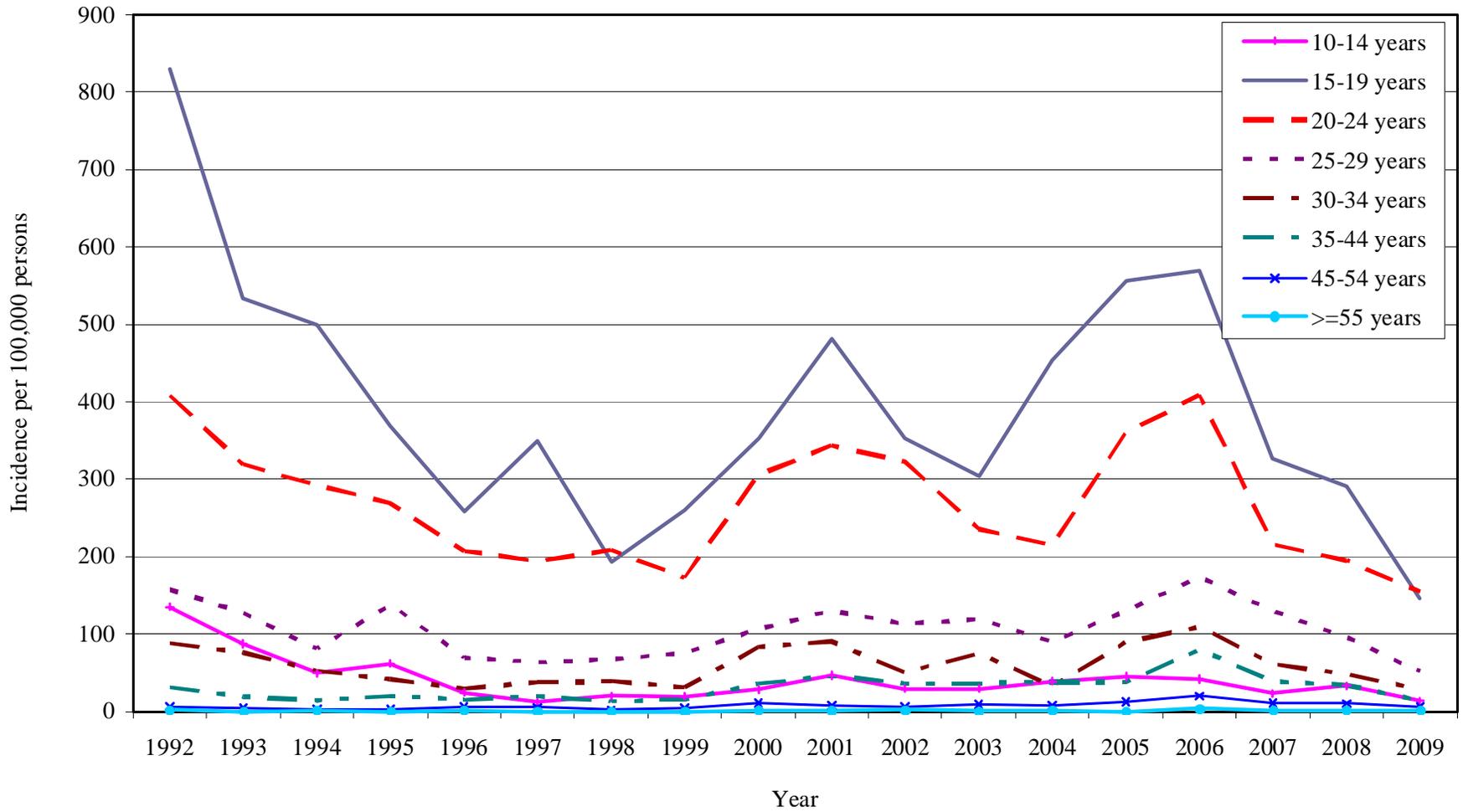


* Cases with unknown age were distributed according to annual age distributions among cases with known age and included in age-specific rates.

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

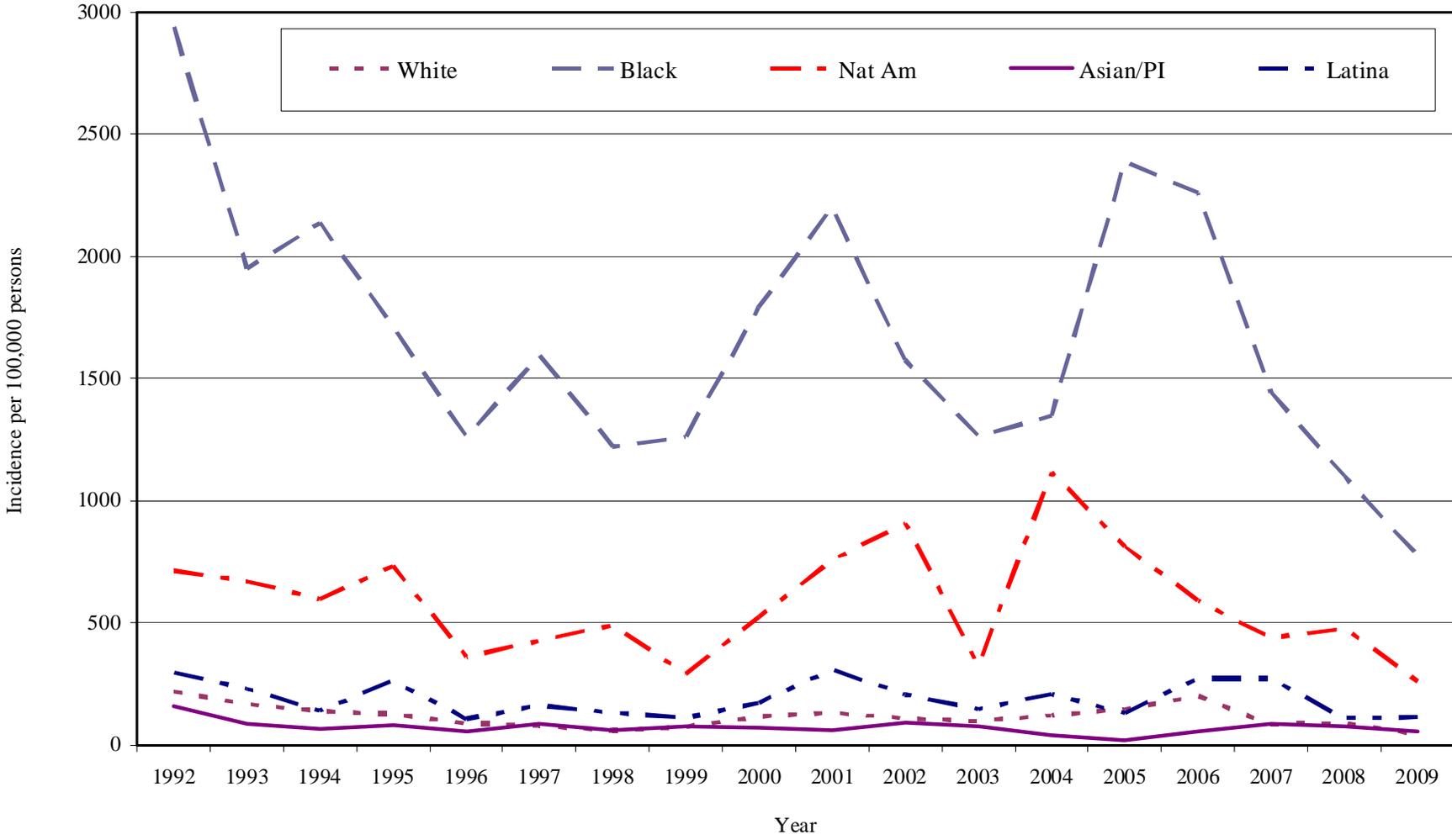
^ Washington State rates exclude King County.

**Figure 7: Gonorrhea Incidence by Age* Among Women
King County, WA, 1992-2009**



* 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, 1992-2009**



* 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 fell somewhat from 204 cases in 2008 to 160 in 2009 (Tables 9 and 12). Of the 2009 cases, 145 (90.6%) were among MSM (Table 10, Figure 10). The overall 2009 incidence of early syphilis among King County residents was 8 per 100,000 persons (Table 9). The early syphilis incidence among MSM was over 830 times greater (341.8 per 100,000) than that among heterosexual men (0.4 per 100,000) [Table 13] in 2009.

HIV-positive MSM have been disproportionately affected by the epidemic of syphilis among MSM since it began in 1997. In 2009, the estimated incidence of early syphilis among HIV-positive MSM was 1,669 per 100,000 men, compared to 134 per 100,000 among HIV-negative MSM (Figure 12). Since 2004, this disparity between HIV-positive and negative MSM has grown, primarily due to steadily increasing incidence among HIV-positive MSM during that time. However, in 2009, incidence in both groups fell. 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 8 of 160 cases occurring among heterosexual men (3 cases) and women (5 cases) (Tables 10, 12, and 13). The percentage of early syphilis cases with primary, secondary and early latent syphilis, with HIV, and who reported engaging in a variety of risk behaviors are presented in Table 10, both for heterosexuals and for MSM. In 2009, 62% of MSM syphilis cases

were HIV positive. While the percentage of MSM cases reporting use of bathhouses to meet sex partners has remained roughly stable over time (33% in 2009), the percentage reporting using the Internet to find sex partners dropped to 27% in 2009 from 48% in 2008 (Table 10).

Figure 13 displays the reason for visit among MSM early syphilis cases from 1993-2009. Heterosexuals are excluded from this figure because of the small number of cases among heterosexuals occurring during this period. In 2009, 71% of MSM cases were diagnosed after seeking care for symptoms. The proportion of cases diagnosed after seeking care for symptoms had been decreasing in recent years, while the proportion diagnosed via routine care and through partner notification efforts had increased (Figure 13). In 2009 this trend was reversed, with the proportion of syphilis cases diagnosed as the result of symptoms increasing, and the proportion diagnosed via routine care and partner notification decreasing (Figure 13). There was a decline in the number of cases of early latent syphilis concurrent with this decline in cases identified in persons without symptoms. (Early latent syphilis is usually diagnosed through screening.) The reasons for this shift in syphilis epidemiology is uncertain and under investigation.

Figure 14 displays the reporting source for all cases of syphilis from 1997-2009. 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). Since 1998, "other" providers have reported more than half of the early syphilis cases each year (82 cases, 51% in 2009). The Public Health STD Clinic reported 57 (36%) new early syphilis cases in 2009. 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 2008 accounted for less than 6% of cases combined.

**Table 9: Reported Cases and Incidence of Early Syphilis
King County, WA, 2009**

		Cases	Percent	Incidence per 100,000 population
Sex				
	Men	155	97	17
	Women	5	3	0.5
Total cases		160		8

**Table 10: HIV Status and Risk Behaviors among Syphilis Cases
By Sexual Orientation, King County, WA, 2009**

		MSM* (N=145)		Heterosexual Men and Women (N=8)	
		Number	Percent	Number	Percent
Stage	Primary	32	22%	0	0%
	Secondary	71	49%	6	75%
	Early latent	42	29%	2	25%
HIV	Positive	83	57%	0	0%
	Negative	50	34%	7	88%
	Unknown	12	8%	1	13%
Methamphetamine Use					
	Yes	26	18%	0	0%
	No	109	75%	7	88%
	Unknown	10	7%	1	13%
Anonymous sex partners during infectious period					
	Yes	94	65%	3	38%
	No	21	14%	1	13%
	Unknown	30	21%	4	50%
Partners met in bathhouses					
	Yes	48	33%	0	0%
	No	87	60%	8	100%
	Unknown	10	7%	0	0%
Internet use to meet partners					
	Yes	39	27%	0	0%
	No	96	66%	8	100%
	Unknown	10	7%	0	0%
Has traded sex for money or drugs (sex worker)**					
	Yes	2	1%	2	40%
	No	131	90%	3	60%
	Unknown	12	8%	0	0%
Sex with a known sex worker^					
	Yes	5	3%	0	0%
	No	127	88%	2	67%
	Unknown	13	9%	1	33%
Reason for Visit					
	Routine exam	31	21%	1	13%
	Symptoms	103	71%	5	63%
	Exposed	11	8%	1	13%
	None/other	0	0%	1	13%

*MSM: all men who acknowledged sex with a man. These data exclude 7 men for whom gender of sex partners is unknown

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

**Table 11: Total and Anonymous Sex Partners Reported by Syphilis Cases
By Gender and Sexual Orientation
King County, WA, 2009**

	MSM N=141*			Heterosexual Men and Women N=7		
	Total	Mean	Median	Total	Mean	Median
Total sex partners during infectious period	1,113	7.7	3	21	2.6	2.5
Anonymous sex partners* during infectious period	717	5.1	1	9	1.3	1

* Four MSM and 1 heterosexual were missing information on number of sex partners

**Table 12: Number of Reported Early Syphilis Cases and Incidence among Men and Women
King County, WA, 1992-2009**

Year	Women		Men		Total	
	Cases	Incidence per 100,000 population	Cases	Incidence per 100,000 population	Cases	Incidence per 100,000 population
1992	26	3	42	5	68	4
1993	21	3	15	2	36	2
1994	6	1	12	1	18	1
1995	1	0	4	0	5	0
1996	0	0	2	0	2	0
1997	10	1	10	1	20	1
1998	1	0	37	4	38	2
1999	3	0	67	8	70	4
2000	4	0	67	8	71	4
2001	1	0	51	6	52	3
2002	0	0	64	7	64	4
2003	2	0	80	9	82	5
2004	7	1	159	18	166	9
2005	7	1	186	21	193	11
2006	2	0	183	20	185	10
2007	1	0	193	21	194	10
2008	4	0	200	21	204	11
2009	5	1	155	17	160	8

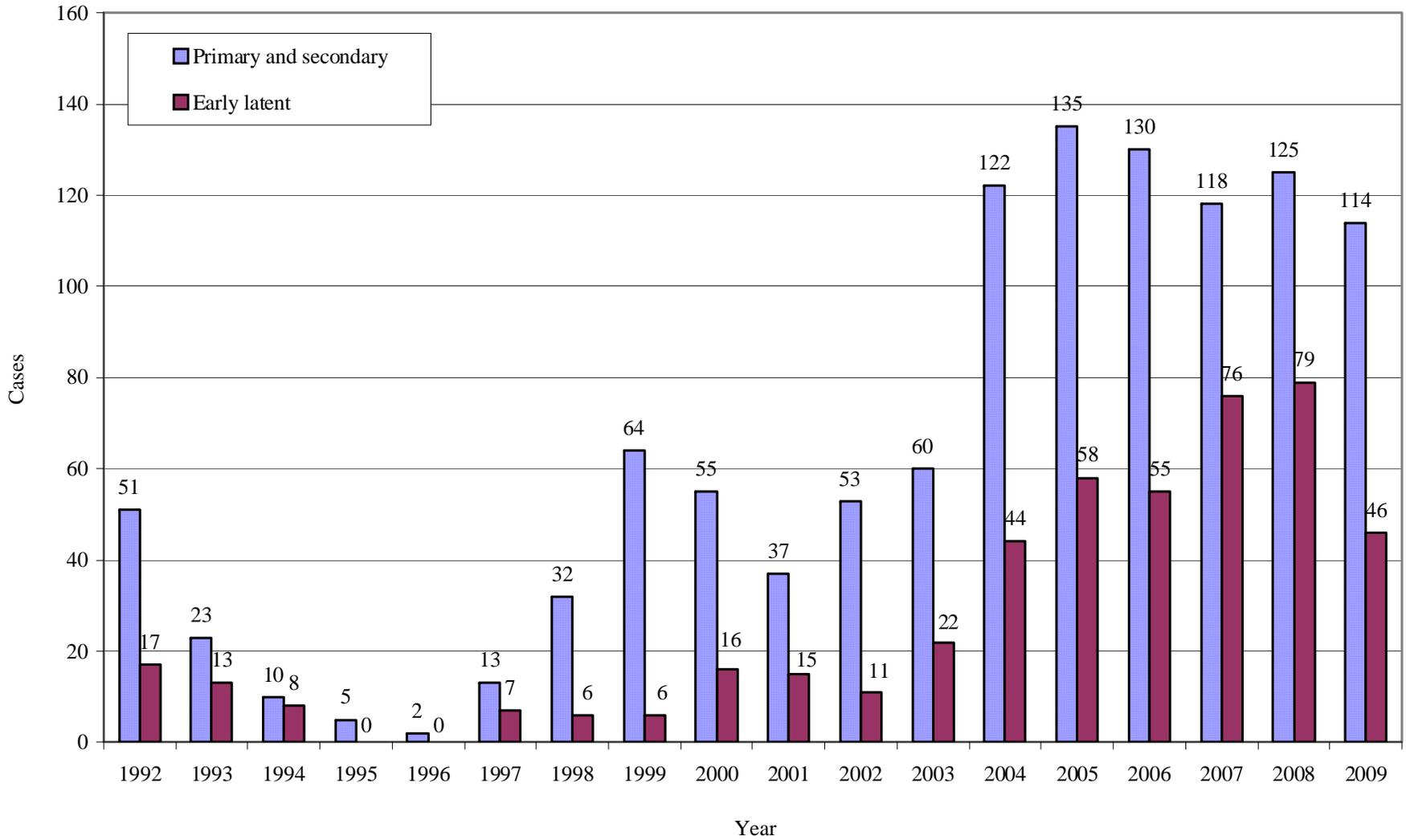
Table 13: Number of Reported Early Syphilis Cases and Incidence Among MSM and Heterosexual Men, King County, WA, 1992-2009

