



**2013  
King County  
Sexually Transmitted Diseases  
Epidemiology Report**

**Public Health – Seattle and King County  
2013 Sexually Transmitted Diseases Epidemiology Report**

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## Executive Summary

The 2013 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 (STIs) in King County.

Key findings in the epidemiology of STIs in King County in 2013 include:

- **Among men who have sex with men (MSM), the incidences of reported chlamydial infections and gonorrhea continued their upward trends in 2013, with particular increases in diagnoses of rectal and pharyngeal gonorrhea.**<sup>1</sup> Increased screening for extragenital infections and the use of more sensitive tests are likely driving most of this increase in incidence by improving case-finding.
- **Rates of syphilis among MSM have declined 16% over the last two years, but continue to be alarmingly high, particularly among HIV-infected MSM.** After reaching a historical high in 2011, the incidence of early syphilis among MSM has decreased slightly over the last two years. The proportion of cases diagnosed in the absence of symptoms suggests that screening may be increasing. Public Health urges MSM and their medical providers to test regularly for syphilis. MSM should promptly seek medical evaluation for sores on the penis, mouth, or anus or for rash, and specifically ask to be tested for syphilis. HIV medical providers should test their MSM patients with any sexual activity outside of long-term mutually monogamous relationships for syphilis each time they draw blood.

- **Gonorrhea rates were stable among heterosexuals and remain at near record low levels among women.**
- **Overall chlamydia incidence is stable, with the highest rates of reported infection observed among young women and MSM.**
- **Rates of all STDs continue to show marked racial and ethnic disparities.** The highest rates of infections among women and men who have sex with women only (MSW) are observed among non-Hispanic blacks, and the highest rates of among MSM are observed among Latinos. However, the rate of gonorrhea among black women in King County is about half that observed nationally.
- **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 2013.** In 2013, the STD clinic diagnosed 34% of all early syphilis cases, 28% of all gonorrhea cases, 20% of all HIV cases, and 9% of all chlamydial cases reported in King County. As in past years, the Public Health STD Clinic diagnosed more cases of HIV in 2013 than any other single clinical site in Washington State.<sup>2</sup>
- **Family planning clinics play a critical role in the control of chlamydial infection in King County.** As a group, family planning clinics diagnosed 1307 (19%) of the total reported cases of chlamydial infections in King County. Public Health Family Planning Clinics diagnosed 6.4% of King County chlamydial infection cases in 2013.

<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 STIs 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> Some of the 60 cases of HIV diagnosed in the STD Clinic were not 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 1992-2013 and reported through March 3, 2014.

### **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 2010. Population data for 2013 are not yet available. To create population estimates for calculating incidence figures for 2013, changes in population estimates from 2011 to 2012 were applied to the 2012 population.

Overall population estimates used for MSM represent 5.5% of men ages 15 and older in King County per year, comparable to estimates for the percent of the male population that is MSM from several population-based studies.<sup>1-3</sup> Population estimates for HIV-positive and negative MSM were provided by the Public Health HIV/AIDS Epidemiology Unit from National HIV Surveillance System data.

### **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.

Men are stratified by gender of sex partners into men who have sex with men (MSM) and men who have sex with women only (MSW). In case report data, men whose provider indicated male sex partners on the case report, who reported sex with men in the last year during partner services interviews, or who were diagnosed with rectal gonorrhea or chlamydial infection were defined as MSM. Men without rectal infections who are missing data regarding gender of sex partners are assumed to be MSW except where indicated, which may result in misclassification of these men and underestimation of incidences among MSM. Completeness of these data has improved over time. In 2013, 14%, 5%, and 4% of male cases of chlamydial infection, gonorrhea, and early syphilis were missing this information, respectively.

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## Chlamydial Infection

In 2013, 6,939 cases of chlamydial infection were reported among King County residents, representing an overall reported incidence of 352 per 100,000 people (Table 1), identical to the incidence in 2012 (Table 3). In 2013, 4,221 cases were reported among women for a reported incidence of 427 per 100,000 women, and 2,718 cases were reported among men for a reported incidence of 276 per 100,000 men (Table 1). Incidence of reported chlamydial infection remains much higher among MSM (2,540 per 100,000) than among MSW (210 per 100,000) or women (513 per 100,000) ages 15 and older (Figure 3).

### *Age, race and ethnicity*

Historically, the incidence of chlamydial infection has varied substantially by age and race in King County. These patterns continued in 2013. (Throughout this report, Latino ethnicity is treated as a separate racial group, and all other racial groups exclude Latinos.)

- Among women, reported incidence was highest among black women (1,376 per 100,000 women), followed by Native American women (1,194 per 100,000), Latina (800 per 100,000), Asian/Pacific Islander (358 per 100,000), and white (336 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 863 per 100,000, followed by Latino (435 per 100,000), Native American (403 per 100,000), white (185 per 100,000), and Asian/Pacific Islander (165 per 100,000) men (Table 2).
- Among women, the incidence of chlamydial infection was highest among 20-24 year olds (2,882 per 100,000) followed by 15-19 year olds (1,895 per 100,000), while among men, reported incidence was highest among 20-24 year olds (1,124 per 100,000) followed by 25-29 year olds (782 per 100,000) (Table 2, Figure 2). Higher rates among women than men both overall and within race and younger age 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 two 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) Trends in infection in the Public Health STD Clinic.

The incidence of reported chlamydial infection among 15-29 year-old women in King County is substantially lower than that observed nationally or in Washington State as a whole (Figure 1). Trends in King County have also varied from those observed elsewhere in the state and nationally. Among women age 15-29, incidence rose from 2002 to 2004, declined and then stabilized from 2004 to 2010, then rose again from 2011 to 2013 (Table 4, Figure 1). In contrast, the incidence of reported chlamydial infection among 15-29 year-old Washington State (excluding King County) women rose sharply from 2007 to 2008 on a statewide basis, stabilized from 2008 to 2010 and then rose sharply again from 2010 to 2012. These statewide trends are similar to trends observed nationally. The increase from 2007 to 2008 may have been related, in part, to increased reporting of chlamydial infection cases as a result of a new web-based case reporting system introduced throughout Washington State from 2007 to 2008. (A similar system has been in place in King County since the late 1990s.)

Of note, the incidence of chlamydial infection in women 20-24 first exceeded the incidence in women aged 15-19 in 2010 and this disparity has grown over the last three years. This change reflects an ongoing, long-term trend. This change may reflect changes in testing practices. Alternatively, the shift toward later diagnoses may be a consequence of declining levels of sexual activity among adolescents leading to a shift in when women initially become infected with *C. trachomatis*.

### *Limitations of data*

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 the Infertility Prevention Project (IPP), a national chlamydial testing program, were using NAATs by the end of 1999.

Local family planning clinics play an important role in the control of chlamydial infection in King County. Family planning clinics diagnosed 1307 (19%) of the total 6,939 cases of chlamydial infections in King County in 2013, and 24% (1026 of 4221) of all cases diagnosed in women. This total includes Public Health family planning clinics, which diagnosed 443 cases of chlamydial infection in 2013.

**Table 1: Chlamydial Infection – Number of Reported Cases and Incidence, King County, WA, 2013**

	Cases	Incidence per 100,000 population
<b>Sex</b>		
Women	4221	427
Men	2718	276
<b>Total cases</b>	6939	352

**Table 2: Chlamydial Infection – Number of Reported Cases and Incidence among Men and Women by Age and Race/Ethnicity King County, WA, 2013**

	Women (N=4221)		Men (N=2718)	
	Cases	Incidence per 100,000 population	Cases	Incidence per 100,000 population
Race/ethnicity* ^				
White, Non-Latino	1486	336	1179	185
Black, Non-Latino	686	1376	472	863
Nat Am, Non-Latino	67	1194	23	403
Asian/PI, Non-Latino	492	358	213	165
Latino	590	800	376	435
Other	112		45	
Multiple	130	352	62	171
Unknown	658		348	
Age				
0-9 years	3	0	1	1
10-14 years	30	54	2	3
15-19 years	1,089	1,895	220	366
20-24 years	1,680	2,882	753	1,280
25-29 years	774	1,065	583	782
30-34 years	341	433	402	485
35-44 years	220	150	423	276
45-54 years	71	50	252	172
>=55 years	13	5	82	36

\* Cases with unknown race and ethnicity were included in race/ethnicity-specific rates after being distributed among race/ethnicity categories based on the distribution of cases with known race/ethnicity. In 2013, 658 and 348 case reports were missing race and ethnicity among women and men, respectively.

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

**Table 3: Chlamydial Infection – Number of Reported Cases and Incidence among Men and Women, King County, WA, 1992-2013**

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	373	1,612	184	4,897	279
2002	3,483	390	1,750	198	5,233	294
2003	3,796	423	2,031	228	5,827	326
2004	4,108	455	2,061	230	6,172	343
2005	4,070	447	2,188	242	6,261	345
2006	3,956	428	2,016	219	5,974	324
2007	3,931	419	1,856	199	5,792	310
2008	4,013	424	2,059	218	6,072	321
2009	3,972	415	1,984	208	5,956	312
2010	3,961	409	2,088	217	6,050	313
2011	4,133	424	2,367	245	6,500	335
2012	4,155	423	2,742	281	6,897	352
2013	4,221	427	2,718	276	6,939	352

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

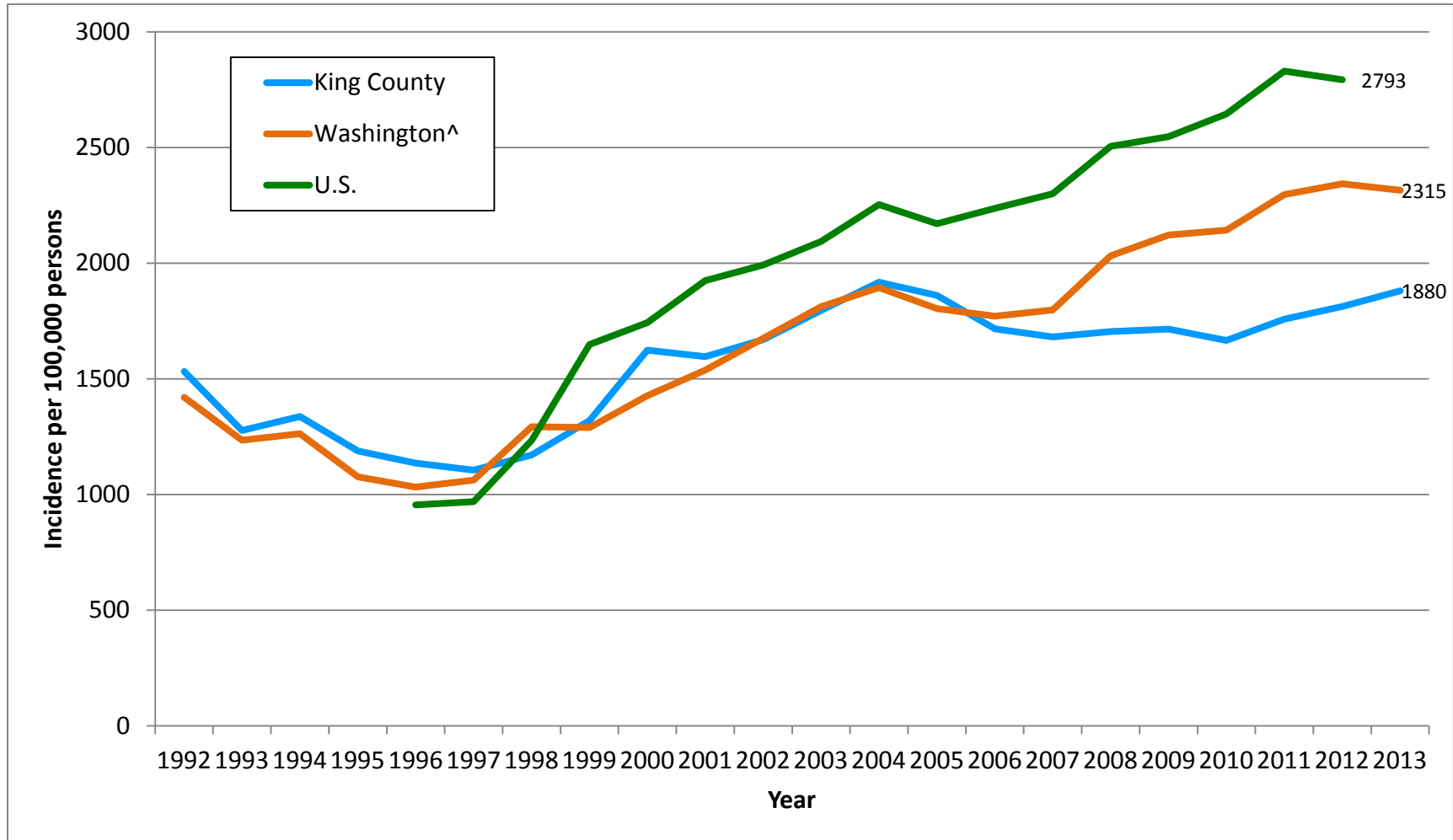
**Table 4: Chlamydial Infection – Number of Reported Cases and Incidence among Men and Women Ages 15-29, King County, WA, 1992-2013**

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	1,531	805	452	3,464	985
1993	2,212	1,276	695	390	2,908	827
1994	2,302	1,337	637	358	2,939	840
1995	2,051	1,188	642	359	2,693	766
1996	1,976	1,136	664	367	2,640	744
1997	1,942	1,105	644	353	2,586	722
1998	2,081	1,170	788	426	2,869	790
1999*	2,357	1,320	934	502	3,291	903
2000	2,918	1,624	1,154	617	4,071	1,110
2001	2,877	1,595	1,065	569	3,942	1,072
2002	3,050	1,669	1,215	642	4,265	1,146
2003	3,312	1,795	1,385	725	4,698	1,251
2004	3,589	1,917	1,349	696	4,938	1,296
2005	3,536	1,860	1,508	768	5,045	1,305
2006	3,359	1,716	1,297	642	4,656	1,171
2007	3,360	1,681	1,185	575	4,545	1,120
2008	3,448	1,704	1,374	659	4,822	1,173
2009	3,490	1,715	1,352	645	4,842	1,172
2010	3,340	1,666	1,322	637	4,662	1,143
2011	3,504	1,758	1,434	695	4,938	1,217
2012	3,514	1,813	1,657	857	5,171	1,313
2013	3,543	1,880	1,556	778	5,099	1,295

\* Cases with unknown age were included in 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 NAAT testing for chlamydial infection in 1994, and all PHSKC clinics were using NAATs by 1999.

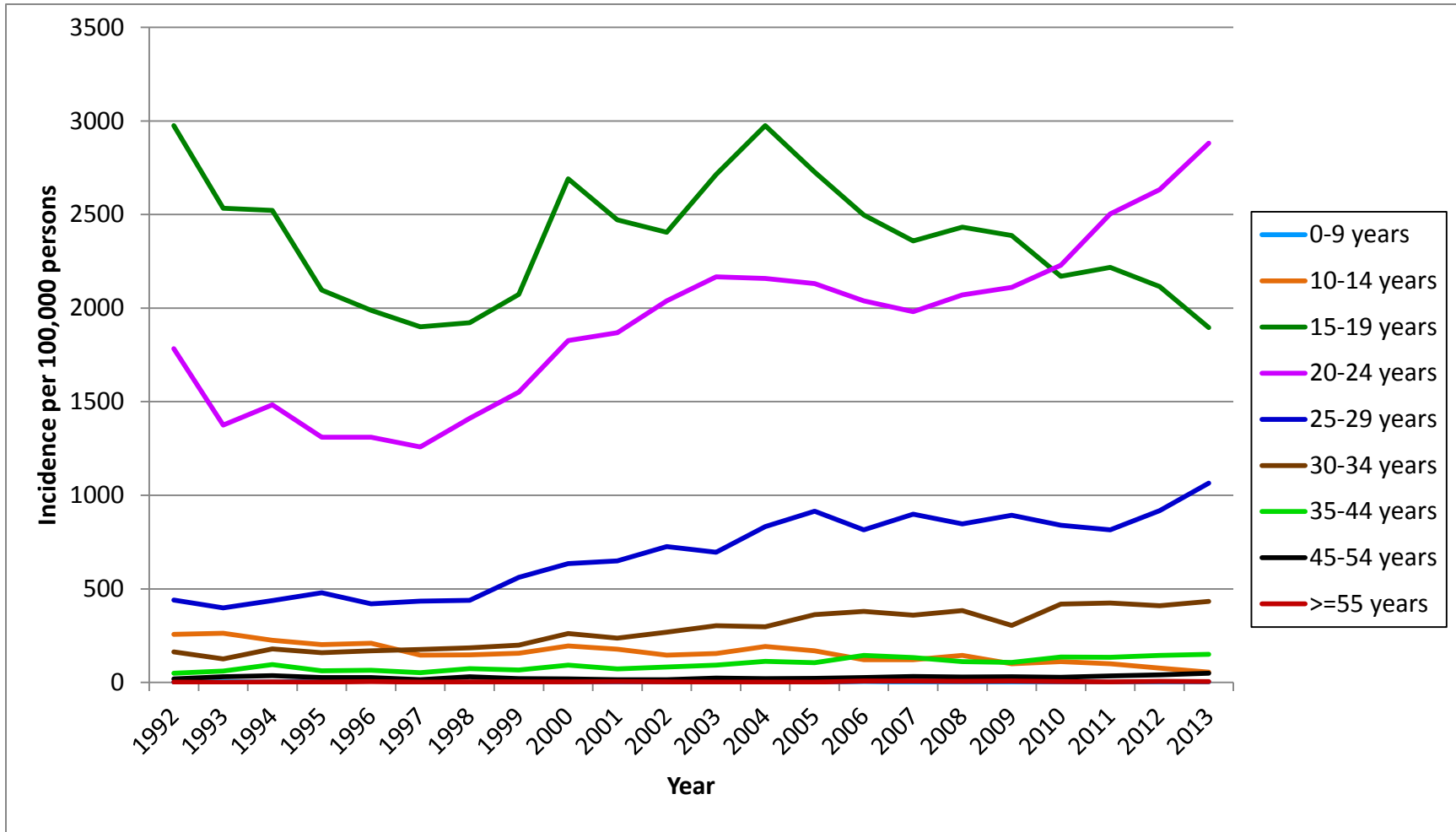
**Figure 1: Chlamydial Infection – Incidence among Women Ages 15-29\*  
King County, Washington State, and U.S., 1992-2013**



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

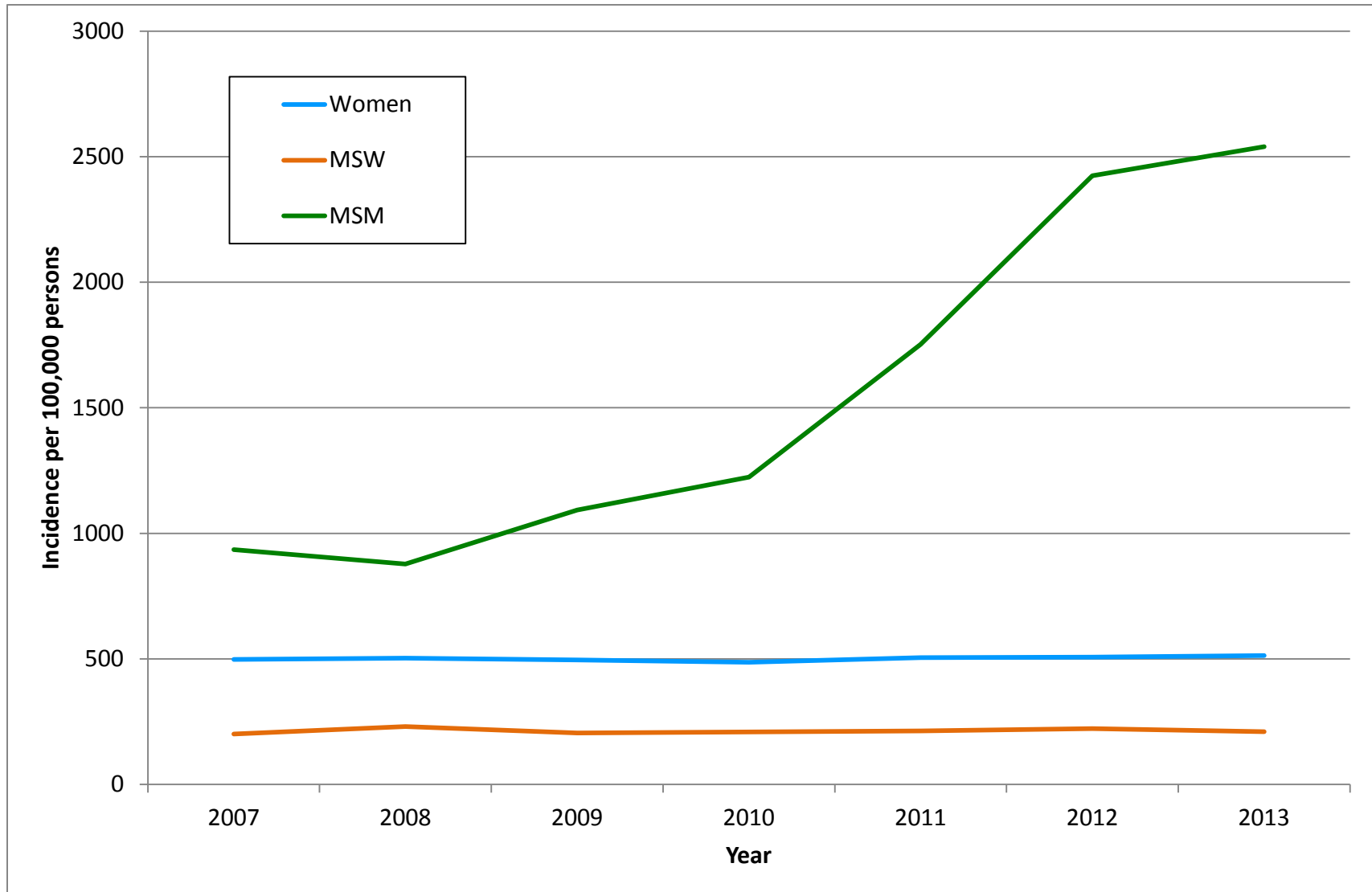
^Washington State rates exclude King County.

