

hiv/aids

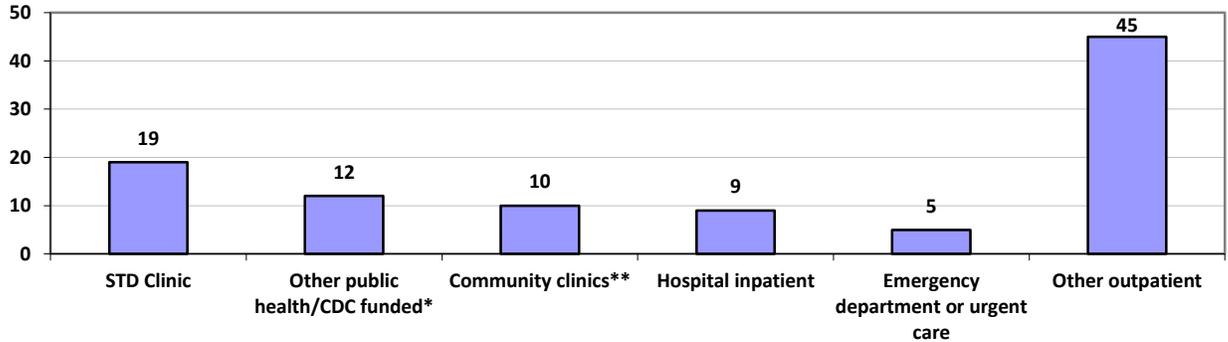


2015

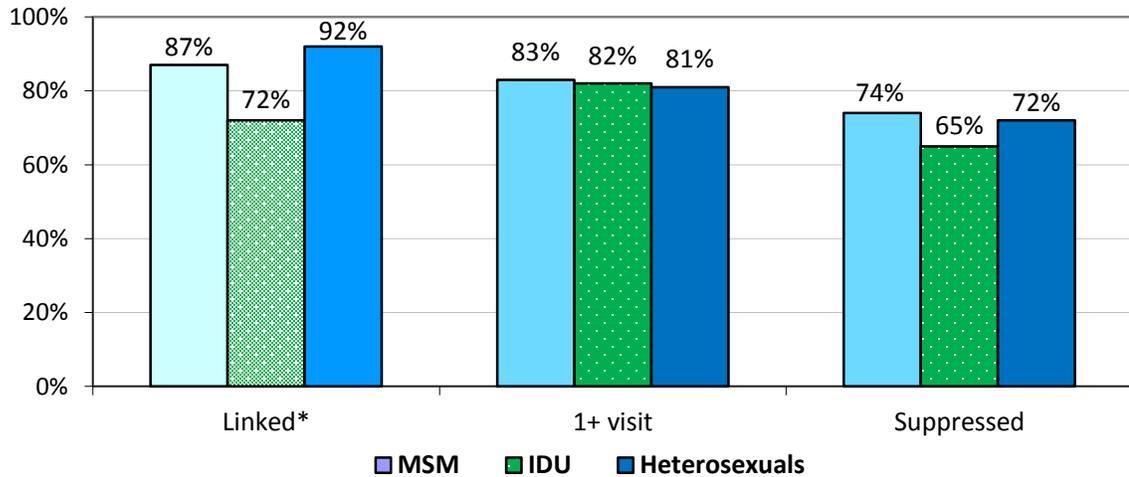
EPIDEMIOLOGY REPORT
WASHINGTON STATE • SEATTLE & KING COUNTY

Errata:

(1) PAGE 21 The bar for "other outpatient" with 23% testing for HIV at other sites was incorrect. The correct percent is 45%.



(2) PAGE 27: The originally published data for people who inject drugs in Figure 11d on page 27 was incorrect. The corrected figure is below.



* "Linked" is based on percent of cases diagnosed in 2014 linking to care based on CD4 or viral load tests within 3 months of diagnosis. The percent linked presented were all multiplied by 0.92 to account for 8% undiagnosed cases. Bars are shown as a paler color to indicate linked status is not based on all PLWHA (as the remainder of the bars are).

**MSM-IDU are included in both categories.

(3) PAGES 56, 58, 64, and 68: PrEP use labeled as "Ever" should have been labeled "in the past year"

(4) PAGE 65: 3-12 months should be 4-12 months (16th line of Table 6)

Washington State / Seattle-King County HIV/AIDS Epidemiology Report

This 84th edition of the HIV/AIDS Epidemiology Report includes data available through the end of June 2015. This report is produced jointly by Public Health – Seattle & King County and the Infectious Disease Assessment Unit, Washington State Department of Health. It is funded partly by a Centers for Disease Control and Prevention cooperative agreement for HIV/AIDS surveillance. We thank the medical providers caring for people with HIV/AIDS and the clinics and patients participating in epidemiologic projects. Their cooperation with public health department HIV/AIDS control efforts permits the collection of data included in this report – data which are used for further prevention and planning efforts. We also wish to acknowledge the outstanding assistance of our staff, including Edith Allen, Winnie Alston, Chelsey Kassa, Christy Johnson, Lexa Moongrace, Allison Moore, Rachel Patrick, Shana Patterson, Michelle Perry, and Ariel VanZandt (disease investigation); Sandy Hitchcock (data entry and quality assurance); Jason Carr, Titus Chembukha, Leslie Pringle, and Shirley Zhang (data management); Teal Bell, Amy Bennett, Richard Burt, Katelynne Gardner Toren, Julia Hood, Claire LaSee, Jen Reuer and Christina Thibault (epidemiologists); and especially Bill Johnson for desktop publishing this report.

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HIV/AIDS Reporting Requirements

Detailed requirements for reporting of communicable diseases including HIV/AIDS are described in the Washington Administrative Code (WAC), section 246-101 (<http://apps.leg.wa.gov/WAC/default.aspx?cite=246-101>).

Washington health care providers are required to report all HIV infections, regardless of the date of the patient's initial diagnosis, to the health department. Providers are also required to report new diagnoses of AIDS in a person previously diagnosed with HIV infection. Local health department officials forward case reports to the Department of Health. Names are never sent to the federal government.

Laboratories are required to report evidence of HIV infection (i.e., positive western blot assays, p24 antigen detection, viral culture, and nucleic acid detection), all HIV viral load tests (detectable or not), and all CD4 counts in the setting of HIV infection. If the laboratory cannot distinguish tests, such as CD4 counts, done due to HIV versus other diseases (such as cancer), the CD4 counts should be reported and the health department will investigate. However, laboratory reporting does not relieve health care providers of their duty to report, as most of the critical information necessary for surveillance and follow-up is not available to laboratories.

For further information about HIV/AIDS reporting requirements, please call your local health department or the Washington State Department of Health at 888-367-5555. In King County, call 206-263-2000.

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HIV/AIDS Epidemiology publications are online at:

www.kingcounty.gov/healthservices/health/communicable/hiv/epi.aspx.

Alternative formats provided upon request.

To be included on the mailing list or for address corrections,
please call 206-263-2000.

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Definitions

AIDS: Acquired Immune Deficiency Syndrome. This is the advanced stage of HIV infection and is defined by a specific immune system deficiency in CD4+ lymphocyte cells (<200 per μL) and/or the diagnosis of specific opportunistic illnesses. In the absence of antiretroviral therapy, AIDS had a median onset of about 8-10 years after HIV infection.

CD4 Count: The number of a specific type of white blood cell, also called T-helper cells. The CD4 count is measured per μL (also called mm^3 – a very small drop equivalent to 2 ten-thousandths of a teaspoon) of plasma or blood. CD4 count provides a good indication of a patient's stage of HIV illness. CD4 counts between 500 and 1,500 indicate normal immune function, CD4 <200 indicates severe immunosuppression.

Cumulative Cases: The total number of HIV cases ever reported, as of a specific point in time. Cumulative cases include people who are living and deceased.

Deaths: Deaths are counted among people diagnosed with HIV whether or not they are caused by HIV or AIDS.

Estimated new HIV infections: Estimated new infections are people recently infected with HIV whether they are diagnosed and reported or not. New infections are usually estimated by new diagnoses.

Estimated people living with HIV/AIDS: Estimated cases include people infected with HIV whether they are diagnosed and reported or not.

Exposure Category: The manner in which a case was most likely to have been infected by HIV, based on reported risk behaviors. Categories are arranged in a hierarchy. A case can only be assigned to one exposure category at any given time. The highest category in the hierarchy are men who have sex with men (MSM, described as male-male sex) and who inject drugs (PWID, described as Injection drug users, or IDU). Following MSM-IDU are MSM, IDU, heterosexual contact, blood product exposure, perinatal exposure, and other/unknown. Heterosexual contact historically was limited to individuals whose heterosexual partner had a known HIV infection or a known HIV risk (including PWID and bisexual men). We now also include heterosexual women who deny being PWID.

Foreign-born: This term is used to describe people born outside the United States. U.S. birthplace includes US territories unless otherwise specified

Gender: A person's sex at birth, either male or female.

HIV: Human Immunodeficiency Virus. This is the virus that causes AIDS.

HIV Diagnosis Date: The earliest documented date when a person was diagnosed with HIV, with or without AIDS.

Living with HIV/AIDS: People diagnosed with HIV and reported to the health department who are presumed living in King County or Washington State at a specific point in time. A living HIV case can also be described as a prevalent HIV case.

New HIV Case: People newly diagnosed with HIV, with or without AIDS.

Viral Load: This is the amount of HIV viral copies circulating within a person's blood stream. It is measured per milliliter of plasma (a milliliter or mL is about one fifth of a teaspoon). Plasma is blood with the red and white cells removed. Viral load is a good indication of whether a person is receiving effective treatment for HIV disease. Most individuals receiving antiretrovirals have viral loads below the limit of detection, or about <40 copies per mL. In early and late untreated HIV infection, viral load can be in the millions.

Virologic Suppression: Viral load <200 copies/mL.

Executive Summary

The 2015 HIV/AIDS Epidemiology Report (84th issue) is a joint Washington State and King County production including data collected through the end of June 2015.

HIV reporting: HIV and AIDS are reportable to the local health department within three working days. Case report forms are available on-line (<http://www.doh.wa.gov/portals/1/Documents/5000/hiv-case-report.pdf>) or by calling (888) 367-5555 (State) or (206) 263-2000 (King County). We also appreciate reports of deaths and diagnoses of potential public health significance, such as unusual strains.

HIV & AIDS data: This section of tables and figures has been substantially modified. We have increasingly emphasized people living with HIV in King County and Washington State, rather than individuals who were diagnosed here. We also separated King County data from Washington state data. Some notable points include:

1. About 7,000 King County residents and over 12,000 Washington State residents have been diagnosed with HIV.
2. Residents diagnosed with HIV are more than 85% male, more than two thirds men who have sex with men (MSM), over 60% White and 16-19% are Black.
3. About 285 HIV King County residents and 500 Washington state residents are diagnosed with HIV each year.
4. Residents newly diagnosed with HIV are 29-33% foreign born.
5. The rate of HIV diagnoses is decreasing. Between 2002 and 2014, the diagnosis rate per 100,000 declined from 20 to 14,000 among King County residents. For Washington State, the comparable rates declined from 8 to 6 diagnoses per 100,000.
6. Despite a fall in new diagnoses, there are annual increases in the number of people living locally with HIV due to HIV being a life-long infection, as well as in-migration and declining death rates. In 2002, 273 per 100,000 King County residents had an HIV/AIDS diagnosis and in 2014 this increased to 362 per 100,000. In Washington state, the prevalence of HIV/AIDS increased from 141 to 182 individuals diagnosed with HIV/AIDS per 100,000.

Monitoring the goals of the National Strategy for HIV/AIDS and the HIV Care Cascade: The National HIV/AIDS Strategy goals are to 1) reduce HIV infections, 2) improve health care access and HIV-related health outcomes, and 3) reduce HIV-related disparities. King

County's care cascade monitors many aspects of these goals. High levels of HIV testing and viral suppression are integral to reducing further transmission of HIV. High levels of HIV testing among individuals most at risk of HIV are responsible for our estimate of an undiagnosed fraction of 8% (the undiagnosed fraction is the percent of people living with HIV/AIDS [PLWHA] who have not yet been diagnosed with HIV). From the NHBS (National HIV Behavioral Surveillance) project, we estimate that only 5% of MSM have never been tested for HIV and about half have been tested in the past year. We also found high levels of suppression among PLWHA –about 72% in King County and 61% in Washington State, including people not yet diagnosed with HIV. Among individuals diagnosed with HIV, about 79% are virally suppressed in King County and 68% in Washington State. Additionally, the falling HIV diagnosis rate, as above, likely reflects reductions in true HIV incidence. Improved health of PLWHA is underscored by a high level of care engagement (82% of PLWHA in King County, 72% in Washington State). Age and lag adjusted mortality is decreasing in King County, and Figures 1 and 2 in the prior section also show declining trends in mortality. Disparities were present by race and ethnicity with Whites more likely to be virally suppressed relative to Blacks and Latinos, however no major disparities were seen in care cascades broken down by gender, birthplace, and HIV risk factor (MSM, people who injected drugs [PWID], and heterosexuals).

Increases in foreign born individuals diagnosed with HIV: In 2014, one-third of newly diagnosed HIV cases in King County were foreign-born. This compared to about 21% of King County residents overall and 18% of PLWHA in King County. Many were diagnosed prior to moving to King County, WA. Because national reporting data, including much of the data presented in this report, include as new diagnoses persons who have not previously had a positive HIV test reported in the U.S., the number of new diagnoses in 2014 presented in this report is a 14% overestimate of the true number of new diagnoses occurring in the area. More foreign born (42%) than US-born (25%) individuals had a late diagnosis of HIV, defined as receiving an AIDS diagnosis within one year of an HIV diagnosis.

Pre-exposure prophylaxis (PrEP) provider experiences from 2015 survey: Sixty-nine local medical providers completed a 2015 survey regarding their experienced prescribing PrEP. These data suggest about 2,000 local residents are currently using PrEP. Providers also contributed cases for a small case series

describing individuals screening for PrEP but who are already HIV-infected (N = 13). We report an additional three cases who seroconverted following initiation of PrEP. Patient experiences from 2014 and 2015 Seattle Pride Survey 2015: Excluding HIV-positive MSM, 8% of 2014 higher-risk-MSM (with bacterial sexually transmitted infections, or greater than 10 sex partners, or condomless anal sex with a serodiscordant partner) reported ever using PrEP. This expanded to 33% in 2015—with 23% being current users of PrEP.

Needle exchange client surveys 2011, 2013, and 2015: We present three years of surveys -- of over 400 needle exchange clients each year -- at the three Seattle needle exchanges, including trends in drug use (increases in methamphetamine use, decrease in cocaine use) and a decrease in the number of times each syringe was used before discarding. There was no significant change in the sharing of syringes (about one in five clients) and other equipment (about 45% of clients). In 2015 87% of clients reported having some form of health insurance, compared to 49% in 2013.

Seattle Pride Survey, 2014 & 2015—HIV testing, PrEP & seroadaptive behaviors: In both 2014 and 2015, we administered the Gay Pride survey at the Gay Pride parade and other venues. Major findings include that 79% of survey respondents had tested for HIV in the prior 2 years; 23% of high risk MSM were taking PrEP; and 29% of HIV-negative MSM and 18% of HIV positive MSM reporting serosorting. Serosorting refers to making decisions regarding sexual partners and/or using risk reduction strategies (such as using condoms) based on the serostatus of a (potential) partner.

2014 & 2015 Trans* Pride Survey: We surveyed about 164 transgender individuals, including people identifying as gender non-binary, about HIV prevention matters in 2014 and 2015. We compared survey responses for transgender participants to those from cis-gender MSM (men who were born male and continue to identify as male). The comparison demonstrated similar HIV risk profiles, Trans* Pride respondents appear to receive HIV/STD services less frequently relative to cis MSM.

2014 Seattle area National HIV Behavioral Surveillance (NHBS) survey of MSM: NHBS is a national surveillance system wherein key populations at risk for HIV are surveyed every three years in the most heavily impacted metropolitan areas. The Seattle survey included 503 MSM. High proportions of MSM engaged in safer sexual behavior, received recent HIV testing, and were knowledgeable about their HIV status. HIV-infected MSM reported high levels of engagement in their HIV care and viral suppression. We saw high levels of health insurance coverage among MSM, including 97% coverage among HIV-infected MSM.

Medical Monitoring Project (MMP) 2013 Provider Survey: About 79% of Washington State MMP health care providers completed the MMP Provider Survey -- most were physicians (92%), White (89%), and heterosexual/straight (84%). Results indicate most providers are following current treatment guidelines, including prescribing antiretrovirals regardless of CD4 count. 26% had experience prescribing PrEP and 70% had prescribed post exposure prophylaxis, or PEP.