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	342	3	0.4

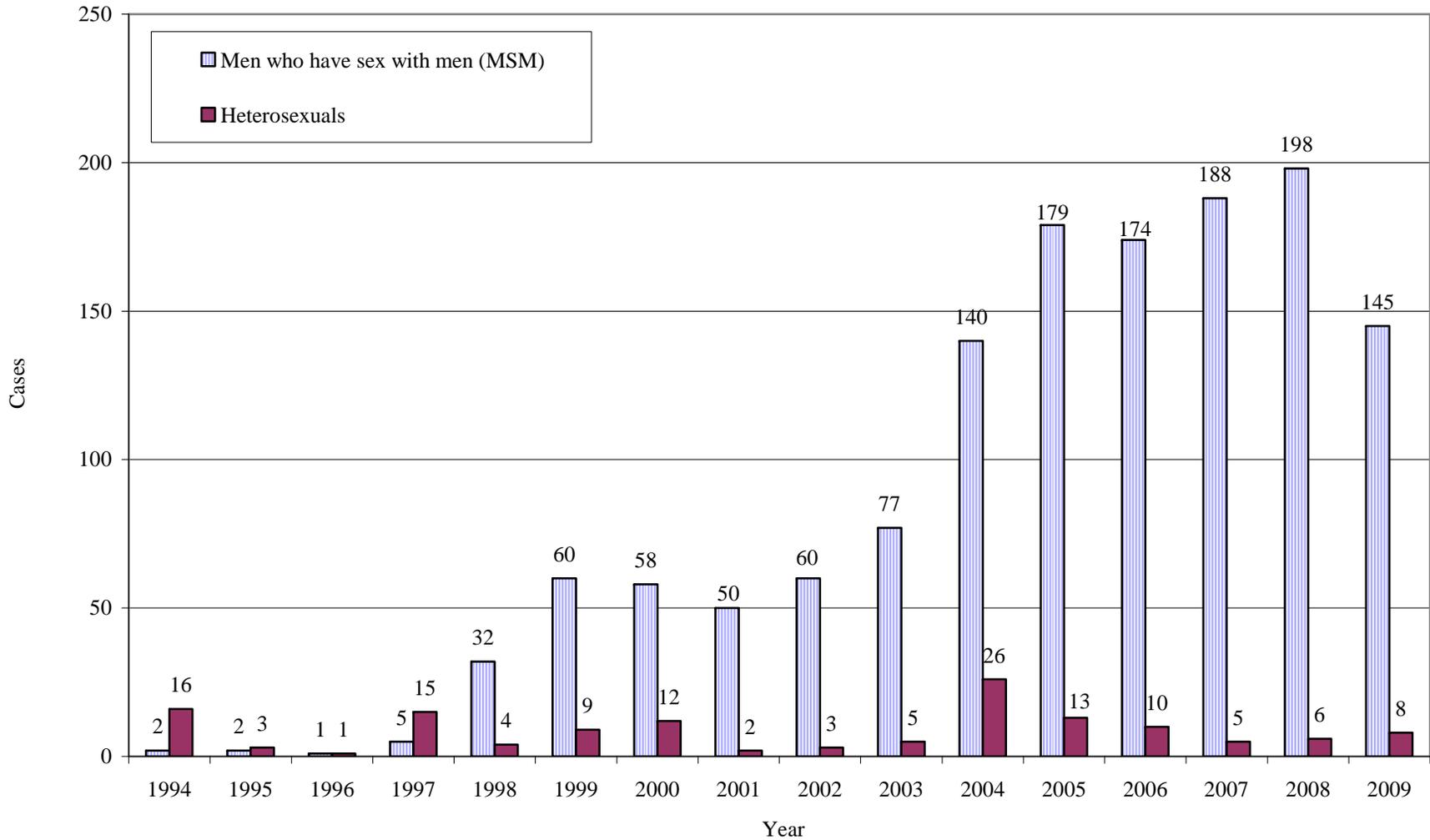
* Men were missing sexual orientation data in the following years (numbers missing are included in parantheses): 1992 (42), 1993 (9), 1998 (2), 1999 (1), 2000 (1), and 2002 (1), 2005(1), 2006(1), 2007(1), 2009 (7)

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

**Figure 9: Reported Cases of Primary and Secondary vs. Early Latent Syphilis
King County, WA 1992-2009**

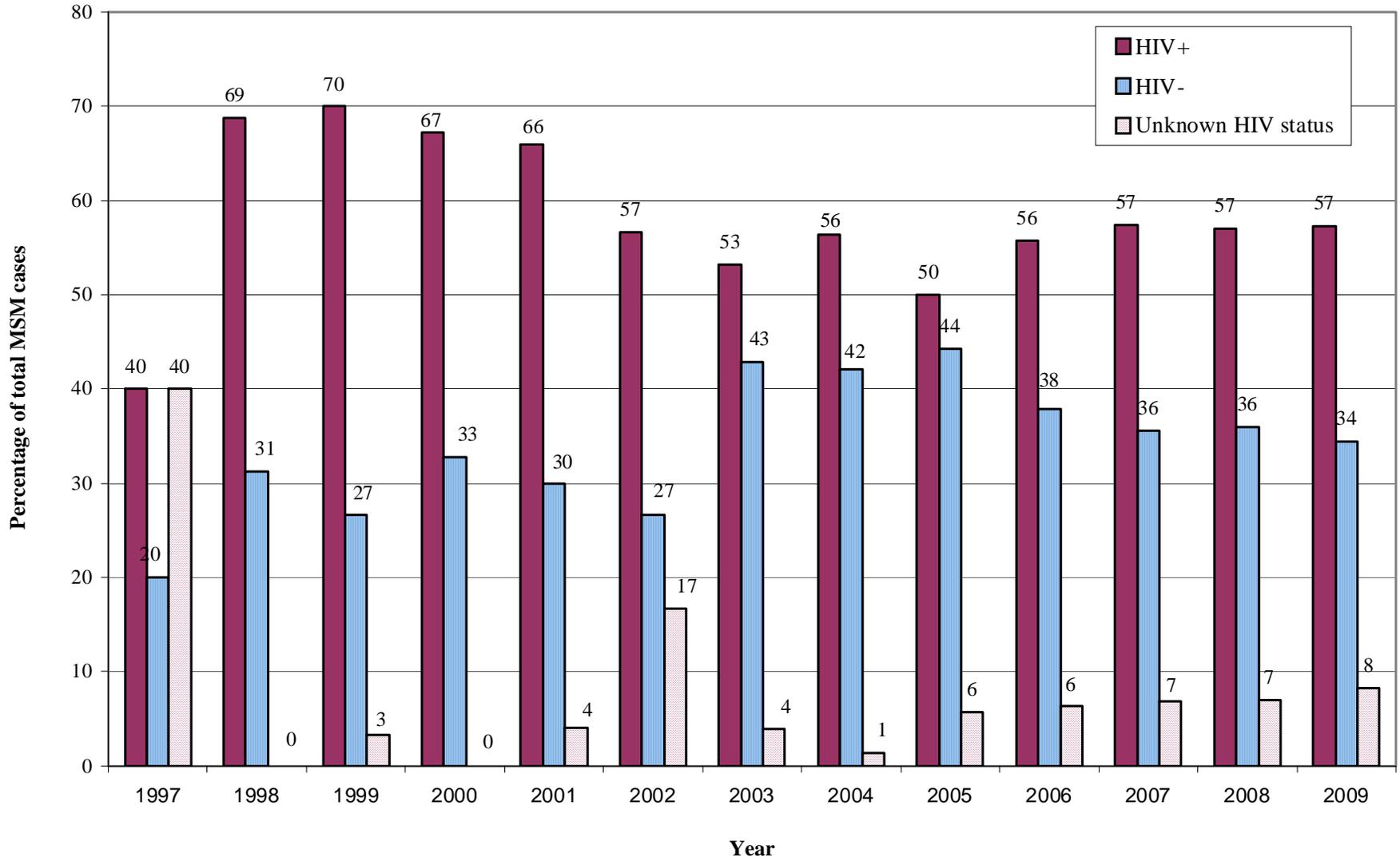


**Figure 10: Reported Cases of Early Syphilis by Sexual Orientation*,
King County, WA, 1994-2009**

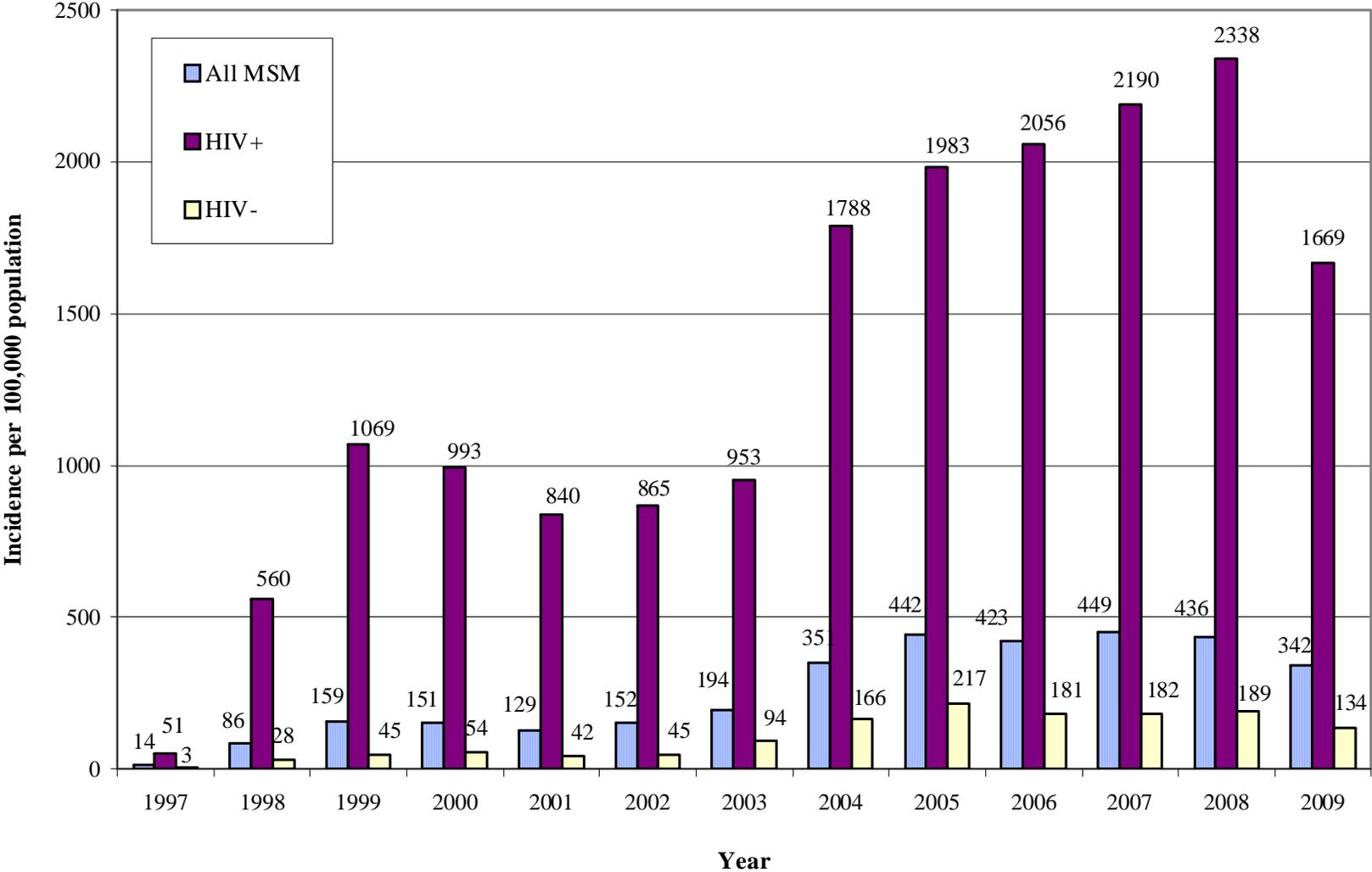


*Data on sexual orientation were missing for men in the following years: 2 men in 1998, and 1 man in 1999, 2000, 2002, 2005, 2006, and 2007, and 7 men in 2009.

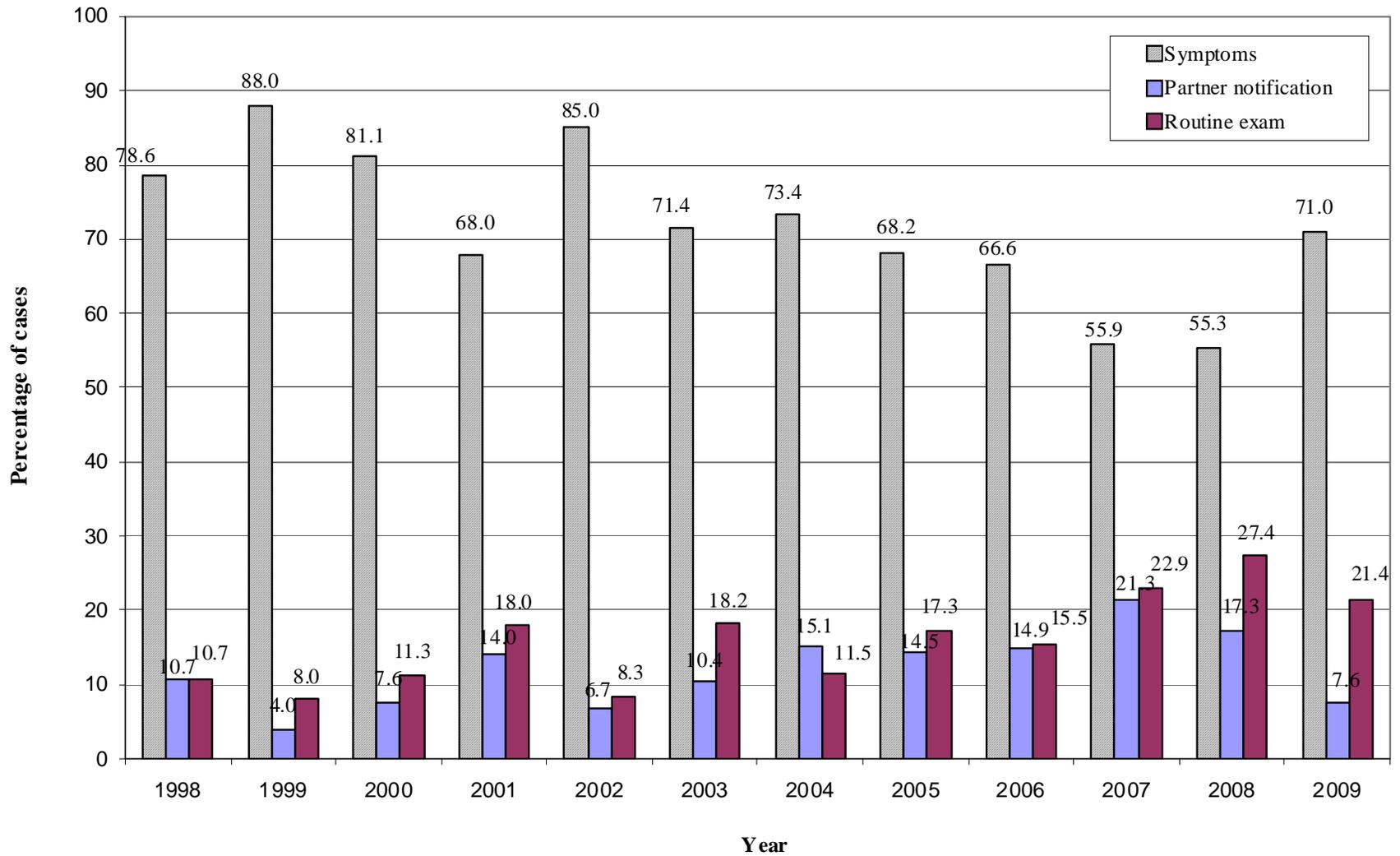
**Figure 11: Percent of Reported Early Syphilis Cases Among MSM by HIV Status
King County, WA, 1997-2009**