**Figure 2: Chlamydial Infection – Incidence among Women by Age  
King County, WA, 1992-2013**



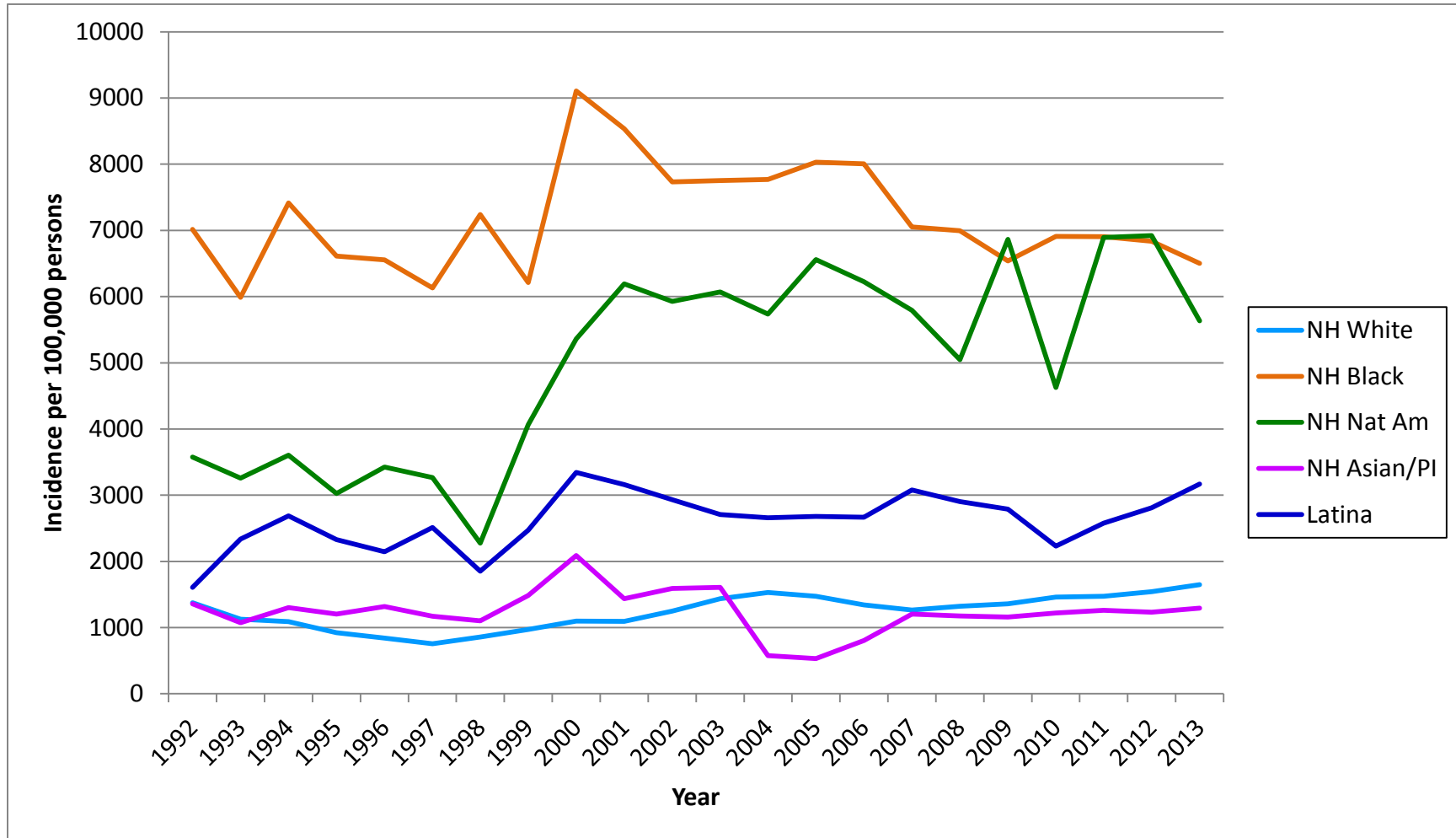
Cases with unknown age were distributed according to annual age distributions among cases with known age and included in age-specific incidences.

**Figure 3: Chlamydial Infection – Incidence among Women, MSW, and MSM 15 years and older, King County, WA, 2007-2013**





**Figure 4: Chlamydial Infection – Incidence among Women Ages 15-29 by Race and Ethnicity  
King County, WA, 1992-2013**



NH = Non-Hispanic, PI = Pacific Islander

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/ethnicity-specific incidences.

## **Gonorrhea**

In 2013, 1,805 cases of gonorrhea were reported among residents of King County, resulting in an overall incidence of 92 per 100,000 persons (Table 5), an increase from 80 per 100,000 persons in 2012 (Table 7). Among women, 407 cases of gonorrhea were reported in 2013 for an incidence of 41 per 100,000. Among men, 1,398 cases were reported in 2013 (142 per 100,000). Gonorrhea incidence remains much higher among MSM (2,374 per 100,000) than among MSW (46 per 100,000) or women (50 per 100,000) ages 15 and older (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. In the past, case report data on sexual orientation were often incomplete, and in some instances case report data on the gender of patients' sex partners may be inaccurate. As a result, Public Health primarily uses data from women to monitor the epidemiology of gonorrhea among heterosexuals. The epidemic among MSM is 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 overall incidence of gonorrhea among women has remained at stably low levels since 2009, when incidence was at the lowest level recorded since case report data became available in an electronic format in 1992. Most gonorrhea cases in King County women occur in persons aged 15-29 years (Table 6). In this group, incidence of gonorrhea fell sharply from 2006 to 2009, increased somewhat from 2009 to 2010, and was essentially unchanged from 2010 to 2013 (Table 8 & Figure 6). The drop in gonorrhea

incidence among women between 2006 and 2010 was observed statewide, and to a lesser extent in other Western states, as reflected in national data (Figure 6).

### *Age*

The incidence of gonorrhea was highest in the 15-19 and 20-24 year age groups among women in 2013, while in men incidence was highest in the 20-24, 25-29, and 30-34 year-old age groups (Table 6). Among women, incidence increased sharply among 20-24 year olds from 2012 to 2013 (Figure 7; Figures 7 and 8 include women only to better illustrate trends in gonorrhea among heterosexuals.)

### *Race and ethnicity*

The large decline in gonorrhea incidence among women observed between 2005 and 2009 affected all racial and ethnic groups, with the greatest absolute decline observed among black women (Figure 8), and the rate of gonorrhea among black women in King County is currently approximately half that observed nationally. At the same time, large racial disparities in gonorrhea incidence persist, with black and Native American women ages 15-29 experiencing an incidence of gonorrhea 15 and five times that observed in white women, respectively, in 2013 (Figure 8). Also, Latinas ages 15-29 experienced a large increase in incidence from 2012 to 2013. The persistence of very large racial disparities represents a major challenge in King County and in the rest of the U.S. and is a critical area in need of additional clinical and public health intervention.

### *MSM*

Both surveillance data gathered through case reports and sentinel data from the Public Health STD Clinic suggest that the number of gonorrhea diagnoses

among MSM continued to increase from 2012 to 2013. Overall incidence among MSM in the county increased from a previous historical high of 2,118 cases per 100,000 persons in 2012 to a new high of 2,374 per 100,000 in 2013 (Figure 5), and the number of gonorrhea diagnoses among MSM STD Clinic patients increased similarly from 500 to 544 cases (Figure 17).

The extent to which this increase reflects a true increase in gonorrhea incidence is uncertain. Public Health monitors symptomatic urethral gonorrhea among men as a measure of morbidity that is relatively unaffected by changes in screening and testing practices from year to year. As shown in figures 18 and 19, the number of cases of urethral gonorrhea among MSM seen in the Public Health STD clinic has varied substantially from year to year. The rate of urethral gonorrhea declined sharply among all men from 2005 to 2008, at which point trends between MSM and MSW diverged, with the rate among MSM increasing up to levels similar to those seen 2002-2006, and the rate among MSW continually declining.

**Table 5: Gonorrhea – Number of Reported Cases and Incidence, King County, WA, 2013**

	Cases	Incidence per 100,000 population
<b>Sex</b>		
Women	407	41
Men	1398	142
<b>Total cases</b>	1805	92

**Table 6: Gonorrhea – Number of Reported Cases and Incidence among Men and Women by Age and Race/Ethnicity, King County, WA, 2013**

	Women (N=407)		Men (N=1398)	
	Cases	Incidence per 100,000 population	Cases	Incidence per 100,000 population
Race/ethnicity* ^				
White, Non-Hispanic	125	27	729	104
Black, Non-Hispanic	117	225	248	412
Nat Am, Non-Hispanic	5	86	13	207
Asian/PI, Non-Hispanic	28	20	84	59
Hispanic	48	62	210	221
Other	24		14	
Multiple	11	29	43	108
Unknown	49		57	
Age				
0-9 years	1	1	0	0
10-14 years	4	7	0	0
15-19 years	99	172	63	105
20-24 years	138	237	265	450
25-29 years	78	107	301	404
30-34 years	35	44	242	292
35-44 years	40	27	295	192
45-54 years	11	8	187	127
>=55 years	1	0	45	20

\* Cases with unknown race and ethnicity were included in race/ethnicity-specific rates after being distributed among race/ethnicity categories based on the distribution of cases with known race/ethnicity. In 2013, 49 and 57 case reports were missing race and ethnicity among women and men, respectively.

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

**Table 7: Gonorrhea – Number of Reported Cases and Incidence among Men and Women, King County, WA, 1992-2013**

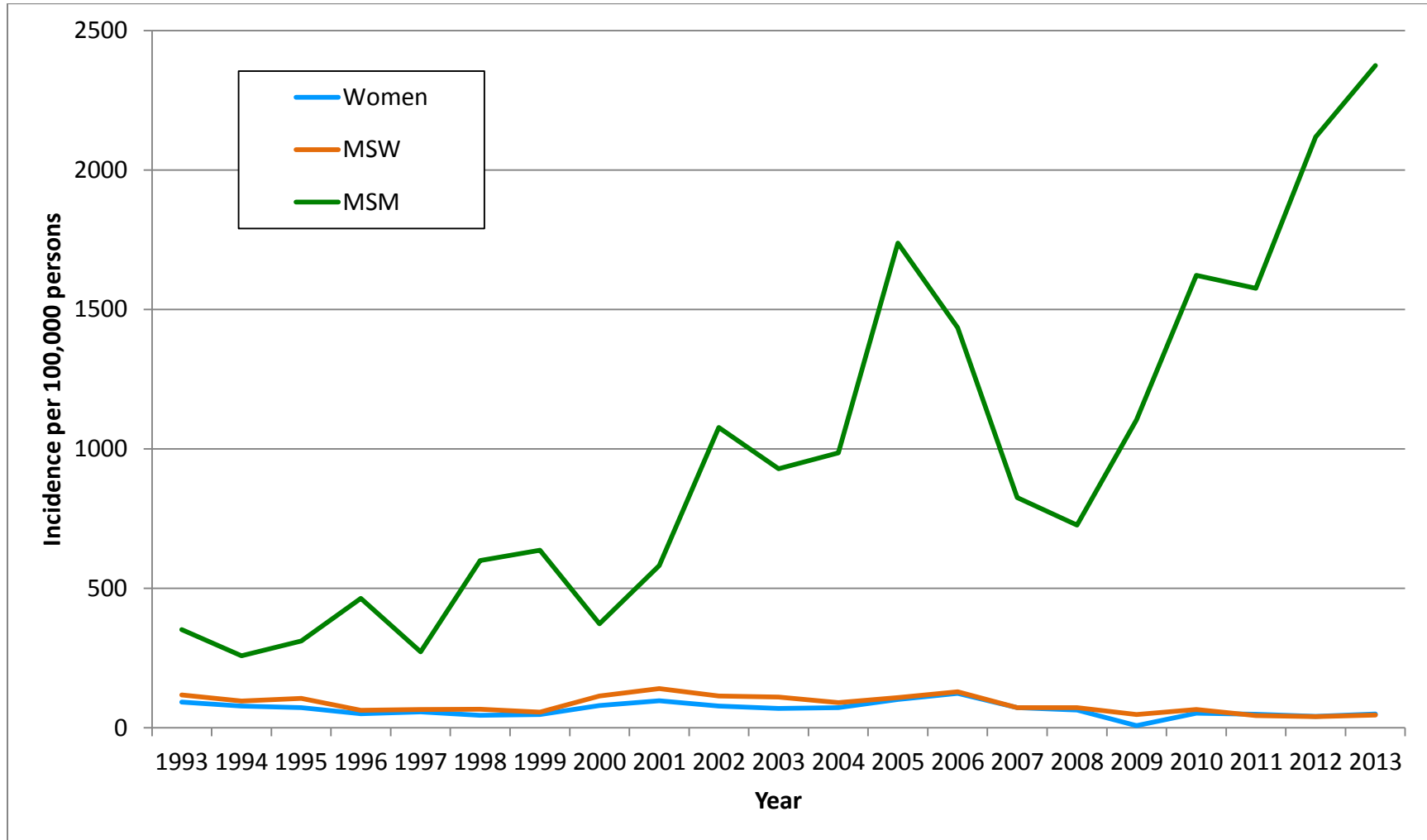
Year	Women		Men		Total	
	Cases	Incidence per 100,000 population	Cases	Incidence per 100,000 population	Cases	Incidence per 100,000 population
1992	900	112.6	1052	134.8	1952	123.6
1993	649	80.0	878	110.5	1527	95.1
1994	543	66.2	675	83.9	1218	75.0
1995	516	62.3	762	93.6	1278	77.8
1996	354	42.4	559	67.9	913	55.0
1997	395	46.7	519	62.2	914	54.4
1998	324	37.9	655	77.4	979	57.5
1999	347	40.2	608	71.0	955	55.5
2000	583	66.8	894	103.4	1477	85.0
2001	727	82.5	1164	133.2	1891	107.7
2002	584	65.5	1197	135.2	1781	100.2
2003	528	58.9	1119	125.6	1647	92.1
2004	556	61.6	1021	113.7	1577	87.6
2005	788	86.6	1457	161.0	2245	123.7
2006	962	104.0	1506	163.6	2468	133.8
2007	559	59.6	865	92.6	1428	76.3
2008	497	52.5	833	88.2	1329	70.3
2009	295	30.9	820	86.0	1115	58.4
2010	417	43.0	1189	123.6	1606	83.2
2011	394	40.4	1012	104.6	1406	72.4
2012	333	33.9	1228	125.9	1560	79.7
2013	407	41.2	1398	142.2	1805	91.6

**Table 8: Gonorrhea – Number of Reported Cases and Incidence among Men and Women Ages 15-29, King County, WA, 1992-2013**

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	411	706	396	1419	403
1993	514	296	530	297	1044	297
1994	451	262	421	237	872	249
1995	420	243	422	236	842	240
1996	287	165	302	167	589	166
1997	325	185	258	141	583	163
1998	262	147	334	180	596	164
1999	286	160	317	171	603	166
2000	436	243	378	202	815	222
2001	552	306	549	293	1101	300
2002	466	255	557	294	1023	275
2003	392	212	464	243	856	228
2004	444	237	419	216	864	227
2005	630	332	648	330	1278	331
2006	716	366	699	346	1416	356
2007	433	216	426	207	859	212
2008	379	187	413	198	792	193
2009	238	117	416	199	654	158
2010	291	145	481	232	772	189
2011	305	153	476	231	781	193
2012	256	132	557	279	813	207
2013	315	167	629	325	944	247

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

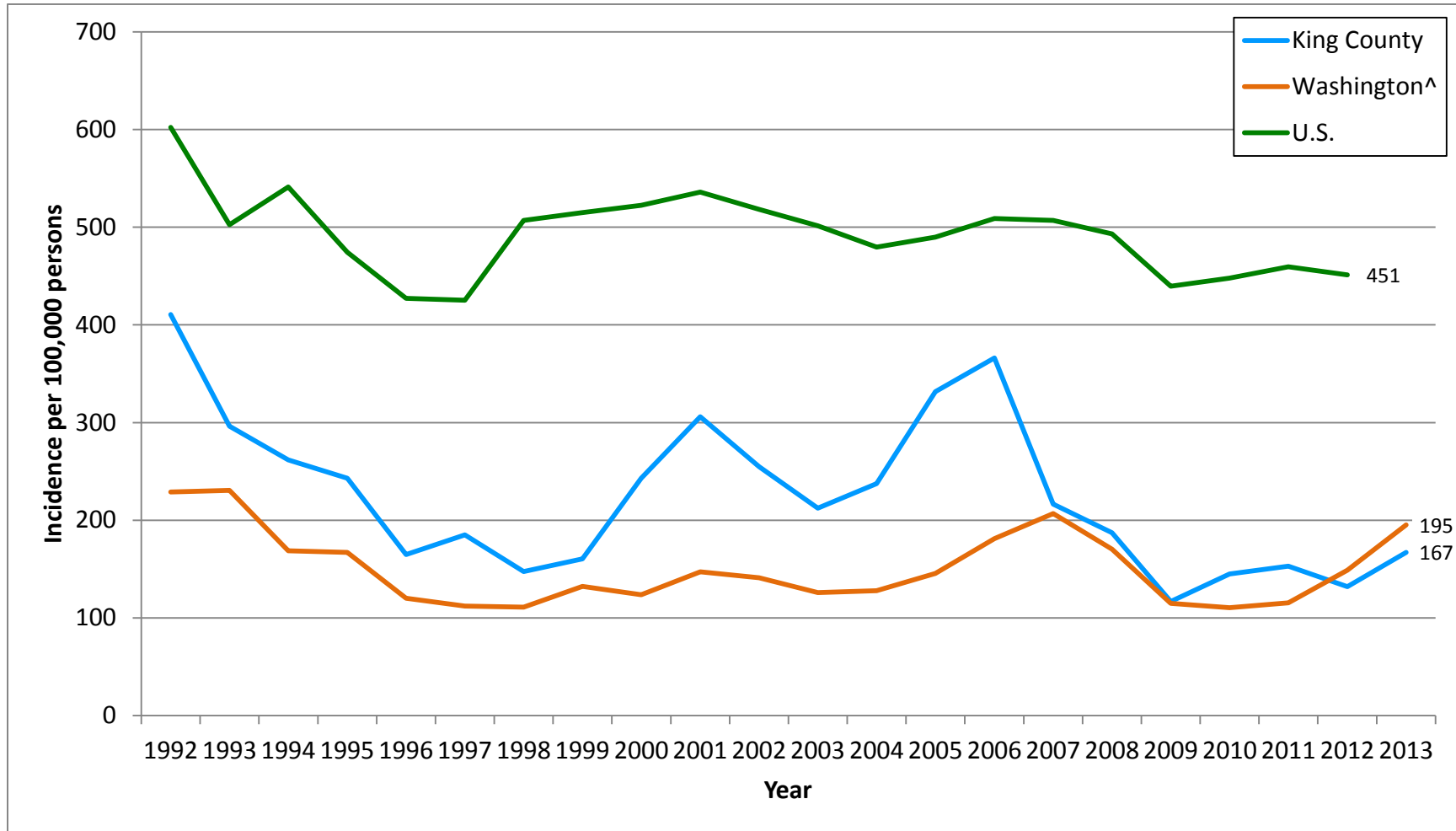
**Figure 5: Gonorrhea – Incidence among Women, MSW, and MSM  
15 years and older, King County, WA, 1993-2013**



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.



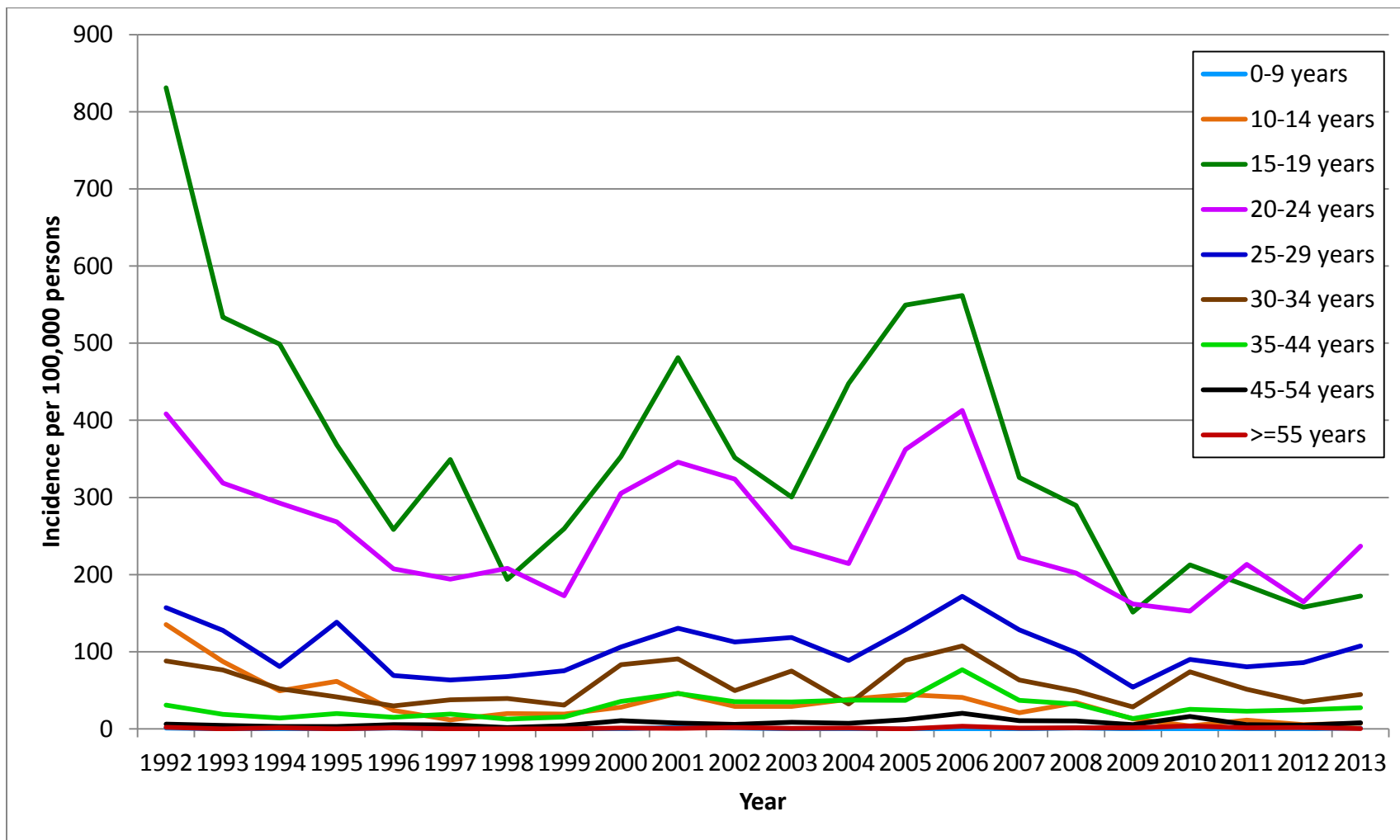
**Figure 6: Gonorrhea – Incidence among Women Ages 15-29  
King County, Washington State, and U.S., 1992-2013**



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

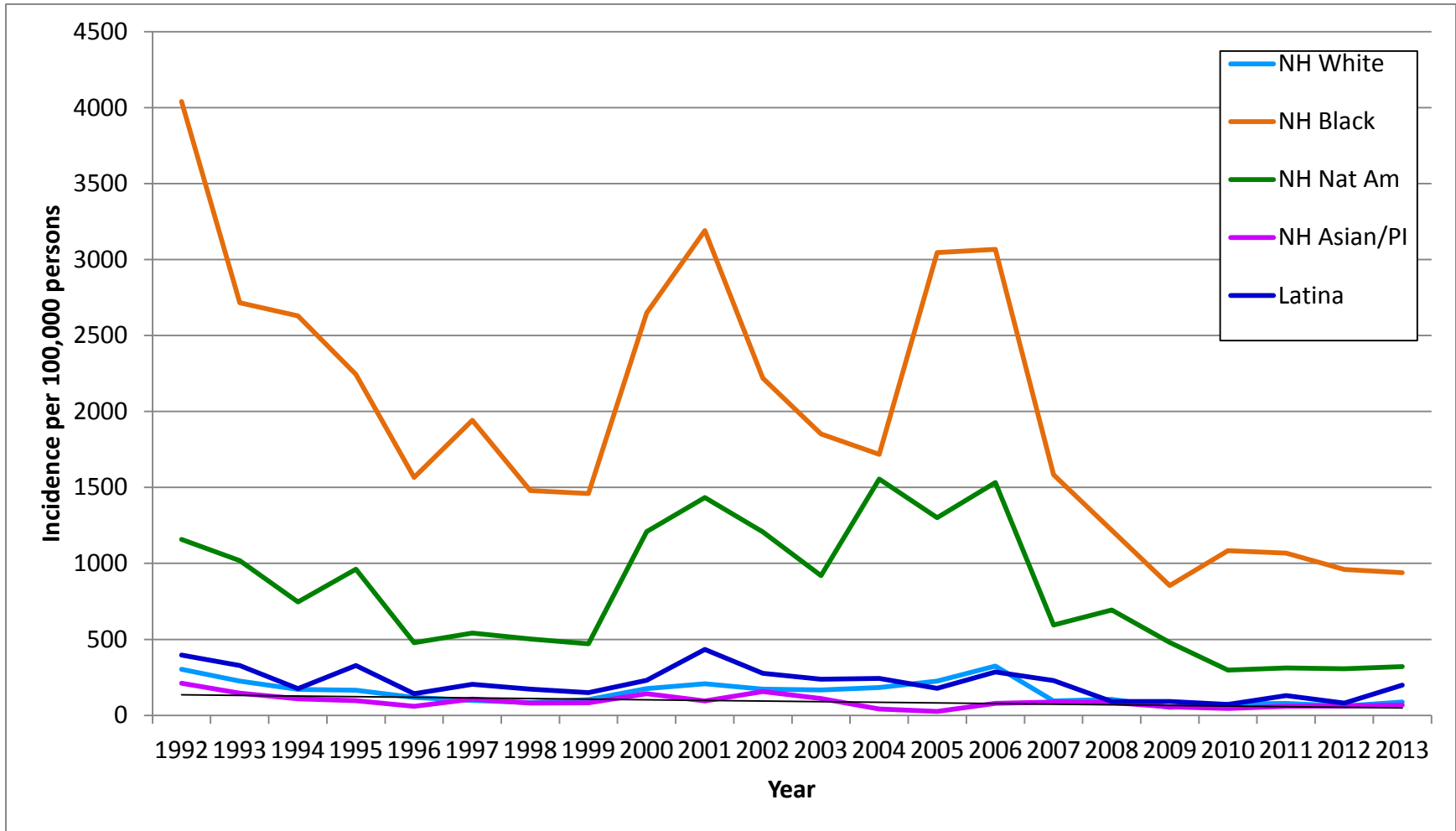
^ Washington State rates exclude King County.