VACS (Veterans Aging Cohort Study) mortality risk score, viral suppression, and CD4 counts 2008-2012: The VACS score has been found to predict mortality risk, hospitalization, neurocognitive impairment, and frailty among PLWHA. We used MMP data from 2008 through 2012 to calculate VACS; 991 individuals were followed on average about four years to look at clinical outcomes, including death. We saw strong improvements in CD4 count and VL across the five years of MMP, and, as above, age-adjusted death rates are falling; however VACS scores remained stable over time. The VACS Index may thus be a more conservative indicator of health status relative to CD4 count and VL.

Receipt of preventive services among persons receiving HIV care in King County, 2009-2012: A total of 21 facilities and 707 individuals participated in MMP over the four years. In general, receipt of preventive services occurred at a high level, and Ryan-White funded clinics generally performed as well or better than other medical facilities. However, among sexually active MSM (79% of our HIV care population), receipt of sexual health services was low, especially at non-RW-funded HIV facilities

STD Report: We present quarterly and first half of 2014/2015 case counts of sexually transmitted diseases among MSM and other populations in this report. Mid 2015 results show that bacterial STIs (gonorrhea, chlamydia, and syphilis) continue to be reported at numbers exceeding those reported through the same period in 2014.

The AIDS Malignancy Clinical Trials Consortium and the University of Washington (UW) AIDS Clinical Trials Unit (ACTU): These local research groups summarized their currently open studies, including a randomized clinical trial to prevent cardiovascular disease (called REPRIEVE) comparing a statin to placebo.

HIV/AIDS Data in King County

Table 1. People living with HIV as of December 31, 2014 by residence at time of HIV diagnosis, King County*

	King County residents at diagnosis, still in King County		In-migrants: Diagnosed out of jurisdiction, now in King County		People living in King County diagnosed with HIV (total)		Out-migrants diagnosed in King County but now living out of jurisdiction	
	N	%	N	%	N	%	N	%
Total	5,223	100%	1,757	100%	6,980	100%	2,299	100%
Gender								
Male	4,603	88%	1,576	90%	6,179	89%	2,103	91%
Female	620	12%	181	10%	801	11%	196	9%
Current Age								
< 13	15	<1%	1	<1%	16	<1%	0	0%
13 - 24	119	2%	32	2%	151	2%	32	1%
25 - 34	629	12%	262	15%	891	13%	250	11%
35 - 44	1,127	22%	474	27%	1,601	23%	546	24%
45 - 54	1,912	37%	630	36%	2,542	36%	880	38%
55+	1,421	27%	358	20%	1,779	25%	591	26%
Race and Hispanic Origin**								
White	3,228	62%	1,055	60%	4,283	61%	1,613	70%
Blacks (total)	960	18%	345	20%	1,305	19%	324	14%
- (US-born Blacks)***	(504)	(10%)	(241)	(14%)	(745)	(11%)	(233)	(10%)
- (Foreign-born Blacks)	(456)	(8%)	(104)	(6%)	(560)	(8%)	(91)	(4%)
Hispanics (all races, total)	625	12%	226	13%	851	12%	235	10%
- (US-born Hispanics)****	(246)	(5%)	(128)	(7%)	(374)	(5%)	(128)	(6%)
- (Foreign-born Hispanics)	(379)	(7%)	(98)	(6%)	(477)	(7%)	(107)	(5%)
Asian	236	5%	41	2%	277	4%	56	2%
Native Hawaiian / Pacific Islander	19	<1%	7	<1%	26	<1%	5	<1%
American Indian / Alaska Native	51	1%	11	1%	62	1%	24	1%
Multiple Race	104	2%	72	4%	176	3%	42	2%
Exposure Category by Gender								
Male only:								
- Male / Male Sex (MSM)	3,505	67%	1,159	66%	4,664	67%	1,663	72%
- Injecting Drug Use (IDU)	140	3%	64	4%	204	3%	52	2%
- MSM and IDU	396	8%	215	12%	611	9%	255	11%
- Heterosexual Contact	145	3%	49	3%	194	3%	41	2%
- Pediatric	13	<1%	7	<1%	20	<1%	1	<1%
- Transfusion / Hemophiliac	11	<1%	4	<1%	15	<1%	4	<1%
- No Identified Risk	393	8%	78	4%	471	7%	87	4%
Female only:								
- Injecting Drug Use	72	1%	30	2%	102	1%	30	1%
- Heterosexual Contact	383	7%	113	6%	496	7%	89	4%
- Pediatric	19	<1%	4	<1%	23	<1%	4	<1%
- Transfusion / Hemophiliac	10	<1%	1	<1%	11	<1%	2	<1%
- No Identified Risk	136	3%	33	2%	169	2%	71	3%

* All HIV/AIDS surveillance data reported to the Washington State Department of Health as of June 30, 2015.

** All categories mutually exclusive, thus all racial categories are non-Hispanic

*** Includes 33 cases for whom country of birth is unknown

**** Includes 59 cases for whom country of birth is unknown

A note about in-migrants and out-migrants: Historically, HIV/AIDS surveillance has been based on geographical location at the time of HIV or AIDS diagnoses. Migrations were assumed to either be negligible or in-and out-migration were assumed to be roughly equal. This is roughly the case for King County (Table 1 above) for overall numbers but not necessarily true by demographic characteristics. HIV/AIDS surveillance increasingly focuses on the status of individuals currently living in a jurisdiction, rather than those diagnosed in the jurisdiction. Individuals who were neither diagnosed locally nor reside locally as of the end of 2014 are not included.

Table 2. New HIV diagnoses, King County, 2009-2014

Year of HIV diagnosis:	New HIV Diagnoses								Late HIV Diagnoses	
	2009	2010	2011	2012	2013	2014	2010-2014		2009-2013**	
	N	N	N	N	N	N	N	%	Rate*	%
Total	303	323	271	288	258	281	1,421	100%	14.5	29%
Gender										
Male	267	288	239	239	218	242	1226	86%	25.0	28%
Female	36	35	32	49	40	39	195	14%	4.0	35%
Age at HIV Diagnosis										
< 13	4	1	3	4	4	0	12	1%	0.7	<1%
13 - 24	41	48	42	42	32	43	207	15%	16.9	17%
25 - 34	89	106	85	98	74	91	454	32%	28.6	25%
35 - 44	78	89	67	82	83	64	385	27%	25.9	31%
45 - 54	67	59	48	42	48	56	253	18%	17.5	38%
55+	24	20	26	20	17	27	110	8%	4.7	48%
Race*** and Hispanic Origin										
White	178	201	149	166	130	133	779	55%	12.4	26%
Black	57	39	55	58	57	68	277	19%	45.8	35%
- (US-born Blacks)****	(27)	(26)	(25)	(24)	(24)	(31)	(130)	(9%)		(21%)
- (Foreign-born Blacks)	(30)	(13)	(30)	(34)	(33)	(37)	(147)	(10%)		(37%)
Hispanic (all races)	45	53	44	31	40	33	201	14%	22.1	31%
- (US-born Hispanics)*****	(17)	(25)	(21)	(10)	(12)	(11)	(79)	(5%)		(19%)
- (Foreign-born Hispanics)	(28)	(28)	(23)	(21)	(28)	(22)	(122)	(9%)		(32%)
Asian	13	15	16	19	15	33	98	7%	6.7	37%
Native Hawaiian / Pacific Islander	1	1	2	1	5	2	11	1%	14.6	60%
American Indian / Alaska Native	1	4	0	0	3	5	12	1%	18.4	38%
Multiple Race	8	10	5	13	8	7	43	3%	10.4	32%
Exposure Category by Gender										
Male only:										
- Male / Male Sex (MSM)	200	236	177	171	161	164	909	64%	---	25%
- Injecting Drug Use (IDU)	7	7	6	6	4	5	28	2%	---	43%
- MSM and IDU	23	20	28	26	19	17	110	8%	---	20%
- Heterosexual Contact	5	5	2	3	4	2	16	1%	---	58%
- Pediatric	0	0	3	1	2	0	6	<1%	---	17%
- Transfusion / Hemophiliac	0	0	0	0	0	0	0	--	---	---
- No Identified Risk	32	20	23	32	28	54	157	11%	---	51%
Female only:										
- Injecting Drug Use	5	6	3	6	1	3	19	1%	---	14%
- Heterosexual Contact	23	22	13	16	14	6	71	5%	---	42%
- Pediatric	4	1	1	2	0	1	5	<1%	---	13%
- Transfusion / Hemophiliac	0	0	0	0	0	0	0	--	---	---
- No Identified Risk	4	6	15	25	25	29	100	7%	---	35%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of June 30, 2015.

* Rate is an annual rate per 100,000 residents

** Late HIV are defined as an AIDS diagnosis within 12 months of an HIV diagnosis and limited to new HIV diagnoses 2009 through 2013

*** All categories mutually exclusive, thus all racial categories are non-Hispanic

**** Includes seven cases for whom country of birth is unknown; rates were not calculated by birthplace due to insufficient knowledge of population size

***** Includes 15 cases for whom country of birth is unknown; rates were not calculated by birthplace due to insufficient knowledge of population size

Table 3. New HIV diagnoses by foreign-born status and other characteristics, King County, 2010-2014

Characteristic:	Proportion of Cases with Select Characteristic at HIV Diagnosis					Total	
	Male	Age>34 yrs.	MSM	Heterosexual	Late HIV Diagnosis*	N	%
	%	%	%	%	%		
U.S.-Born**							
White	94%	53%	87%	3%	25%	661	71%
Black	87%	39%	69%	12%	27%	127	14%
Hispanic (all races)	91%	41%	86%	3%	22%	66	7%
Asian	86%	43%	79%	0%	31%	14	2%
Native Hawaiian / Pacific Islander	100%	29%	100%	0%	75%	7	1%
American Indian / Alaska Native	80%	70%	60%	0%	38%	10	1%
Multiple Race	95%	29%	88%	2%	29%	41	4%
Total	93%	49%	84%	4%	25%	926	100%
Foreign-Born**							
White	87%	56%	65%	7%	35%	55	14%
Black	39%	68%	5%	17%	41%	145	36%
Hispanic (all races)	89%	53%	69%	8%	37%	121	30%
Asian	81%	55%	45%	10%	41%	78	19%
Native Hawaiian / Pacific Islander	100%	50%	100%	0%	0%	4	1%
American Indian / Alaska Native	---	---	---	---	---	0	---
Multiple Race	0%	100%	0%	50%	100%	2	<1%
Total	69%	60%	41%	12%	52%	405	100%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of May 31, 2015.

* Late HIV are defined as an AIDS diagnosis within 12 months of an HIV diagnosis and limited to new HIV diagnoses 2009 through 2013

** Selection excludes 90 cases for which we do not have information about their foreign born status. All categories mutually exclusive, thus all racial categories are non-Hispanic

Figure 1. King County HIV diagnoses, AIDS diagnoses, deaths, and people living with HIV/AIDS

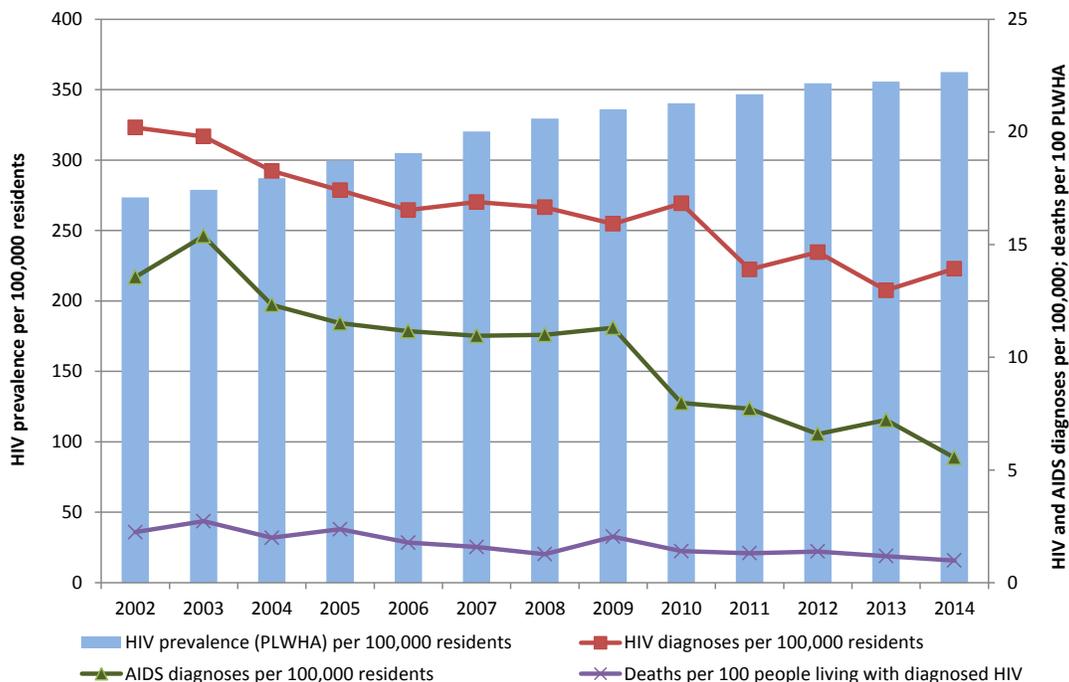


Table 4. AIDS diagnoses and cumulative deaths, King County

	Recent AIDS Diagnoses			Cumulative AIDS Diagnoses		Cumulative Deaths*	
	2010-2014			1981-2014		1981-2014	
	N	%	Rate**	N	%	N	%
Total	688	100%	7.0	8,822	100%	5,110	100%
Gender							
Male	590	86%	12.0	8,143	92%	4,834	95%
Female	98	14%	2.0	679	8%	276	5%
Age at AIDS Diagnosis						Age at Death	
< 13	0	---	0.0	14	<1%	7	<1%
13 - 24	43	6%	3.5	287	3%	36	1%
25 - 34	163	24%	10.3	3,006	34%	1,140	22%
35 - 44	193	28%	13.0	3,507	40%	2,083	41%
45 - 54	198	29%	13.7	1,510	17%	1,177	23%
55+	91	13%	3.9	498	6%	667	13%
Race and Hispanic Origin							
White	358	52%	5.7	6,316	72%	4,029	79%
Black	158	23%	26.1	1,241	14%	548	11%
Hispanic (all races)	87	13%	9.6	751	9%	290	6%
Asian	41	6%	2.8	211	2%	69	1%
Native Hawaiian / Pacific Islander	7	1%	9.3	25	<1%	10	<1%
American Indian / Alaska Native	8	1%	12.3	107	1%	64	1%
Multiple Race	29	4%	7.0	171	2%	100	2%
Exposure Category by Gender							
Male only:							
- Male / Male Sex (MSM)	390	57%	---	6,154	70%	3,707	73%
- Injecting Drug Use (IDU)	31	5%	---	366	4%	248	5%
- MSM and IDU	65	9%	---	934	11%	589	12%
- Heterosexual Contact	17	2%	---	188	2%	55	1%
- Pediatric	1	<1%	---	7	<1%	4	<1%
- Transfusion / Hemophiliac	0	---	---	65	1%	55	1%
- No Identified Risk	86	13%	---	429	5%	176	3%
Female only:							
- Injecting Drug Use	15	2%	---	161	2%	110	2%
- Heterosexual Contact	43	6%	---	414	5%	131	3%
- Pediatric	3	<1%	---	11	<1%	4	<1%
- Transfusion / Hemophiliac	1	<1%	---	23	<1%	17	<1%
- No Identified Risk	36	5%	---	70	1%	14	<1%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of June 30, 2015.