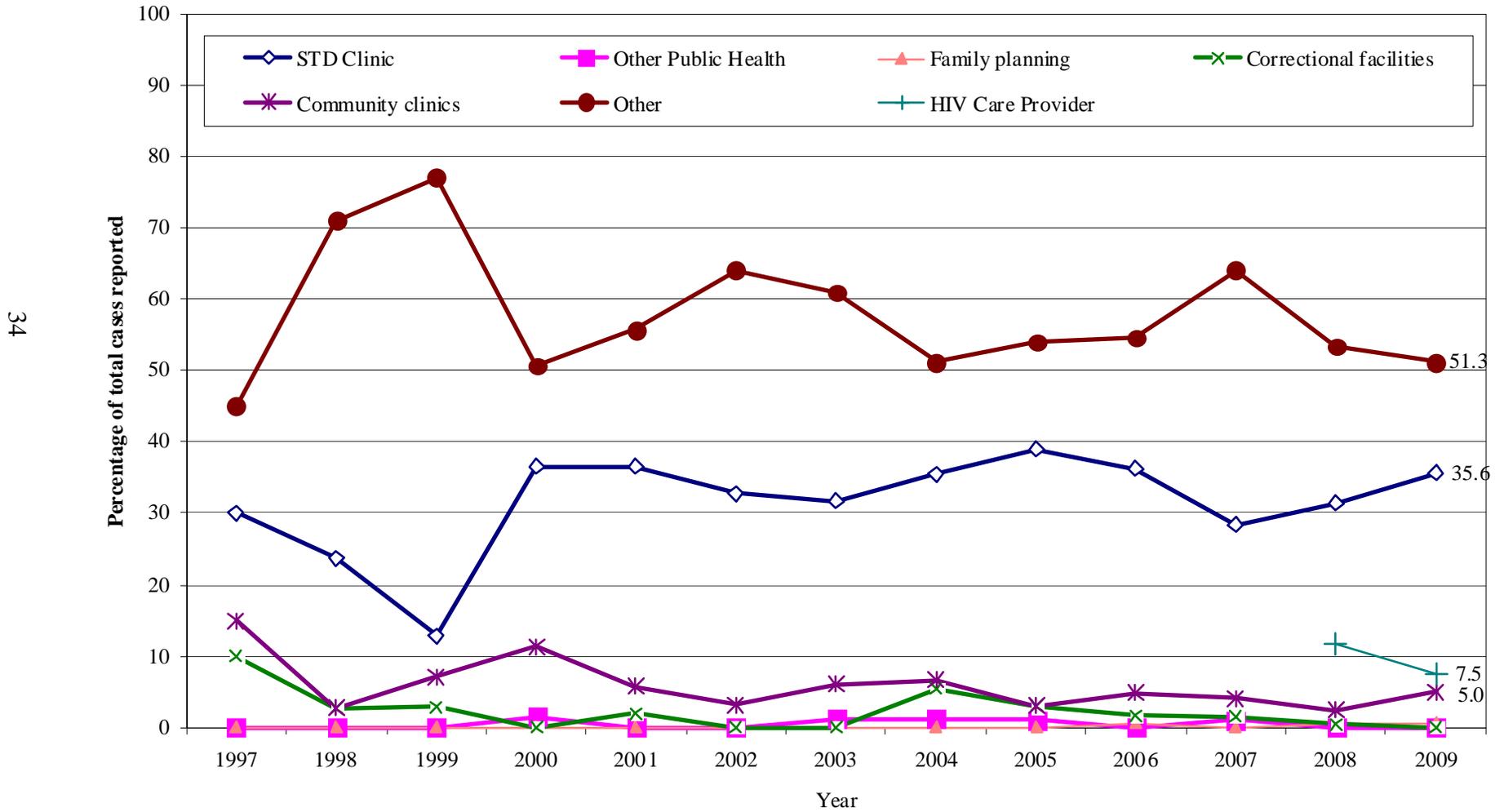
**Figure 12: Early Syphilis Incidence Among MSM by HIV Status
King County, WA, 1997-2009**



**Figure 13: Reason for Visit among MSM reported with Early Syphilis
King County, WA, 1993-2009**



**Figure 14: Reporting Provider for Reported Early Syphilis Cases,
King County, WA 1992-2009**



Public Health – Seattle & King County STD Clinic

In 2009, 7,949 patients made 12,284 visits to the Public Health STD Clinic. Of these, 11,248 visits were made by patients seeking STD Clinic services, while 1,036 visits were made by patients seeking an HIV test only. Patients seeking only HIV testing were seen by disease intervention specialists (DIS), public health staff who perform HIV testing and counseling among other functions (Table 14). 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 2009, heterosexual men made 40% of the visits among patients seeking STD Clinic services, while MSM and women accounted for 26% and 32% of these visits respectively. Among clients seen by DIS, 36% of visits were made by heterosexual men, 41% by MSM, and 22% by women. Among patients seeking STD Clinic services, the number of visits made by MSM increased in 2009, while the number of visits made by women and heterosexual men decreased (Table 18, Figure 15). Among unduplicated patients, only the number of MSM patients increased from 2008 to 2009 (Table 19, Figure 16). The clinic provided services to MSM during more visits in 2009 (3,605) than in any previous year for which we have data (Table 18). This increase in the number of MSM seen in the clinic represents the continuation in a long-term trend in which the clinic's effort is increasingly focused on MSM.

Tables 15-17 display the race/ethnicity (race groups exclude Latinos) and age distribution for STD Clinic patients in 2009. Of note, 21% of patients seen in the clinic and 26% of heterosexual patients in the clinic were African American. Only 6% of all King County residents are African American. Eighty-one percent of patients in 2009 were uninsured.

The Public Health STD Clinic diagnosed a substantial proportion of all reportable STDs diagnosed in King County in 2009. This included 57 (36%) of the 160 cases of early syphilis, 358 (33%) of the 1,084 cases of gonorrhea, 71 (22%) of the 324 cases of HIV, and 493 (8%) of the 5,807 cases of chlamydial infection. As in past years, the Public Health STD Clinic diagnosed more cases of HIV in 2009 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.

Similar to patterns observed for gonorrhea overall in King County in 2009 (Table 7), the total number of cases of gonorrhea diagnosed in the Public Health STD Clinic remained stable from 2008 (371 cases) to 2009 (373 cases), masking a decrease in gonorrhea cases among heterosexual men and women, and a concurrent increase in gonorrhea diagnoses 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. 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. Figure 18 demonstrates that while the number of MSM treated for symptomatic gonococcal urethritis remains higher than in the early and mid-1990s, the number has varied somewhat over the last decade, peaking in 2005, declining from 2005 to 2009, and increasing somewhat in the last year.

In 2009, the STD Clinic diagnosed 498 cases of chlamydial infection (Figure 20), somewhat fewer diagnoses than in 2008 (531 cases). The overall number of chlamydia diagnoses has dropped steadily for the past four years, driven for the most part by a decline in chlamydial infection among female clinic patients. In contrast, while the prevalence of chlamydial infection diagnoses among asymptomatic women declined from 2004 to 2008, this prevalence rose somewhat in 2009 (Figure 22). The number of diagnoses of chlamydial infection among MSM remained relatively stable over this period of time. While diagnoses among heterosexual men were roughly stable from 2005 to 2008, diagnoses fell somewhat from 2008 to 2009, though the number of heterosexual men with symptomatic chlamydial urethritis remained stable (Figures 20 and 21). There were 64 early syphilis diagnoses in 2009 among individuals for whom the gender of sex partners could be determined in the STD Clinic (Figure 23); 94% of these occurred among MSM, reflective of an ongoing syphilis epidemic among MSM in King County (Figure 10). Figure 24 displays new HIV diagnoses from both the STD Clinic (1993-2009) and the HAP program (2000-2009). 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.

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 similar number of trichomoniasis diagnoses in 2009 (116) and 2008 (124, Figure 25). Figure 26 also displays trichomoniasis prevalence, calculated as the number of women with a positive culture or wet mount divided by the total number of these tests performed each year. Trichomoniasis prevalence also dropped slightly in 2009, after increasing for several years. The number of

women diagnosed with bacterial vaginosis and the prevalence of bacterial vaginosis among women in the clinic was stable between 2008 and 2009, and has somewhat declined since 2001 (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.)

Both the number of initial and recurrent genital herpes diagnoses have remained relatively unchanged since 2006 (130 initial genital herpes diagnoses and 170 recurrent diagnoses in 2009, Figures 27 and 28). However, similar to the pattern observed for gonorrhea diagnoses, the number of diagnoses of initial genital herpes decreased somewhat among women and heterosexual men, but increased among MSM from 2008 to 2009 (Figure 27). The majority of both initial and recurrent herpes diagnoses were in heterosexual men (34% and 60% of cases, respectively) followed by women (30% and 34%) and MSM (28% and 26% respectively, Figures 27 and 28). Among 1,851 asymptomatic patients tested for HSV-2 in 2009, there were 28 HSV-2 diagnoses among MSM, 71 among heterosexual men, and 58 in women (Figure 29). The prevalence of HSV-2 among tested MSM, heterosexual men, and women were 7%, 6%, 11%, respectively.

Table 14: Number of PHSKC STD Clinic Visits and Patients, 2009

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

	Women	Heterosexual Men	MSM*	Men with Unknown Sexual Orientation	Total
Visits	2981	4449	3605	213	11248
Patients (unduplicated visits)	1977	3207	2003	161	7348

(B) Clients seen for HIV tests only

	Women	Heterosexual Men	MSM*	Men with Unknown Sexual Orientation	Total
Visits	224	369	420	23	1036
Patients (unduplicated visits)	139	202	243	17	601

(C) Clients seen for all services

	Women	Heterosexual Men	MSM*	Men with Unknown Sexual Orientation	Total
Visits	3205	4818	4025	236	12284
Patients (unduplicated visits)	2116	3409	2246	178	7949

* 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 Public Health STD Clinic Patients, 2009

	Women		Heterosexual Men [^]		MSM* [^]		Total [^]	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
Race								
White	1119	(50.7)	2139	(56.1)	1594	(72.6)	4949	(59.0)
Black	572	(25.9)	994	(26.1)	153	(7.0)	1759	(21.0)
Native American	60	(2.7)	48	(1.3)	26	(1.2)	137	(1.6)
Asian	180	(8.1)	216	(5.7)	128	(5.8)	533	(6.4)
Multiple Race	98	(4.4)	88	(2.3)	50	(2.3)	241	(2.9)
Pacific Islander	32	(1.4)	20	(0.5)	24	(1.1)	76	(0.9)
Unknown	148	(6.7)	308	(8.1)	220	(10.0)	704	(8.4)
Age								
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 for follow-up visits, the associated new problem visit

[^] 170 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 16: Age and Race of Public Health STD Clinic Patients
Seen for Services Other than HIV Tests Only, 2009**

	Women		Heterosexual Men [^]		MSM* [^]		Total [^]	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
Race								
White	941	(47.6)	1812	(55.9)	1466	(72.9)	4285	(58.3)
Black	525	(26.6)	860	(26.5)	145	(7.2)	1560	(21.2)
Native American	64	(3.2)	37	(1.1)	14	(0.7)	116	(1.6)
Asian	168	(8.5)	142	(4.4)	109	(5.4)	425	(5.8)
Multiple Race	111	(5.6)	77	(2.4)	48	(2.4)	238	(3.2)
Pacific Islander	30	(1.5)	23	(0.7)	18	(0.9)	72	(8.9)
Unknown	138	(7.0)	293	(9.0)	211	(10.5)	653	(1.0)
Age								
10-14 years	183	(9.3)	72	(2.2)	77	(3.8)	336	(4.6)
15-19 years	493	(24.9)	556	(17.3)	336	(16.8)	1416	(19.3)
20-24 years	0	(0.0)	0	(0.0)	2	(0.1)	2	(0.0)
25-29 years	479	(24.2)	719	(22.4)	425	(21.2)	1652	(22.5)
30-34 years	280	(14.2)	513	(16.0)	286	(14.3)	1095	(14.9)
35-44 years	305	(15.4)	735	(22.9)	498	(24.9)	1582	(21.5)
45-55 years	181	(9.2)	416	(13.0)	272	(13.6)	893	(12.2)
>=56 years	49	(2.5)	194	(6.0)	107	(5.3)	363	(4.9)
Unknown	6	(0.3)	1	(0.0)	7	(0.0)	7	(0.1)

* 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

[^] 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 Public Health STD Clinic Patients Seen for HIV Tests Only, 2009

	Women		Heterosexual Men [^]		MSM* [^]		Total [^]	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
Race								
White	71	(51.1)	94	(46.3)	169	(69.5)	341	(56.8)
Black	39	(28.1)	64	(31.5)	12	(4.9)	118	(19.7)
Native American	1	(0.7)	1	(0.5)	2	(0.8)	4	(0.7)
Asian	12	(8.6)	18	(8.9)	13	(5.3)	44	(7.3)
Multiple Race	4	(2.9)	1	(0.5)	6	(2.5)	11	(1.8)
Pacific Islander	1	(0.7)	0	(0.0)	0	(0.0)	2	(0.3)
Unknown	11	(7.9)	25	(12.3)	41	(16.9)	80	(13.3)
Age								
10-14 years	0	(0.0)	6	(3.0)	0	(0.0)	6	(1.0)
15-19 years	7	(5.0)	11	(5.4)	8	(3.3)	28	(4.7)
20-24 years	24	(17.3)	18	(8.9)	29	(11.9)	74	(12.3)
25-29 years	33	(23.7)	31	(15.3)	50	(20.6)	115	(19.2)
30-34 years	23	(16.5)	28	(13.8)	31	(12.8)	83	(13.8)
35-44 years	34	(24.5)	49	(24.1)	65	(26.7)	152	(25.3)
45-55 years	11	(7.9)	38	(18.7)	45	(18.5)	96	(16.0)
>=56 years	7	(5.0)	22	(10.8)	15	(6.2)	45	(7.5)
Unknown	0	(0.0)	0	(0.0)	0	(0.0)	1	(0.2)

* 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

[^] 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 Public Health STD Clinic Visits, 1993-2009

	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

* In 1997, the Public Health STD Clinic eliminated its Saturday and evening clinic hours.