Figure 7: Gonorrhea – Incidence among Women by Age  
King County, WA, 1992-2013



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

**Figure 8: Gonorrhea – Incidence among Women Ages 15-29 by Race and Ethnicity  
King County, WA, 1992-2013**



NH = Non-Hispanic, PI = Pacific Islander

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/ethnicity-specific incidences.

## Syphilis

King County has experienced an epidemic of syphilis among MSM since 1997. In 2013, the total number of early syphilis (primary, secondary, and early latent) cases reported in King County decreased from a historical high of 371 cases in 2011 to 329 (Tables 9 and 12). The overall 2013 incidence of early syphilis among King County residents was 17 per 100,000 persons (Table 9). No cases of congenital syphilis were diagnosed in King County in 2013.

### *Gender of sex partners and HIV status*

Of all 2013 cases, 88% (288) occurred in MSM (Table 10, Figure 10). The incidence of early syphilis among MSM in 2013 was 260 times greater (652 per 100,000) than among MSW (2.5 per 100,000) [Table 13]. Although syphilis rates among MSM remain alarmingly high, the rates have declined in each of the last two years. The estimated rate of early syphilis among MSM in 2011 was 783 per 100,000, while the rate in 2013 was 652 per 100,000, a 16% decline.

HIV-positive MSM have been disproportionately affected by the epidemic of syphilis among MSM since it began in 1997. This disparity by HIV status persisted in 2013; the estimated incidence of early syphilis among HIV-positive MSM was 2,756 per 100,000 men, compared to 314 per 100,000 among HIV-negative MSM (Figure 12). At the same time, the rate of syphilis in HIV-infected MSM dropped 30% between 2011, the peak incidence year in HIV-infected men, to 2013. During this same time (2011-13), the rate among HIV-uninfected men increased 26%.

Early syphilis incidence among heterosexuals remained very low in 2013, with only 29 of 329 cases occurring among MSM (19 cases) and women (10 cases) [Tables 10 and 13]. None of the women or MSM reported with syphilis in 2013 were known to be HIV-infected.

### *Syphilis diagnosis*

The majority of early syphilis cases in King County seek medical care with symptomatic primary or secondary syphilis. In 2013, 53% of all syphilis cases in MSM had primary or secondary syphilis (Table 10, Figure 9), and 52% sought medical care because of symptoms (Figure 13). However, the proportion of MSM with early syphilis who sought care because of symptoms has been decreasing since 2010, and 38% of cases in 2013 were diagnosed as part of routine testing. This change was observed in both HIV-infected and HIV-uninfected MSM. Interpreting this trend is difficult. The change may reflect increased testing among asymptomatic MSM – a positive development – or decreased symptom recognition and care-seeking leading to delayed diagnosis. Regardless, Public Health continues to emphasize the importance of recognizing symptoms of syphilis, testing and treating persons with symptoms, and routine screening for syphilis.

Figure 14 displays the reporting source for all cases of syphilis from 1997-2013. In 2007, HIV care providers and community-based organizations 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 being introduced as a category, HIV care providers have reported about a third of all cases each year (30% in 2012). The Public Health STD Clinic was the largest source of new syphilis diagnoses in 2013, reporting 111 (34%) early syphilis cases. Family planning clinics, community clinics, county jails, community-based organizations, and “other” public

health clinics combined have consistently accounted for less than 15% of the annual reported early syphilis cases in King County since 1998, and in 2013 accounted for 12% of cases combined.

**Table 9: Early Syphilis – Reported Cases and Incidence  
King County, WA, 2013**

	Cases	Percent	Incidence per 100,000 population
<b>Sex</b>			
Men	319	97%	32
Women	10	3%	1.0
<b>Total cases</b>	329		17

**Table 10: Early Syphilis – Stage of Infection, HIV Status, and  
Reason for Testing by Sexual Orientation, King County, WA, 2013**

	MSM* (N=288)		MSW and Women (N=29)	
	Number	Percent	Number	Percent
<b>Stage of Infection</b>				
Primary	61	21%	9	31%
Secondary	92	32%	12	41%
Early latent	135	47%	8	28%
<b>HIV Status</b>				
Positive	147	51%	0	0%
Negative	122	42%	23	79%
Unknown	19	7%	6	21%
<b>Reason for Visit</b>				
Routine exam	107	37%	5	17%
Symptoms	149	52%	20	69%
Known exposure	29	10%	3	10%
None/other	3	1%	1	3%

\*MSM: all men who acknowledged sex with a man. These data exclude 12 men for whom gender of sex partners is unknown.

**Table 11: Early Syphilis – Number of Reported Cases and Incidence among Men and Women, King County, WA, 1992-2013**

Year	Women		Men		Total	
	Cases	Incidence per 100,000 population	Cases	Incidence per 100,000 population	Cases	Incidence per 100,000 population
1992	26	3.3	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	17.7	166	9.2
2005	7	0.8	186	20.6	193	10.6
2006	2	0.2	183	19.9	185	10.0
2007	1	0.1	200	21.4	201	10.7
2008	4	0.4	203	21.5	207	10.9
2009	6	0.6	153	16.1	159	8.3
2010	4	0.4	291	30.2	295	15.3
2011	5	0.5	366	37.8	371	19.1
2012	6	0.6	339	34.8	345	17.6
2013	10	1.0	319	32.4	329	16.7

**Table 12: Number of Reported Early Syphilis Cases and Incidence among MSM and MSW, King County, WA, 1992-2013**

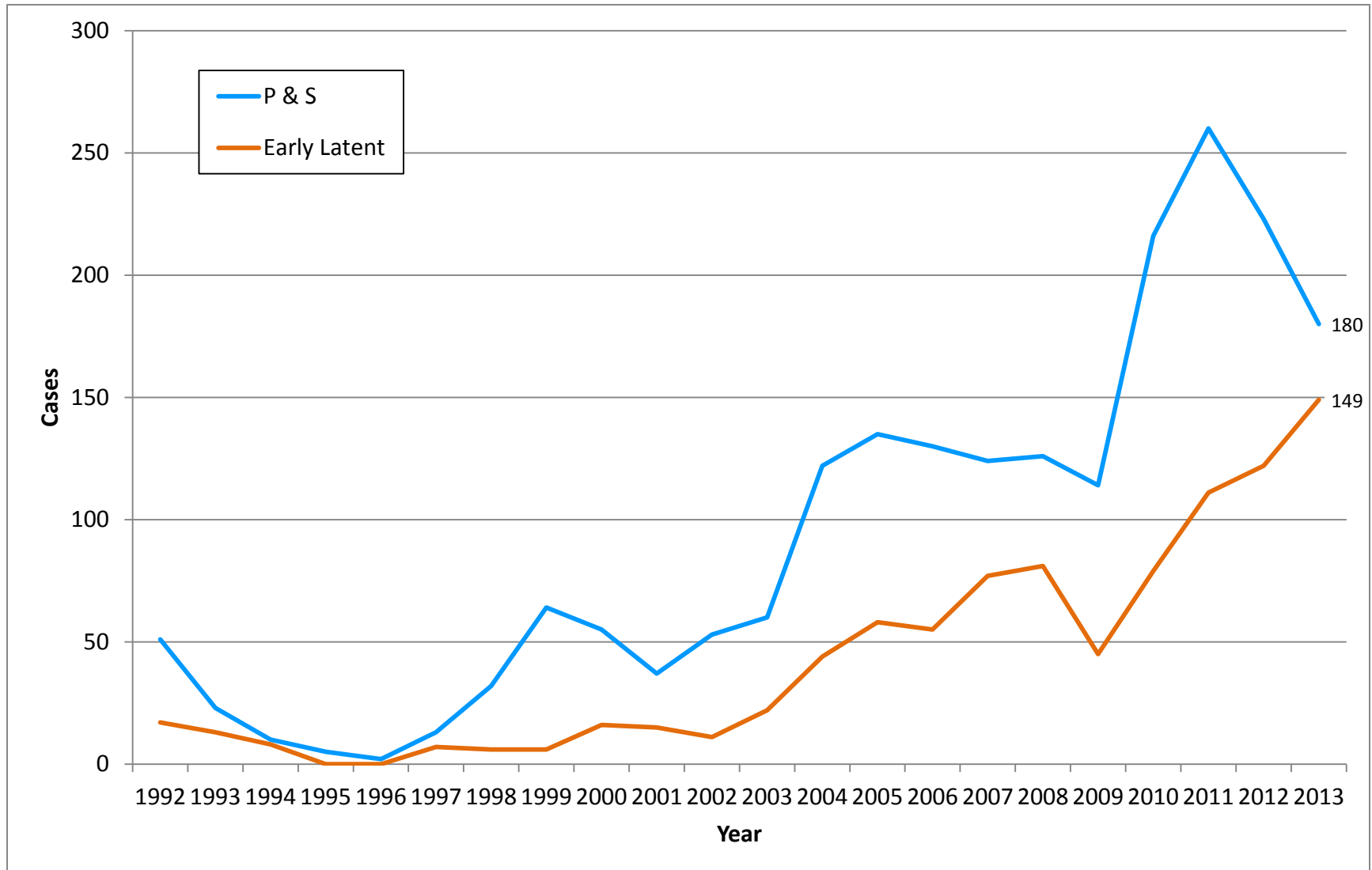
Year	MSM		MSW	
	Cases	Incidence per 100,000 population*	Cases	Incidence per 100,000 population
1992	0	0	0	0.0
1993	1	3	5	0.8
1994	2	6	10	1.7
1995	2	6	2	0.3
1996	1	3	1	0.2
1997	5	14	5	0.8
1998	32	86	3	0.5
1999	60	159	6	0.9
2000	58	151	8	1.2
2001	50	129	1	0.1
2002	60	152	3	0.4
2003	77	194	3	0.4
2004	140	349	19	2.8
2005	179	442	6	0.9
2006	174	415	8	1.1
2007	194	463	6	0.8
2008	200	472	3	0.4
2009	142	332	4	0.5
2010	267	618	9	1.2
2011	341	783	17	2.3
2012	308	702	11	1.5
2013	288	652	19	2.5

Men were missing sexual orientation data in the following years (numbers missing are included in parentheses): 1992 (42), 1993 (9), 1998 (2), 1999 (1), 2000 (1), and 2002 (1), 2005 (1), 2006 (1), 2007 (0), 2008 (0), 2009 (7), 2010 (15), 2011 (8), 2012 (19), 2013 (12).

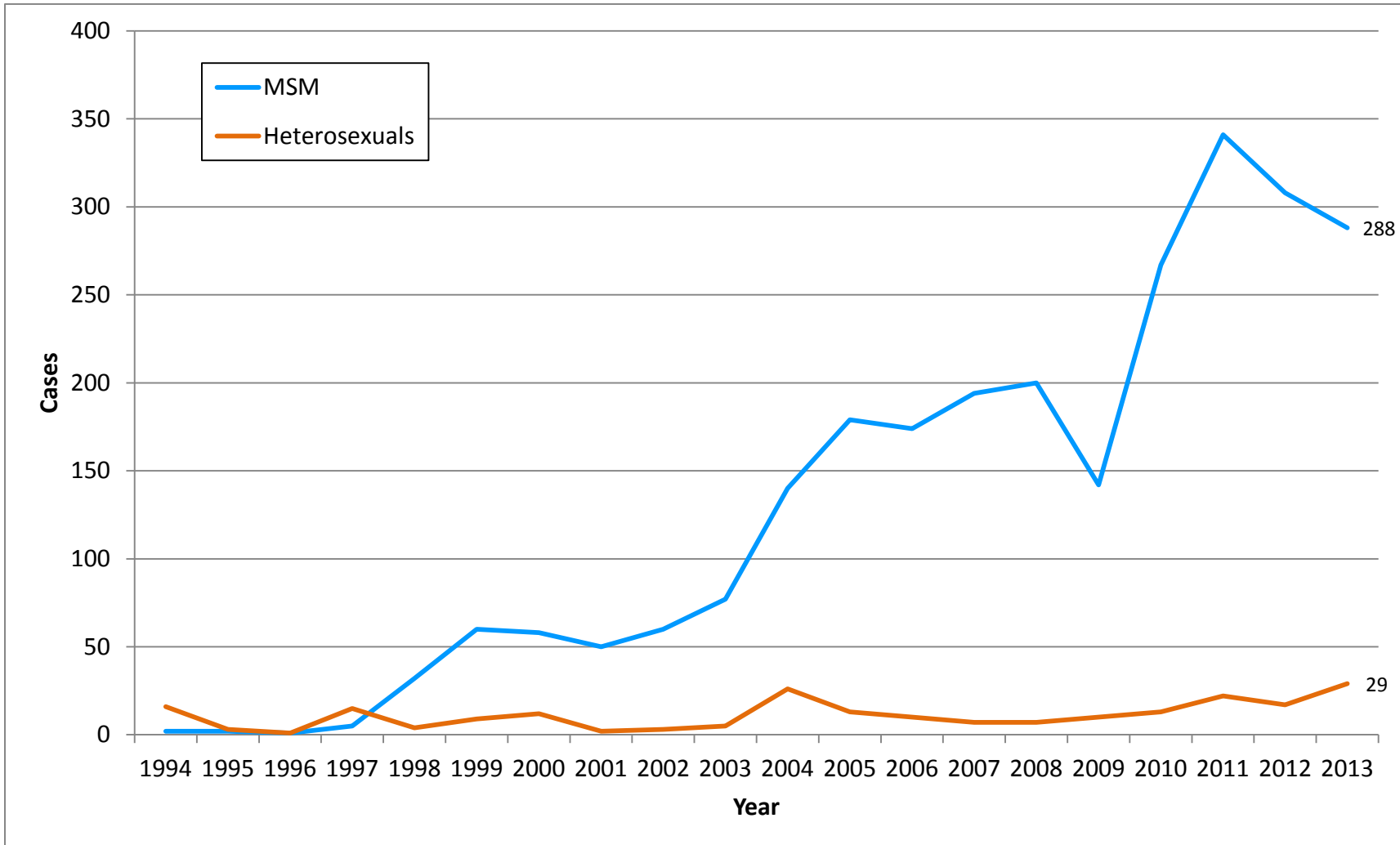
\* MSM incidence is calculated using an annual MSM population size estimate of 5.5% of the male population aged 15 and higher as the denominator.



**Figure 9: Early Syphilis – Reported Cases of Primary and Secondary vs. Early Latent Syphilis  
King County, WA, 1992-2013**

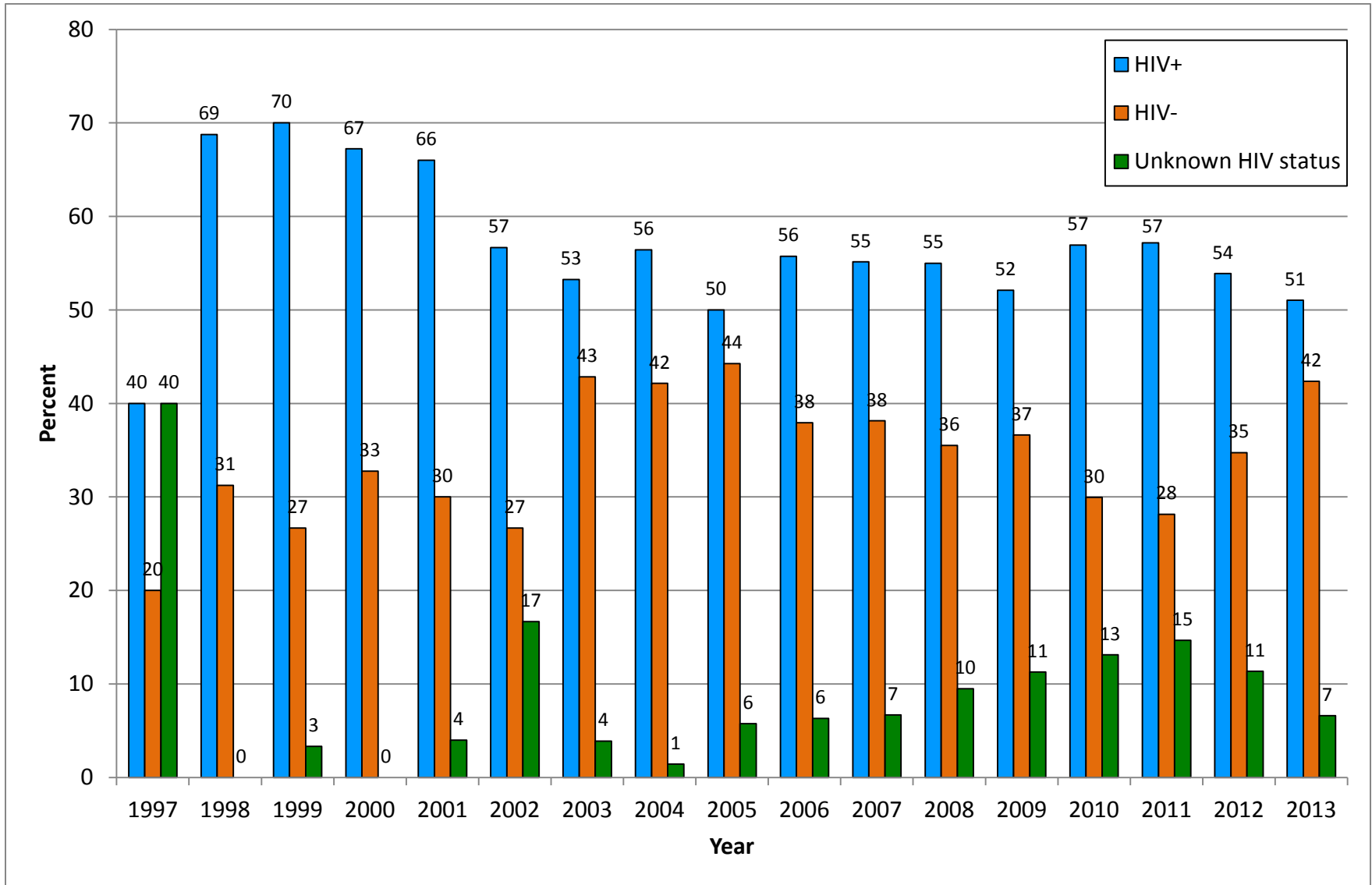


**Figure 10: Early Syphilis – Reported Cases by Sexual Orientation  
King County, WA, 1994-2013**

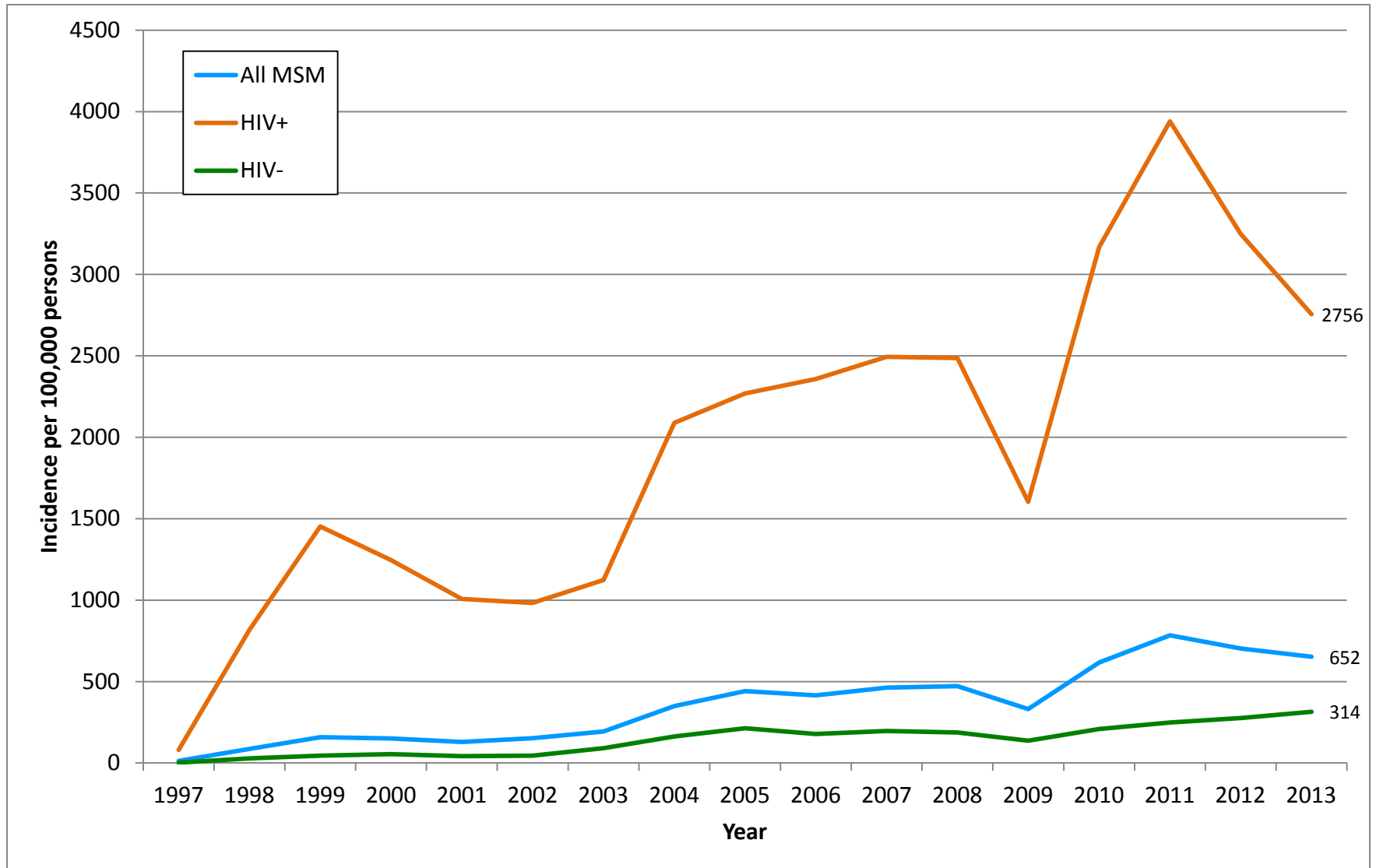


Men were missing sexual orientation data in the following years (numbers missing are included in parentheses): 1992 (42), 1993 (9), 1998 (2), 1999 (1), 2000 (1), 2002 (1), 2005 (1), 2006 (1), 2009 (7), 2010 (15), 2011 (8), 2012 (19), 2013 (12).