* Includes 259 people with HIV only and 4,851 people diagnosed with AIDS

* Rate is an annual rate per 100,000 residents

Table 5. People living with HIV as of December 31, 2014, King County

	HIV (not AIDS)			AIDS			All Cases of HIV Disease		
	N	%	Rate*	N	%	Rate*	N	%	Rate*
Total	3,243	100%	160.8	3,737	100%	185.3	6,980	100%	346.0
Gender									
Male	2,867	88%	292.6	3,312	89%	338.0	6,179	89%	630.6
Female	376	12%	38.1	425	11%	43.1	801	11%	81.2
Current Age									
< 13	16	<1%	4.6	0	---	0.0	16	<1%	4.6
13 - 24	121	4%	49.4	30	1%	12.3	151	2%	61.7
25 - 34	617	19%	194.3	274	7%	86.3	891	13%	280.5
35 - 44	868	27%	291.5	733	20%	246.2	1,601	23%	537.7
45 - 54	999	31%	346.3	1,543	41%	534.9	2,542	36%	881.2
55+	622	19%	132.8	1,157	31%	247.0	1,779	25%	379.8
Race and Hispanic Origin**									
White	2,042	63%	161.1	2,241	60%	176.8	4,283	61%	338.0
Black	581	18%	460.6	724	19%	574.0	1,305	19%	1034.6
- (US-born Blacks)***	(342)	(11%)		(400)	(11%)		(742)	(11%)	
- (Foreign-born Blacks)	(239)	(7%)		(324)	(9%)		(563)	(8%)	
Hispanic (all races)	380	12%	195.2	471	13%	241.9	851	12%	437.1
- (US-born Hispanics)****	(171)	(5%)		(181)	(5%)		(352)	(5%)	
- (Foreign-born Hispanics)	(209)	(6%)		(290)	(8%)		(499)	(7%)	
Asian	122	4%	39.2	155	4%	49.9	277	4%	89.1
Native Hawaiian / Pacific Islander	10	<1%	62.4	16	<1%	99.8	26	<1%	162.2
American Indian / Alaska Native	22	1%	167.2	40	1%	304.0	62	1%	471.2
Multiple Race	86	3%	96.5	90	2%	101.0	176	3%	197.5
Exposure Category by Gender									
Male only:									
- Male / Male Sex (MSM)	2,298	71%	---	2,366	63%	---	4,664	67%	---
- Injecting Drug Use (IDU)	62	2%	---	142	4%	---	204	3%	---
- MSM and IDU	236	7%	---	375	10%	---	611	9%	---
- Heterosexual Contact	57	2%	---	137	4%	---	194	3%	---
- Pediatric	15	<1%	---	5	<1%	---	20	<1%	---
- Transfusion / Hemophiliac	4	<1%	---	11	<1%	---	15	<1%	---
- No Identified Risk	195	6%	---	276	7%	---	471	7%	---
Female only:									
- Injecting Drug Use	37	1%	---	65	2%	---	102	1%	---
- Heterosexual Contact	214	7%	---	282	8%	---	496	7%	---
- Pediatric	17	1%	---	6	<1%	---	23	<1%	---
- Transfusion / Hemophiliac	4	<1%	---	7	<1%	---	11	<1%	---
- No Identified Risk	104	3%	---	65	2%	---	169	2%	---

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of June 30, 2015.

* Rate is an annual rate per 100,000 residents

** All categories mutually exclusive, thus all racial categories are non-Hispanic

*** Includes 20 cases for whom country of birth is unknown; rates were not calculated by birthplace due to insufficient knowledge of population size

**** Includes 38 cases for whom country of birth is unknown; rates were not calculated by birthplace due to insufficient knowledge of population size

Table 6. People living with HIV* by exposure category, gender and race/ethnicity as of December 31, 2014, King County

Exposure Category	White		Black		Hispanic		Asian		American Indian/ Alaska Native	
	N	%	N	%	N	%	N	%	N	%
Males:										
Male / Male Sex (MSM)	3,329	82%	434	49%	576	74%	165	70%	26	60%
Injecting Drug Use (IDU)	94	2%	63	7%	31	4%	5	2%	4	9%
MSM and IDU	441	11%	62	7%	61	8%	8	3%	9	21%
Heterosexual Contact	49	1%	105	12%	33	4%	5	2%	0	---
Pediatric	3	<1%	12	1%	1	<1%	2	1%	0	---
Transfusion / Hemophiliac	13	<1%	2	<1%	0	---	0	---	0	---
No Identified Risk	127	3%	199	23%	80	10%	52	22%	4	9%
Total Males	4,056	100%	877	100%	782	100%	237	100%	43	100%
Females:										
Injecting Drug Use (IDU)	57	25%	27	6%	3	4%	1	3%	9	47%
Heterosexual Contact	136	60%	268	63%	49	71%	24	60%	9	47%
Pediatric	3	1%	17	4%	2	3%	1	3%	0	---
Transfusion / Hemophiliac	3	1%	7	2%	0	---	1	3%	0	---
No Identified Risk	28	12%	109	25%	15	22%	13	33%	1	5%
Total Females	227	100%	428	100%	69	100%	40	100%	19	100%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of June 30, 2015.

* Table excludes 26 Native Hawaiian and Pacific Islander cases due to small numbers. Also excluded are 176 cases reported as belonging to more than one racial or ethnic group. All categories mutually exclusive, thus all racial categories are non-Hispanic

Table 7. HIV among men who have sex with men (MSM) and all HIV cases, King County (2010-2014 and total living)

	New HIV Diagnoses (2010-2014)				MSM HIV Cases Presumed Living in King County at the end of 2014	
	MSM HIV Cases		All HIV Cases		N	%
	N	%	N	%		
Total	1,019	100%	1,421	100%	5,275	100%
Race and Hispanic Origin						
White	663	65%	779	55%	3,770	71%
Black	98	10%	277	19%	496	9%
Hispanic (all races)	153	15%	201	14%	637	12%
Asian	51	5%	98	7%	173	3%
Native Hawaiian / Pacific Islander	11	1%	11	1%	21	0%
American Indian / Alaska Native	7	1%	12	1%	35	1%
Multiple Race	36	4%	43	3%	143	3%
Injection Drug Use						
Yes	110	11%	157	11%	611	12%
No	909	89%	1,264	89%	4,664	88%
Age at HIV Diagnosis					Age at end of 2014	
< 13	0	---	12	1%	0	---
13 - 24	169	17%	207	15%	96	2%
25 - 34	354	35%	454	32%	688	13%
35 - 44	277	27%	385	27%	1,153	22%
45 - 54	158	16%	253	18%	1,981	38%
55+	61	16%	110	8%	1,357	26%
Foreign-born Status						
U.S.-Born	781	77%	926	65%	4,452	84%
Foreign-Born	165	16%	405	29%	583	11%
Unknown	73	7%	90	6%	240	5%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of June 30, 2015.

Table 8. HIV among people that Identify as transgender* and all HIV cases, King County (2005-2014 and total living)

	New HIV Diagnoses (2005-2014)				Transgender HIV Cases Presumed Living in King County at the end of 2014	
	Transgender HIV Cases		All HIV Cases		N	%
	N	%	N	%		
Total**	22	100%	2,973	100%	42	100%
Race and Hispanic Origin						
White	11	50%	1,663	56%	18	43%
Black	4	18%	586	20%	9	21%
Hispanic (all races)	4	18%	425	14%	13	31%
Other/Unknown	3	14%	299	10%	2	5%
Injection Drug Use						
Yes	5	23%	351	12%	12	29%
No	17	77%	2,622	88%	30	71%
Age at HIV Diagnosis					Age at end of 2014	
< 13	0	---	23	1%	0	---
13 - 24	5	23%	397	13%	3	7%
25 - 34	7	32%	949	32%	8	19%
35 - 44	7	32%	862	29%	9	21%
45 - 54	3	14%	518	17%	14	33%
55+	0	---	224	8%	8	19%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of June 30, 2015.

* Transgender status relies on review of information in medical records and has been collected on the HIV/AIDS Case report in Washington since late 2004. Data presented here are a potential undercount.

** For those cases reported with a transgender identity, 91% of HIV cases diagnosed 2005-2014 and 98% of persons presumed to be living in King County at the end of 2014 were assigned male at birth.

Table 9. Characteristics and HIV prevalence among participants in Seattle area National HIV Behavioral Surveys, 2012-2014

	2012 Injection Drug Users (IDU)		2013 Heterosexuals		2014 Men who have sex with men (MSM)	
	Total	% HIV+	Total	% HIV+	Total	% HIV+
Total N	688		401		503	
HIV seropositive	8% (57/686)		1% (3/401)		17% (81/479)	
MSM/IDU HIV positive	39% (25/65)		n/a		48% (15/31)	
HIV + unaware of status*	11% (6/57)		33% (1/3)		7% (6/81)	
Age (years)						
18-29	15%	3%	25%	0%	33%	8%
30-39	25%	9%	20%	2%	28%	18%
40-49	27%	12%	29%	1%	20%	23%
50+	33%	7%	26%	0%	20%	23%
Gender						
Male	64%	9%	62%	<1%	100%	17%
Female	36%	6%	38%	1%	n/a	-
Race/ethnicity						
White, non-Hispanic	57%	7%	16%	0%	62%	18%
Black, non-Hispanic	17%	9%	64%	1%	8%	13%
Hispanic	9%	6%	6%	0%	17%	13%
Other race	4%	18%	5%	0%	5%	18%
Multiracial	12%	13%	10%	0%	8%	27%
PREVIOUS 12 MONTHS						
Number of sex partners:						
0	16%	7%	n/a	-	n/a	-
1	36%	4%	18%	1%	18%	13%
2-4	30%	11%	37%	0%	30%	18%
5-9	8%	7%	18%	1%	22%	8%
10+	9%	16%	27%	1%	31%	25%
Male-male sex	10%	39%	n/a	-	100%	17%
STD diagnosis	5%	25%	8%	0%	17%	32%
Popper use	n/a	-	n/a	-	33%	26%
Amphetamine use (non-injection)	45%	10%	8%	0%	15%	44%
Amphetamine injection (any)	43%	15%	n/a	-	5%	54%
Injection drug use	100%	8%	n/a	-	6%	48%
Drug most frequently injected						
Heroin	85%	5%	n/a	-	30%	25%
Speedball	5%	3%	n/a	-	0%	0%
Cocaine	1%	22%	n/a	-	0%	0%
Amphetamine	9%	41%	n/a	-	70%	63%
Receptive needle sharing	33%	5%	n/a	-	19%	50%

* By self-report

HIV/AIDS Data in Washington State

Table 10. New HIV diagnoses, Washington, 2009-2014

Year of HIV diagnosis:	New HIV Diagnoses								Late HIV Diagnoses	
	2009	2010	2011	2012	2013	2014	2010-2014	Rate*	2009-2013*	
	N	N	N	N	N	N	N	%	%	
Total	548	558	496	512	468	447	2,481	100%	7.3	33%
Gender										
Male	460	487	429	424	392	374	2,106	85%	12.4	34%
Female	88	71	67	88	76	73	375	15%	2.2	31%
Age at HIV Diagnosis										
< 13	10	10	6	8	9	4	37	1%	0.7	---
13 - 24	81	74	68	80	73	66	361	15%	6.6	16%
25 - 34	159	168	147	160	132	142	749	30%	15.8	27%
35 - 44	144	156	126	132	133	107	654	26%	14.4	35%
45 - 54	109	104	91	89	88	89	461	19%	9.5	47%
55+	45	46	58	43	33	39	219	9%	2.5	54%
Race** and Hispanic Origin										
White	320	319	281	287	249	229	1,365	55%	5.6	32%
Black	90	80	90	97	90	96	453	18%	38.1	32%
- (US-born Blacks)***	(45)	(49)	(50)	(47)	(45)	(49)	(240)	(10%)		(23%)
- (Foreign-born Blacks)	(45)	(31)	(40)	(50)	(45)	(47)	(213)	(9%)		(35%)
Hispanic (all races)	87	105	75	64	79	61	384	15%	9.6	36%
- (US-born Hispanics)****	(36)	(48)	(34)	(28)	(35)	(23)	(168)	(7%)		(25%)
- (Foreign-born Hispanics)	(51)	(57)	(41)	(36)	(44)	(38)	(216)	(9%)		(39%)
Asian	25	26	25	31	24	38	144	6%	5.8	40%
Native Hawaiian / Pacific Islander	2	1	5	7	8	5	26	1%	12.7	52%
American Indian / Alaska Native	5	9	5	5	4	6	29	1%	6.5	50%
Multiple Race	18	19	14	21	12	12	78	3%	6.0	29%
Exposure Category by Gender										
Male only:										
- Male / Male Sex (MSM)	318	349	297	280	271	237	1,434	58%	---	29%
- Injecting Drug Use (IDU)	18	24	17	15	14	12	82	3%	---	48%
- MSM and IDU	44	27	47	40	34	29	177	7%	---	24%
- Heterosexual Contact	13	19	9	6	6	8	48	2%	---	60%
- Pediatric	4	7	4	1	3	3	18	1%	---	---
- Transfusion / Hemophiliac	0	0	0	0	0	0	0	--	---	---
- No Identified Risk	63	61	55	82	64	85	347	14%	---	52%
Female only:										
- Injecting Drug Use	9	9	13	7	6	8	43	2%	---	---
- Heterosexual Contact	61	49	30	33	32	22	166	7%	---	34%
- Pediatric	7	3	2	2	1	1	9	<1%	---	---
- Transfusion / Hemophiliac	0	0	0	0	0	0	0	--	---	---
- No Identified Risk	11	10	22	46	37	42	157	6%	---	32%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of June 30, 2015.

Late HIV are defined as an AIDS diagnosis within 12 months of an HIV diagnosis and limited to new HIV diagnoses 2009 through 2013.

* Rate is an annual rate per 100,000 residents

** All categories mutually exclusive, thus all racial categories are non-Hispanic

*** Includes 31 cases for whom country of birth is unknown; rates were not calculated by birthplace due to insufficient knowledge of population size

**** Includes 57 cases for whom country of birth is unknown; rates were not calculated by birthplace due to insufficient knowledge of population size

Table 11. New HIV diagnoses by county and combined local health district (HD)

Year of HIV diagnosis:	Newly Diagnosed Cases of HIV Disease								Rate*	Cumulative Diagnoses		Late HIV Diagnoses
	2009	2010	2011	2012	2013	2014	2010-2014	1981-2014		2009-2013		
	N	N	N	N	N	N	N	%		N	%	%
Adams Co.	1	0	1	0	0	0	1	<1%	---	8	<1%	---
Asotin Co.	2	2	1	0	1	0	4	<1%	---	27	<1%	---
Benton Co.	7	7	12	5	7	6	37	1%	4.1	160	1%	39%
Benton-Franklin HD	13	11	13	7	7	6	44	2%	3.3	248	1%	39%
Chelan Co.	3	5	4	3	3	4	19	1%	5.2	88	<1%	---
Chelan-Douglas HD	4	7	5	3	4	4	23	1%	4.1	99	<1%	52%
Clallam Co.	3	1	3	4	3	1	12	<1%	3.3	90	<1%	---
Clark Co.	22	29	29	27	27	21	133	5%	6.1	806	4%	45%
Columbia Co.	0	0	0	0	0	0	0	0%	---	6	<1%	---
Cowlitz co.	1	5	4	4	2	4	19	1%	3.7	165	1%	---
Douglas Co.	1	2	1	0	1	0	4	<1%	---	11	<1%	---
Ferry Co.	0	0	0	0	0	1	1	<1%	---	8	<1%	---
Franklin Co.	6	4	1	2	0	0	7	<1%	---	88	<1%	---
Garfield Co.	0	0	0	0	0	0	0	0%	---	1	<1%	---
Grant Co.	1	3	3	3	0	0	9	<1%	---	58	<1%	---
Grays Harbor Co.	1	5	4	6	1	3	19	1%	5.2	105	1%	---
Island Co.	8	3	1	3	2	3	12	<1%	3.0	98	<1%	---
Jefferson Co.	0	0	0	1	1	2	4	<1%	---	41	<1%	---
King Co.	302	324	269	288	257	281	1,419	57%	14.4	12,527	62%	29%
Kitsap Co.	10	2	7	11	7	7	34	1%	2.7	346	2%	32%
Kittitas Co.	0	0	0	0	2	1	3	<1%	---	28	<1%	---
Klickitat Co.	0	0	0	1	0	0	1	<1%	---	17	<1%	---
Lewis Co.	4	0	5	1	1	0	7	<1%	---	68	<1%	---
Lincoln Co.	0	0	0	0	0	0	0	0%	---	4	<1%	---
Mason Co.	3	11	7	9	3	1	31	1%	10.1	142	1%	---
NE Tri-County HD	1	0	1	0	3	1	5	<1%	---	49	<1%	---
Okanogan Co.	4	0	1	3	0	0	4	<1%	---	45	<1%	---
Pacific Co.	1	0	0	2	0	1	3	<1%	---	35	<1%	---
Pend Oreille Co.	0	0	0	0	0	0	0	0%	---	9	<1%	---
Pierce Co.	62	61	57	53	59	44	274	11%	6.8	1,869	9%	29%
San Juan Co.	1	2	0	0	2	1	5	<1%	---	32	<1%	---
Skagit Co.	1	4	5	4	9	4	26	1%	4.4	120	1%	---
Skamania Co.	1	0	0	0	0	0	0	0%	---	9	<1%	---
Snohomish Co.	42	33	32	39	30	36	170	7%	4.7	1,193	6%	41%
Spokane Co.	19	24	25	25	22	6	102	4%	4.3	828	4%	44%
Stevens Co.	1	0	1	0	3	0	4	<1%	---	32	<1%	---
Thurston Co.	12	12	7	4	9	5	37	1%	2.9	315	2%	27%
Wahkiakum Co.	0	0	0	0	1	1	2	<1%	---	5	<1%	---
Walla Walla Co.	0	0	0	3	0	0	3	<1%	---	68	<1%	---
Whatcom Co.	8	1	7	4	8	5	25	1%	2.5	263	1%	---
Whitman Co.	1	1	1	0	0	1	3	<1%	---	24	<1%	---
Yakima Co.	17	17	8	7	7	8	47	2%	3.8	310	<1%	48%
Statewide Total	548	558	496	512	468	447	2,481	100%	7.3	20,049	100%	33%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of May 31, 2015.