** Public Health's satellite Broadway STD Clinic was in operation from 1993-1998.

**Table 19: Number of Public Health STD Clinic Patients
(Unduplicated Visits per Year), 1993-2009**

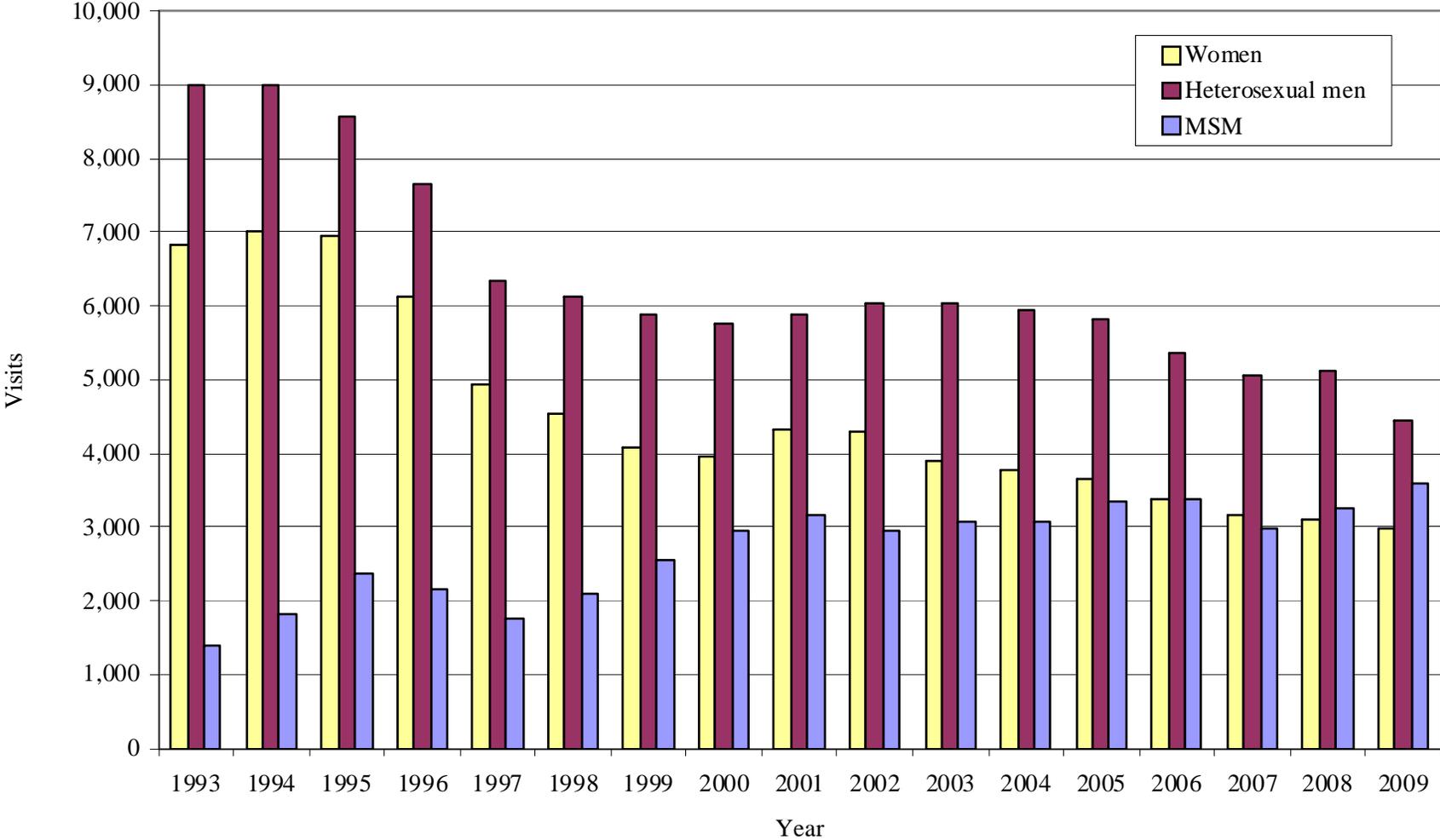
	Women	Heterosexual Men	MSM*	Men with Unknown Sexual Orientation	HIV Test Only Patients	Total
1993	3902	5639	843	443		10827
1994	3770	5406	891	398		10465
1995	3935	5383	1102	305		10725
1996	3629	5067	1161	184		10041
1997*	3000	4252	993	222		8467
1998	2830	4101	1099	198		8228
1999**	2503	3986	1236	150		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

* In 1997, the Public Health STD Clinic eliminated its Saturday and evening clinic hours.

** Public Health's satellite Broadway STD Clinic was in operation from 1993-1998.

Figure 15: Visits* to Public Health - Seattle and King County STD Clinics, 1993-2009**

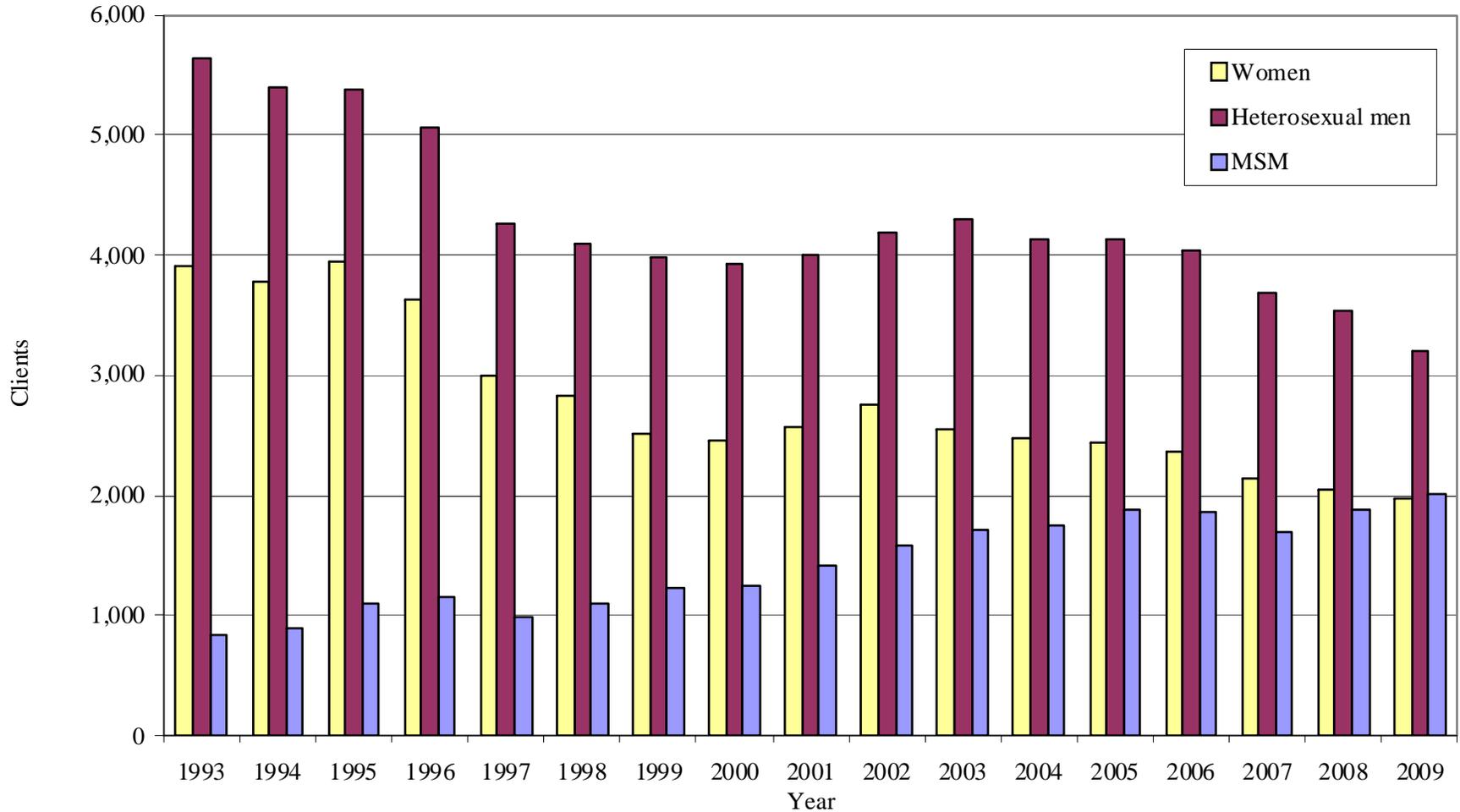
45



*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.

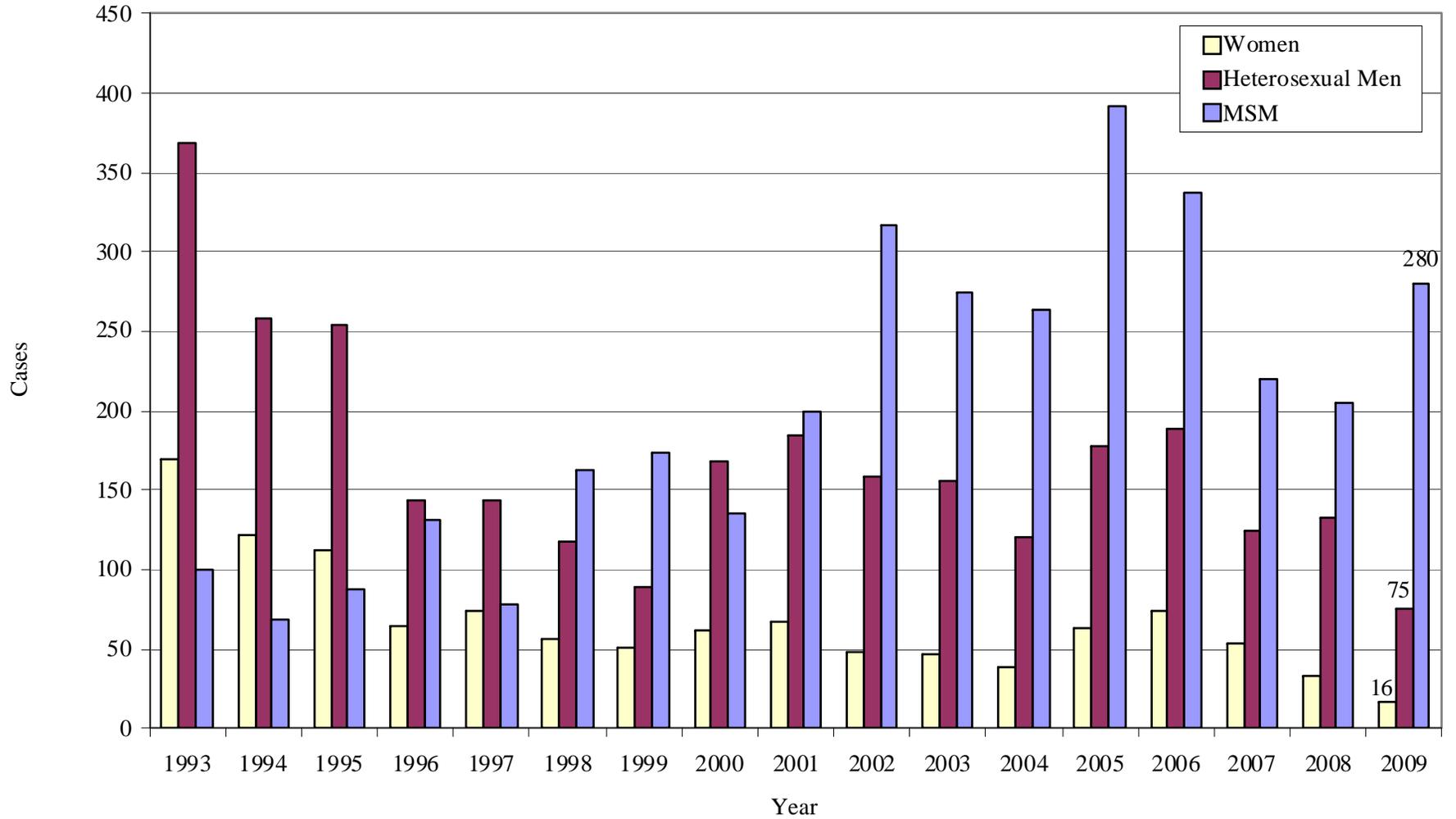
**Figure 16: Patients* Visiting the Public Health STD Clinics by Year
(Unduplicated Visits), 1993-2009**



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

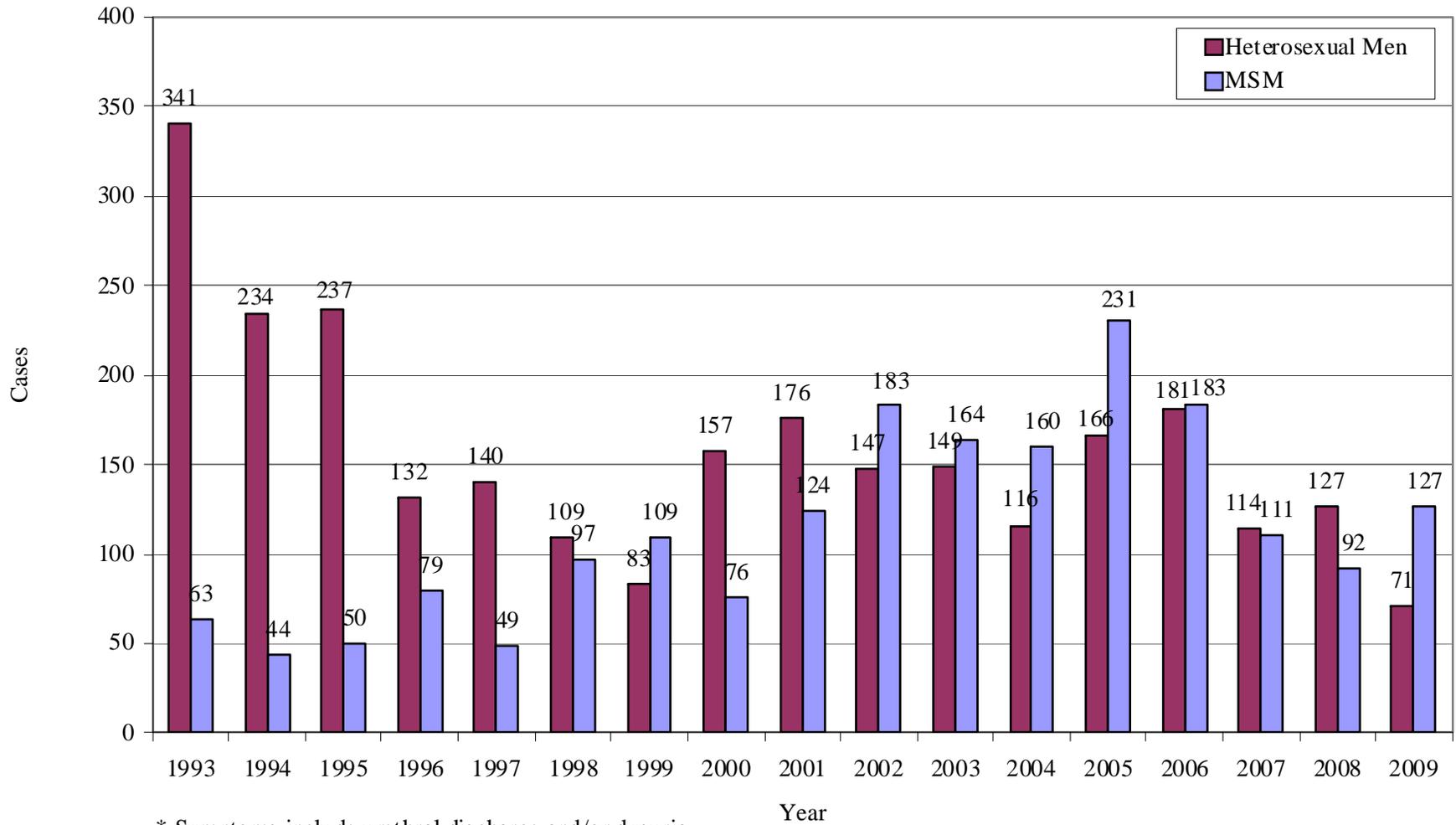
** Public Health's satellite Broadway STD Clinic was in operation from 1993-1998.