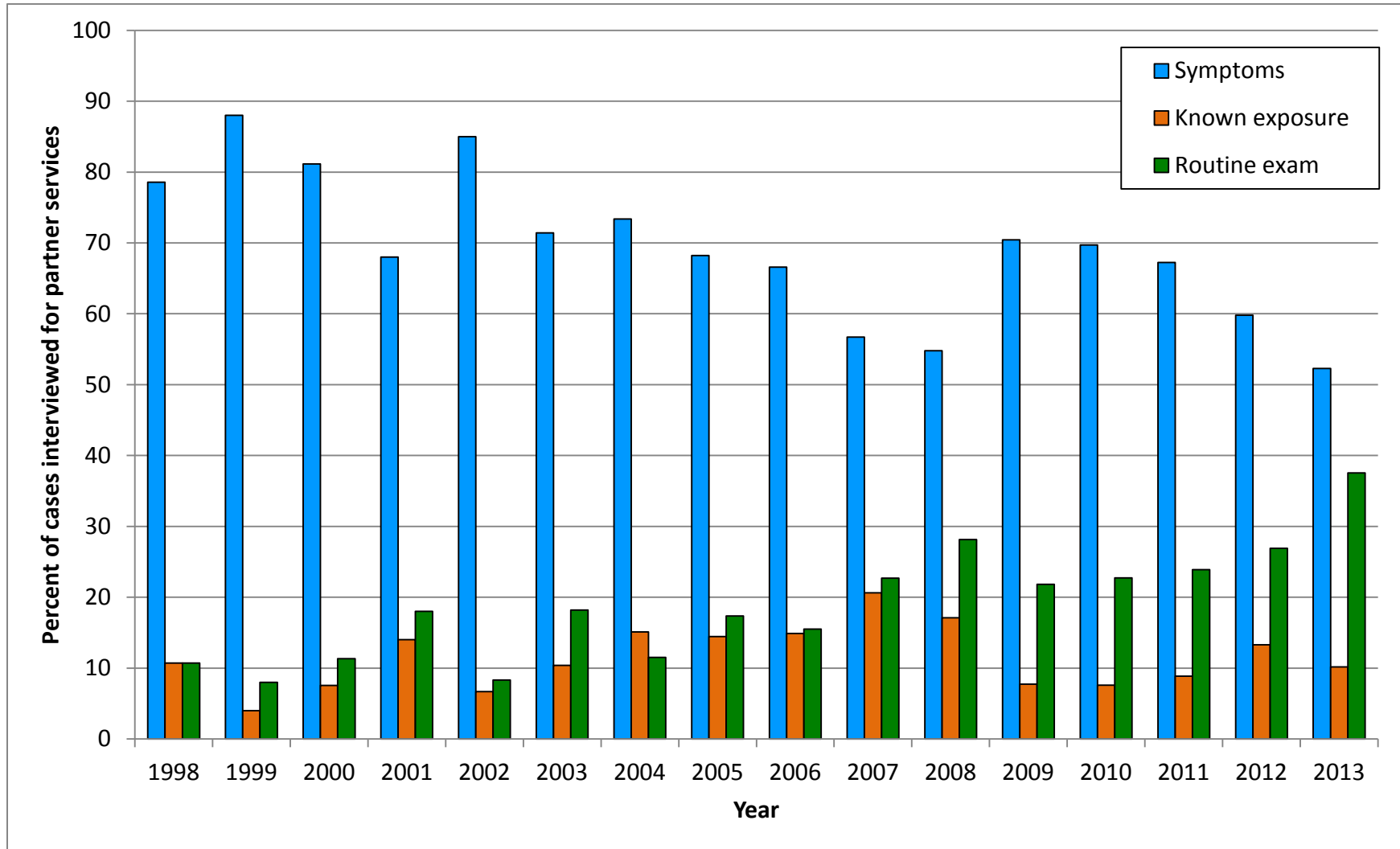
**Figure 11: Early Syphilis – Percent of Reported Cases among MSM by HIV Status  
King County, WA, 1997-2013**



**Figure 12: Early Syphilis – Incidence among MSM by HIV Status  
King County, WA, 1997-2013**

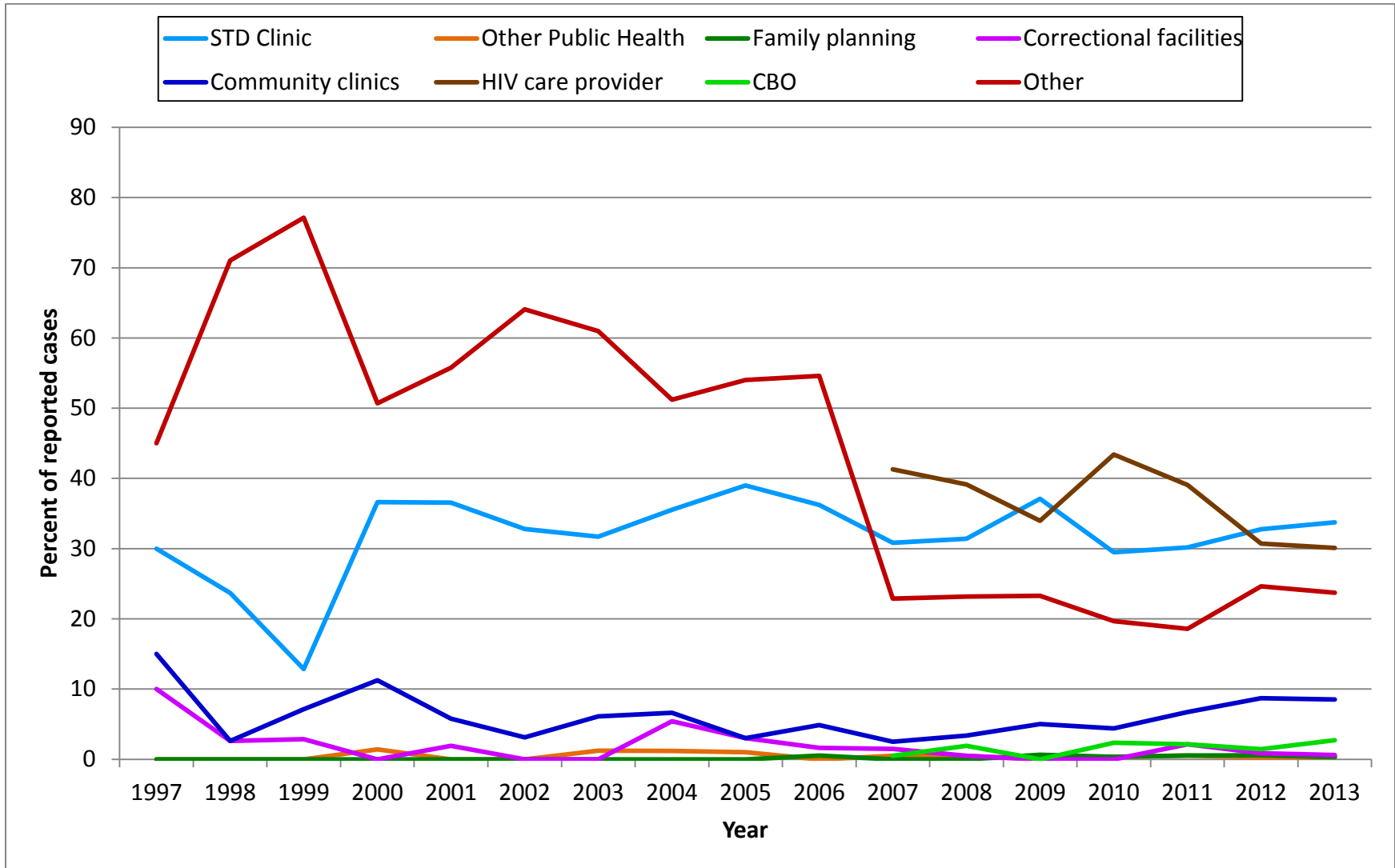


**Figure 13: Early Syphilis – Reason for Visit among MSM  
King County, WA, 1998-2012**



Percentages exclude MSM not interviewed for partner services or who did not report a reason for visit.

**Figure 14: Early Syphilis – Reporting Providers  
King County, WA, 1997-2012**



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

In 2013, 6,697 patients made 10,794 visits to the Public Health STD Clinic. Of these, 10,275 visits were made by patients seeking STD Clinic services, while 519 visits were made by patients seeking an HIV test only (Table 13). 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 2013, MSM made up 48% of the visits among patients seeking STD Clinic services, while MSW and women accounted for 24% and 27% of these visits, respectively. The number of visits made by MSM to the STD clinic continued to increase in 2013, while the number of visits made by MSW and women decreased slightly (Table 17, Figure 15). These changes reflect long-term trends in the population served by the clinic, with the number of MSM patients consistently rising. In 2013, the clinic provided services to 2873 different MSM during 5082 visits, more than in any year in the clinic's history (Tables 17 & 18).

Tables 14-16 display the race/ethnicity (categories include Latinos as a separate race group) and age distribution for STD Clinic patients in 2013. Of note, 19% of all patients seen in the clinic, including 26% of MSW and women receiving care in the clinic, were black. Only 6% of all King County residents are black. Eighty-one percent of patients in 2013 reported that they were uninsured.

The Public Health STD Clinic diagnosed a substantial proportion of all reportable STDs diagnosed in King County in 2013. This included 34% (111

of 329) of all cases of early syphilis, 28% (510 of 1805) of all cases of gonorrhea, 20% (53 of 263) of all cases of HIV, and 9% (654 of 6939) of all cases of chlamydial infection. As in past years, the Public Health STD Clinic diagnosed more cases of HIV in 2013 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*

In 2013 (Figure 17), 601 total cases of gonorrhea were diagnosed in the Public Health STD Clinic, an increase from 565 diagnoses in 2012. This increase was observed entirely among MSM; by contrast, diagnoses decreased slightly among MSW and remained stable among women (Figure 17). The number of cases of gonorrhea in MSM remains substantially higher than numbers observed in the late 1990s. However, some of the observed increase reflects increased screening for rectal and pharyngeal gonorrhea among MSM originally implemented in the late 1990s, and the adoption of more sensitive nucleic acid amplification tests (NAATs) for extragenital gonorrhea and chlamydia screening in November 2010. In order to examine trends in gonorrhea diagnoses among MSM not influenced by these changes in screening practices, Figure 18 displays urethral gonorrhea diagnoses among men experiencing symptoms. As with gonorrhea diagnoses overall, diagnoses of symptomatic urethral gonorrhea increased among MSM and decreased among MSW from 2012 to 2013.

### *Chlamydial infection*

In 2013, the STD Clinic diagnosed 689 cases of chlamydial infection (Figure 20), a small decrease from 2012 (708 cases). Chlamydial diagnoses



decreased among MSW, while diagnoses among women and MSM remained stable at 104 and 461, respectively. As noted above, routine screening with NAATs for rectal and pharyngeal chlamydial infection was implemented in late 2010 and likely contributed to the greater number of chlamydial diagnoses among MSM in 2012 and 2013 compared to prior years. The number of MSM with symptomatic chlamydial urethritis, which is not affected by changes in screening practices, has remained relatively stable since 2003 (Figure 21).

### *Syphilis*

There were 115 early syphilis diagnoses in 2013 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).

### *HIV*

Figure 24 displays new HIV diagnoses from the STD Clinic (1993-2013) and through other HIV testing performed by HIV/STD program staff (2000-2013). Clinic staff diagnosed a total of 60 cases of HIV infection in 2013.

### *Trichomoniasis and Bacterial Vaginosis*

The number of trichomoniasis cases diagnosed in the STD Clinic has decreased in recent years, from 124 diagnoses in 2008 to 48 in 2013 (Figure 25). Trichomoniasis prevalence among tested women has decreased slightly to 3.6% in 2013. (Trichomoniasis prevalence is calculated as the total number of diagnoses divided by the number of women tested by culture and/or wet mount.) The number of women diagnosed with bacterial vaginosis also fell from 597 in 2012 to 514 in 2013, while the prevalence of bacterial vaginosis among women in the clinic was similar to the prevalence

observed in 2012 (42%, 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.) These decreases in diagnoses of trichomoniasis and bacterial vaginosis without significant changes in prevalence appear to result from decreases in the number of women tested for these conditions, which mirrors a trend towards fewer visits to the clinic by women.

### *Genital Herpes*

The number of first clinical episodes of genital herpes diagnosed in the clinic decreased slightly from 104 in 2012 to 96 in 2013 (Figure 27) while the number of visits during which patients were evaluated for recurrent genital herpes has remained relatively stable since 2008 (158 in 2013, Figure 28). For the first time, the greatest proportion of initial and recurrent herpes diagnoses occurred among MSM (38% and 40%, respectively). This change is likely a reflection of the continued decline in clinic visits by women and MSW. Among 1,208 asymptomatic patients tested for HSV-2 in 2012, there were 18 HSV-2 diagnoses among MSM, 39 among MSW, and 43 in women (Figure 29). Increases in the number of HSV-2 diagnoses observed in 2010-2011, and subsequent decreases among MSW and MSM, are likely related, in part, to implementation of a research project in April of 2010 through which HIV-uninfected male patients were offered free serologic testing for HSV-2.

**Table 13: Number of Visits and Patients, PHSKC Clinic, 2013**

<b>(A) Clients seen for services other than HIV tests only</b>					
	Women	MSW	MSM*	Men with Unknown Sexual Orientation	Total
Visits	2492	2845	4891	47	10275
Patients (unduplicated visits)	1667	2183	2810	37	6697
<b>(B) Clients seen for HIV tests only</b>					
	Women	MSW	MSM*	Men with Unknown Sexual Orientation	Total
Visits	104	206	191	18	519
Patients (unduplicated visits)	92	168	170	13	443
<b>(C) Clients seen for all services</b>					
	Women	MSW	MSM*	Men with Unknown Sexual Orientation	Total
Visits	2596	3051	5082	65	10794
Patients (unduplicated visits)	1723	2289	2873	48	6933

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

**Table 14: Age and Race of Patients, PHSKC STD Clinic, 2013**

	Women		MSW <sup>^</sup>		MSM* <sup>^</sup>		Total <sup>^</sup>	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
<b>Race</b>								
White	856	(49.7)	1194	(52.2)	1861	(64.8)	3935	(56.8)
Black	404	(23.4)	638	(27.9)	255	(8.9)	1307	(18.9)
Native American Asian & Pacific Islander	31	(1.8)	24	(1.0)	30	(1.0)	87	(1.3)
Latino	156	(9.1)	151	(6.6)	200	(7.0)	509	(7.3)
Multiple Race	134	(7.8)	167	(7.3)	360	(12.5)	669	(9.6)
Unknown	84	(4.9)	39	(1.7)	79	(2.7)	202	(2.9)
	58	(3.4)	76	(3.3)	88	(3.1)	224	(3.2)
<b>Age</b>								
10-14 years	2	(0.1)	7	(0.3)	1	(0.0)	11	(0.2)
15-19 years	80	(4.6)	49	(2.1)	41	(1.4)	173	(2.5)
20-24 years	368	(21.4)	294	(12.8)	392	(13.6)	1058	(15.3)
25-29 years	424	(24.6)	482	(21.1)	580	(20.2)	1489	(21.5)
30-34 years	287	(16.7)	383	(16.7)	489	(17.0)	1166	(16.8)
35-44 years	300	(17.4)	528	(23.1)	689	(24.0)	1528	(22.0)
45-54 years	177	(10.3)	344	(15.0)	484	(16.8)	1017	(14.7)
>=55 years	85	(4.9)	202	(8.8)	197	(6.9)	491	(7.1)

\* 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

<sup>^</sup> 48 men with unknown sexual orientation are excluded from the race/age distributions for MSW and MSM, but are included in total race and age distributions

**Table 15: Age and Race of Patients Seen for Services Other than HIV Tests Only, PHSKC STD Clinic, 2013**

	Women		MSW <sup>^</sup>		MSM* <sup>^</sup>		Total <sup>^</sup>	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
<b>Race</b>								
White	828	(49.7)	1143	(52.4)	1822	(64.8)	3812	(56.9)
Black	389	(23.3)	610	(27.9)	252	(9.0)	1259	(18.8)
Native American Asian & Pacific Islander	30	(1.8)	24	(1.1)	30	(1.1)	85	(1.3)
Latino	152	(9.1)	141	(6.5)	196	(7.0)	491	(7.3)
Multiple Race	131	(7.9)	155	(7.1)	346	(12.3)	637	(9.5)
Unknown	82	(4.9)	39	(1.8)	78	(2.8)	199	(3.0)
	55	(3.3)	71	(3.3)	86	(3.1)	214	(3.2)
<b>Age</b>								
10-14 years	2	(0.1)	1	(0.0)	0	(0.0)	3	(0.0)
15-19 years	77	(4.6)	38	(1.7)	39	(1.4)	154	(2.3)
20-24 years	361	(21.7)	287	(13.1)	386	(13.7)	1037	(15.5)
25-29 years	412	(24.7)	466	(21.3)	573	(20.4)	1454	(21.7)
30-34 years	279	(16.7)	374	(17.1)	479	(17.0)	1139	(17.0)
35-44 years	287	(17.2)	502	(23.0)	674	(24.0)	1474	(22.0)
45-54 years	170	(10.2)	327	(15.0)	472	(16.8)	977	(14.6)
>=55 years	79	(4.7)	188	(8.6)	187	(6.7)	459	(6.9)

\* 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> 37 men with unknown sexual orientation are excluded from the race/age distributions for MSW and MSM, but are included in total race and age distributions

**Table 16: Age and Race of Patients Seen for HIV Tests Only, PHSKC STD Clinic, 2013**

	Women		MSW <sup>^</sup>		MSM* <sup>^</sup>		Total <sup>^</sup>	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
<b>Race</b>								
White	38	(41.3)	70	(41.7)	104	(61.2)	217	(49.0)
Black	28	(30.4)	49	(29.2)	14	(8.2)	94	(21.2)
Native American Asian & Pacific Islander	3	(3.3)	0	(0.0)	2	(1.2)	6	(1.4)
Latino	7	(7.6)	17	(10.1)	9	(5.3)	34	(7.7)
Multiple Race	6	(6.5)	23	(13.7)	30	(17.6)	62	(14.0)
Unknown	3	(3.3)	1	(0.6)	7	(4.1)	11	(2.5)
	7	(7.6)	8	(4.8)	4	(2.4)	19	(4.3)
<b>Age</b>								
10-14 years	0	(0.0)	6	(3.6)	1	(0.6)	8	(1.8)
15-19 years	4	(4.3)	12	(7.1)	3	(1.8)	22	(5.0)
20-24 years	13	(14.1)	11	(6.5)	23	(13.5)	48	(10.8)
25-29 years	18	(19.6)	25	(14.9)	29	(17.1)	72	(16.3)
30-34 years	14	(15.2)	20	(11.9)	19	(11.2)	54	(12.2)
35-44 years	22	(23.9)	39	(23.2)	41	(24.1)	102	(23.0)
45-54 years	12	(13.0)	31	(18.5)	36	(21.2)	84	(19.0)
>=55 years	9	(9.8)	24	(14.3)	18	(10.6)	53	(12.0)

\* 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> 13 men with unknown sexual orientation are excluded from the race/age distributions for MSW and MSM, but are included in total race and age distributions

**Table 17: Number of Visits, PHSKC STD Clinic, 1993-2013**

	Women	MSW	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	3070	4282	3861	345	769	12327
2011	3039	4058	4268	415	492	12272
2012	2564	3053	4797	134	714	11262
2013	2492	2845	4891	47	519	10794

\* 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 18: Number of Patients (Unduplicated Visits), PHSKC STD Clinic, 1993-2013**

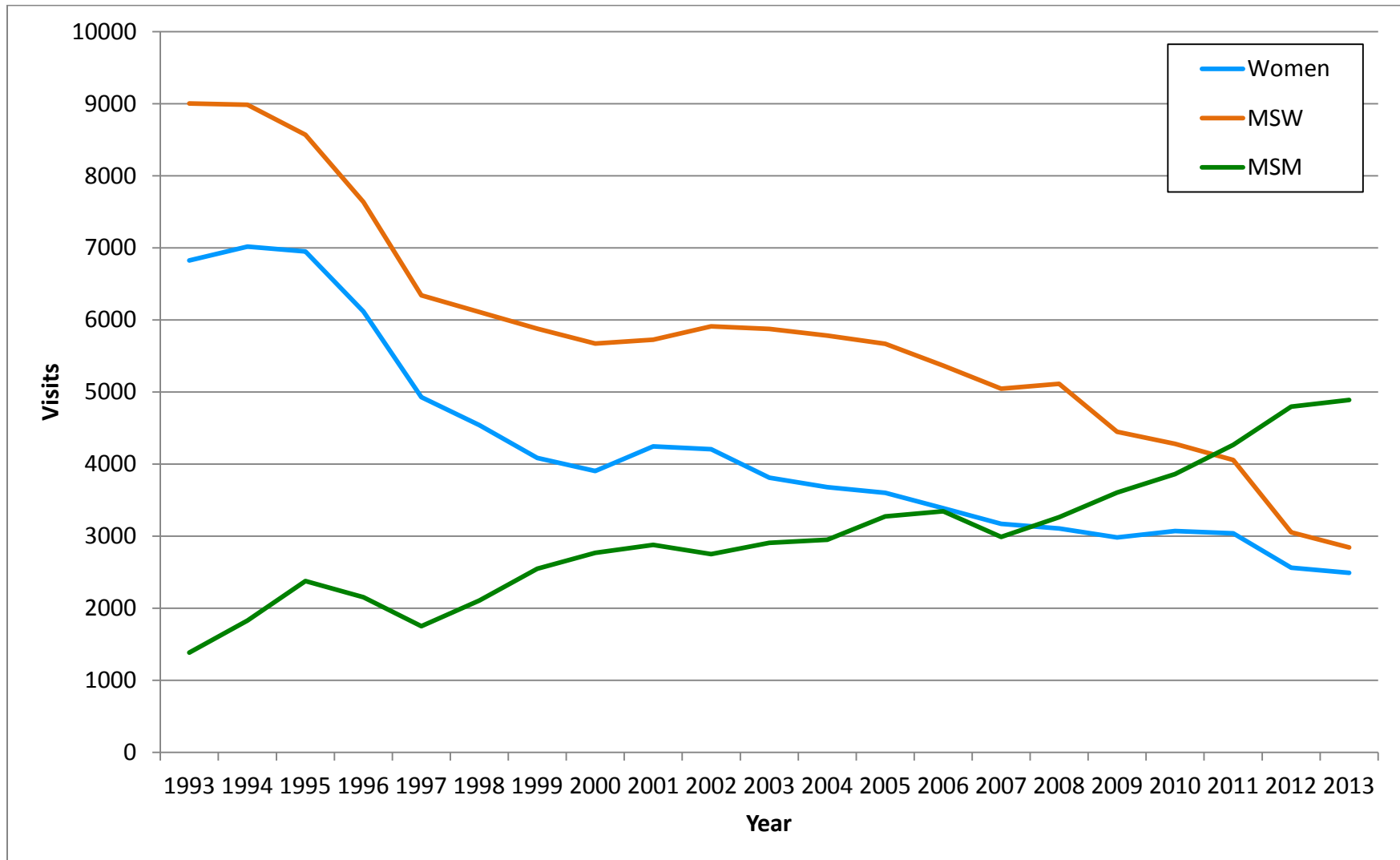
	Women	MSW	MSM	Men with Unknown Sexual Orientation	HIV Test Only Patients	Total
1993	3902	5639	843	443		10827
1994	3770	5406	891	398		10465
1995	3935	5383	1102	305		10725
1996	3629	5067	1161	184		10041
1997*	3000	4252	993	222		8467
1998	2830	4101	1099	198		8228
1999**	2503	3986	1236	150		7875
2000	2446	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	1974	3132	2170	185	457	7918
2011	2098	3033	2398	242	285	8056
2012	1772	2294	2736	115	613	7530
2013	1667	2183	2810	37	443	6933

\* 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.