Note: Percentages (%) are rounded to the nearest whole number. Actual values may be less than they appear (e.g. 0.7% = "1%").

* Rate is an annual rate per 100,000 residents

Table 12. New HIV diagnoses by foreign-born status and other characteristics, Washington, 2010-2014

Characteristic:	Proportion of Cases with Select Characteristic at HIV Diagnosis					Total	
	Male	Age>34 yrs.	MSM	Heterosexual	Late HIV Diagnosis*	N	%
	%	%	%	%	%		
U.S.-Born**							
White	91%	57%	78%	6%	35%	1,128	72%
Black	85%	37%	66%	14%	27%	209	13%
Hispanic (all races)	92%	29%	84%	6%	27%	109	7%
Asian	82%	41%	76%	0%	29%	17	1%
Native Hawaiian / Pacific Islander	70%	40%	70%	30%	60%	10	1%
American Indian / Alaska Native	81%	58%	42%	15%	54%	26	2%
Multiple Race	94%	32%	78%	6%	29%	65	4%
Total	90%	51%	77%	7%	33%	1,564	100%
Foreign-Born**							
White	87%	54%	60%	12%	31%	68	10%
Black	42%	64%	5%	19%	36%	218	34%
Hispanic (all races)	90%	61%	61%	10%	45%	220	34%
Asian	78%	54%	40%	10%	41%	116	18%
Native Hawaiian / Pacific Islander	77%	38%	54%	23%	38%	13	2%
American Indian / Alaska Native	---	---	---	---	---	0	---
Multiple Race	40%	40%	20%	40%	40%	5	1%
Total	71%	56%	38%	14%	39%	650	100%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of May 31, 2015.

* Late HIV are defined as an AIDS diagnosis within 12 months of an HIV diagnosis and limited to new HIV diagnoses 2009 through 2013

** Selection excludes 90 cases for which we do not have information about their foreign born status. All categories mutually exclusive, thus all racial categories are non-Hispanic

Figure 2. Washington State HIV diagnoses, AIDS diagnoses, deaths, and people living with HIV/AIDS

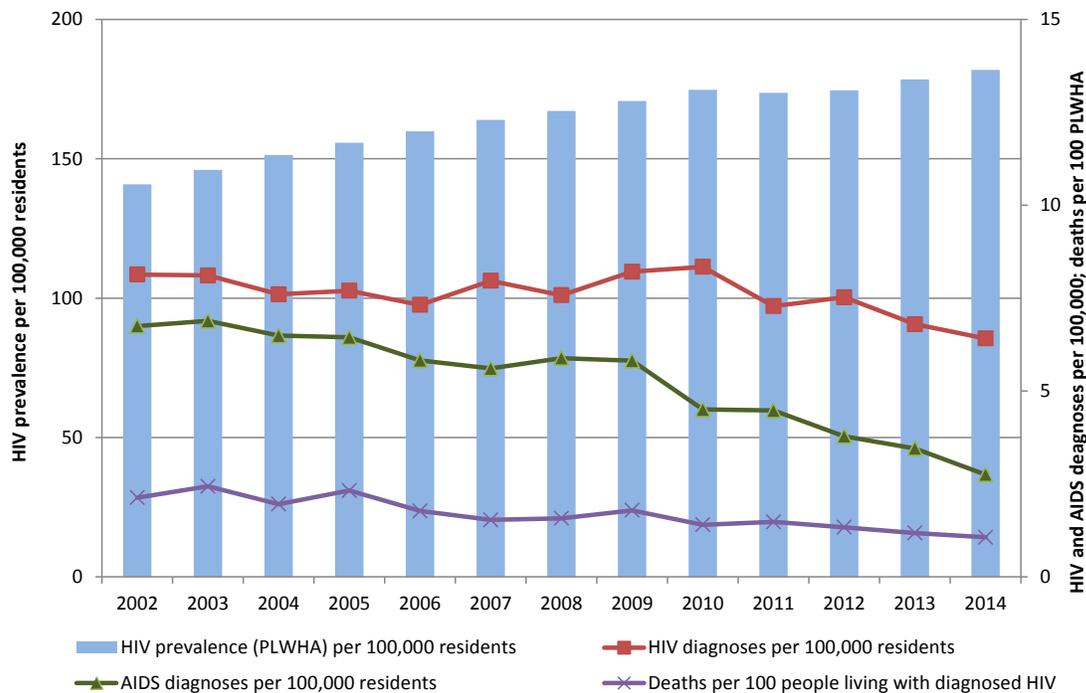


Table 13. AIDS Diagnoses and Deaths from HIV or AIDS, Washington

	Recent AIDS Diagnoses			Cumulative AIDS Diagnoses		Cumulative HIV/AIDS Deaths	
	2010-2014			1981-2014		1981-2014	
	N	%	Rate*	N	%	N	%
Total	1,289	100%	3.8	14,141	100%	6,564	100%
Gender							
Male	1,086	84%	6.4	12,696	90%	6,059	92%
Female	203	16%	1.2	1,445	10%	505	8%
Age at AIDS Diagnosis						Age at Death	
< 13	1	<1%	---	32	0%	15	<1%
13 - 24	73	6%	1.3	570	4%	67	1%
25 - 34	298	23%	6.3	4,684	33%	1,554	24%
35 - 44	352	27%	7.8	5,405	38%	2,657	40%
45 - 54	377	29%	7.8	2,479	18%	1,446	22%
55+	188	15%	2.1	971	7%	825	13%
Race and Hispanic Origin							
White	730	57%	3.0	10,219	72%	5,206	79%
Black	234	18%	19.6	1,760	12%	624	10%
Hispanic (all races)	184	14%	4.6	1,307	9%	405	6%
Asian	66	5%	2.7	305	2%	76	1%
Native Hawaiian / Pacific Islander	12	1%	5.8	50	<1%	16	<1%
American Indian / Alaska Native	22	2%	4.9	224	2%	100	2%
Multiple Race	41	3%	3.2	276	2%	137	2%
Exposure Category by Gender							
Male only:							
- Male / Male Sex (MSM)	673	52%	---	8,947	63%	4,400	67%
- Injecting Drug Use (IDU)	69	5%	---	892	6%	459	7%
- MSM and IDU	110	9%	---	1,431	10%	703	11%
- Heterosexual Contact	37	3%	---	413	3%	117	2%
- Pediatric	2	<1%	---	17	<1%	7	<1%
- Transfusion / Hemophiliac	0	---	---	154	1%	106	2%
- No Identified Risk	195	15%	---	842	6%	267	4%
Female only:							
- Injecting Drug Use	42	3%	---	387	3%	187	3%
- Heterosexual Contact	98	8%	---	853	6%	246	4%
- Pediatric	4	<1%	---	22	<1%	8	<1%
- Transfusion / Hemophiliac	2	<1%	---	49	<1%	29	<1%
- No Identified Risk	57	4%	---	134	1%	35	1%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of May 31, 2015.

* Rate is an annual rate per 100,000 residents

Table 14. People living with HIV as of December 31, 2014, Washington

	HIV (not AIDS)			AIDS			All Cases of HIV Disease		
	N	%	Rate*	N	%	Rate*	N	%	Rate*
Total	5,711	100%	82.0	6,980	100%	100.2		100%	182.1
Gender									
Male	4,850	85%	139.7	6,031	86%	173.7		86%	313.4
Female	861	15%	24.6	949	14%	27.1	1,810	14%	51.8
Current Age									
< 13	45	1%	3.9	4	0%	1.1	49	<1%	5.8
13 - 24	230	4%	25.0	72	1%	20.9	302	2%	90.4
25 - 34	1,123	20%	116.1	497	7%	91.6	1,620	13%	233.3
35 - 44	1,462	26%	160.7	1,387	20%	237.3	2,849	22%	421.1
45 - 54	1,755	31%	184.4	2,824	40%	264.9	4,579	36%	406.4
55+	1,096	19%	58.0	2,196	31%	80.4	3,292	26%	120.2
Race and Hispanic Origin**									
White	3,643	64%	73.9	4,398	63%	89.2	8,041	63%	163.0
Black	953	17%	385.2	1,116	16%	451.1	2,069	16%	836.2
- (US-born Blacks)***	(599)	(10%)		(676)	(10%)		(1,275)	(10%)	
- (Foreign-born Blacks)	(354)	(6%)		(440)	(6%)		(794)	(6%)	
Hispanic (all races)	703	12%	82.7	949	14%	111.6	1,652	13%	194.3
- (US-born Hispanics)****	(340)	(6%)		(383)	(5%)		(723)	(6%)	
- (Foreign-born Hispanics)	(363)	(6%)		(566)	(8%)		(929)	(7%)	
Asian	184	3%	35.0	234	3%	44.5	418	3%	79.5
Native Hawaiian / Pacific Islander	26	<1%	59.4	40	1%	91.4	66	1%	150.8
American Indian / Alaska Native	58	1%	64.2	97	1%	107.4	155	1%	171.6
Multiple Race	138	2%	49.6	141	2%	50.7	279	2%	100.3
Exposure Category by Gender									
Male only:									
- Male / Male Sex (MSM)	3,650	64%	---	4,070	58%	---	7,720	61%	---
- Injecting Drug Use (IDU)	179	3%	---	361	5%	---	540	4%	---
- MSM and IDU	461	8%	---	689	10%	---	1,150	9%	---
- Heterosexual Contact	131	2%	---	293	4%	---	424	3%	---
- Pediatric	30	1%	---	21	<1%	---	51	<1%	---
- Transfusion / Hemophiliac	7	<1%	---	31	<1%	---	38	<1%	---
- No Identified Risk	392	7%	---	566	8%	---	958	8%	---
Female only:									
- Injecting Drug Use	109	2%	---	179	3%	---	288	2%	---
- Heterosexual Contact	526	9%	---	627	9%	---	1,153	9%	---
- Pediatric	36	1%	---	18	<1%	---	54	<1%	---
- Transfusion / Hemophiliac	5	<1%	---	12	<1%	---	17	<1%	---
- No Identified Risk	185	3%	---	113	2%	---	298	2%	---

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of May 31, 2015.

Section excludes 11 cases (6 with HIV, 5 with AIDS) for which we do not have information about race or ethnicity.

* Rate is an annual rate per 100,000 residents

** All categories mutually exclusive, thus all racial categories are non-Hispanic

*** Includes 71 cases for whom country of birth is unknown; rates were not calculated by birthplace due to insufficient knowledge of population size

**** Includes 151 cases for whom country of birth is unknown; rates were not calculated by birthplace due to insufficient knowledge of population size

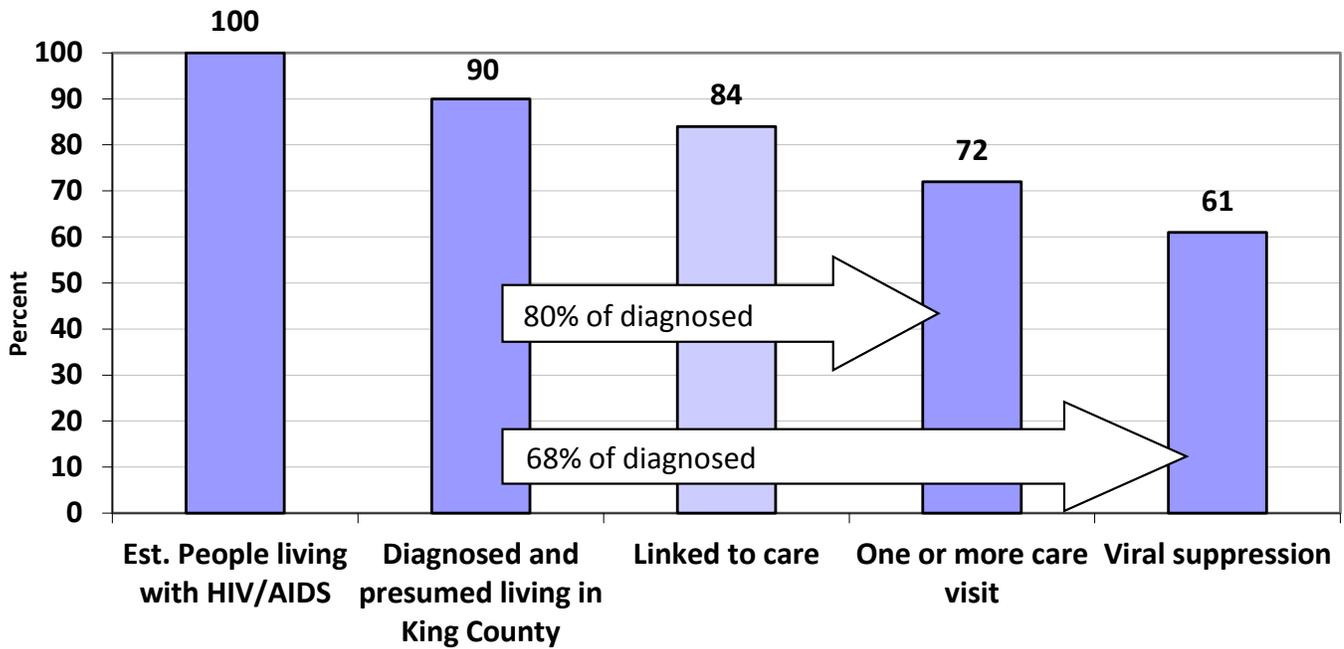
Table 15. People living with HIV* by exposure category, gender and race/ethnicity as of December 31, 2014, Washington

Exposure Category	White		Black		Hispanic		Asian		American Indian/ Alaska Native	
	N	%	N	%	N	%	N	%	N	%
Males:										
Male / Male Sex (MSM)	5,571	76%	682	49%	969	67%	222	66%	57	53%
Injecting Drug Use (IDU)	328	4%	105	8%	76	5%	9	3%	10	9%
MSM and IDU	855	12%	96	7%	123	8%	9	3%	21	19%
Heterosexual Contact	143	2%	171	12%	82	6%	13	4%	9	8%
Pediatric	12	<1%	29	2%	4	<1%	2	1%	1	1%
Transfusion / Hemophiliac	31	<1%	4	<1%	2	<1%	0	---	0	---
No Identified Risk	361	5%	292	21%	196	13%	79	24%	10	9%
Total Males	7,301	100%	1,379	100%	1,452	100%	334	100%	108	100%
Females:										
Injecting Drug Use (IDU)	186	25%	56	8%	21	11%	2	2%	12	26%
Heterosexual Contact	459	62%	438	63%	138	69%	56	67%	31	66%
Pediatric	13	2%	32	5%	7	4%	2	2%	0	---
Transfusion / Hemophiliac	5	1%	8	1%	1	1%	3	4%	0	---
No Identified Risk	77	10%	156	23%	33	17%	21	25%	4	9%
Total Females	740	100%	690	100%	200	100%	84	100%	47	100%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of June 30, 2015.