**Figure 17: Gonorrhea Diagnoses,* Public Health STD Clinic
1993-2009**



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

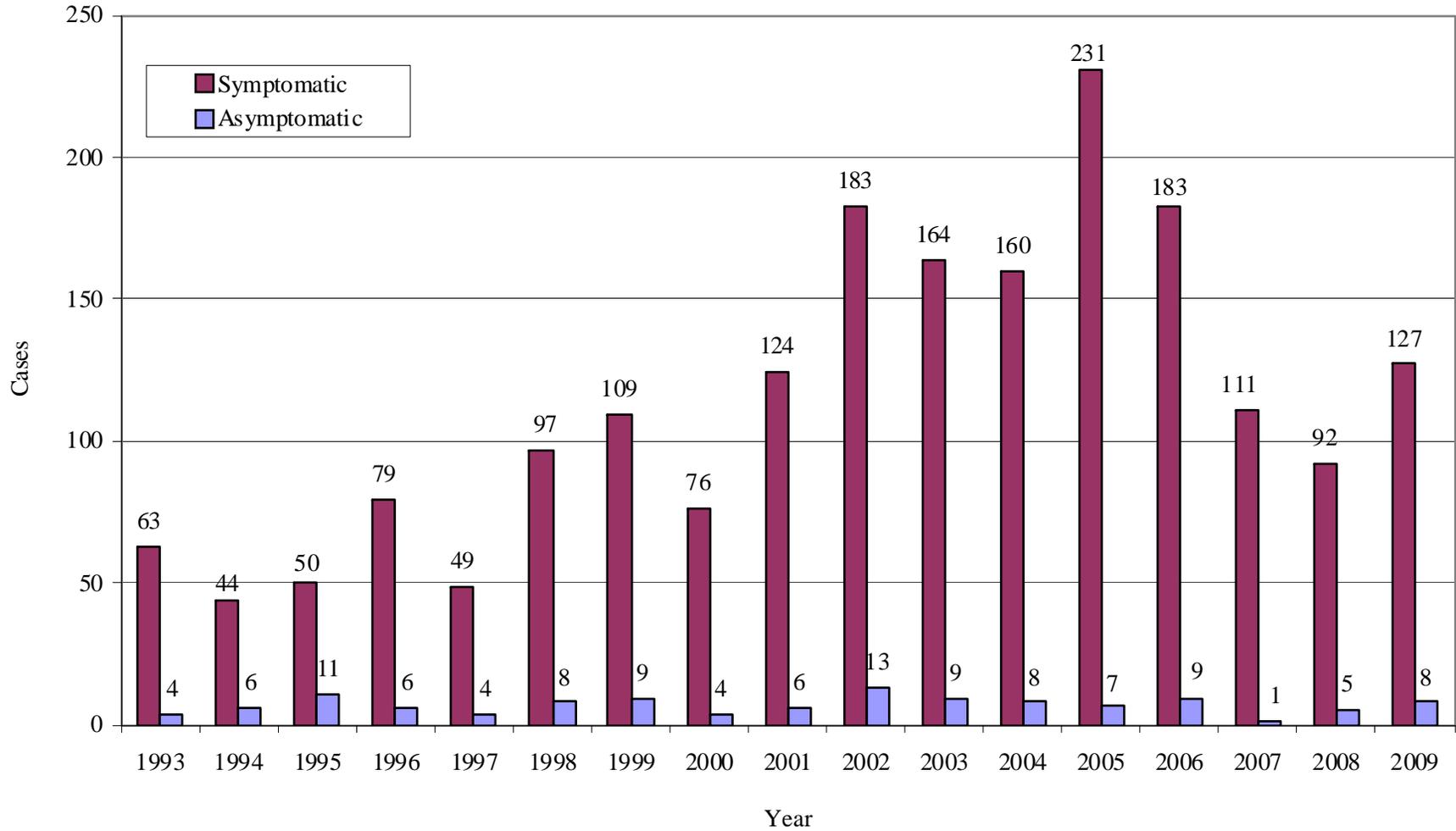
Figure 18: Symptomatic* Gonococcal Urethritis among Men
Public Health STD Clinic, 1993-2009**



* Symptoms include urethral discharge and/or dysuria

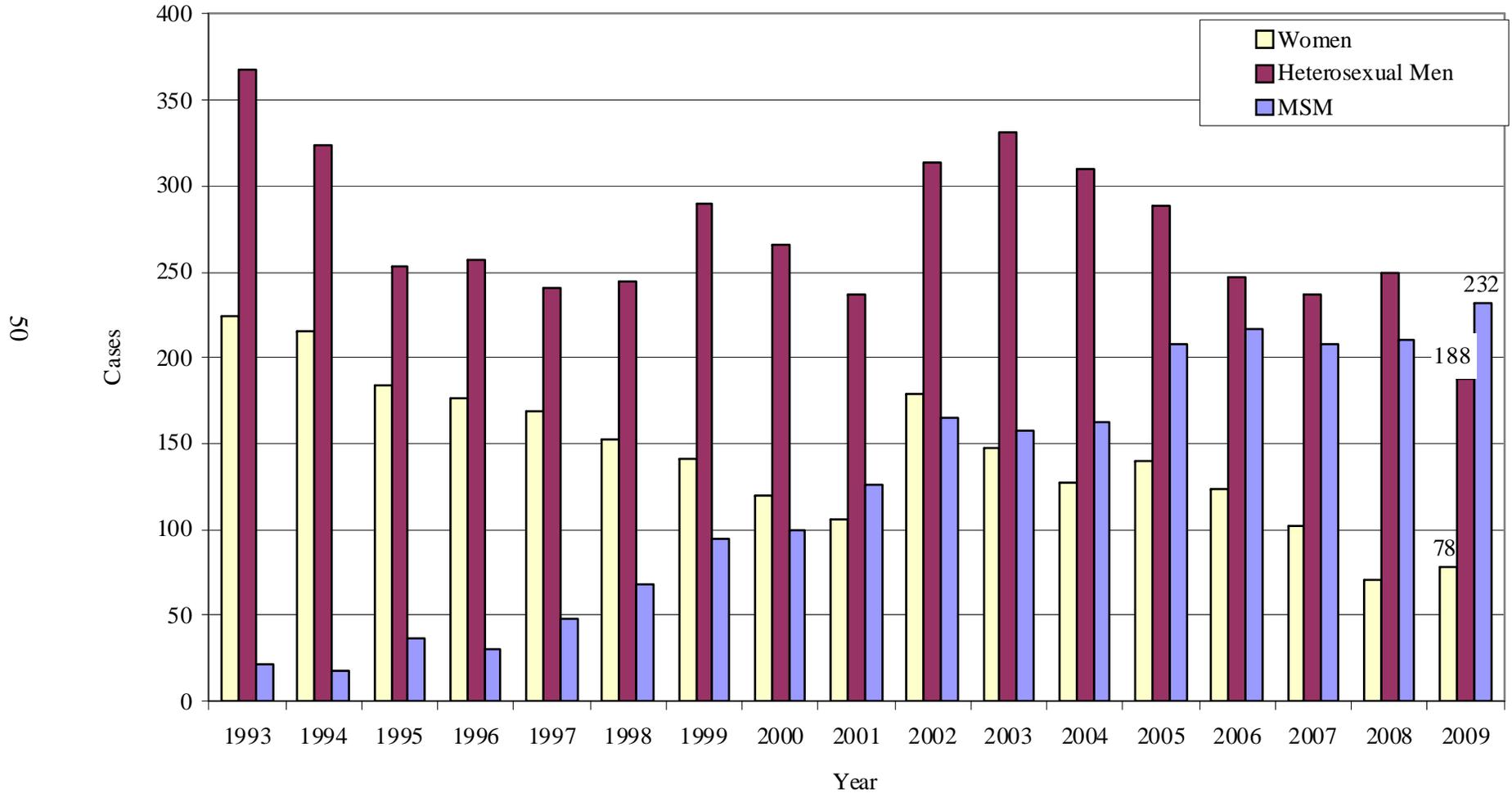
** These data exclude 53 cases of symptomatic urethral gonorrhea among men who were missing sexual orientation information

**Figure 19: Symptomatic and Asymptomatic* Gonococcal Urethritis among MSM
Public Health STD Clinic, 1993-2009**



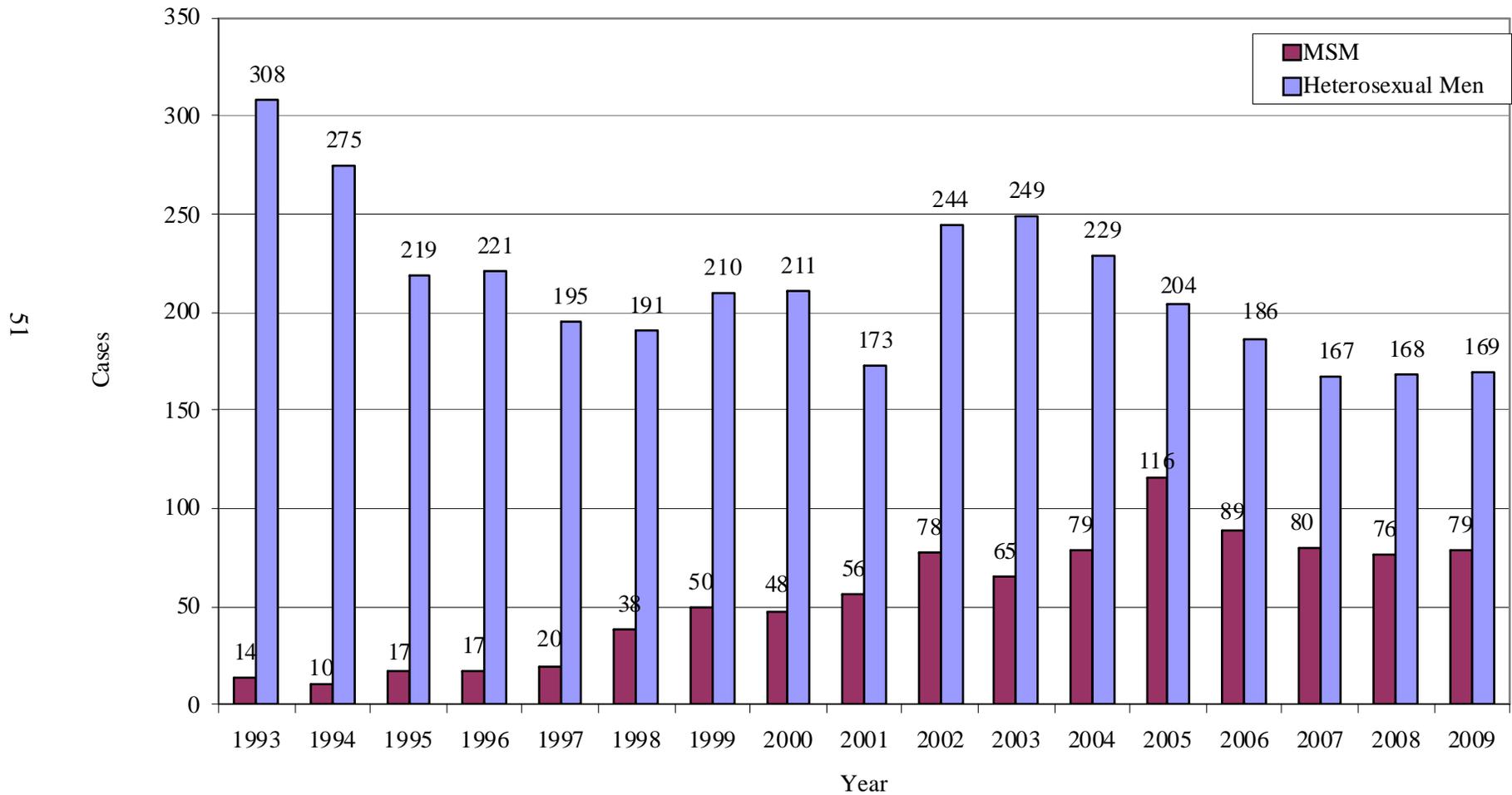
* Symptoms include urethral discharge and/or dysuria

**Figure 20: Chlamydial Infection Diagnoses*, Public Health STD Clinic
1993-2009**



* These data exclude 132 cases of chlamydial infection among men who were missing sexual orientation

**Figure 21: Symptomatic* Chlamydial Urethritis among Men
Public Health STD Clinic, 1993-2009**



* Symptoms include urethral discharge and/or dysuria

**Figure 22: Chlamydia Prevalence among Asymptomatic Women Ages 15-29
Public Health STD Clinic, 1993-2009**

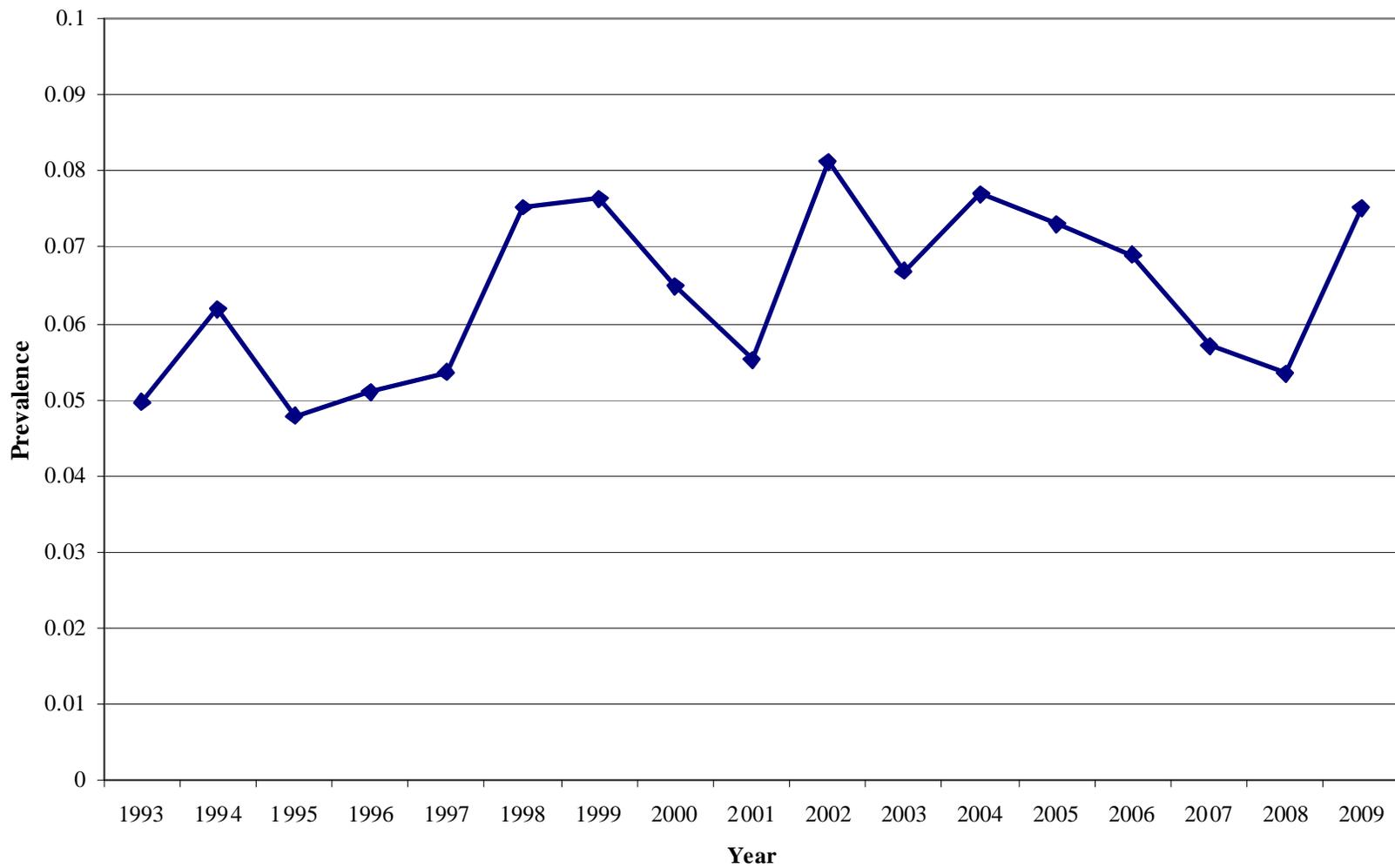
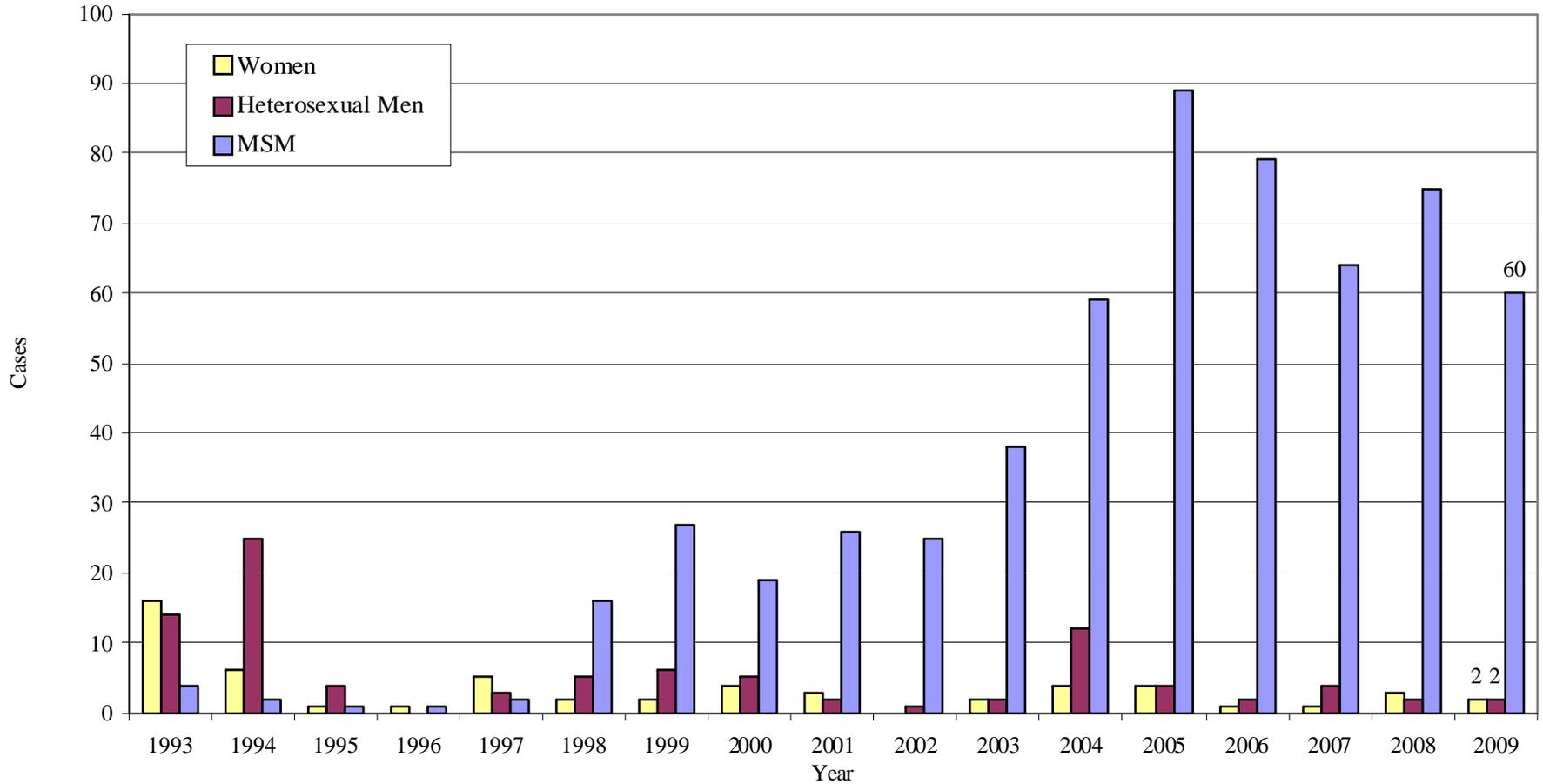