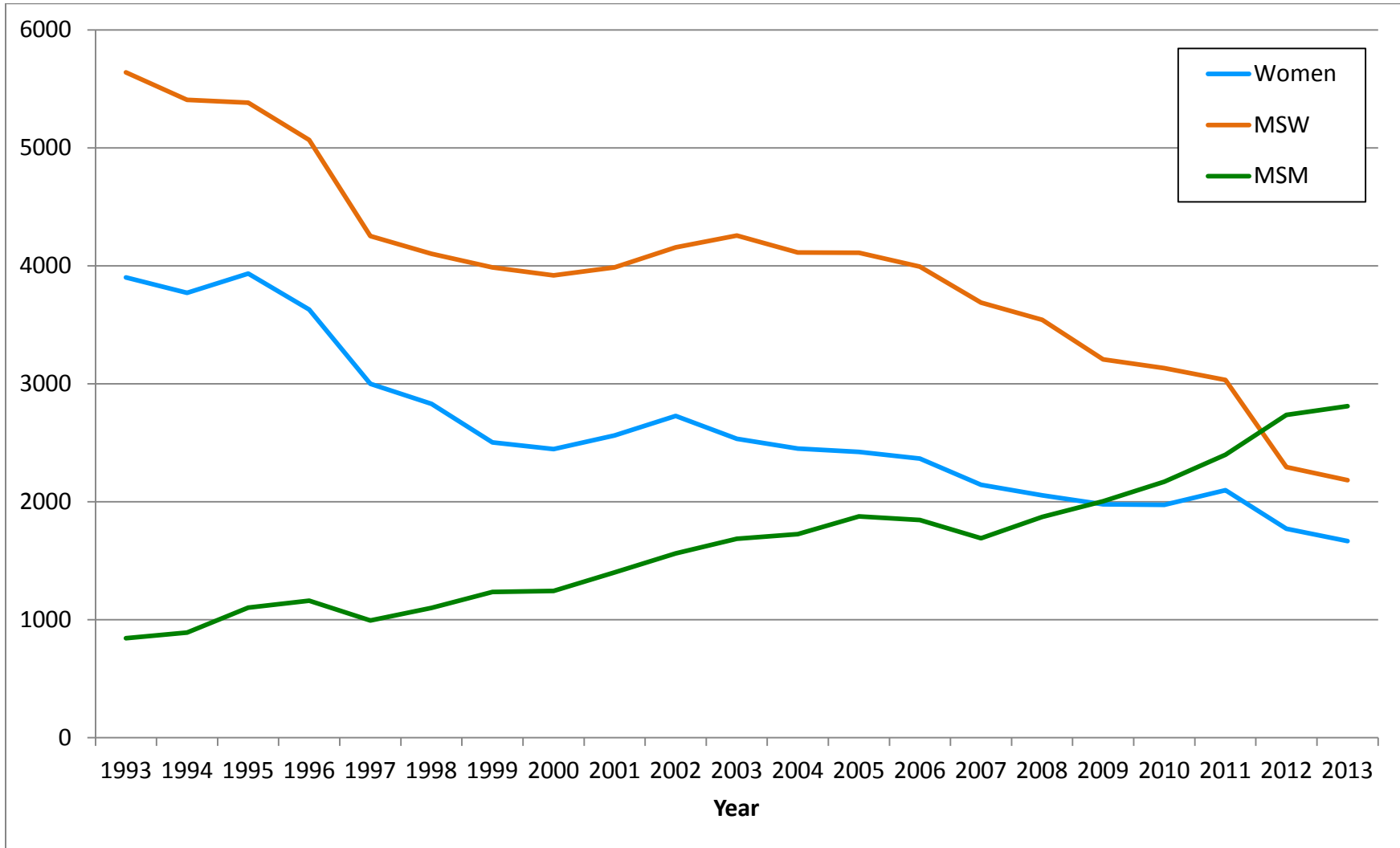


Figure 15: Number of Visits, PHSKC STD Clinics, 1993-2013



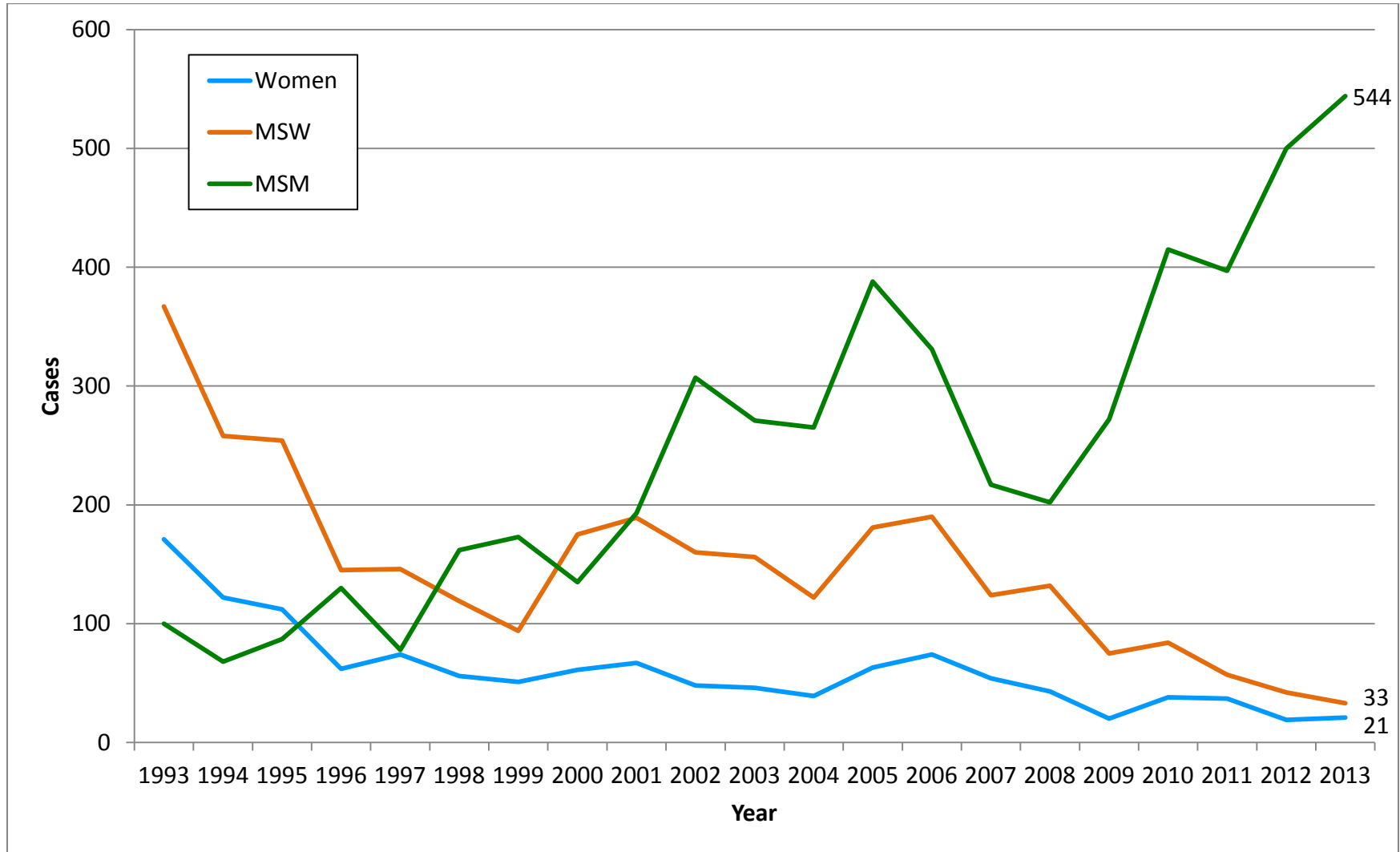
This figure excludes men with missing sexual orientation data and HIV testing visits provided through the HIV/AIDS Program. PHSKC's satellite Broadway STD Clinic was in operation from 1993-1998.

**Figure 16: Number of Patients (Unduplicated Visits), PHSKC STD Clinics, 1993-2013**



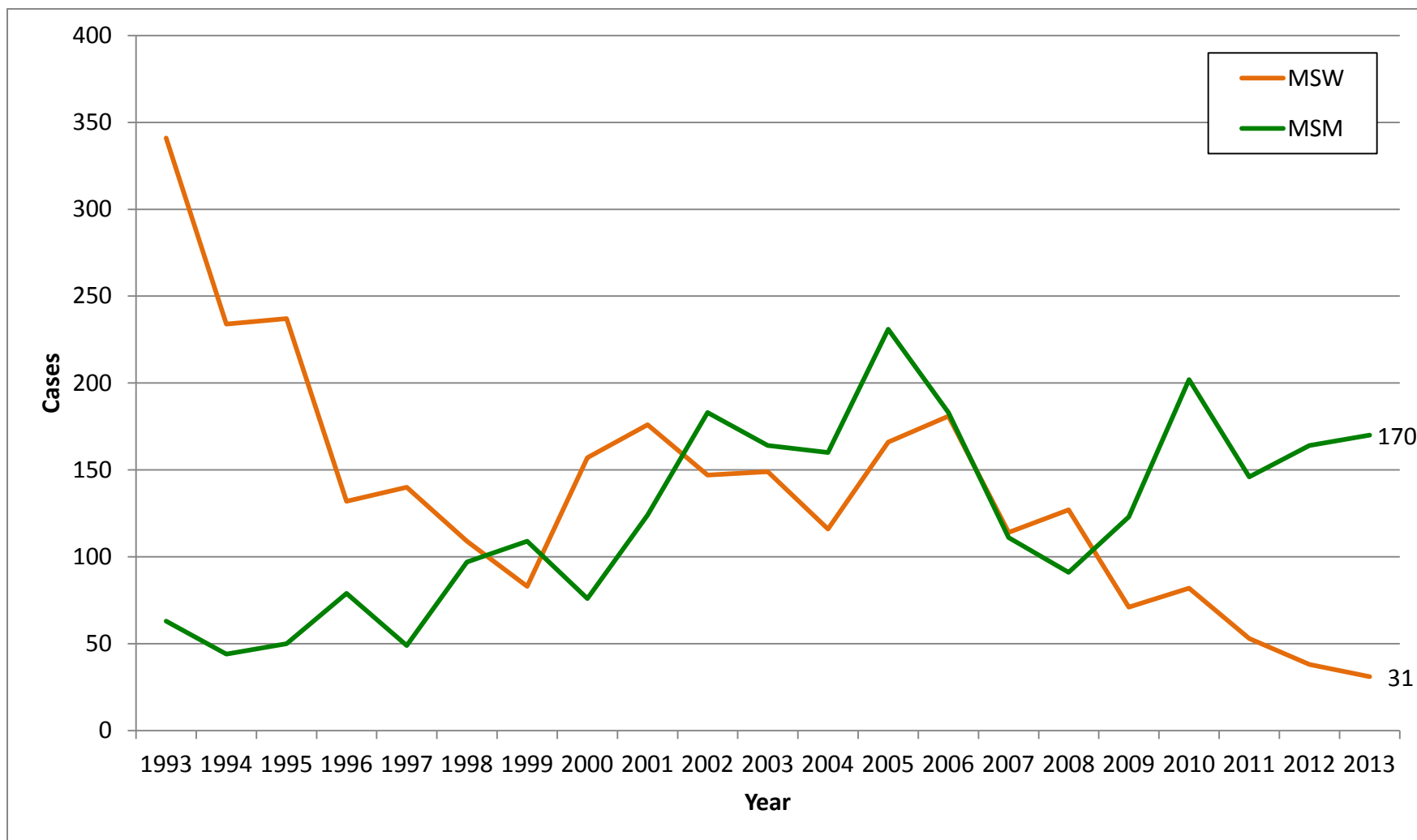
This figure excludes men with missing sexual orientation data and HIV testing visits provided through the HIV/AIDS Program. PHSKC's satellite Broadway STD Clinic was in operation from 1993-1998.

**Figure 17: Gonorrhea – Number of Diagnoses by Sex and Sexual Orientation, PHSKC STD Clinic, 1993-2013**



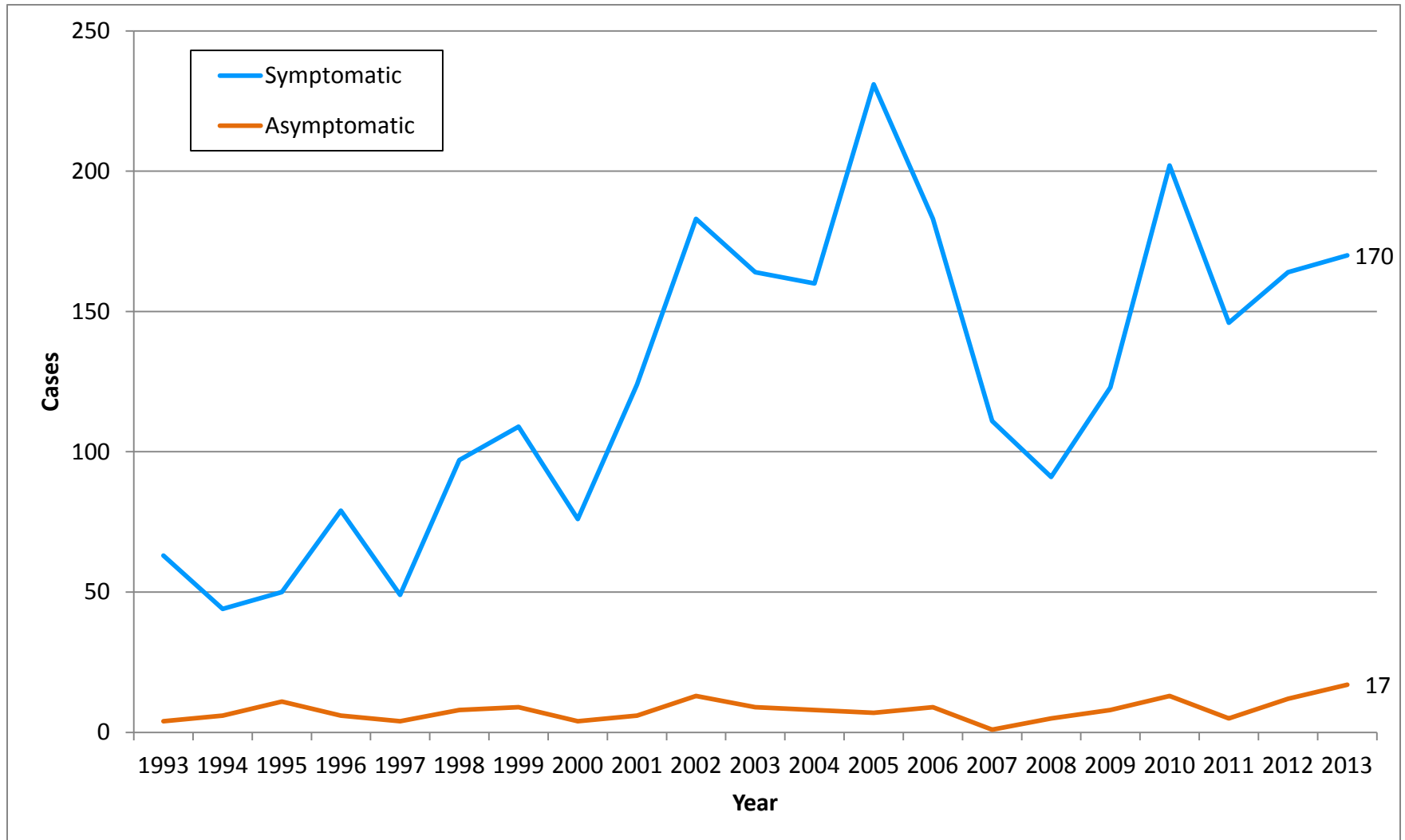
These data exclude 107 cases of gonorrhea among men who were missing sexual orientation information across all years.

**Figure 18: Gonorrhea – Symptomatic Gonococcal Urethritis among MSM and MSW  
PHSKC STD Clinic, 1993-2013**



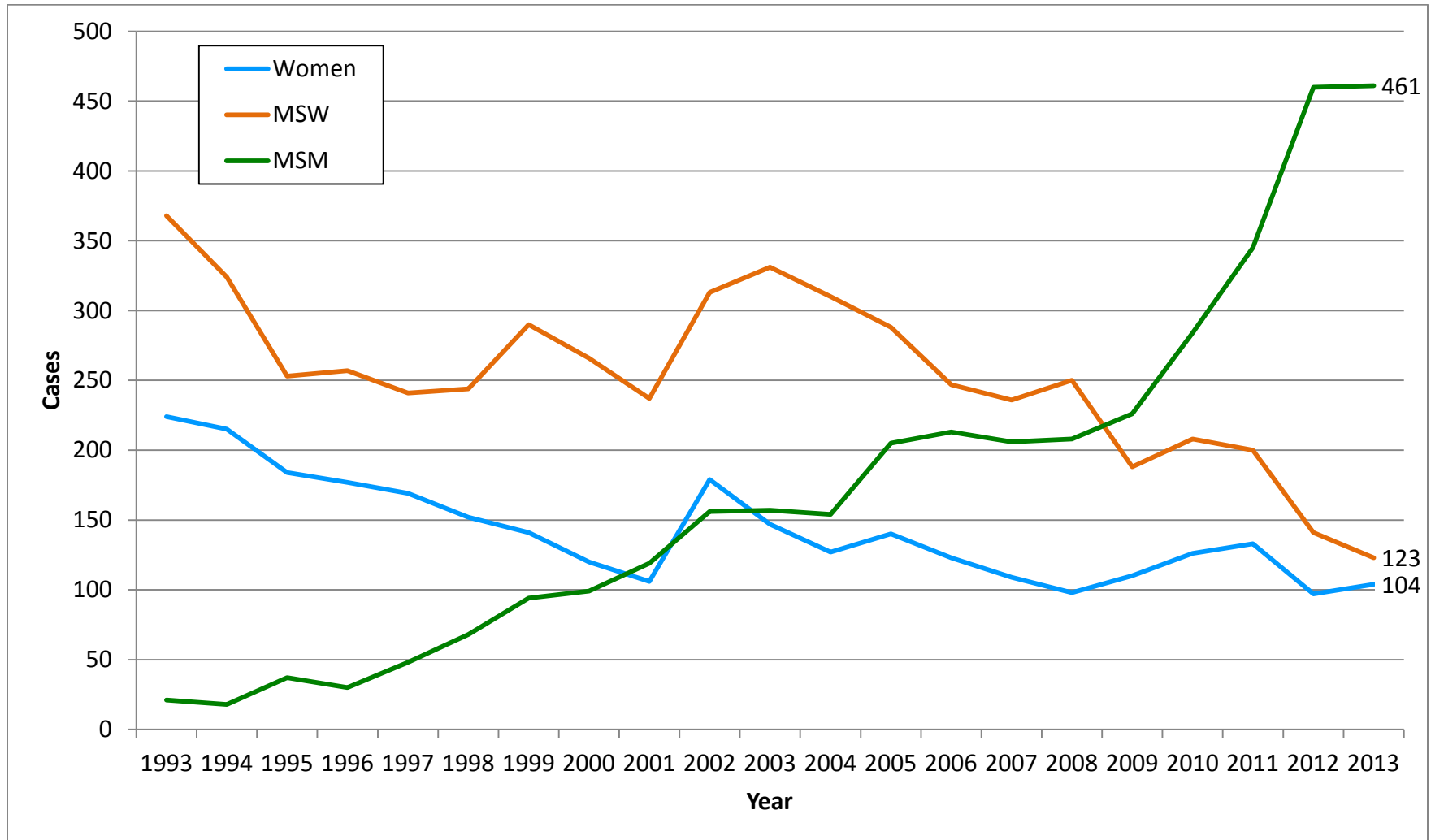
These data exclude 58 cases of symptomatic urethral gonorrhea among men who were missing sexual orientation information across all years. Symptoms include urethral discharge and/or dysuria.