* Table excludes 26 Native Hawaiian and Pacific Islander cases due to small numbers. Also excluded are 176 cases reported as belonging to more than one racial or ethnic group. All categories mutually exclusive, thus all racial categories are non-Hispanic

Figure 3. 2014 Washington State HIV care cascade, as of June 30, 2015



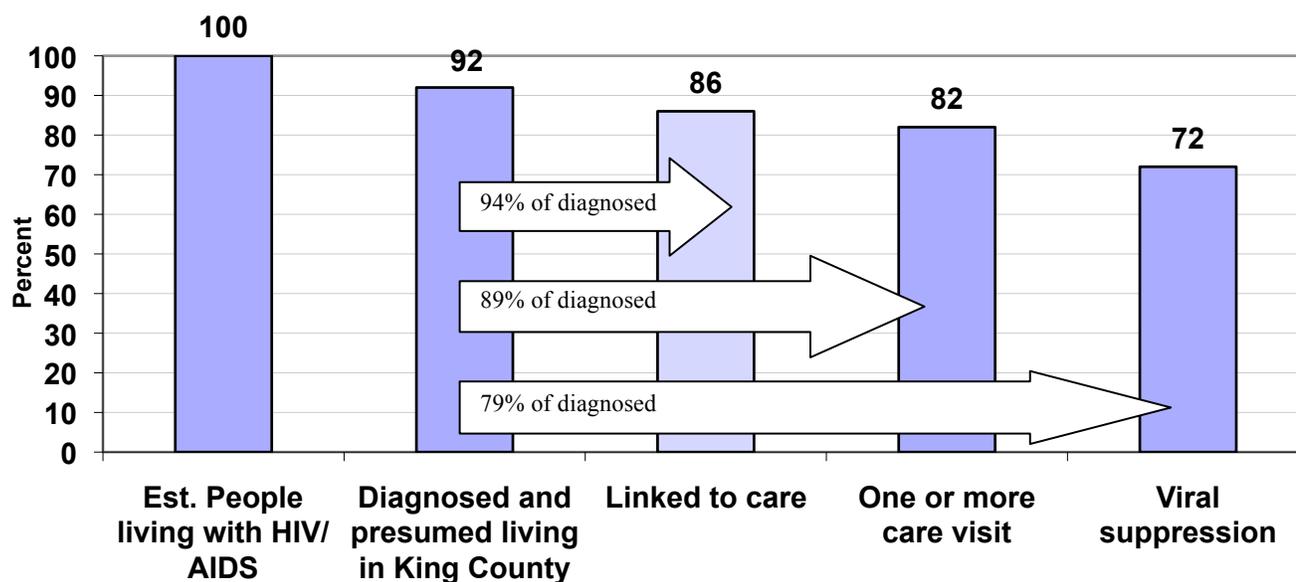
	Estimated people living with HIV/AIDS	Diagnosed and presumed living in WA	Linked to care in 2014 ¹	One or more care visit ²	Viral suppression ³
Number of people	14,042	12,677	376/447	10,151	8,608

- ¹ Limited to newly diagnosed HIV cases linked to care within one month (30 days) of HIV diagnosis.
- ² Includes cases with laboratory evidence of at least one HIV care visit in 2014.
- ³ Suppression based on whether the last reported viral load test result in 2014 was ≤ 200 copies/mL.

Monitoring the goals of the National Strategy for HIV/AIDS and the King County HIV Care Cascade

The U.S. National HIV/AIDS Strategy (NHAS)¹ has three major goals: 1) reducing new HIV infections; 2) increasing access to care and improving health outcomes; and 3) reducing HIV-related disparities. In this section we address each of these outcomes and also have a focus on the HIV care cascade, the sequential steps from HIV diagnosis to linkage to care, engagement in care, and viral suppression.

Figure 1: 2014 King County HIV Care Cascade as of June 30, 2015



	Estimated people living with HIV/AIDS ¹	Diagnosed and presumed living in King County ²	Linked to care in 2014 ³	One or more care visit ⁴	Viral suppression ⁵
Number of people	7945	7309	264/281	6534	5749

¹ Percent undiagnosed was calculated as 6% among MSM for King County; prior estimate of 15% was used for non-MSM resulting in an estimate of 7.3% overall, rounded up to 8%. Estimated people living with HIV/AIDS is calculated by dividing "diagnosed and presumed living in King County" residents by .92.

² Diagnosed cases are those presumed living in King County as of the end of 2014.

³ Linked to care in 2014 is not a subset of earlier data (hence different color in the graph) and is based on the percent diagnosed in 2014 with a CD4 or viral load test within 3 months of diagnosis. The percent linked in the figure, 86%, is the percent of diagnosed cases in 2014 who linked (93.95%) times 92.0% to account for undiagnosed cases.

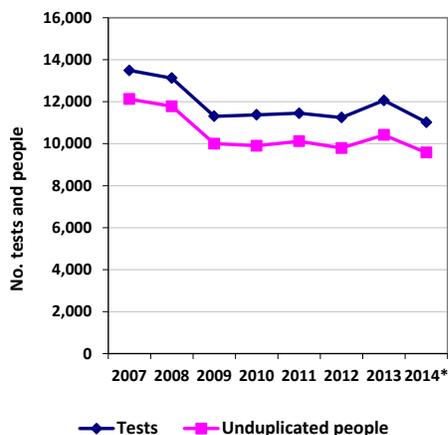
⁴ One or more care visit was based on one or more reported laboratory result (CD4, viral load, genotype).

⁵ Viral suppression is defined as the most recent viral load test result in 2014 less than 200 copies.

Figure 1 presents the HIV care cascade for King County, WA. Public Health estimates that 72% of all people living with HIV (PLWHA) in the county – including 79% of all persons with diagnosed HIV infection - are virally suppressed. (Viral suppression is defined here to mean a viral load of <200 copies/mL) The Centers for Disease Control and Prevention estimates that only 30% of PLWHA in the U.S. are virally suppressed.²

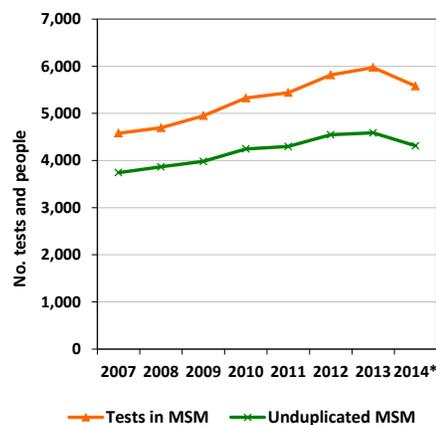
HIV infection & diagnosis: reducing HIV by increasing HIV testing and earlier diagnoses and treatment for individuals at highest risk of HIV

Figure 2a: Publicly funded HIV testing in King County



*2014 data are incomplete as of 6/30/2015

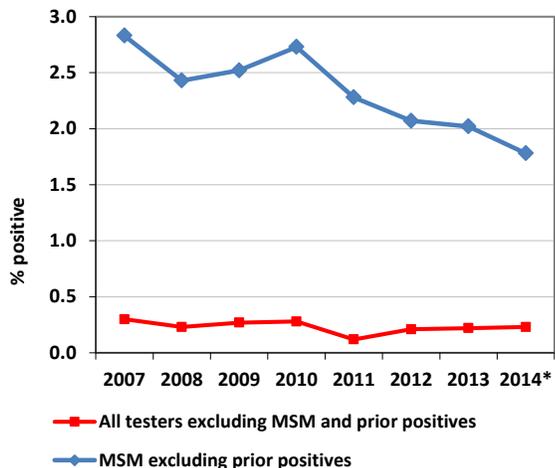
Figure 2b: Publicly funded HIV testing in King County among Men who have sex with men (MSM)



*2014 data are incomplete as of 6/30/2015

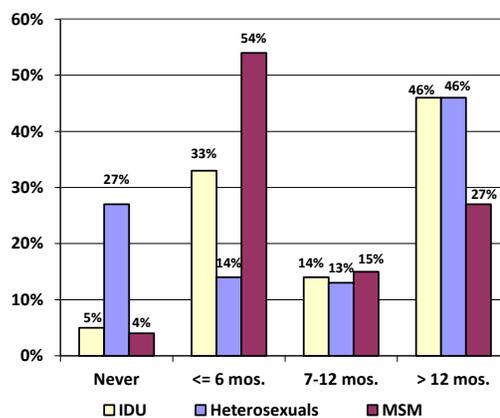
Figures 2a and 2b show trends in the number of HIV tests performed and numbers of persons tested using Public Health funds between 2007 and 2014. Excluding 2014, which is incomplete, for the most recent seven year period with complete data, or 2007 to 2013, the total number of tests performed declined 11%, from 13,560 to 11,270. During this same period, the number of tests performed among men who have sex with men (MSM) increased 31%. This change reflects a concerted effort by Public Health—Seattle & King County to focus HIV testing resources on the population at greatest risk for HIV infection, MSM.

Figure 3a. Percent of individuals, excluding men who have sex with men, testing HIV positive through publicly funded HIV testing in King County



*2014 data are incomplete as of 6/30/2015

Figure 3b: Percent of men who have sex with men (MSM) testing HIV positive through publicly funded HIV testing in King County



*MSM and IDU are not mutually exclusive

*2014 data are incomplete as of 6/30/2015

Figure 3a shows the percentage of all people excluding MSM and all MSM testing positive for HIV infection among all individuals testing through publicly funded testing sites. Between 2007 and 2014, the percentage of MSM testing HIV positive declined from 2.8% to 1.8%. **Figure 3b** includes local HIV testing history data from the National HIV Behavioral Surveillance surveys for MSM, IDU, and heterosexuals. Most MSM at risk of HIV (54%) had received an HIV test within the past six months.

Figure 3c. Median and inter-quartile range (IQR) of intertest intervals for newly HIV diagnosed MSM (time of last negative to first positive test), King County

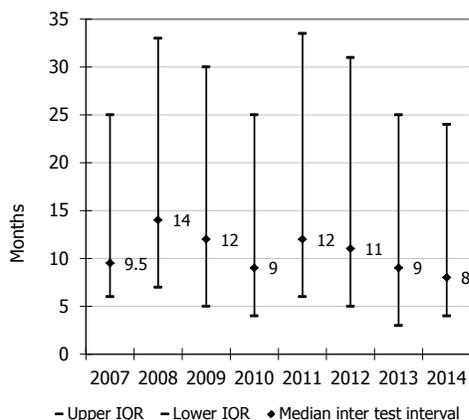


Figure 3d. Percent of MSM with a known testing history (Y2) and who never had a HIV test before a HIV diagnosis, King County

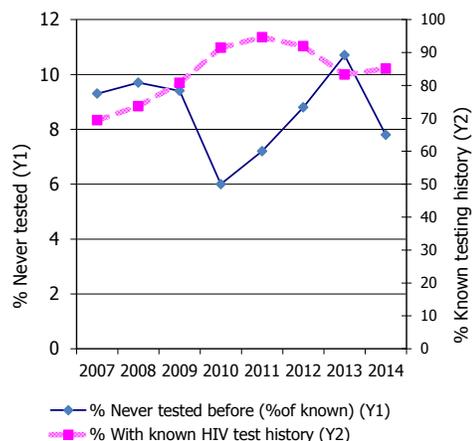
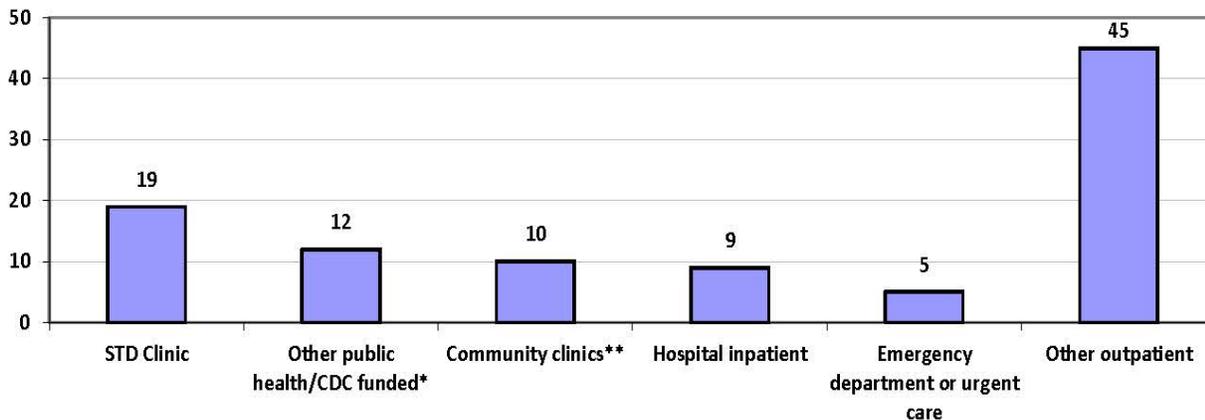


Figure 3c indicates that the median intertest interval (time from a last negative test to a first positive test) remained relatively stable for newly HIV-diagnosed MSM between 2007 and 2014. Throughout this period, 6% to 11% of MSM reported never testing negative for HIV prior to an initial HIV diagnosis and since 2009 at least 80% of MSM had a known testing history (either reporting a date of a last negative test, or they stated their initial diagnostic test was their first HIV test) (**Figure 3d**).

Figure 4. Percent of new HIV diagnoses by type of testing site, King County 2013-2014



* Other public health/CDC-funded sites exclude the Harborview Medical Center STD clinic and include sites that receive federal or local funds for HIV testing

** Community clinics include non-profits (Planned Parenthood, Indian Health Services) and those listed as community health centers on this web page: <http://www.kingcounty.gov/healthservices/health/locations/community.aspx>

Figure 4 presents information on where persons with newly diagnosed HIV infection were diagnosed. Inclusion is limited to individuals diagnosed with HIV in 2013 or 2014 (n = 538). The PHSKC STD clinic was the largest single diagnosing site for HIV infection, diagnosing 19% of all new infections in 2013 and 2014. A total of 30% of all cases, including 36% of cases in MSM, were diagnosed through publically funded HIV testing.

Figure 5: Rate of new HIV diagnoses, overall and for men and women per 100,000 population per year, 2003 through 2014

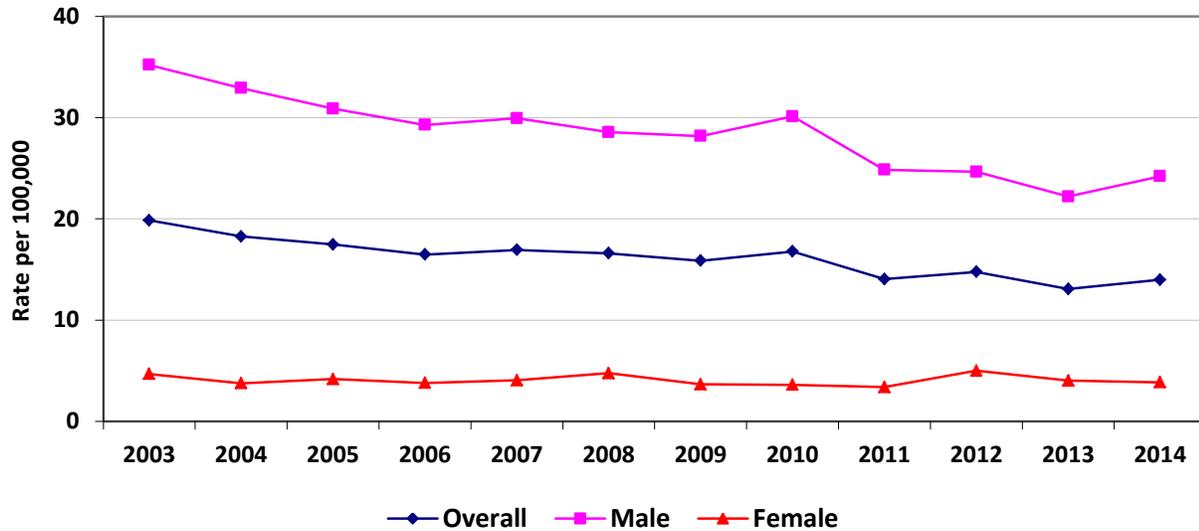
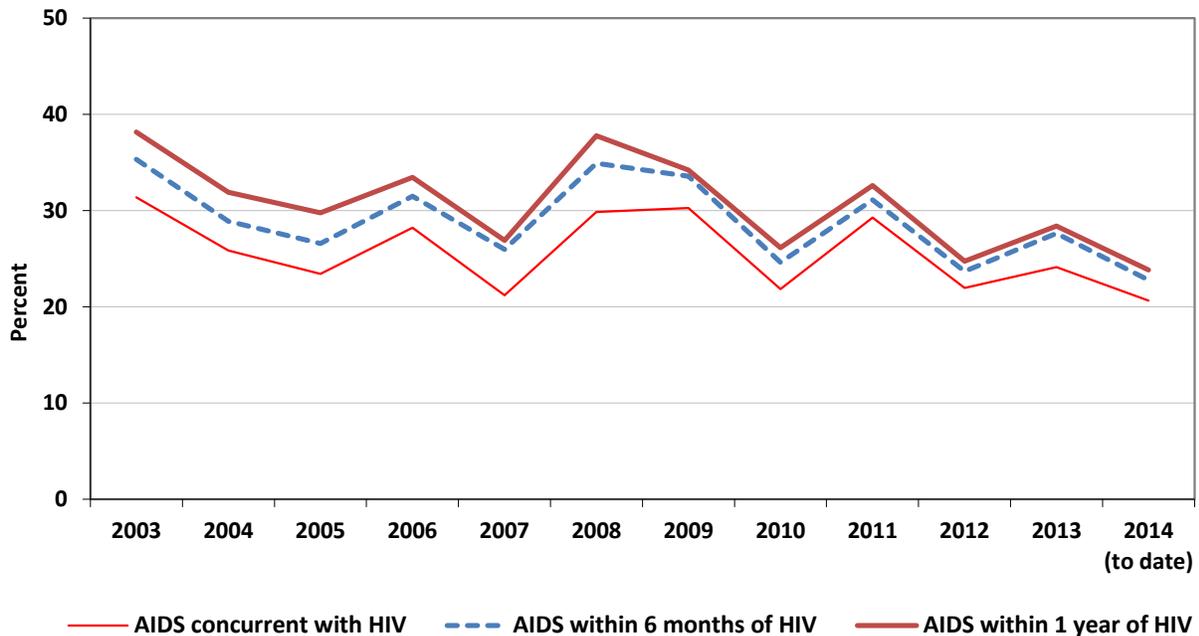


Figure 5 shows the rate of new HIV diagnoses in King County, 2003-2014. Over the twelve-year period, the rate of HIV diagnoses overall declined by 30% ($X^2_{trend} p < 0.001$). This decline was also evident for men (31%; $X^2_{trend} p < 0.0001$); and the decline was less strong for women (18%; $X^2_{trend} p = 0.01$), who comprise a relatively small proportion of cases.