Figure 23: Early* Syphilis Diagnoses^, PHSKC STD Clinic
1993-2009**

53

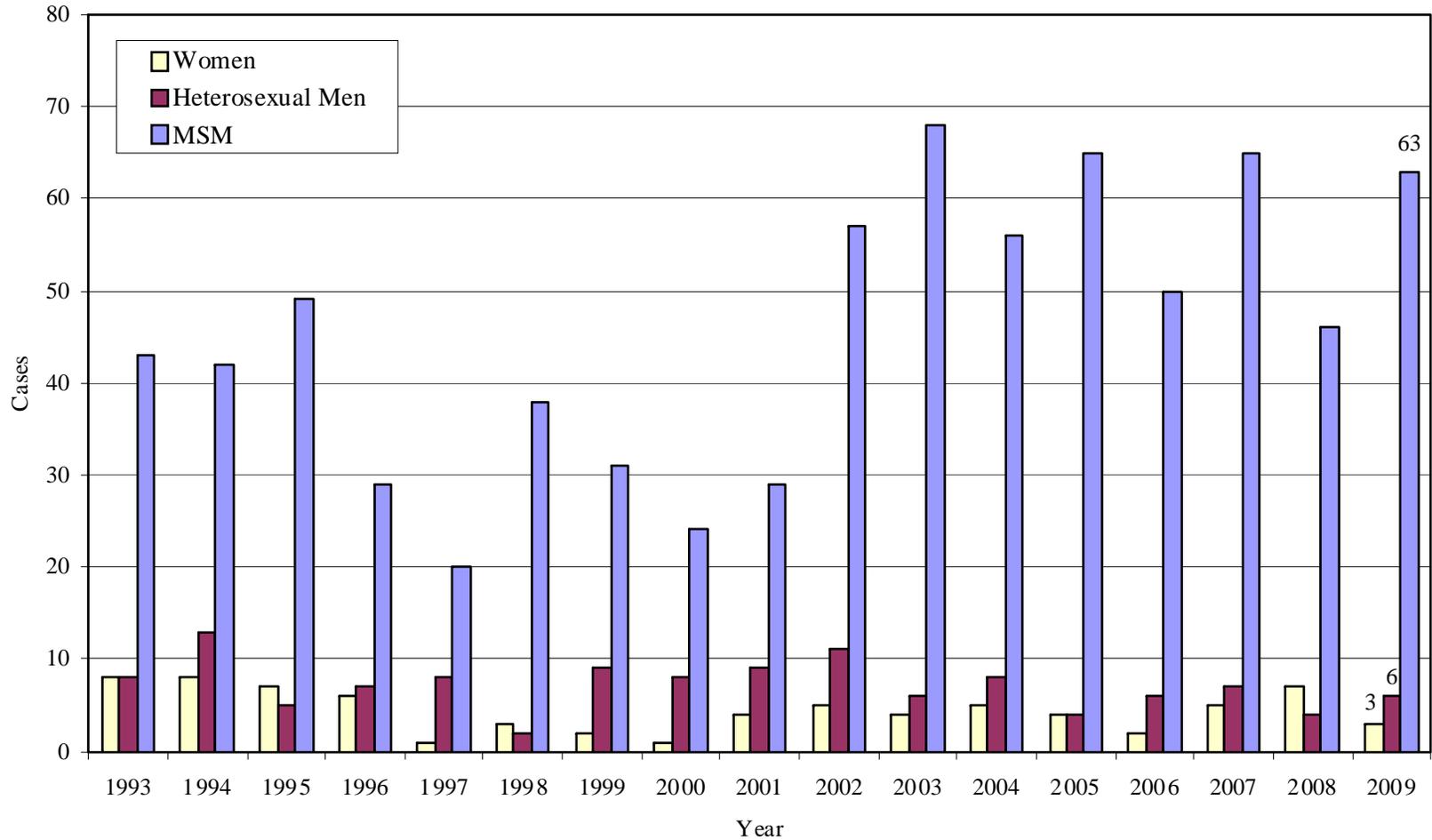


* Includes primary, secondary, and early latent syphilis diagnoses

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

^ 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
1993-2009**

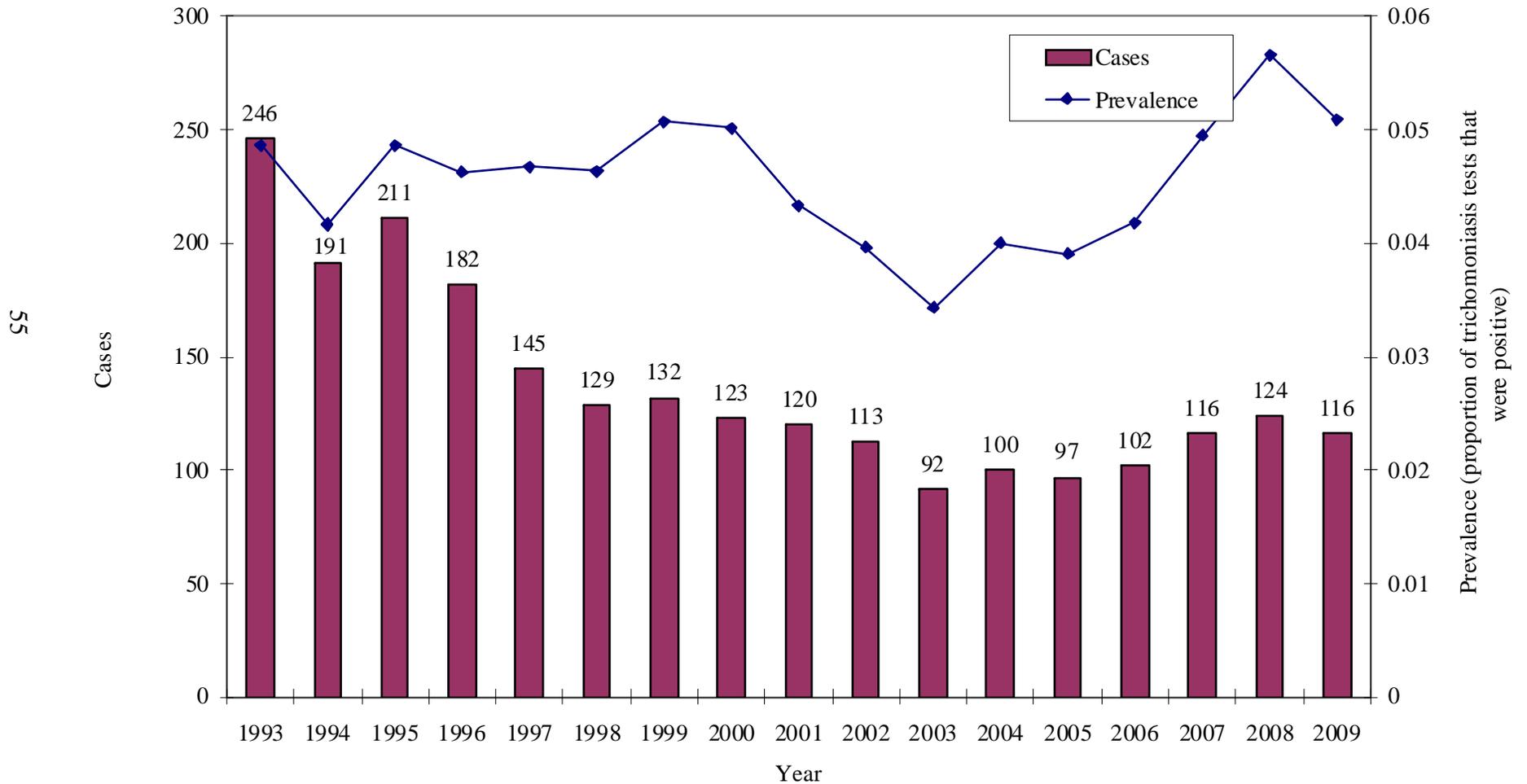


* These data exclude 6 cases of HIV among men who were missing sexual orientation information

** 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.

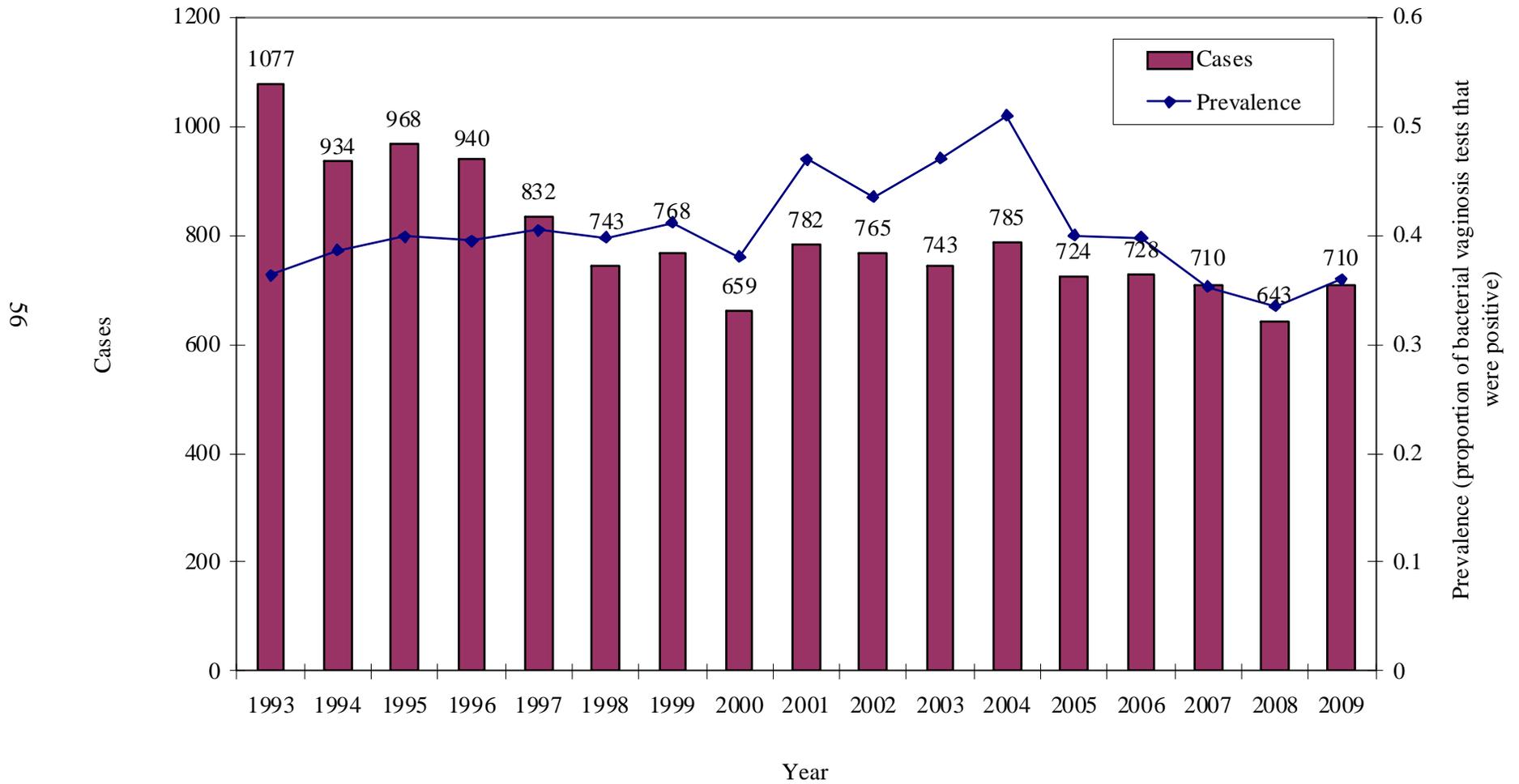
**Figure 25: Trichomoniasis Diagnoses* and Prevalence Among Female Patients
PHSKC STD Clinic, 1993-2009**



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

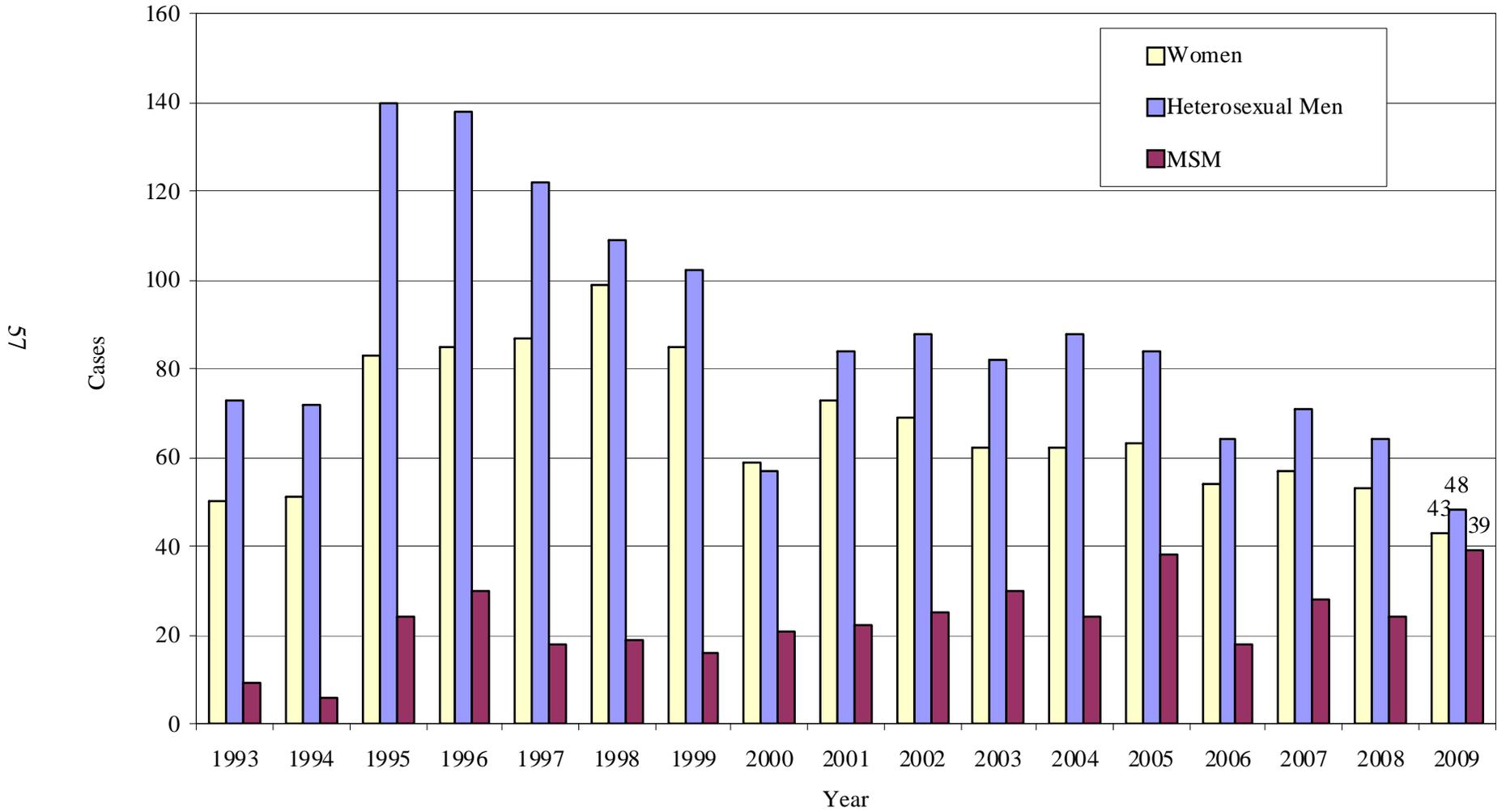
**Prevalence is calculated as total annual diagnoses/total annual tests (culture and/or wet mount)