**Figure 19: Gonorrhea – Symptomatic and Asymptomatic Gonococcal Urethritis among MSM  
PHSKC STD Clinic, 1993-2013**



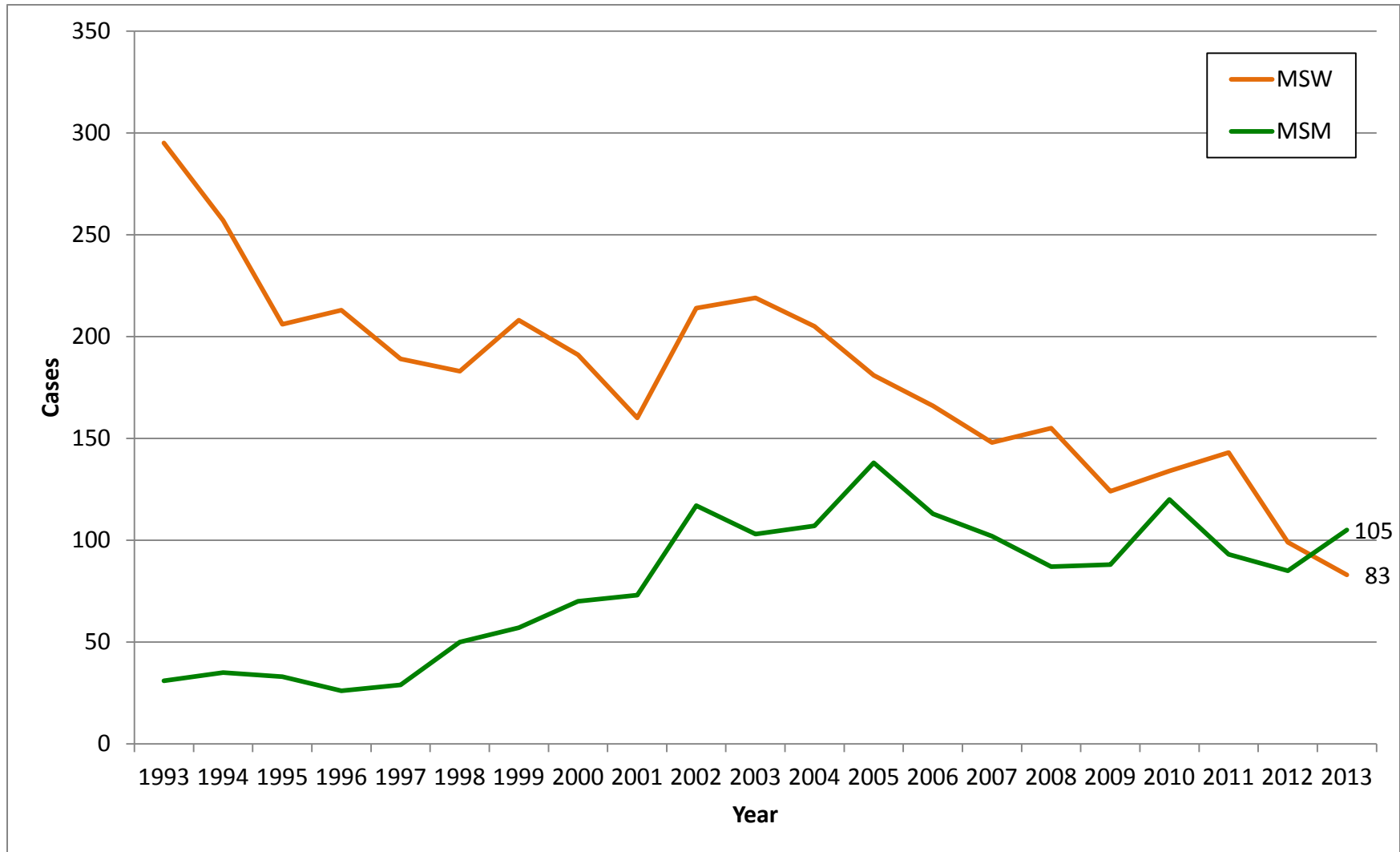
Symptoms include urethral discharge and/or dysuria

**Figure 20: Chlamydial Infection – Number of Diagnoses by Sex and Sexual Orientation  
PHSKC STD Clinic, 1993-2013**



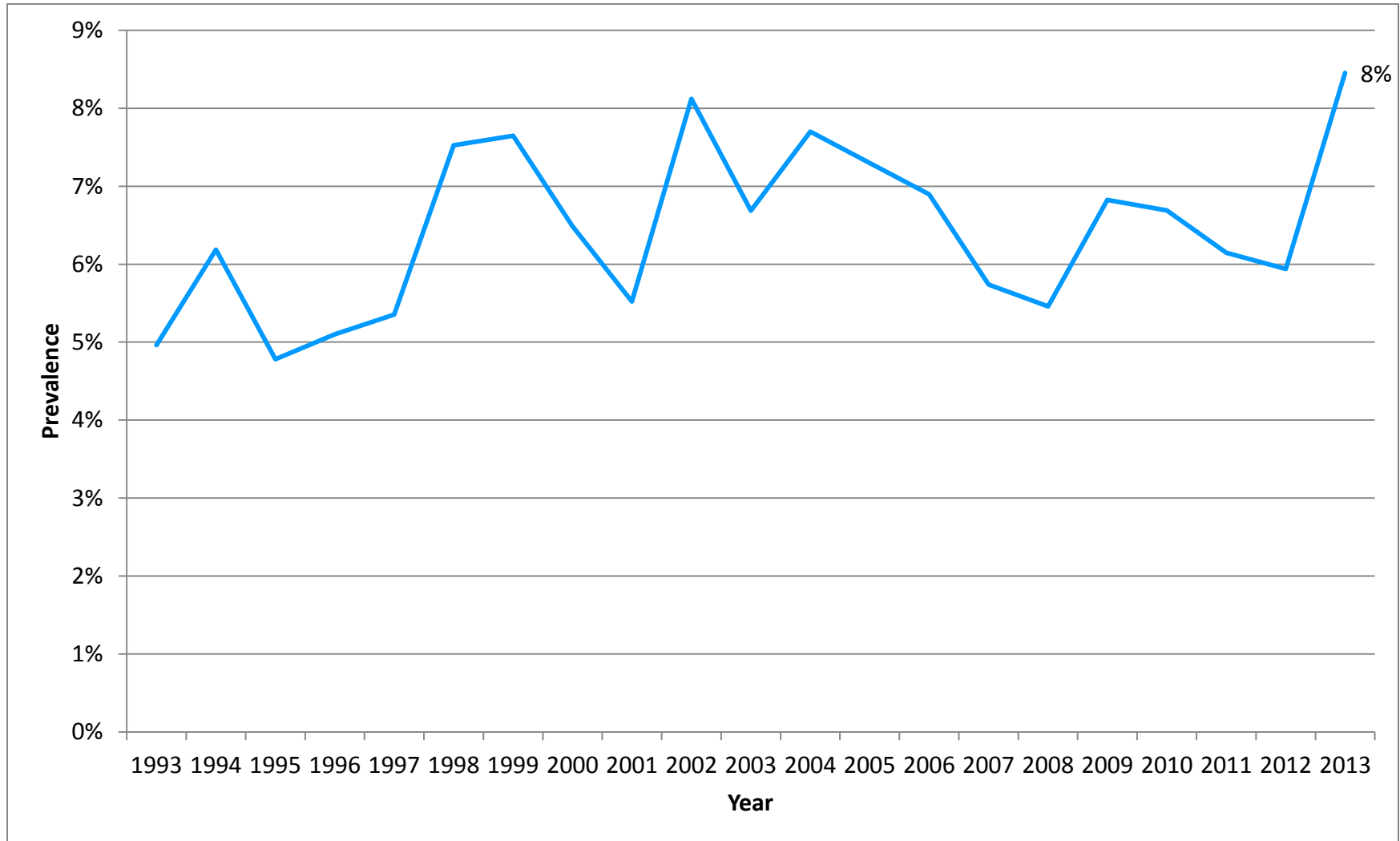
These data exclude 206 cases of chlamydial infection among men who were missing sexual orientation information across all years.

**Figure 21: Chlamydial Infection – Symptomatic Chlamydial Urethritis among MSM and MSW, PHSKC STD Clinic, 1993-2013**



Symptoms include urethral discharge and/or dysuria.

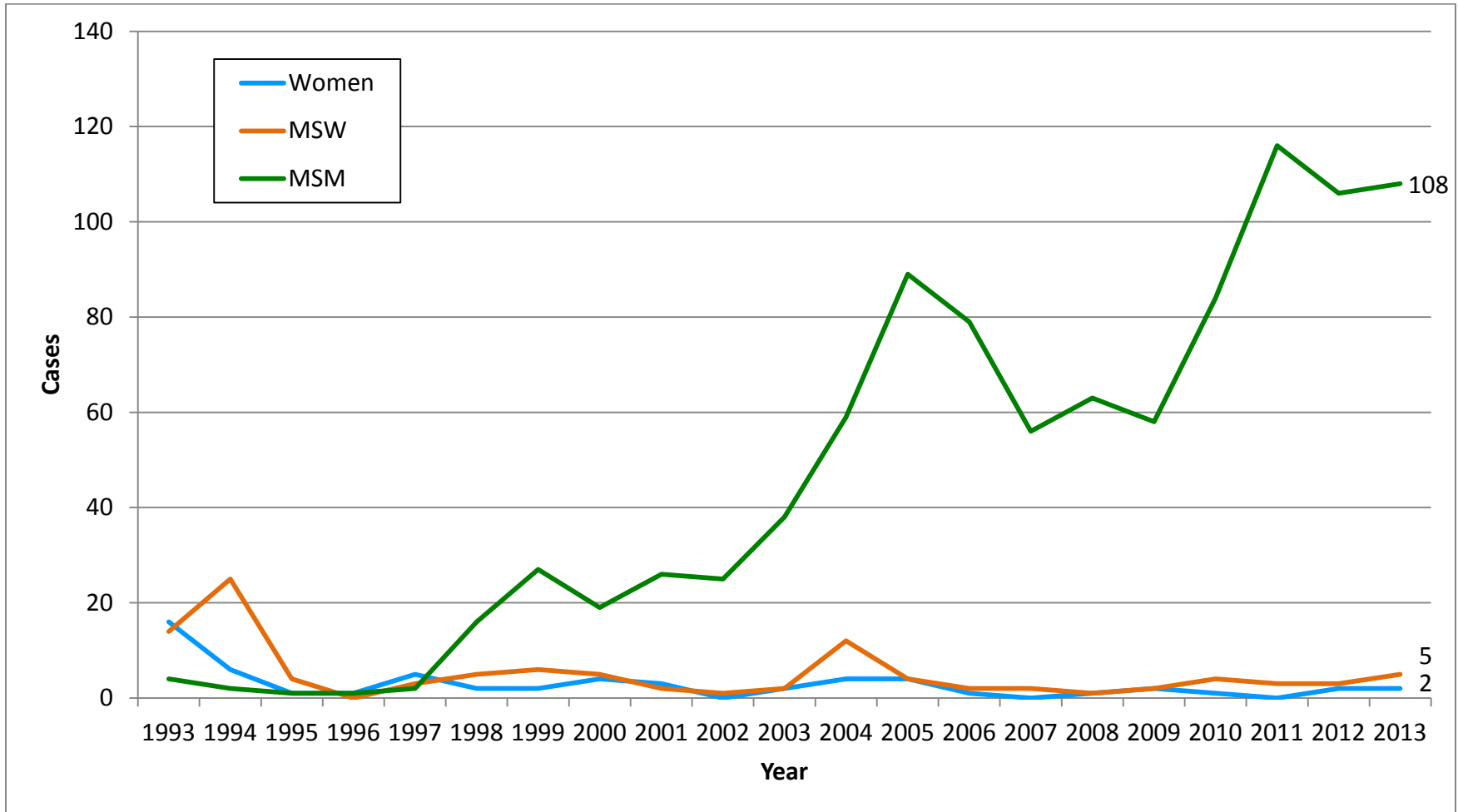
**Figure 22: Chlamydial Infection – Prevalence among Asymptomatic Women Ages 15-29  
PHSKC STD Clinic, 1993-2013**



Chlamydia prevalence is defined as the number of cases divided by the total number of women tested.

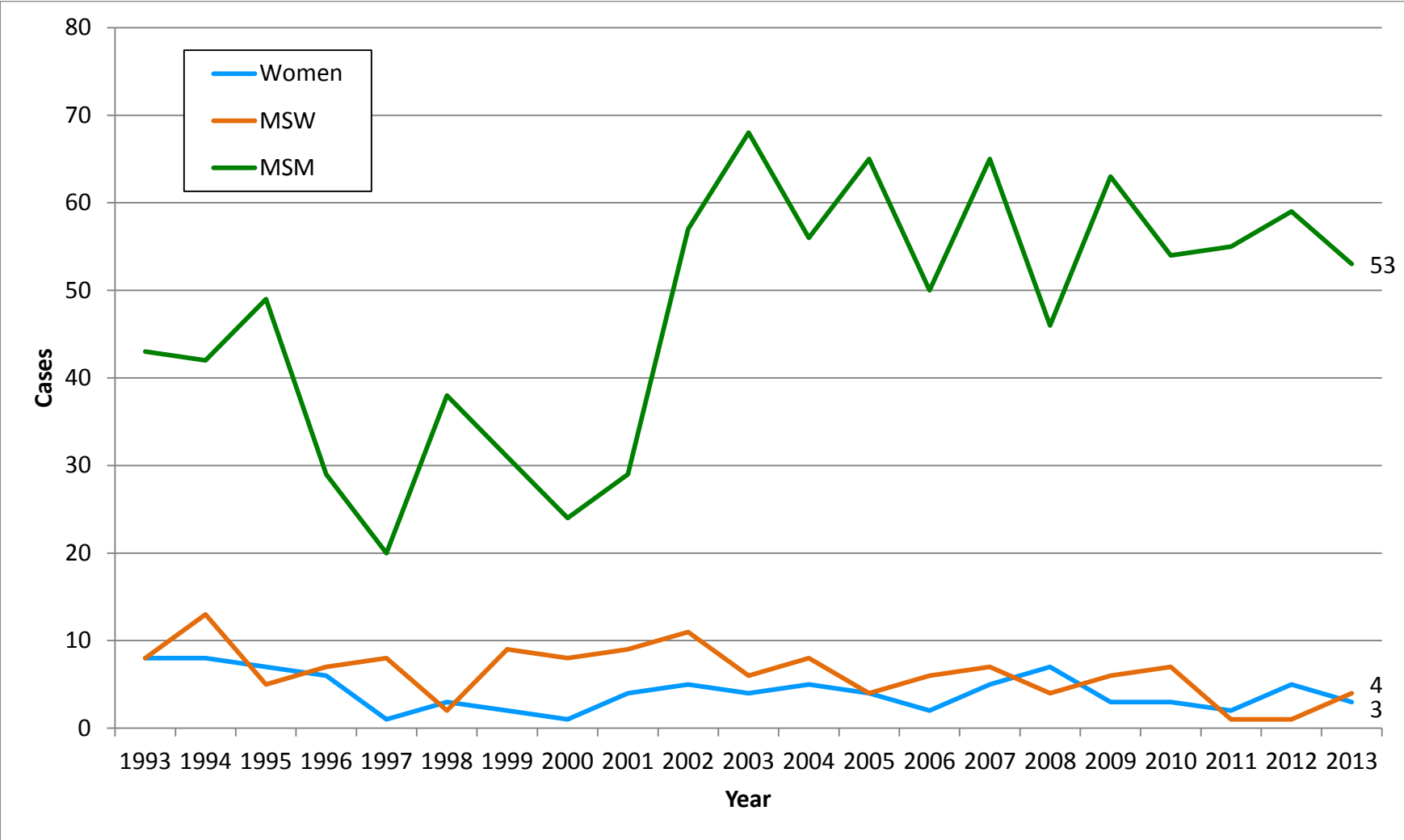


**Figure 23: Early Syphilis – Number of Diagnoses by Sex and Sexual Orientation  
PHSKC STD Clinic, 1993-2013**



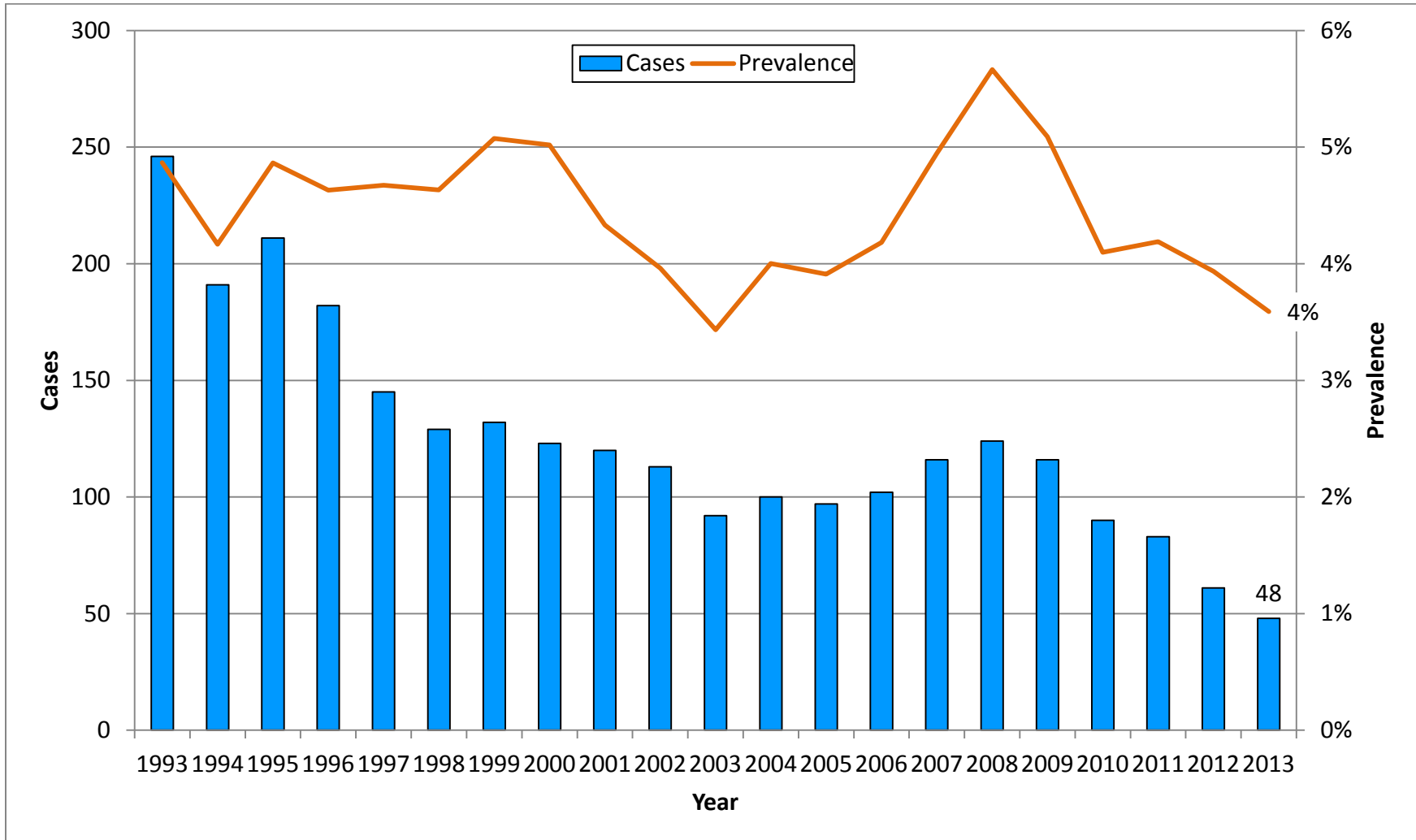
Includes primary, secondary, and early latent syphilis.  
 These data exclude 51 cases of early syphilis among men who were missing information regarding gender of sex partners.  
 Some cases may have been diagnosed by outside providers and referred to the PHSKC STD Clinic for follow-up.

**Figure 24: HIV Infection – Diagnoses by Sex and Sexual Orientation, PHSKC STD Clinic, 1993-2013**



These data exclude 8 cases of HIV infection among men who were missing sexual orientation information across all years. Includes tests performed through the HIV/AIDS Program, which joined the PHSKC STD Clinic in 2000. As of September 2003, all antibody-negative MSM received an HIV RNA test.

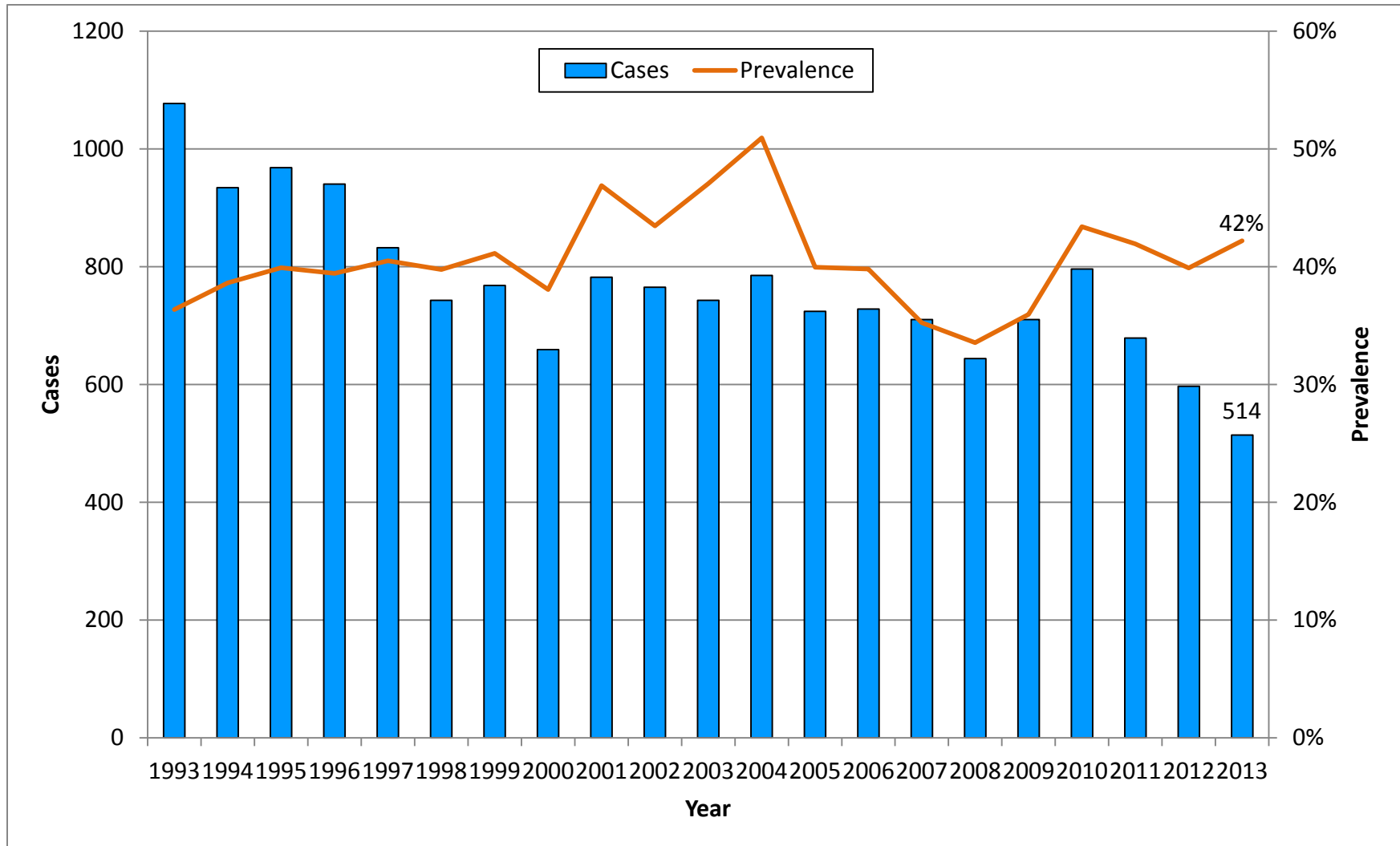
**Figure 25: Trichomoniasis – Number of Diagnoses and Prevalence among Female Patients  
PHSKC STD Clinic, 1993-2013**