Figure 6: Late HIV diagnoses, as defined by AIDS diagnosis concurrently, within 6 months, or within 1 year of HIV diagnosis, King County



As shown in **Figure 6**, the percentage of individuals with newly diagnosed HIV infection diagnosed with AIDS within 12 months of first testing HIV positive has been roughly stable for over a decade. In 2013 (the most recent year with a full year of follow-up available), 28% of all persons diagnosed with HIV infection, including 21% of MSM, 9% of IDU and 44% of heterosexuals were diagnosed with AIDS within 1 year of HIV diagnosis.

Figure 7: Median and inter-quartile range (IQR) of First CD4 Counts, King County

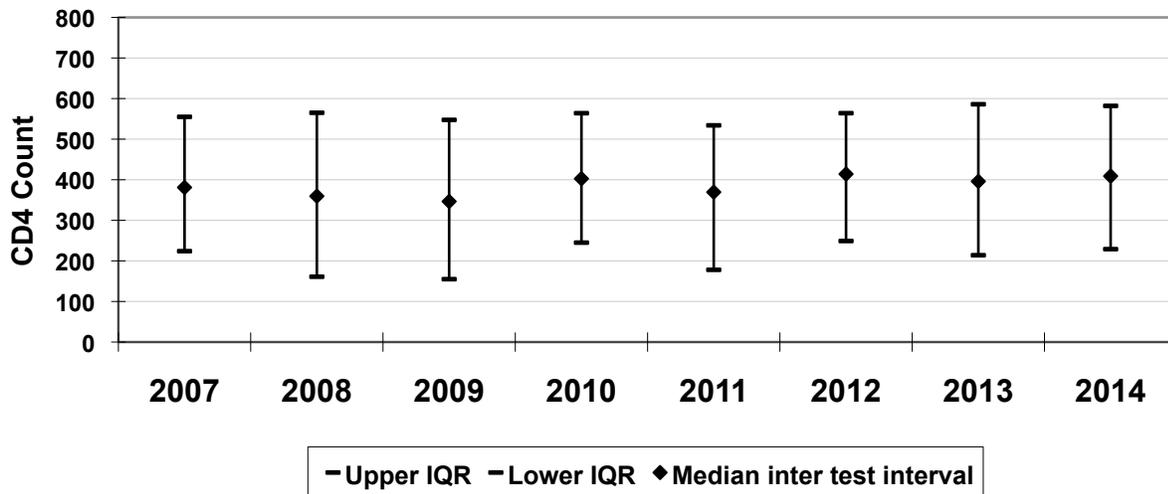
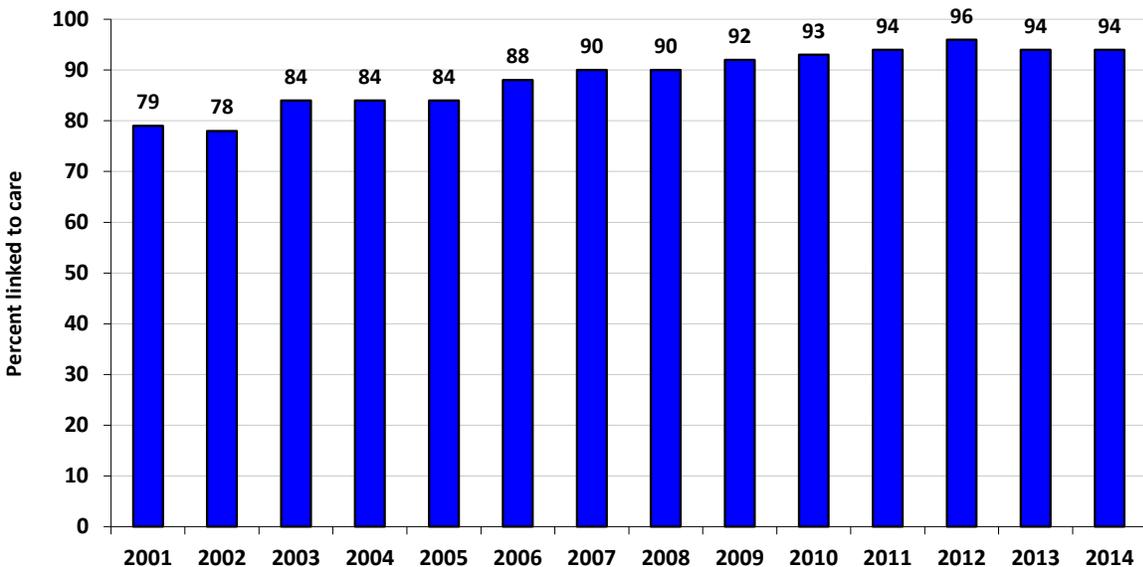


Figure 8: Timely linkage to care (CD4 or viral load testing within 3 months of diagnosis), King County



The median CD4 count at time of HIV diagnosis has been high and roughly stable since 2007, between 346 and 414 (**Figure 7**) among individuals with a CD4 count within half a year of their HIV diagnosis. In 2013 the HIV classification was changed in two ways that will impact defining late HIV diagnosis as AIDS within one year of HIV diagnosis. First, individuals with a negative HIV test up to six months before HIV will be classified as Stage 0, and diagnoses which previously had been AIDS-defining occurring within this window of six months from a last negative HIV test will no longer be counted as AIDS. Secondly CD4 percent <14% will no longer define AIDS in the setting of a concurrent absolute CD4+ count > 200 cells/ μ L. **Figure 8** shows that linkage to care in King County is extremely high. In each year since 2007, 90% or more of all persons with newly diagnosed HIV infection have linked to HIV care within 3 months of diagnosis, defined as a reported CD4 count or viral load within three months of diagnosis. Reporting regulations were expanded in 2006, so that all CD4 counts and all viral loads are now reportable. Previously reporting of detectable viral loads and CD4 counts below 200 was required, although some laboratories did institute full reporting in advance of the regulation change. In 2014, 94% of people with newly diagnosed HIV infection were known to have linked to HIV care within three months and 93% within one month.

Increase access to care and improve health outcomes for all people living with HIV

Figure 9a: Most recent CD4+ T-lymphocyte counts 2014, King County (based on 6,507 people with CD4 tests reported)

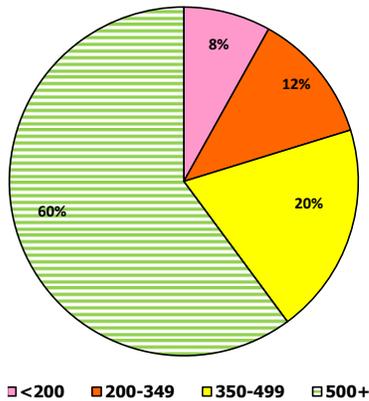
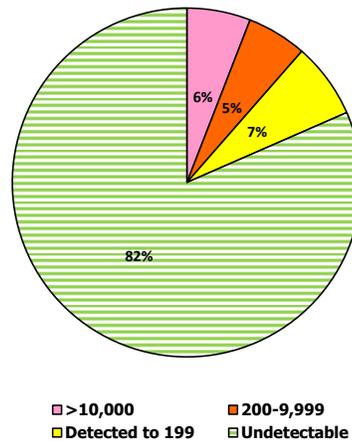


Figure 9b: Most recent plasma viral load 2014, King County (based on 6,493 people with viral load tests reported)



Figures 9a and 9b: The CD4 lymphocyte count is a measure indicating the strength of a patient's immune system. A normal CD4 count is about 1,000 cells/mm³ (range 500-1500 cells/mm³), and individuals with a CD4 count under 200 are defined as having AIDS. In 2014, CD4 and viral load test values were available for 89% of diagnosed cases presumed living locally. Sixty percent of PLWHA for whom laboratory data were available had a CD4 count over 500 cells/mm³, and only 8% had a CD4 count under 200 cells/mm³. During this same period, 82% of persons for whom laboratory data were available had an undetectable viral load, and an additional 7% had a detectable viral load under 200 copies. Thus 89% of individuals diagnosed with HIV and with a viral load reported in 2014 had a suppressed viral load (<200).

Figure 9c: Percent with any visit and undetectable viral load by age in years in 2014, King County

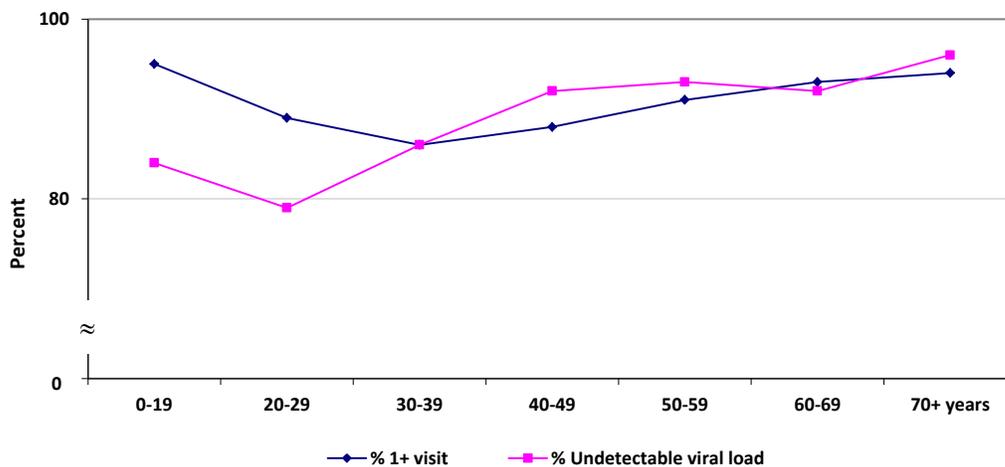
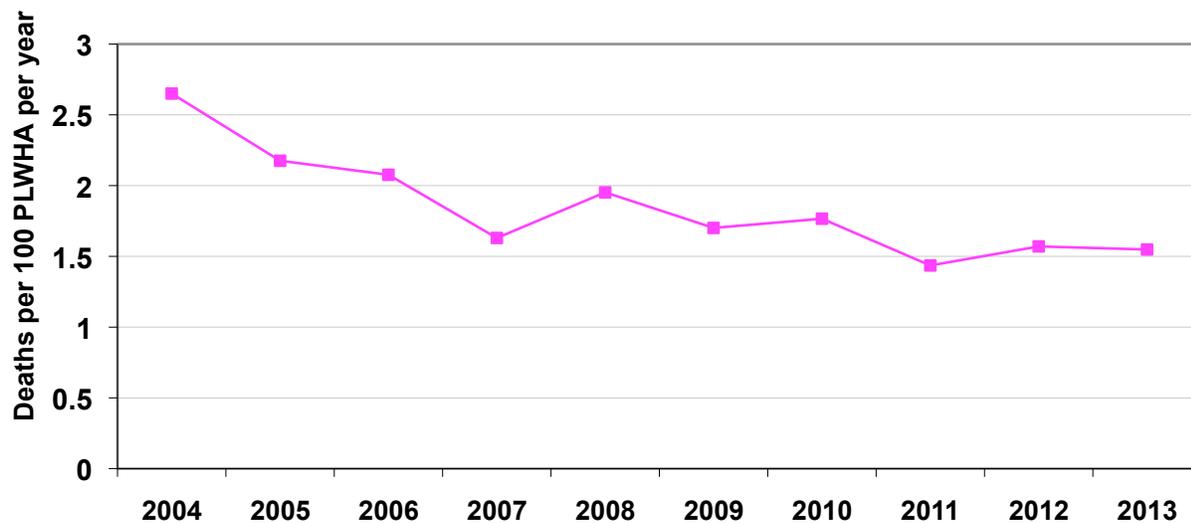


Figure 9c shows that engagement with care (percent with one or more laboratory reported as a proxy for one or more visit) and viral suppression increased with age among adult PLWHA; engagement was also high among children less than 20 years of age. Note that any potential associations between age and both engagement in care and viral suppression may be partly due to the length of time it has been since an HIV diagnosis, rather than the age of the individual.

Figure 10. Adjusted death rates (by reporting lag and age) per 100 people living with HIV/AIDS 2004 through 2013



Mortality rates among PLWHA have plummeted over the last decade. As shown in **Figure 10**, age and lag adjusted mortality among PLWHA in King County has declined 42% between 2004 and 2013 (data were cut off at 2013 because ascertainment of deaths historically lag beyond that of other HIV surveillance data).

Reduce health-related disparities

Figure 11a. HIV Care Cascade by gender for King County as of December 31, 2014

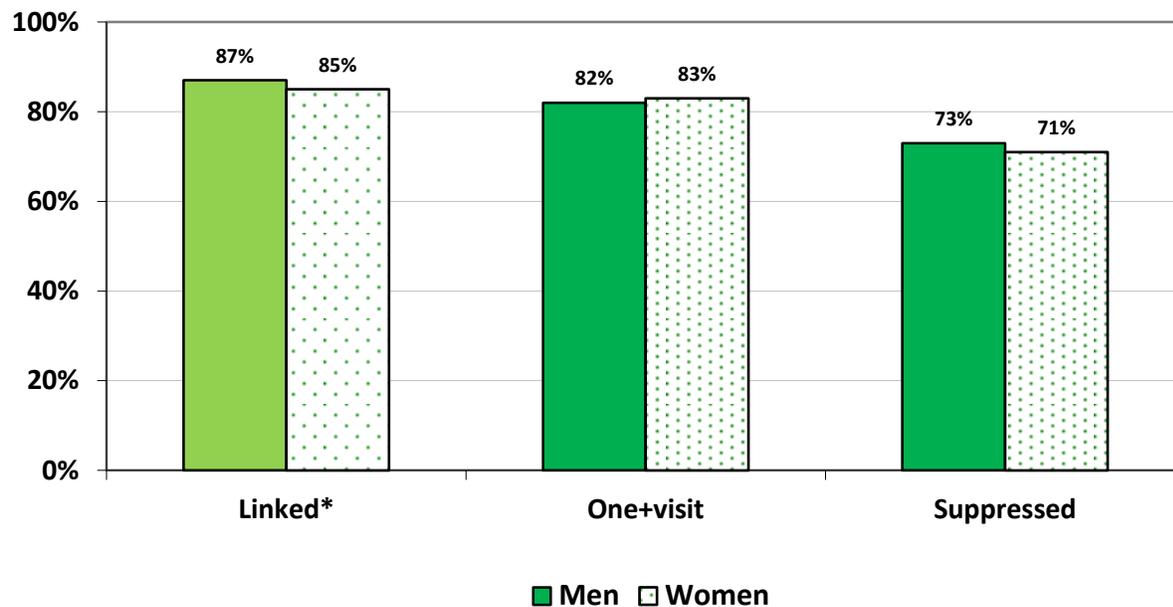


Figure 11b. HIV Care Cascade by race/ethnicity for King County as of December 31, 2014