Figure 26: Bacterial Vaginosis Diagnoses and Prevalence Among Female Patients
PHSKC STD Clinic, 1993-2009**



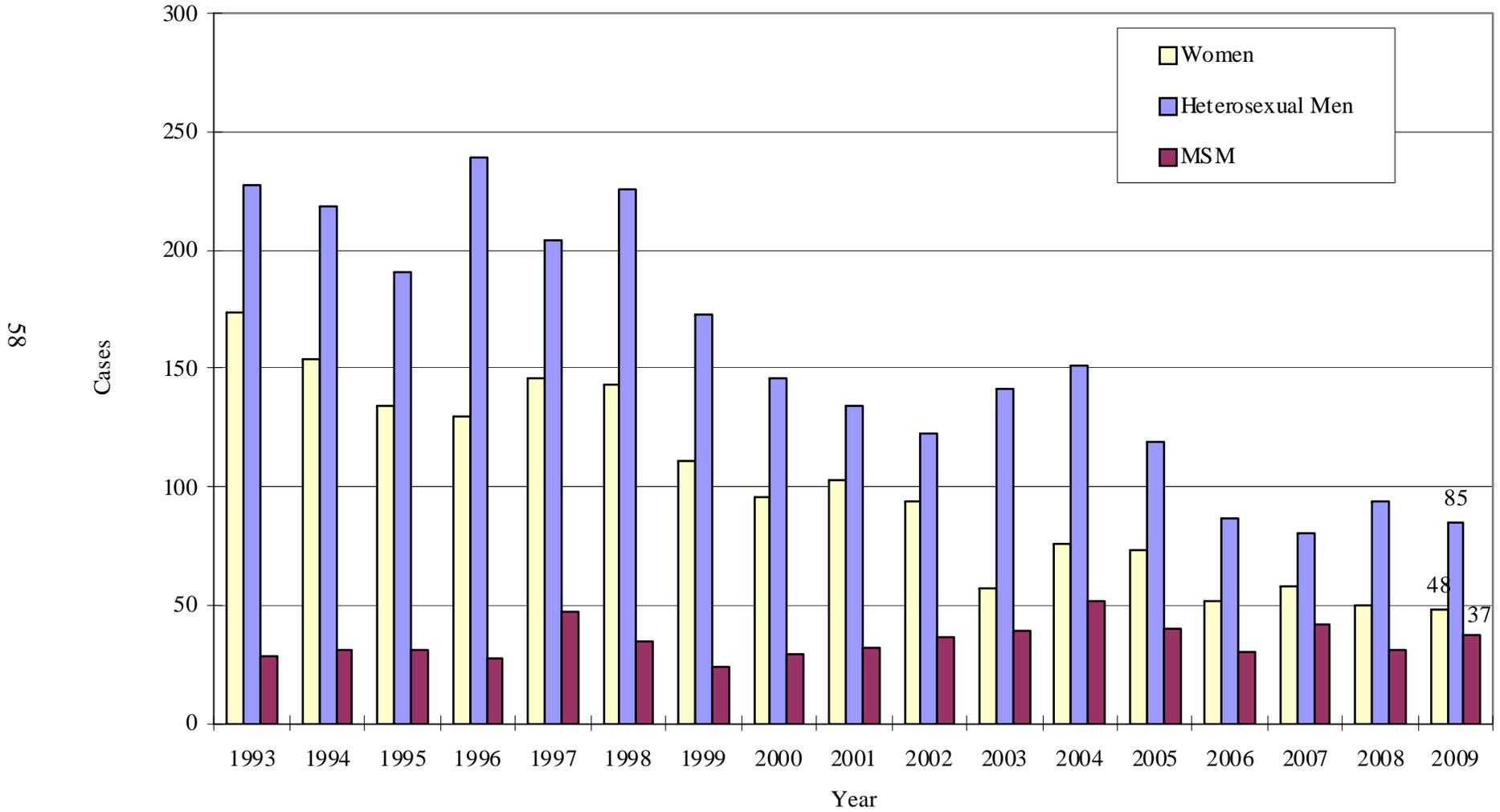
*Prevalence is calculated as total annual diagnoses/annual patients with tests for both vaginal PH and clue cells.

Figure 27: Initial Genital Herpes Diagnoses*
PHSKC STD Clinic, 1993-2009



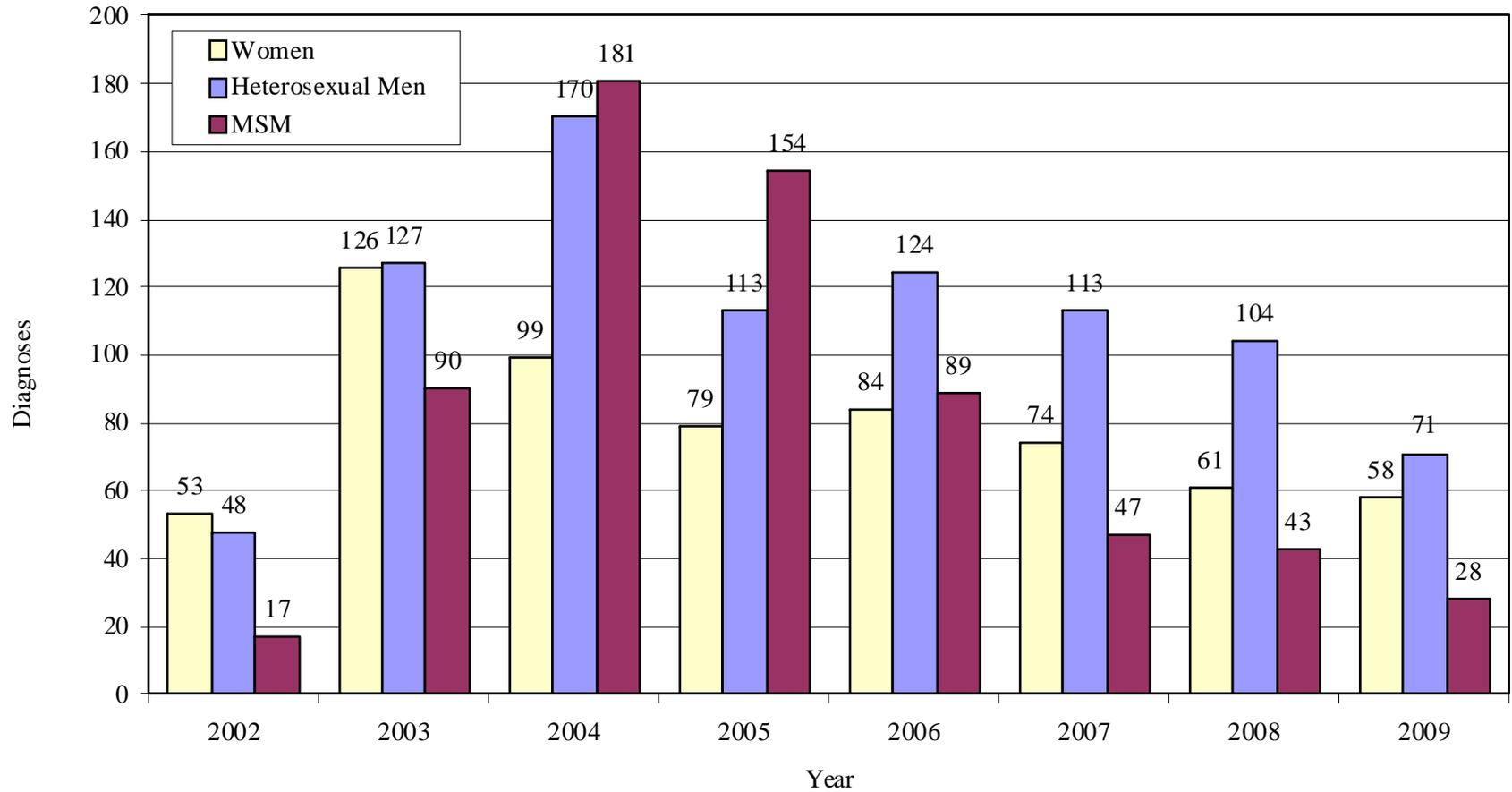
* These data exclude 38 cases of initial genital herpes among men who were missing sexual preference information

Figure 28: Recurrent Genital Herpes Diagnoses*
PHSKC STD Clinic, 1993-2009



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

**Figure 29: Serologic Diagnoses of HSV-2 in Patients* without Symptoms
PHSKC STD Clinic, 1993-2009****



Number tested: 198 362 75 586 1178 523 567 1263 1068 589 1190 1038 579 1361 599 522 1385 398 511 1257 423

* These data exclude 20 cases of serologic herpes among men who were missing sexual preference information

** Free serologic testing for HSV-2 was available for MSM STD Clinic patients through a research project from October 15, 2003 - April 30, 2006

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

The number of cases of chlamydial infection and gonorrhea reported among MSM rose between 2008 and 2009 (Figure 31). The rise in gonorrhea was particularly sharp and represented a reversal in the decline in the rate of gonorrhea among MSM from 2005 through 2008 (Figure 32). Meanwhile, the number of early syphilis cases reported among MSM dropped somewhat, though this decline was largely limited to a drop in the number of cases of early latent syphilis; the number of cases of primary and secondary syphilis was essentially stable.

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 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 2009, gender of sex partners was reported on 81% of case reports for gonococcal and chlamydial infections among men.

As shown in Figure 31, the number of gonorrhea, chlamydia, and early syphilis cases diagnosed among King County MSM increased substantially between the mid-1990s and the middle of the current decade. However, in recent years this pattern has been less consistent. Gonorrhea diagnoses decreased from 2005 to 2008, but then increased in 2009. Trends in chlamydial infection among MSM were relatively stable from 2005 to 2008, but the number of cases in 2009 increased. These trends are similar to those seen in the STD Clinic in 2009 (Figures 17 and 20).

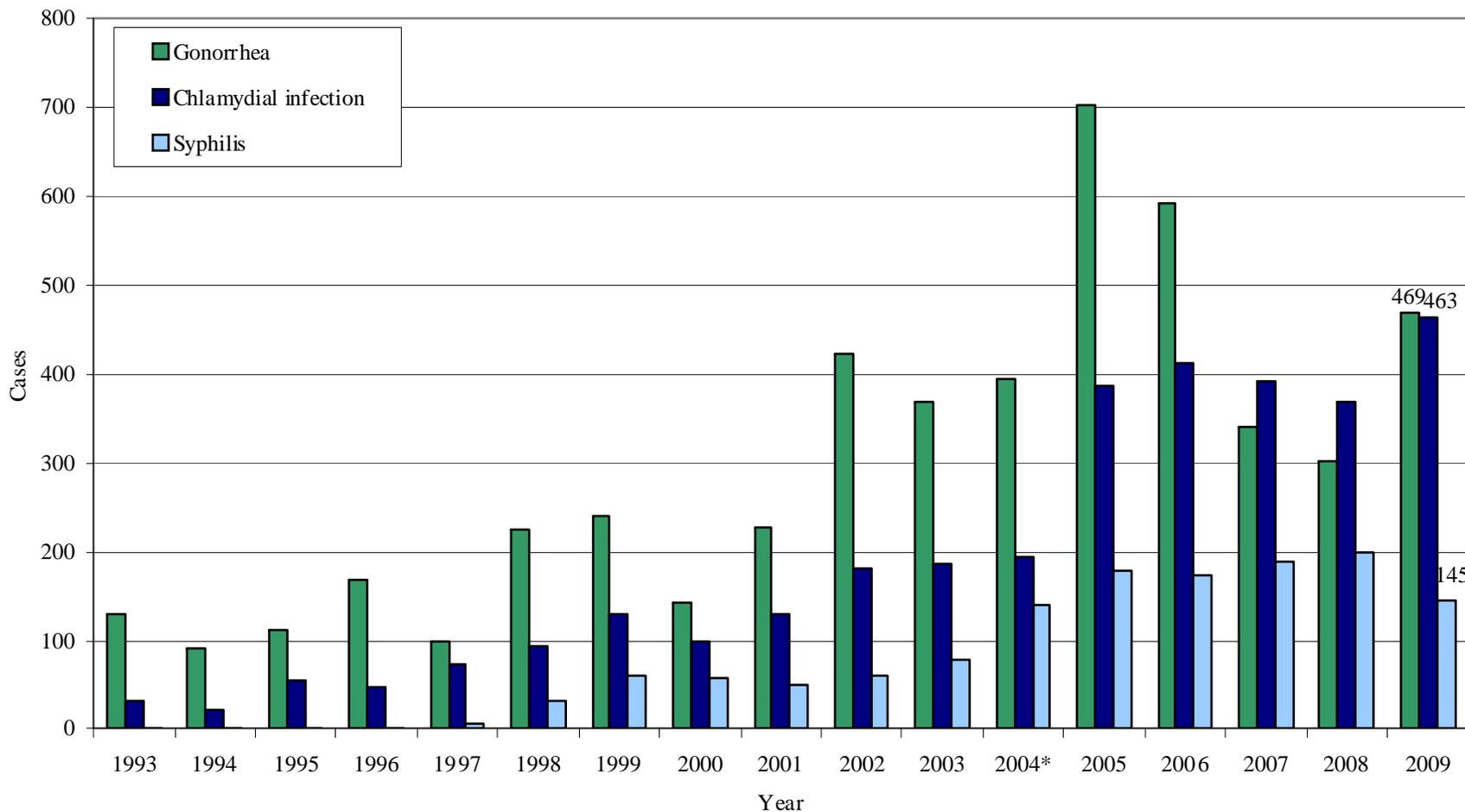
Diagnoses and rates of early syphilis among MSM have stabilized over the past four years (Figures 31, 32), with a slight decrease from 2008 to 2009. From 2005 to 2007, the number of cases of primary and secondary syphilis fell while the numbers of early latent syphilis cases continued to rise. In 2008 the number of primary, secondary and early latent syphilis cases all rose slightly, but in 2009, the number of early latent syphilis cases fell substantially, while the number of primary and secondary cases fell only slightly. The reason for the decline in early latent syphilis despite stable numbers of primary and secondary infection is uncertain. However, Public Health believes that at least some of this change may reflect changes in how cases were classified and managed. As a result, trends in primary and secondary infections are probably a better measure of trends in syphilis epidemiology.

The extent to which these divergent trends may reflect changing testing practices is uncertain. Monitoring the occurrence of symptomatic urethral gonorrhea among MSM STD clinic patients provides a measure of gonococcal morbidity that is relatively unaffected by changing STD testing practices over time. However, this measure could be affected by changing patterns of where MSM seek medical care. After increasing substantially between 2004 and 2005, the number of symptomatic urethral gonorrhea cases among MSM treated in the Public Health STD Clinic declined significantly between 2005 and 2008, but rose somewhat between 2008 and 2009 (Figure 32). This trend corroborates the pattern observed in the larger population.

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, with more stable patterns of behavior since that time. Figure 33 demonstrates that the proportion of MSM STD Clinic patients reporting two or more sex partners in the preceding two months increased consistently from 1993-2000, but has been stable since that time. The proportion of MSM STD Clinic patients reporting unprotected anal intercourse in the preceding two months likewise increased from 1993 through 2002, but has stabilized since that time (Figure 34).