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

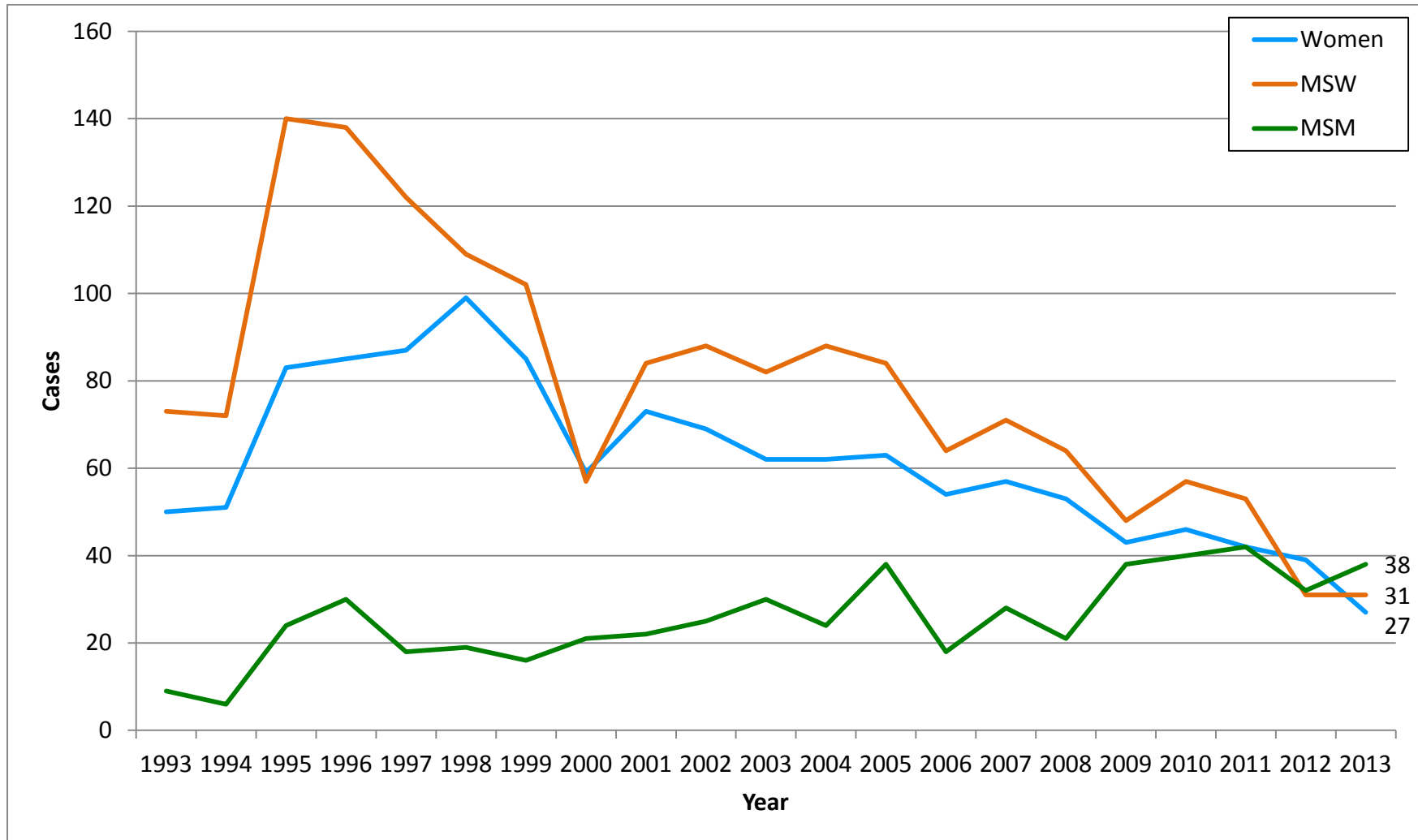
Prevalence is calculated as total diagnoses divided by total annual tests (culture and/or wet mount)

**Figure 26: Bacterial Vaginosis – Number of Diagnoses and Prevalence among Female Patients  
PHSKC STD Clinic, 1993-2013**



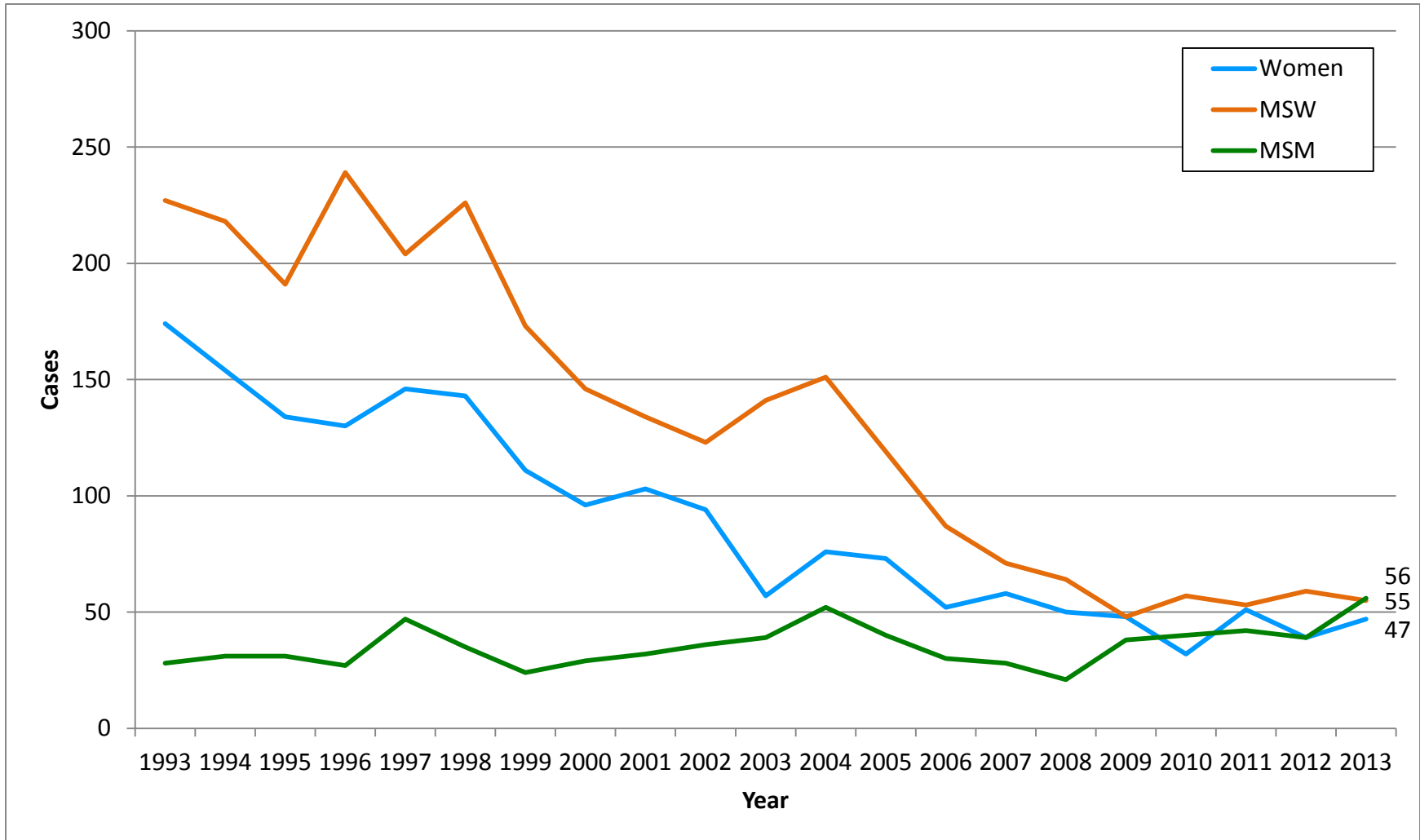
Prevalence is calculated as total diagnoses divided by number of patients with tests for both vaginal PH and clue cells.

**Figure 27: Initial Genital Herpes – Number of Diagnoses by Sex and Sexual Orientation  
PHSKC STD Clinic, 1993-2013**



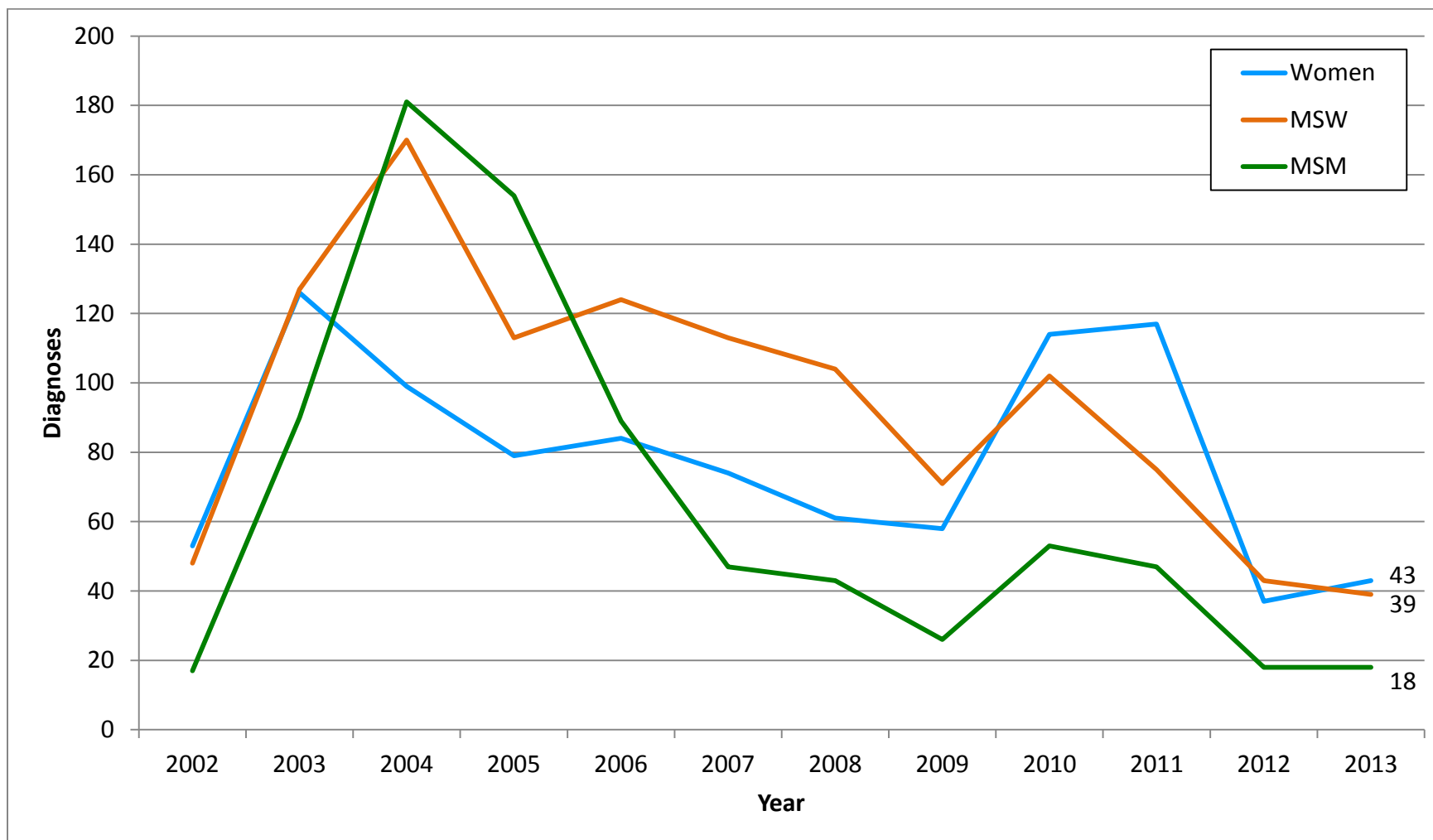
These data exclude 40 cases of initial genital herpes among men who were missing sexual orientation information across all years.

**Figure 28: Recurrent Genital Herpes – Number of Diagnoses by Sex and Sexual Orientation  
PHSKC STD Clinic, 1993-2013**



These data exclude 101 cases of recurrent genital herpes among men who were missing sexual orientation information across all years.

**Figure 29: Serologic Diagnoses of Herpes Simplex Virus-2 in Patients without Concurrent Clinical Diagnoses, PHSKC STD Clinic, 2002-2013**



These data exclude 16 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 - December 31, 2010.

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

The incidence and number of cases of chlamydial infection and gonorrhea reported among MSM increased from 2012 to 2013 (Figures 30 & 31). In 2013, 1,122 cases of chlamydial infection were reported among MSM for an incidence of 2,540 per 100,000 persons, up from 1067 cases in 2012 (2,433 per 100,000 persons). Similarly, the number of reported gonorrhea infections among MSM increased 13% from 929 in 2012 to 1049 in 2013 (incidence of 2,118 and 2,374 per 100,000 persons, respectively). By contrast, the number of early syphilis cases reported among MSM decreased from 308 cases in 2012 to 288 cases in 2013.

### *Reporting and screening practices*

Interpreting trends in reported numbers of STD cases among MSM is complicated by changes in reporting and screening practices. First, in 2004, the data available for determining whether chlamydial infection and gonorrhea cases in King County occurred among MSM or MSW changed. For years prior to 2004, the numbers of cases among MSM are estimated by adding the numbers of each infection diagnosed among Public Health STD Clinic MSM clients to the number of cases of rectal chlamydial infection and gonorrhea in men reported by non-Public Health STD Clinic providers. These earlier numbers underestimate MSM cases, as they exclude non-rectal infections among MSM diagnosed by non-Public Health STD Clinic providers. Starting in 2004, the Washington State case report form began collecting the gender of cases' sex partners, and these data are available in combination with data from partner services interviews, which include gender of sex partners. Thus, since 2004, cases of chlamydial infection and gonorrhea are identified as occurring among MSM if a male case's case report or partner services interview indicates male sex partners or if it is a rectal infection. Ascertainment of MSM status is therefore more complete from 2004 onward.



Although providers often did not report gender of sex partners on the case report from 2004 to 2006, the completeness of this data has improved over time. In 2013, gender of sex partners was reported in 82% of case reports for gonococcal and chlamydial infections among men.

Second, screening MSM for chlamydial and gonococcal infections at the rectum and pharynx has become more common in King County in the past three years, which may account for some of the increases observed in these infections.

### *Symptomatic urethritis*

The total number of cases of chlamydial infection and gonorrhea diagnosed among King County MSM increased in 2013, continuing a trend that has been ongoing since 2008. However, the number of MSM presenting with symptomatic gonococcal urethritis in the Public Health STD Clinic and among all reported cases increased only slightly from 2012 to 2013 (Figures 18 & 19), and displays substantial variance from year to year, not a clear trend suggesting increasing incidence. During this same time, both the number of MSM presenting with symptomatic chlamydial urethritis to the clinic (Figure 21) and the number of reported urethral chlamydial infections county-wide have remained relatively stable (Figure 32). Overall, these findings demonstrate that the incidence of urethral gonorrhea and chlamydial infection among MSM - Public Health's best measure of trends in these STIs among MSM - remains alarmingly high, but appears to be roughly stable.

### *Chlamydial infection and gonorrhea by anatomic site*

Trends in chlamydial infection among MSM countywide have varied substantially by anatomic site over the past several years. Cases of chlamydial urethritis have gradually increased since 2008 and increased only

slightly from 397 in 2012 to 416 in 2013 (an increase of less than 5%). After substantial increases in diagnoses of rectal and pharyngeal chlamydial infection from 2010 to 2012, reported rectal infections increased by only 7% from 654 in 2012 to 700 in 2013, and reported pharyngeal infections decreased 15% from 144 to 122. Of note, 63 (51%) of the 122 cases with pharyngeal infection in 2013 were reported with a pharyngeal infection only (Figure 32).

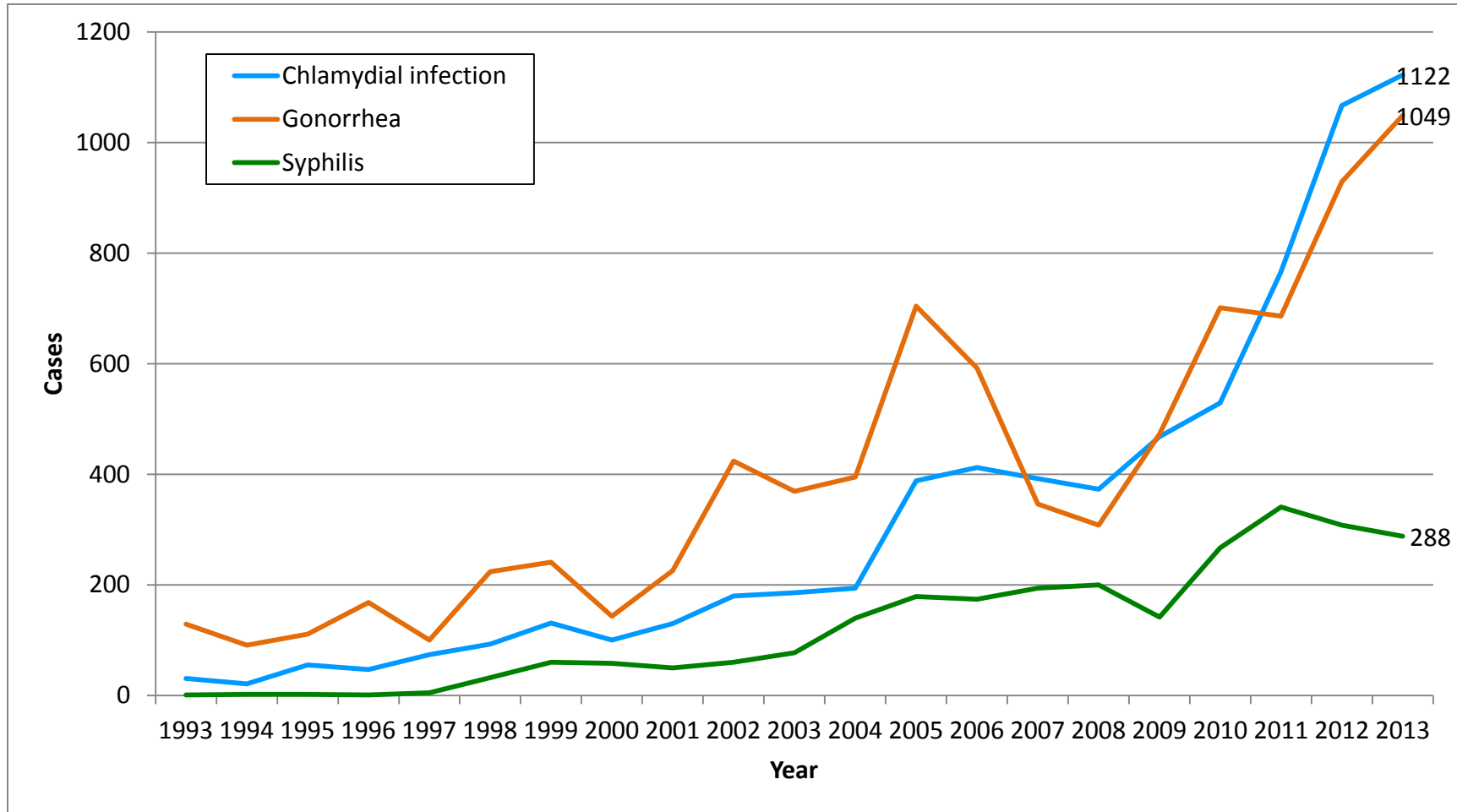
Similarly, trends in the number of reported gonorrhea cases among MSM varied by anatomic site. After a significant increase in gonococcal urethritis from 291 in 2011 to 362 in 2012, the number of reported urethral infections remained stable at 365 in 2013. Reported rectal infections increased by 14% from 375 in 2012 to 429 in 2013, and pharyngeal infections by 16% from 450 to 522; much smaller increases than were observed from 2011 to 2012. Compared with chlamydial infection, a greater proportion of cases were diagnosed with gonorrhea at the pharynx alone (319 or 61% of 522 total pharyngeal infections) [Figure 33].

The relative leveling in the rates of reported extragenital gonorrhea and chlamydial infection among MSM suggests something of a stabilization in diagnoses following the institution of extragenital STD testing among MSM using NAATs. These tests are clearly more sensitive than culture and identify many infected persons. Public Health recommends that all MSM outside of long-term mutually monogamous relationships undergo HIV/STD screening at least annually, and that such screening includes NAAT testing of the pharynx and rectum in men with potential exposure at those anatomic sites.

### *Race and ethnicity*

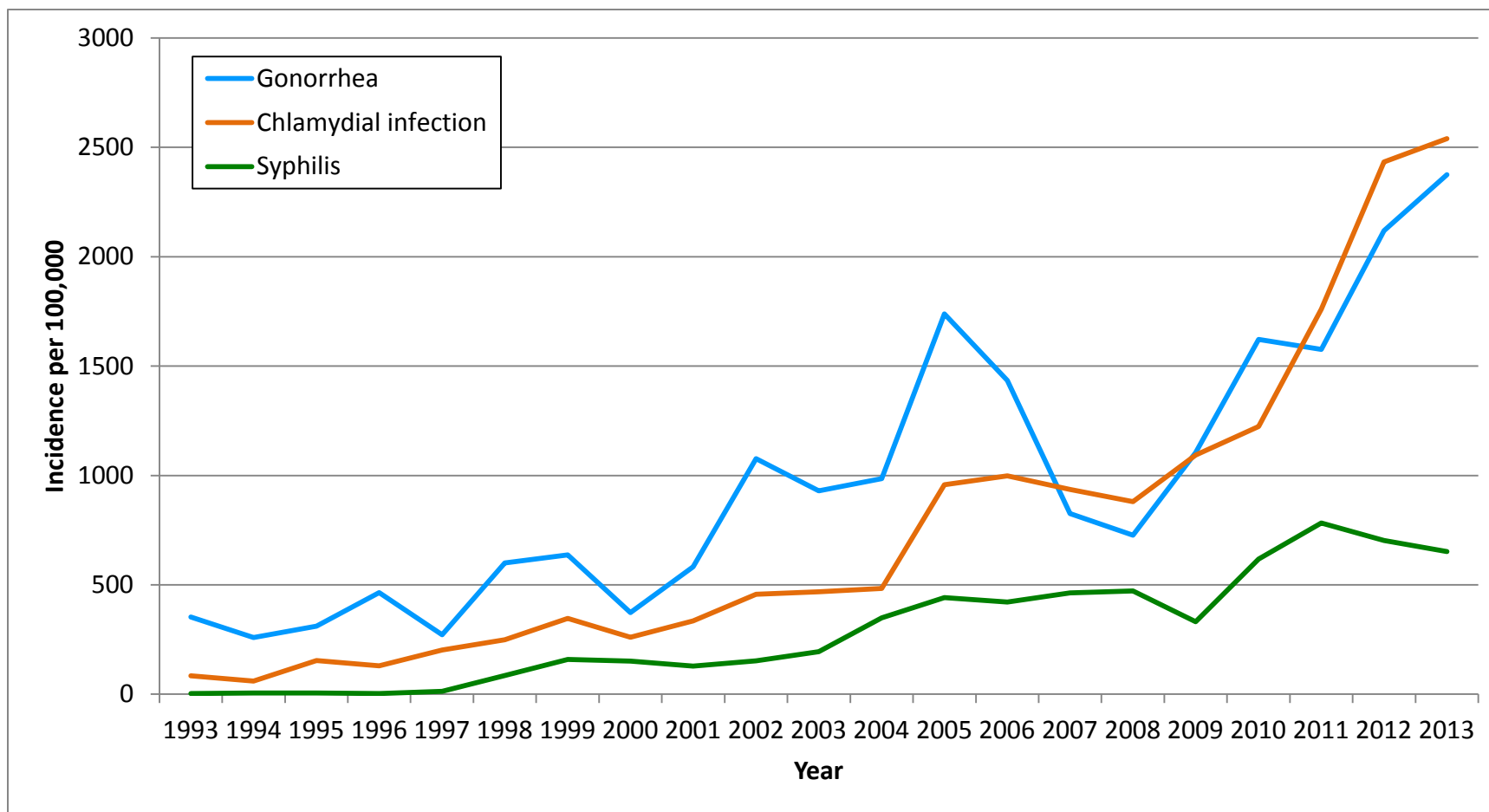
As among women and men overall, the incidence of chlamydial infection, gonorrhea, and early syphilis vary by race among MSM in King County (Figures 34-36); however, the magnitude of these racial disparities is smaller than among women. In 2013, reported incidence for all three infections was greatest among Latino MSM, followed by black, white, and Asian/Pacific Islander MSM. Latino MSM experienced incidences three, five, and six times greater than that observed among white MSM for chlamydial infection, gonorrhea, and early syphilis, respectively. (Native American MSM were not included in these figures because the small size of this population leads to unstable estimates of STI incidence over time.)