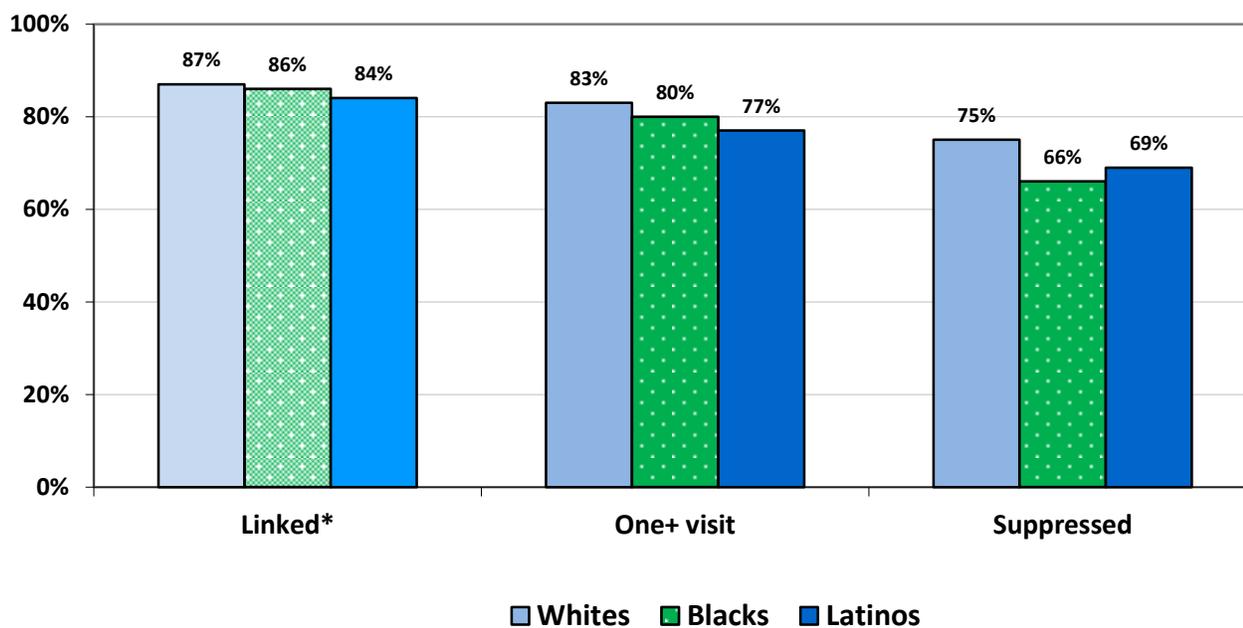


Figure 11c. HIV Care Cascade by birthplace for King County as of December 31, 2014

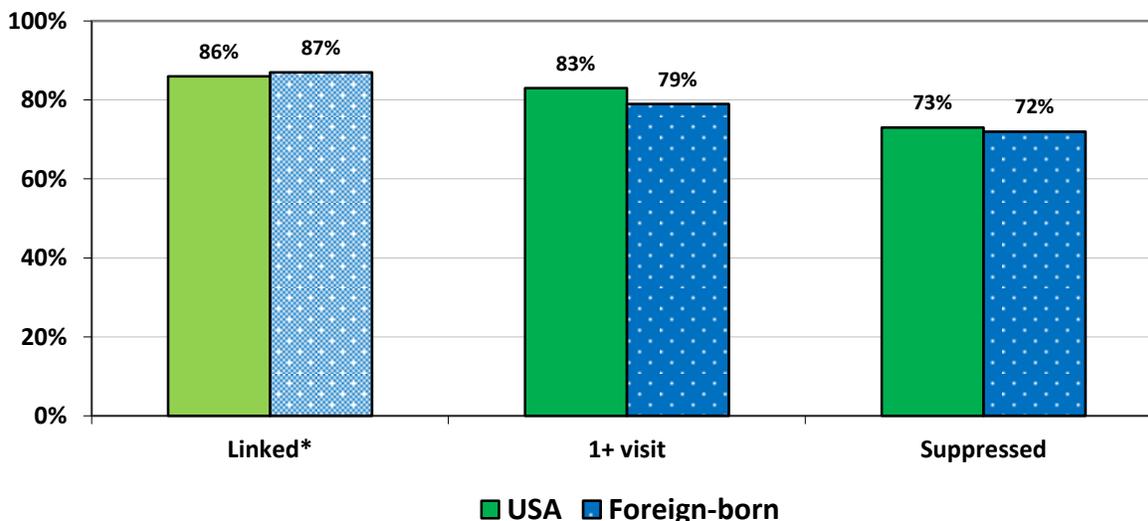
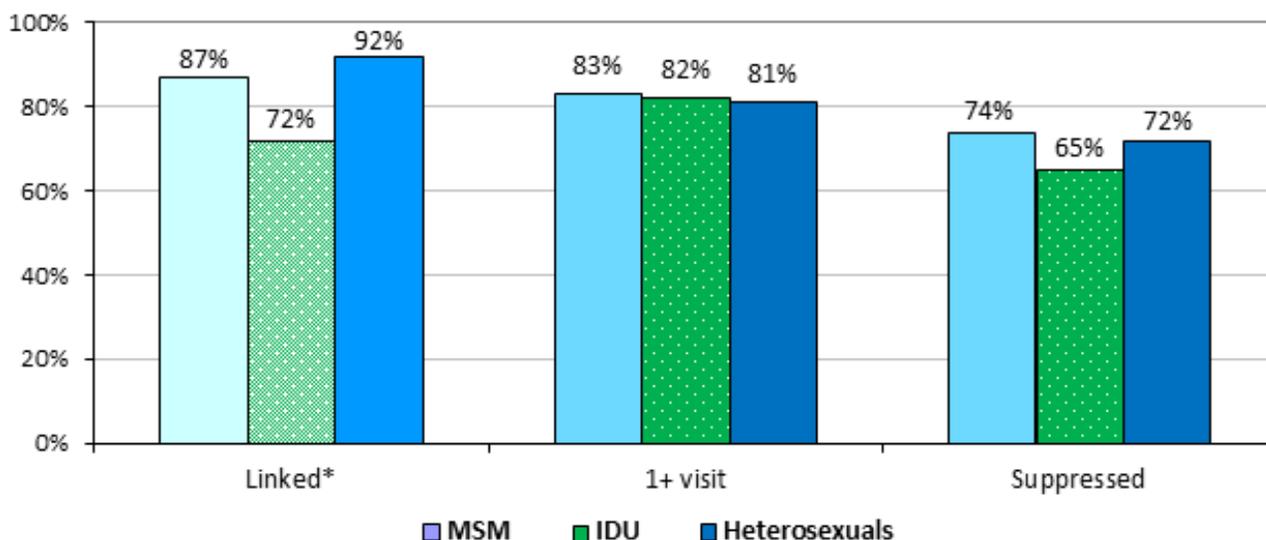


Figure 11d. HIV Care Cascade by HIV risk--men who have sex with men (MSM), heterosexuals, and injection drug users (IDU)** -- King County as of December 31, 2014**



*"Linked" is based on percent of cases diagnosed in 2014 linking to care based on CD4 or viral load tests within 3 months of diagnosis.

The percent linked presented were all multiplied by 0.92 to account for 8% undiagnosed cases. Bars are shown as a paler color to indicate linked status is not based on all PLWHA (as the remainder of the bars are).

**MSM-IDU are included in both categories.

Figures 11a-d present data on the HIV care cascade stratified by gender, race/ethnicity, nativity and HIV risk (among MSM, IDU and heterosexuals). The first two bars of the care cascade, "Estimated PLWHA" and "Diagnosed" are not shown because we do not have data specific to all categories. All the percents we present in these figures are the percents of the estimated number of PLWHA in each category. Virologic suppression is approximately 9% lower among Blacks than among Whites and "1+ visit" (one or more lab reported) is 4% lower among IDU than among MSM. These disparities merit concerted efforts to ensure that all PLWHA receive the medical care they need. At the same time, it is worth noting that levels of viral suppression in King County are very much higher than for the U.S. as a whole¹.

Figure 12: HIV diagnosis prevalence among men who have sex with men (MSM) by race/ethnicity, and among non-MSM, non-injection drug* users by race/ethnicity and nativity, 2014 King County

Figure 12a. Estimated percent of MSM with an HIV diagnosis by race**

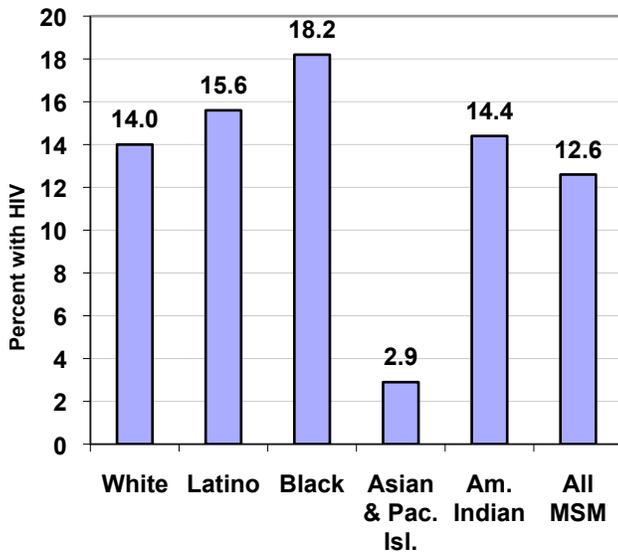
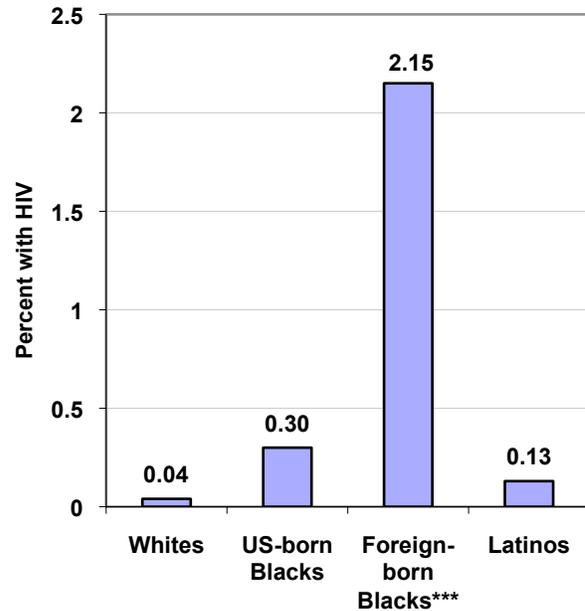


Figure 12b: Estimated percent of non-MSM, non-IDU with HIV diagnoses



* HIV diagnosis prevalence among injection drug users is estimated at 2-4%

** MSM are estimated at 5.4% of King County 2014 male residents age 15 years and greater

*** Foreign-born Blacks are estimated at 25% of Black/African/African-American residents

Figures 12a and 12b: The population of MSM was estimated as 5.4% of males (of all race/ethnicity age 15 years and higher) for the prevalence percents in **Figure 12a**. Using this assumption for the populations of MSM at risk, Black MSM were 30% more likely, Latino MSM were 11% more likely, and Asian MSM were 79% less likely to have HIV an diagnosis relative to White MSM. HIV infection remains relatively rare among women and heterosexual men without a history of injection drug use, with fewer than 1 in 1,000 persons having diagnosed HIV infection. However, this prevalence varies markedly by race/ethnicity. Based on U.S. census data, approximately 25% of Blacks in King County are foreign born. Excluding foreign-born MSM and IDU, we estimate that 1.7% of foreign-born Blacks in King County have diagnosed HIV infection (**Fig. 12b**). In 2014 34% of all new HIV diagnoses in King County occurred in persons born out of the US, including 8% of Whites, 54% of Blacks, 67% of Latinos, and 73% of Asian/Pacific Islanders (data not shown). Excluding cases occurring in MSM and persons with a history of injection drug use, the prevalence of diagnosed HIV infection is 7.5 times higher among US-born African Americans relative to Whites, and 3.3 times higher among Hispanics compared to Whites.

Contributed by Matthew Golden and Susan Buskin

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Increases in the proportion of foreign-born individuals among individuals newly diagnosed with HIV in King County: impact on HIV prevention

Background

An estimated 13% of Americans and 16% of U.S. residents diagnosed with HIV are foreign-born.^{1,2} In King County, roughly 21% of all residents between 2009 and 2013³ and 18% of people living with HIV (PLWH) in 2014 (unpublished data from Public Health – Seattle & King County) were foreign born. The National HIV Surveillance System (NHSS) is used to monitor HIV in King County, as well as in all U.S. jurisdictions. NHSS collects data on nativity, but defines cases as newly-diagnosed based on a first documented HIV positive test, usually one in the U.S. Many foreign born people with HIV may have acquired their infections prior to entering the U.S. We examined trends and demographics related to foreign-born status among people newly diagnosed with HIV over a 10-year period in King County, WA.

Methods

Data from 2005 to 2014 regarding King County residents newly diagnosed with HIV – according to NHSS – were combined with data from supplemental surveillance activities to assess trends in the percentage of people identified as newly diagnosed with HIV infection who were foreign-born and how often these individuals self-reported HIV diagnoses prior to U.S. immigration. Supplemental surveillance projects included HIV incidence surveillance and partner services interview data.

Public Health offers partner services to all people with newly diagnosed HIV infection to help assure that their potentially exposed sex and needle sharing partners are HIV tested, and to assist people with HIV to link to medical care.

Results

A total of 2,976 KC residents were diagnosed with HIV over the decade from 2005 to 2014, including 779 (26%) who were foreign-born. Foreign-born cases increased nearly 50% over the decade – from 23% in 2005 to 33% in 2014 ($p < 0.001$, **Figure 1**). Foreign-born individuals included 38% from Africa, 33% from Mexico or South/Central America, 20% from Asia, 7% from Europe, and 2% from Canada (**Figure 2**). Due to small numbers and similarity, in the subsequent results, Canadian-born individuals ($n=14$) are combined with U.S.-born individuals ($N=2026$). Foreign-born cases were less likely than U.S.-born cases to be men who have sex with men (MSM, 40% vs. 83%, $p < .0001$); with African born individuals least likely to be MSM (8%) (**Table 1**). Foreign-born individuals were more likely to be female than U.S.-born individuals, 28% versus 8% ($p < 0.001$). A most recent viral load test indicated viral suppression (< 200 copies per mL) for 84% of foreign born individuals versus 77% of U.S.-born individuals. Mortality was roughly equivalent with 5% of foreign-born cases and 6% of U.S.-born cases known to have died by mid 2015.

Self-reported date of first HIV diagnosis was available for 2,264 individuals (76%). Foreign-born cases were more than five times as likely as U.S.-born cases to self-report HIV diagnosis > 1 year prior to NHSS diagnosis date (22% vs 4%, $p < 0.0001$). At the time of HIV diagnosis, 35% of foreign-born individuals had an AIDS-defining CD4 count of < 200 cells/microL and 41% of foreign-born individuals had an AIDS diagnosis within six months of HIV diagnosis. This compares to 21% and 24% of U.S.-born individuals respectively ($p < 0.001$ for both).

We had date of entry to the U.S. for 29% of foreign-born cases; of these, 3% entered the U.S. after their HIV diagnosis in NHSS, however 41% entered the U.S. after a self-reported HIV diagnosis. Misclassification of diagnosis date of foreign-born cases led to an estimated 14% over-estimate of new HIV diagnoses in 2014 (33% times 41%).

Conclusions

A growing percentage of King County’s residents classified as having newly diagnosed HIV infection – one-third of such cases in 2014 – occur in people born outside of the U.S. Over one-third of these cases were likely diagnosed prior to U.S. entry, leading to a substantial overestimate of the number of new diagnoses and a growing proportion of cases which could not have been averted through local HIV prevention efforts. HIV prevention has always been a global issue, and these local data emphasize the interrelatedness of HIV infections around the globe. The increase in the number of cases occurring in foreign born people also highlights the needs for greater

local efforts to promote testing and other prevention interventions in foreign born communities as well as the need for data on nativity, HIV testing history, and immigration dates from people with newly diagnosed HIV.