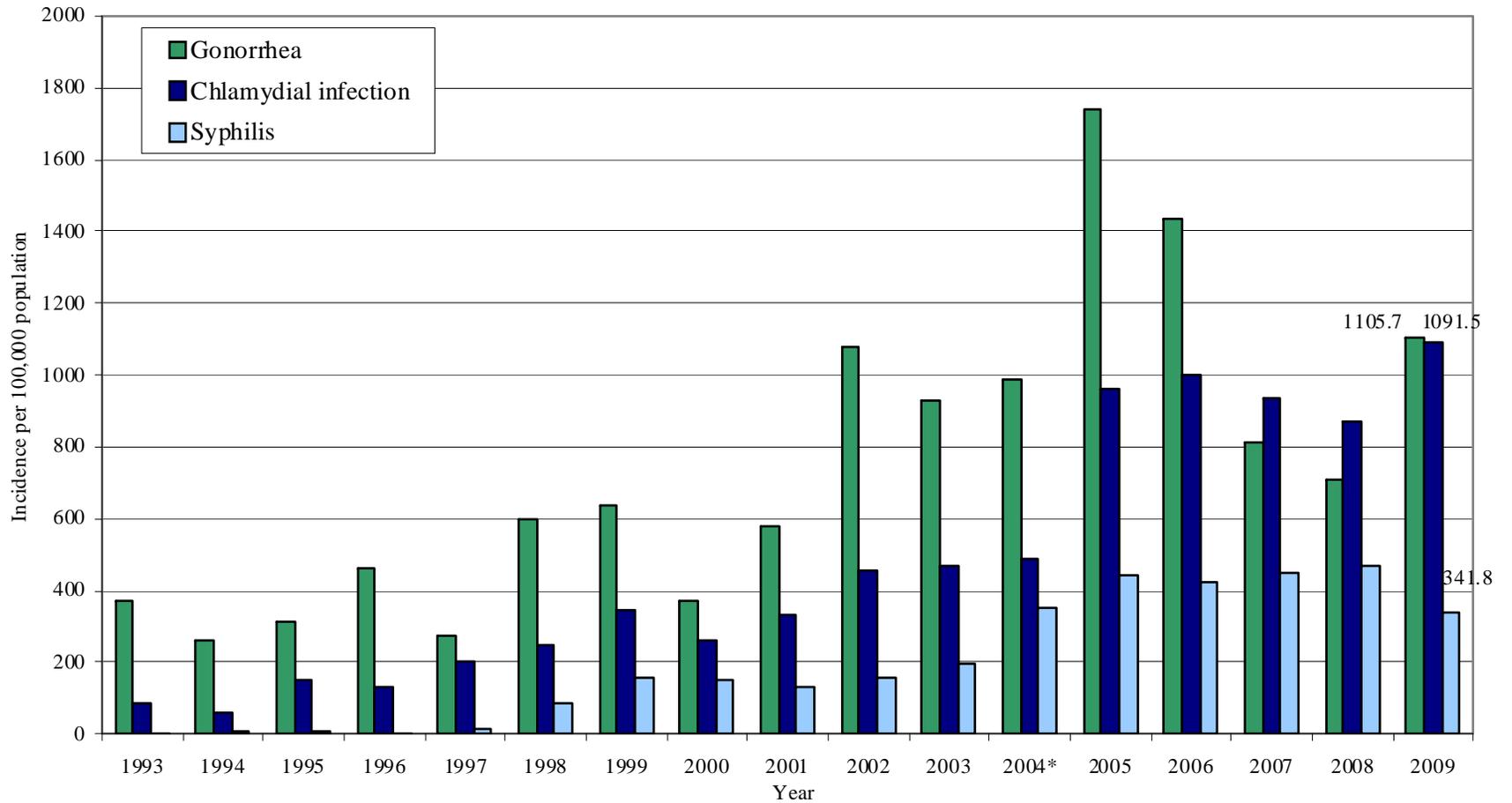
Taken together, these data suggest that sexual risk behaviors now appear to be roughly stable among the MSM seen in the STD Clinic, at least insofar as risk can be gauged by the limited data collected as part of clinical evaluations. The generalizability of these data to MSM in the larger population is uncertain.

**Figure 30: Gonorrhea*, Chlamydia*, and Early Syphilis Cases among MSM
King County, WA, 1993-2009**



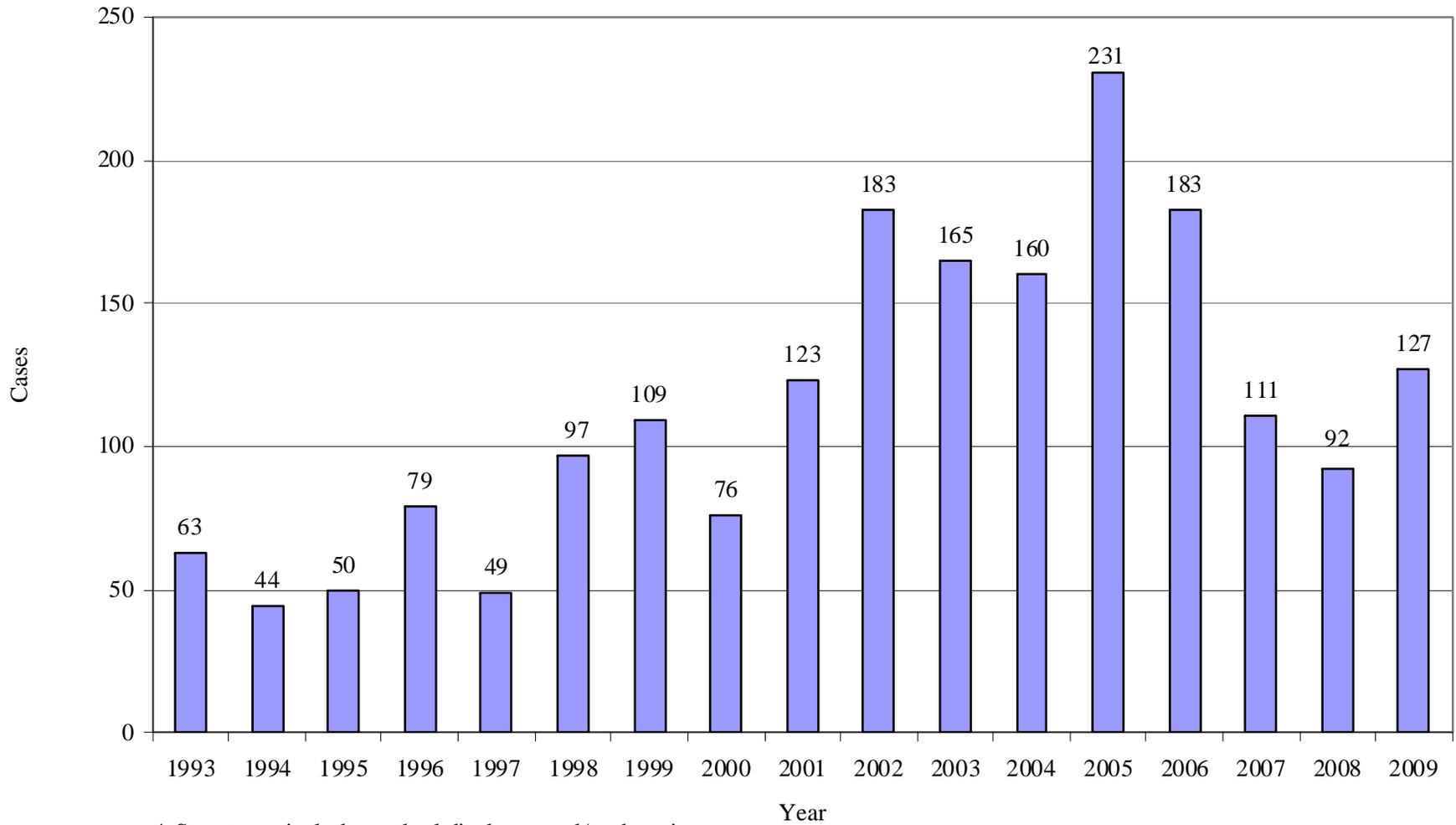
*From 1993-2003, MSM cases were calculated by summing all PHSKC STD Clinic diagnoses among MSM with all rectal infections reported to PHSKC by other providers. Since 2004, men have been assigned MSM status if the reporting provider indicated they had male sex partners, or they had a rectal infection.

**Figure 31: Incidence of Gonorrhea*, Chlamydial Infection*, and Early Syphilis Among MSM
King County, WA 1993-2009**



*From 1993-2003, MSM 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.

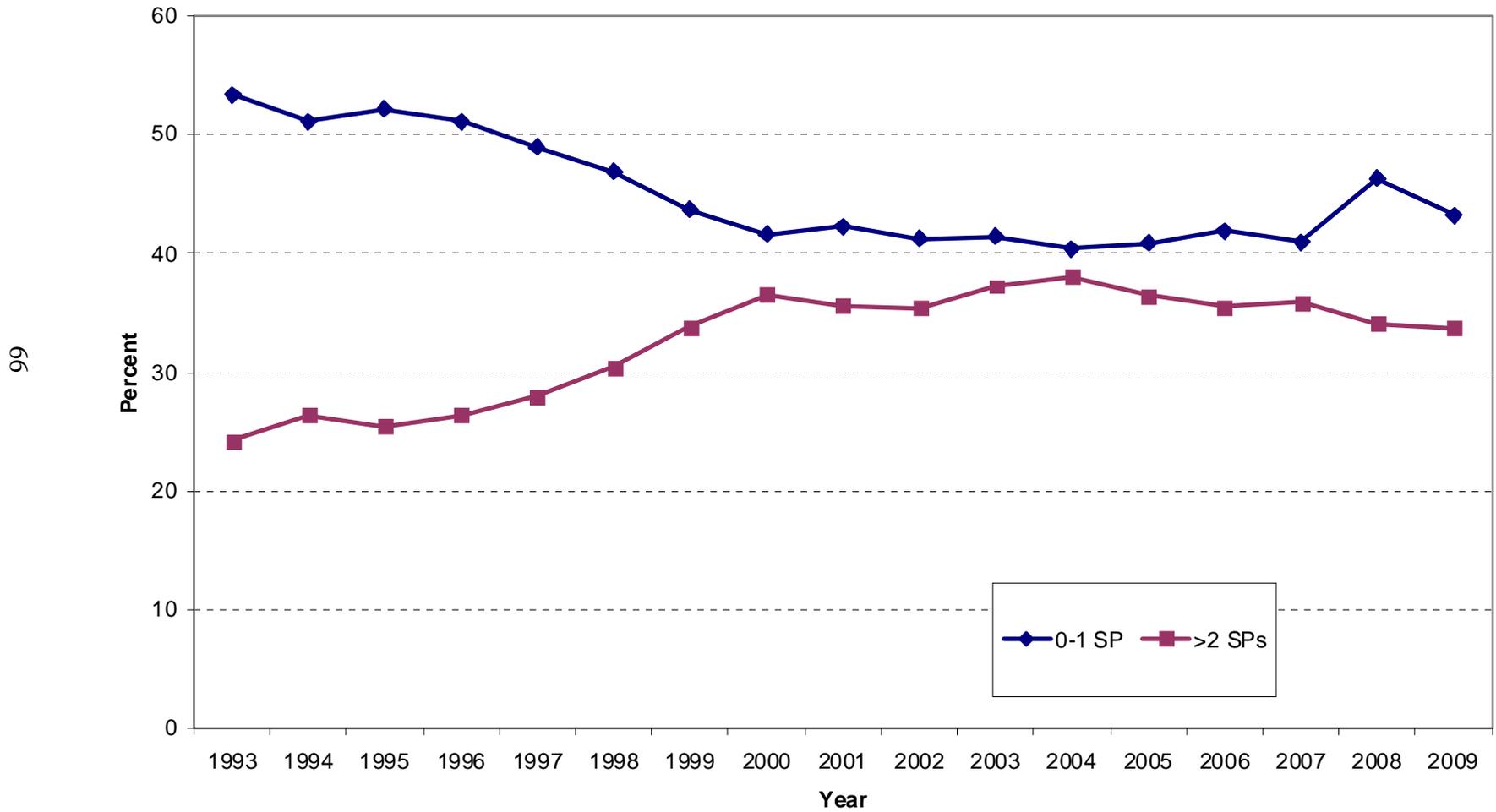
Figure 32: Symptomatic* Gonococcal Urethritis among MSM
PHSKC STD Clinic, 1993-2009**



* Symptoms include urethral discharge and/or dysuria

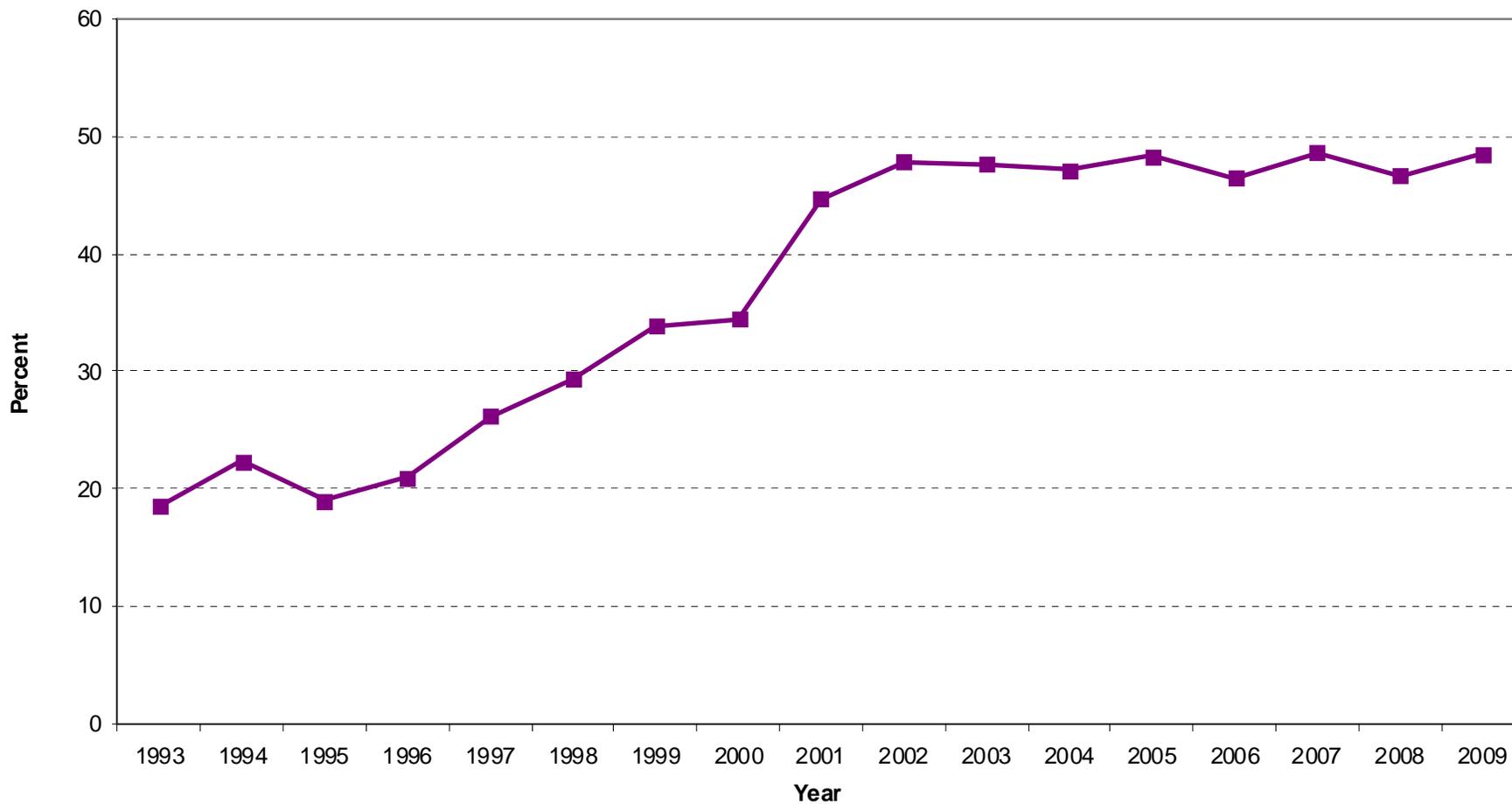
** These data exclude 50 cases of symptomatic urethral gonorrhea among men who were missing sexual orientation

Figure 33: Numbers of sex partners in preceding 2 months among MSM* seen at the PHSKC STD Clinic, 1993-2009



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

**Figure 34: Percent of MSM Patients* Reporting Unprotected Anal Intercourse in Preceding 2 Months
PHSKC STD Clinic, 1993-2009**



67

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

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