**Figure 30: Number of Cases of Chlamydial Infection, Gonorrhea, and Early Syphilis among MSM King County, WA, 1993-2013**



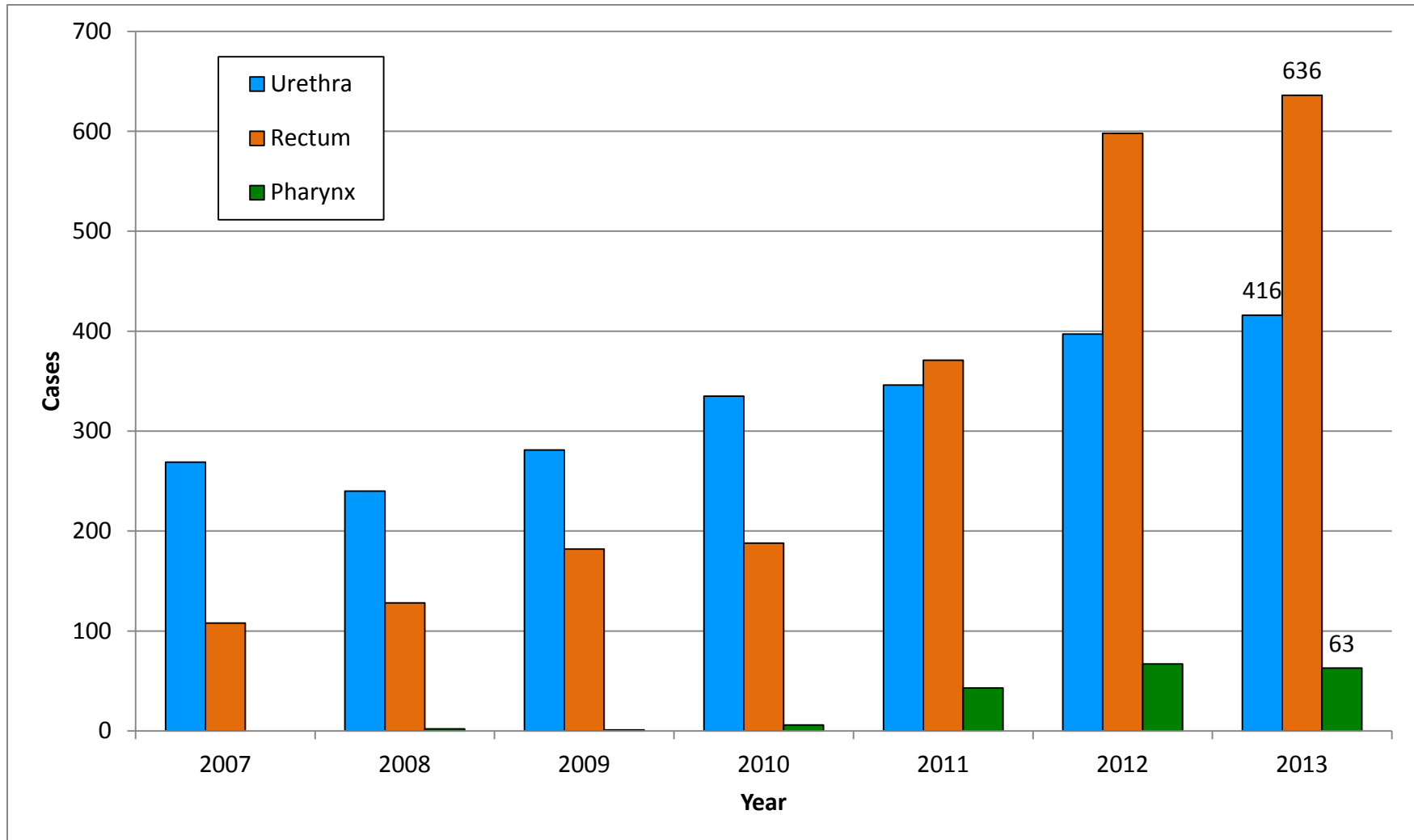
From 1993-2003, MSM gonorrhea and chlamydial infection cases were calculated by summing all PHSKC STD Clinic diagnoses among MSM with all rectal infections reported to PHSKC by other providers. Since 2004, men have been assigned MSM status if the reporting provider indicated they had male sex partners,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

**Figure 31: Incidence of Gonorrhea, Chlamydial Infection, and Early Syphilis among MSM  
King County, WA, 1993-2013**



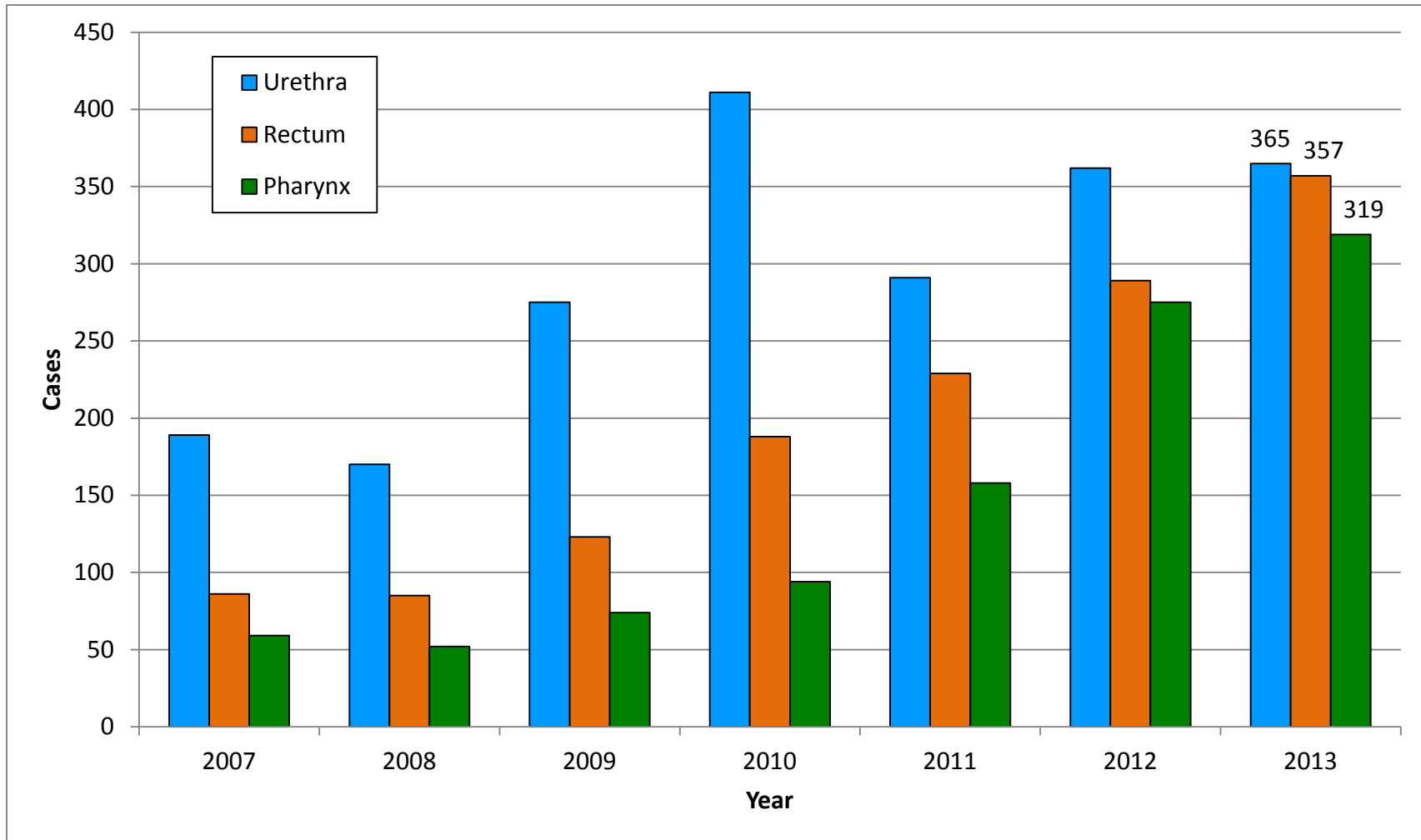
From 1993-2003, MSM gonorrhea and chlamydial infection cases were calculated by summing all PHSKC STD Clinic diagnoses among MSM with all rectal infections reported to PHSKC by other providers. Since 2004, men have been assigned MSM status if the reporting provider indicated they had male sex partners,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

**Figure 32: Cases of Chlamydial Infection among MSM by Anatomic Site\*  
King County, WA, 2007-2013**



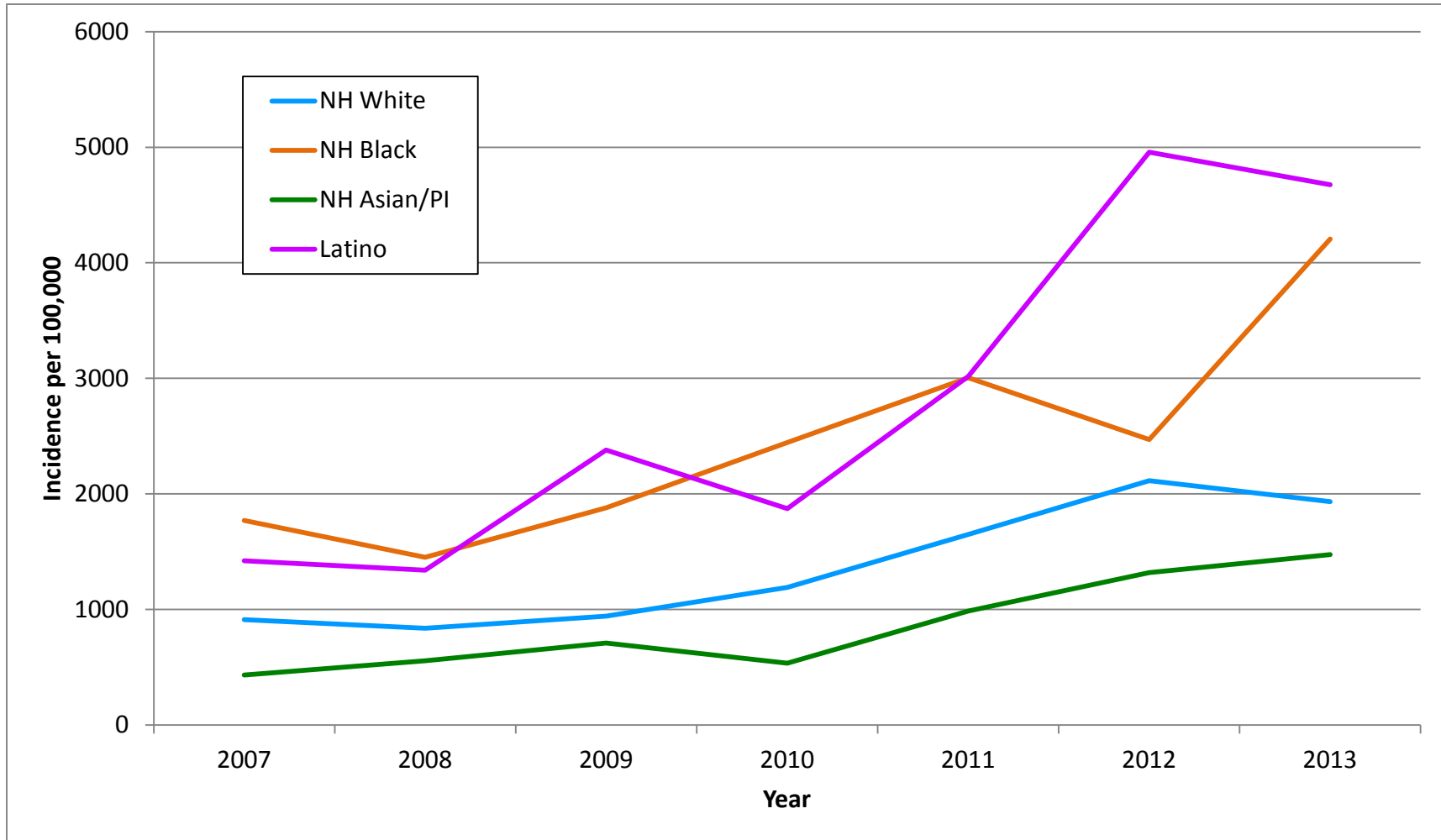
\*All urethral chlamydial infection cases, rectal cases without concurrent urethral infections, pharyngeal cases without concurrent urethral or rectal infections.

**Figure 33: Cases of Gonorrhea among MSM by Anatomic Site\*  
King County, WA, 2007-2013**



\*All urethral gonorrhea cases, rectal cases without concurrent urethral infections, pharyngeal cases without concurrent urethral or rectal infection.

**Figure 34: Incidence of Chlamydial Infection among MSM by Race and Ethnicity  
King County, WA, 2007-2013**

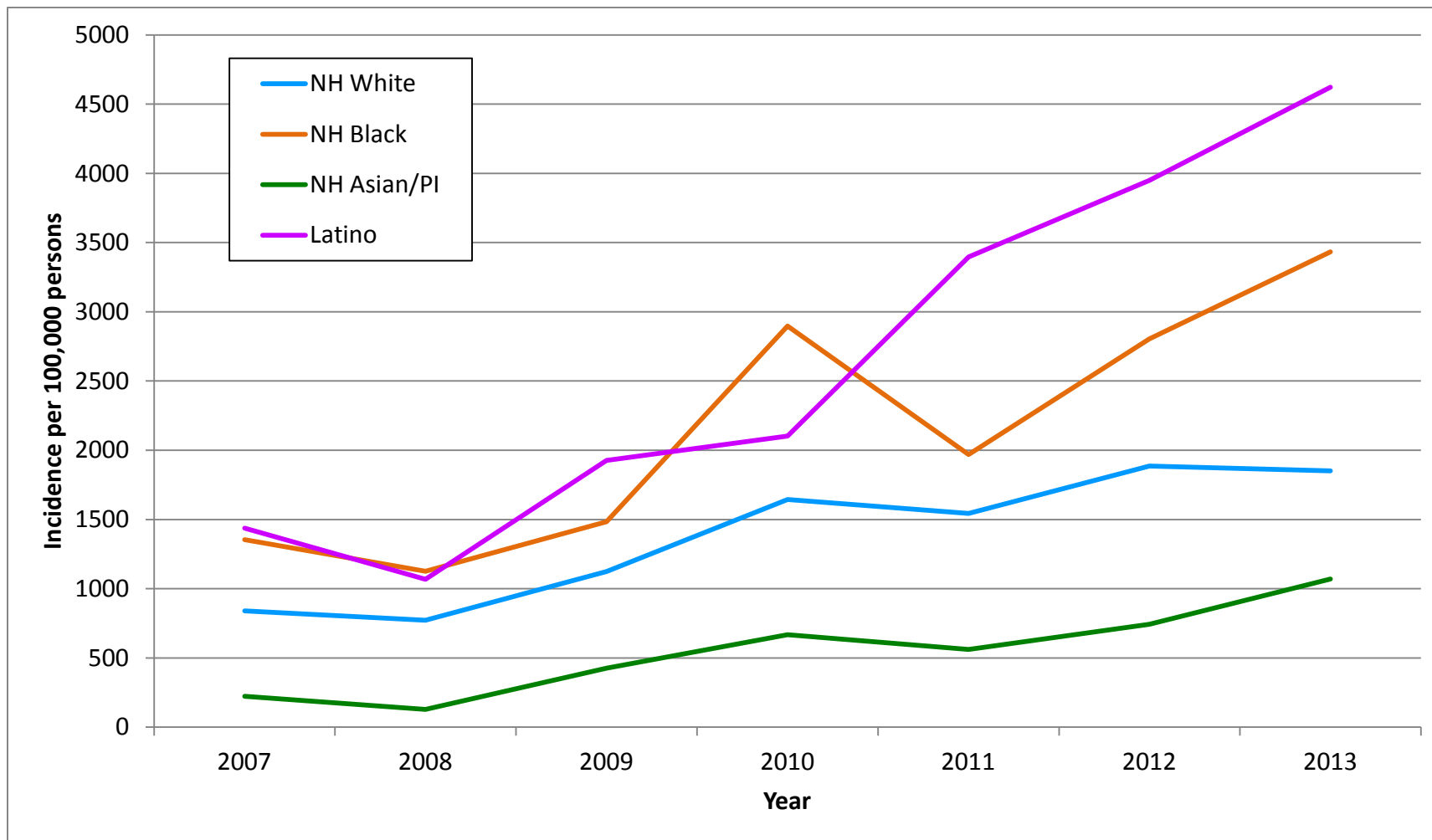


NH = Non-Hispanic, PI = Pacific Islander

Cases with unknown race and ethnicity were distributed according to annual race and ethnicity distributions among cases with known race and ethnicity and included in race/ethnicity-specific incidences.



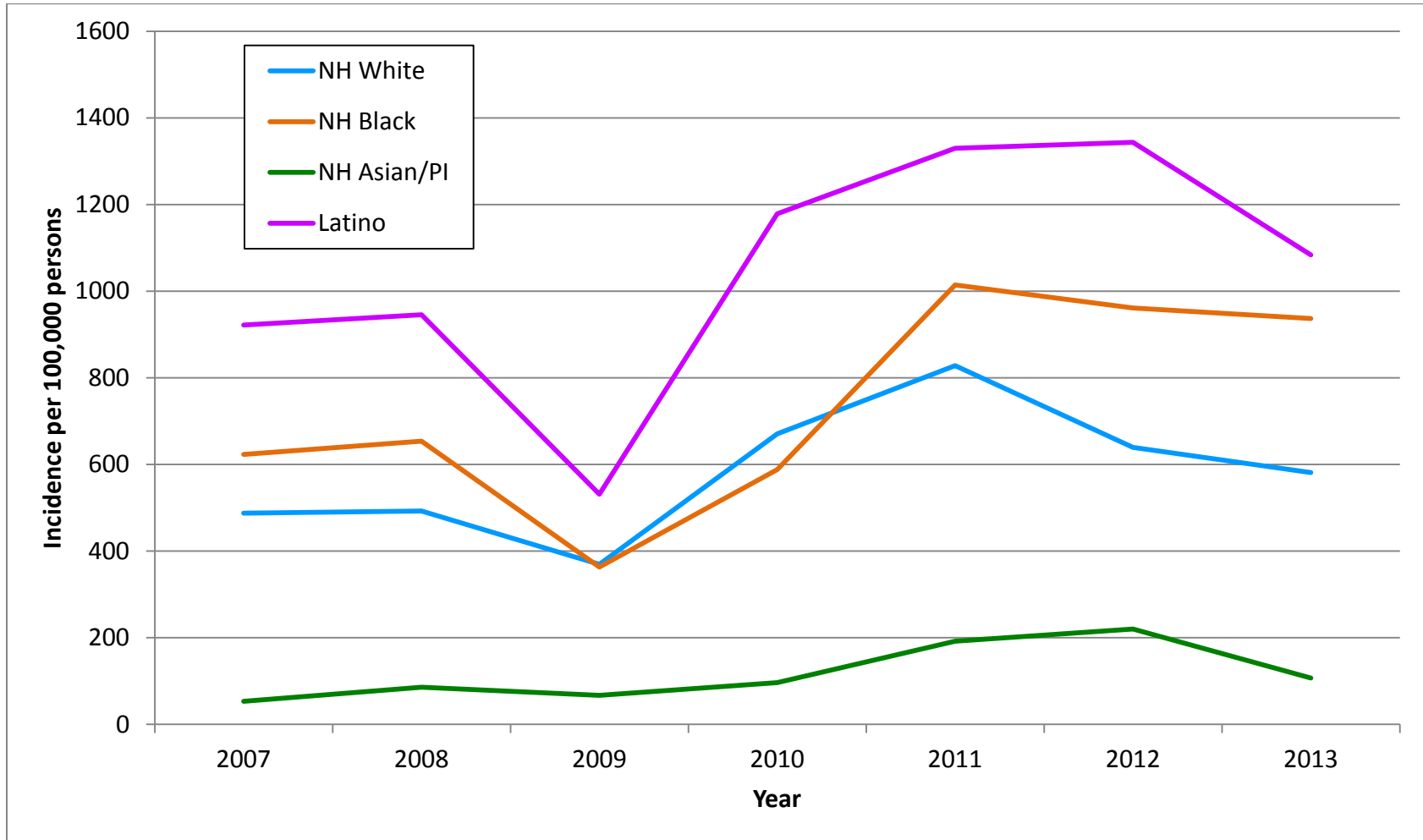
**Figure 35: Incidence of Gonorrhea among MSM by Race and Ethnicity  
King County, WA, 2007-2012**



NH = Non-Hispanic, PI = Pacific Islander

Cases with unknown race and ethnicity were distributed according to annual race and ethnicity distributions among cases with known race and ethnicity and included in race/ethnicity-specific incidences.

**Figure 36: Incidence of Early Syphilis among MSM by Race and Ethnicity  
King County, WA, 2007-2013**



NH = Non-Hispanic, PI = Pacific Islander

Cases with unknown race and ethnicity were distributed according to annual race and ethnicity distributions among cases with known race and ethnicity and included in race/ethnicity-specific incidences.