Contributed by Susan Buskin, Amy Bennett, Julia Hood, Roxanne Kerani, and Matt Golden

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2. Prosser AT, et al. HIV in persons born outside the United States, 2007-2010. JAMA. 2012 Aug 8;308(6):601-7.
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Figure 1. Percent newly diagnosed who are foreign born, % with self-reported diagnosis date, and with self-reported diagnosis date well before reported diagnosis date, King County, 2005 to 2014

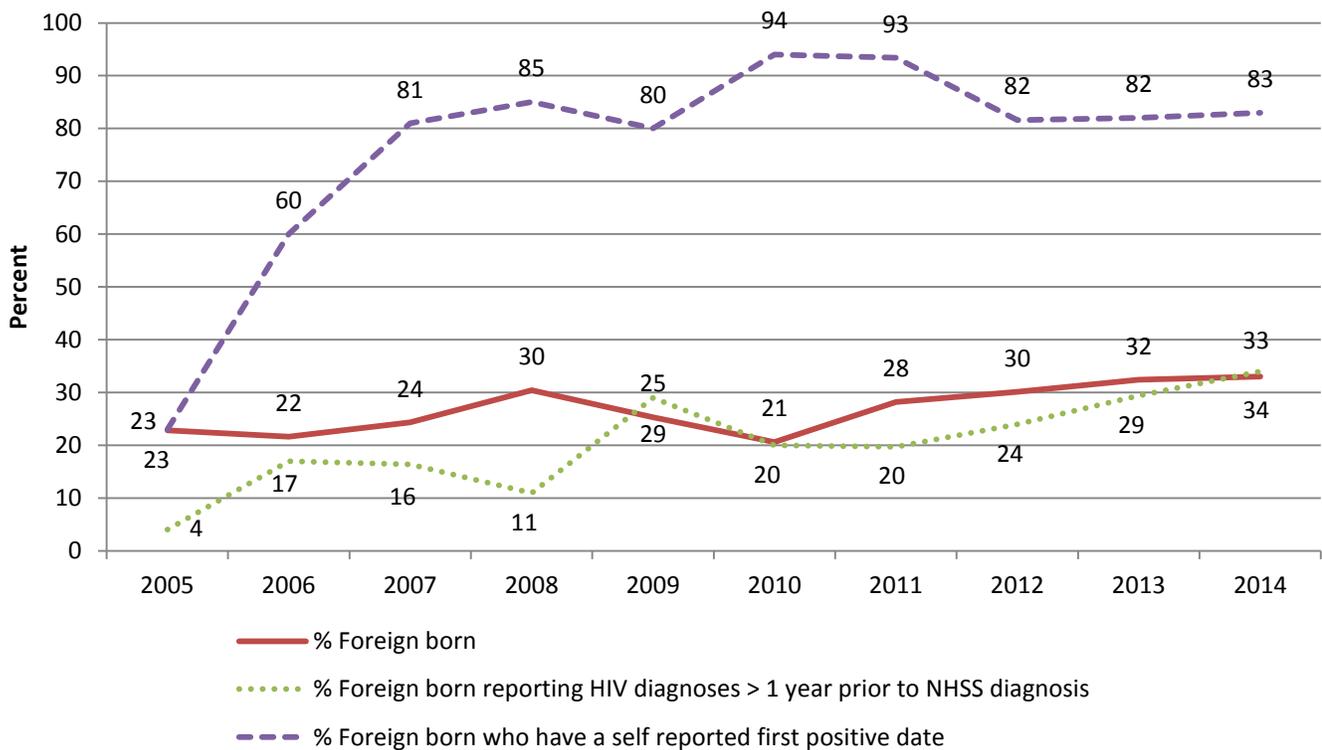
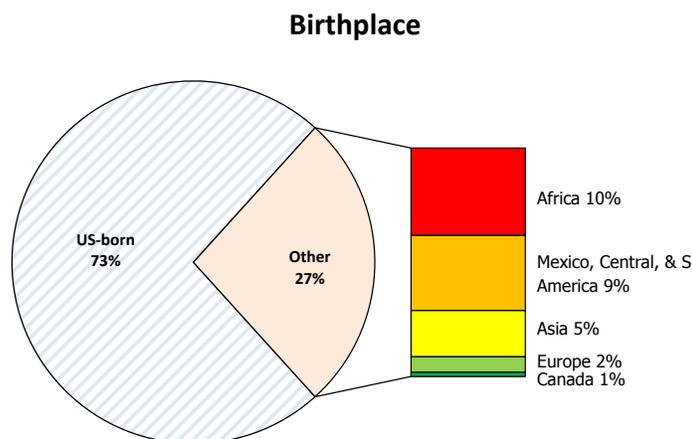


Table 1. Characteristics of U.S.-born and foreign-born individuals diagnosed with HIV in King County, 2005 to 2014.

		African (N=303)	Asian (N=162)	European (N=54)	Latin American (N=260)	All Foreign-born	USA/Canada (n=2040)
Interval of self-reported HIV date to documented HIV date	<=3 months	59%	73%	91%	85%	73%	93%
	4-12 months	7%	5%	4%	2%	5%	3%
	>1 year	34%	23%	4%	13%	22%	4%
Late HIV diagnosis	Concurrent AIDS	38%	38%	33%	32%	36%	21%
	AIDS within 6 months	43%	42%	35%	38%	41%	24%
	AIDS within 1 year	45%	44%	37%	39%	42%	25%
Transmission category	MSM	8%	57%	50%	64%	40%	83%
	IDU	1%	5%	6%	6%	4%	15%
	Heterosexual	32%	10%	9%	10%	18%	5%
	Unknown	53%	29%	35%	22%	36%	7%
Gender	Female	53%	14%	15%	11%	28%	8%
Out-migration from King Co to elsewhere	Yes (as of June 2015)	16%	16%	15%	21%	17%	24%
Vital status	Died (as of June 2015)	3%	7%	9%	4%	5%	6%
Age at HIV	<20	8%	2%	2%	2%	4%	2%
	>50	19%	11%	13%	9%	13%	14%
Link to care	Within 3 months of documented HIV	93%	93%	91%	91%	92%	91%
Initial CD4	<200	37%	35%	26%	35%	35%	22%
	200-499	43%	43%	43%	44%	43%	41%
	500+	20%	22%	30%	21%	22%	38%
Current VL	<50	80%	86%	79%	78%	80%	73%
	50-199	4%	3%	4%	4%	4%	4%
	200-9999	7%	6%	4%	4%	6%	9%
	10,000+	9%	5%	13%	13%	10%	14%

Figure 2. Proportion of people diagnosed in King County who are foreign-born and birth region, 2005-2014



Early provider experiences with Pre-Exposure Prophylaxis, including HIV case finding and PrEP failures: King County, Washington

Background

To help address the growing demand for Pre-Exposure Prophylaxis (PrEP) in King County, in May 2014, Public Health created a dynamic list of medical providers willing to screen patients for PrEP and prescribe PrEP. In October 2014, medical providers who had volunteered to be on this list were administered a survey and queried about the size of their PrEP practice, methods of promoting PrEP adherence, and other factors. These results were summarized in the local 2014 HIV Epidemiology report.¹ In late June 2015 a second PrEP survey was distributed to King County medical providers. In this report, we present the results of the 2015 survey, including an estimate of the number of men who have sex with men (MSM) living in King County and the proportion of these MSM ever and currently (as of July 2015) receiving PrEP. Further, since 2014, HIV screening done for PrEP has become a new source of HIV case finding. We present a brief case series of patients found to be HIV-infected at the time of their initial HIV screening for PrEP, or who seroconverted while on PrEP or waiting to start PrEP.

Methods

Between June and August 2015, medical providers who had volunteered to be on the King County PrEP provider list were surveyed about their PrEP practices. To reach as many medical providers prescribing PrEP as possible, we augmented the King County PrEP provider list with medical providers screening patients for PrEP or prescribing PrEP found through two other sources. Because viral load tests are reportable to HIV Surveillance whether detectable HIV is found or not, and we investigate negative viral load tests as a case finding tool if the viral load does not match to a known HIV case, we have noted that the viral load was done for PrEP screening (when it was so documented) and thus identified several medical providers using viral load tests to screen for PrEP. Additionally, King County medical providers with two or more patients who applied to the Washington State PrEP Drug Assistance Program (PrEP DAP, a Washington state program to assist in paying PrEP drug costs) were added to the medical providers surveyed. Medical providers with bad or missing email addresses were excluded, as surveys were exclusively distributed by email. Two facilities did not provide individual email addresses for the medical providers listed on the King County PrEP Provider list and distributed the survey internally. Non-respondents received a minimum of three email reminders. Providers could respond via a web based

HTML survey, enter text responses in a return email, or print the survey and respond on paper via mail or fax.

Medical providers were asked how many patients they had ever prescribed PrEP to, how many patients they prescribed PrEP to in the last 6 months, how many patients were currently on PrEP, and how many of their patients had applied for PrEP DAP. Providers could provide categorical responses (0, 1-4, 5-19, 20+) or fill in an estimated or known quantity. To estimate the actual number of individuals ever and currently receiving PrEP in King County, we converted ranges to midpoints (e.g., 1-4 was changed to 2.5, 5-19 was changed to 12). For medical providers who selected the upper limit (20+) category of number of patients, we created a mean number of patients, based on available data. This mean value was based on the maximum of following values if we had two or more, an actual or estimated number of patients provided by a small subset of providers in the 2015 survey, the number of PrEP DAP applicants, and the number of patients screened with VL. To estimate the total number of King County residents ever and currently prescribed PrEP, we adjusted for non-response (dividing the estimated sum of patients ever prescribed PrEP by the response rate, added an additional 10% as an estimate for providers prescribing PrEP not included in the survey (e.g. those on the PrEP DAP list with one patient or with bad and missing emails), and rounded up to the next 100's place.

We asked providers to estimate what proportion of patients requested PrEP themselves versus PrEP being recommended by a provider; what circumstances might the provider "strongly recommend" PrEP versus "offer" PrEP versus have no routine recommendation; had they ever declined a request to prescribe PrEP and why; and questions on other medical practices, including follow-up frequency and routine follow-up screenings used.

Providers were also asked if they had any patients who screened for PrEP and were found to already be HIV-infected, or seroconverted while on PrEP or waiting for PrEP. Medical providers with any patients in these categories were asked to supply additional information about these patients, and these patient summaries are presented as a case series. We augmented this information with data from HIV partner services interviews and HIV and other sexually transmitted infection (STI) case surveillance data, including CD4+ T-lymphocyte tests reported in cells/ μ L and plasma viral load results, presented as log base 10 HIV-1 virions per mL.

Survey results

The survey was sent to 88 medical providers and completed by 69 resulting in a 78% participation rate. Of these, two sets of two providers completed the survey together, leaving 67 responses, and of these, eight had not yet prescribed PrEP leaving 59 providers with PrEP prescription experience (**Table 1**). Excluding those with no PrEP prescription experience, providers were closely split between small (1-4 patients, 36%), medium (5-19, 34%), and large (20 or more, 31%) PrEP practices based on numbers of patients to whom the provider had ever prescribed PrEP. Most providers, 62%, stated they had the same general size category (1-4, 5-19, 20+) of newly enrolled patients – starting PrEP in the past six months – relative to their overall number of patients ever prescribed PrEP, and the remainder all stated they had the next lower size category for number of newly enrolled patients. Slightly more, 71%, had the same size category for the number of new PrEP patients in six months as current PrEP patients. Both of these comparisons create evidence that the number of individuals prescribed PrEP has rapidly grown in the past six months.

Table 1. Size and characteristics of PrEP Practice, 67 participants in PrEP Provider Survey, King County, WA, 2015

Medical provider estimates of	Number (%) medical providers with this range of patients			
	0/unknown	1-4	5-19	20+
Number of patients ever prescribed PrEP	8 (12%)	21 (31%)	20 (30%)	18 (27%)
Number of patients prescribed PrEP in last 6 months	9 (13%)	31 (46%)	17 (25%)	10 (15%)
Current number of PrEP patients	8 (12%)	22 (33%)	23 (34%)	14 (21%)
Number applied for WA State PrEP Drug Assistance Program	20 (30%)	23 (34%)	16 (24%)	8 (12%)

Thirteen patients out of an estimated 2,150 ever-prescribed-PrEP patients were known to have screened positive at the time of their PrEP screening (see summaries in the case series below). An additional three patients seroconverted while on PrEP (summaries also below). An estimated 1,950 patients of King County medical

providers are currently being prescribed PrEP as of mid 2015. Approximately 39,000 HIV negative MSM live in King County as of the end of 2014 (823,521 men age 15 and higher times 5.4% estimated to be MSM minus about 5,587 prevalent HIV cases), suggesting about 5% of all MSM without HIV may be using PrEP.

Of the 59 providers with PrEP experience, 68% stated most to all of their patients initiated the request for PrEP, rather than were prescribed PrEP due to a recommendation by the participating provider or another medical provider (**Table 2**).

Table 2. Proportion of PrEP requests initiated by patient (versus provider) 59 provider participants who had ever prescribed PrEP, King County, WA

PrEP initiated by patient	Number of providers	Percent
Sometimes (10-39%)	6	10%
About half (40-59%)	12	20%
Most (60-90%)	22	37%
Nearly all to all	18	31%
Unknown	1	2%

Participant medical providers nearly universally (88% to 99%) strongly recommended PrEP for MSM with early syphilis, rectal gonorrhea, or non-virally-suppressed HIV-infected sex partners (**Table 3**). Few participants (3%) made a universally strong recommendation for PrEP to all MSM. Additional groups to whom PrEP was recommended (these were survey responses written in an open ended field) included trans-women, serodiscordant couples seeking a pregnancy, commercial sex workers, and injection drug users.

Table 3. Strength of recommendation regarding PrEP, 67 provider participants, King County, WA:

Patients who are:	Strong	Offer or no routine
MSM (men who have sex with men) with early syphilis	61 (91%)	6 (9%)
MSM with rectal gonorrhea (GC)	61 (91%)	6 (9%)
MSM with urethral GC or chlamydia	47 (70%)	20 (30%)
MSM with methamphetamine use	49 (73%)	18 (27%)
MSM with popper use	38 (57%)	29 (43%)
Serodiscordant MSM (partner not suppressed or not on antiretroviral therapy)	66 (99%)	1 (1%)
Serodiscordant MSM (partner unknown suppression)	59 (88%)	8 (12%)
Other serodiscordant (non-MSM) individuals	38 (57%)	29 (43%)
All MSM	2 (3%)	65 (97%)

Most provider participants, 49 of 59 (83%), included an HIV screening test more able to detect recent infection (4th Generation EIA or RNA tests) relative to older HIV screening tests which were antibody based (e.g. EIA/WB) (**Table 4**).

Table 4. Screening tests used prior to PrEP prescription, limited to 59 participants who had ever prescribed PrEP, King County, WA

Test used for screening	Only	Combined with other tests	Total
Antibody based (EIA/WB)	10 (17%)	4 (7%)	14 (24%)
Combined Antigen/Antibody (4th Generation)	23 (39%)	13 (22%)	36 (61%)
RNA/Viral load	9 (15%)	13 (22%)	22 (37%)

Nearly two-thirds of provider participants, 43 of 67 (64%), had not yet declined a request for PrEP. Of those who had declined, lower risk of HIV infection was the most common reason, 27% overall and 71% of providers who ever declined a PrEP request (**Table 5**).

Table 5. Reasons why providers may have declined to prescribe PrEP (ever) of 67 provider participants, King County, WA

Due to:	Number of providers	Percent
Low risk	17	27%
Adherence concerns	7	10%
Kidney function	12	20%

All 59 medical providers, of those who had ever prescribed PrEP, provided adherence counseling to their PrEP patients (**Table 6**). The next most common methods of promoting adherence to PrEP were contacting patients if they missed an appointment (86%) and calling, texting, or emailing appointment reminders (69%).

Table 6. Methods to promote PrEP adherence, limited to 59 participants who had ever prescribed PrEP, King County, WA

Methods	Number of providers	Percent
Adherence counseling	59	100%
Reminders of upcoming appointments (call/text)	41	69%
Contact if miss a follow-up appointment	51	86%
Withhold PrEP if follow-up not done	35	59%

Most, 90%, of participant providers conducted PrEP follow-up visits quarterly, with minor variations of up to six months (**Table 7**).

Table 7. Frequency of follow-up appointments, limited to 58 participants who had both prescribed PrEP and done one or more follow-up visit, King County, WA

	Number of providers	Percent
Every 3 months	52	90%
Every 6 months	2	3%
Other	<ul style="list-style-type: none"> • Every 3-4 months (1) • 1 month initially then every 3 months or other interval (2) • Did not respond (1) 	

Medical providers were queried with an open-ended question, "At follow-up visits, what testing do you perform?". **Table 8** includes tallies of the most frequent responses. The testing done was included in the table below regardless of the frequency (for example, creatinine might be monitored annually and sexually transmitted infections (STI) screened quarterly, both are considered "Yes" in **Table 8**).

Table 8. Screening done at Follow-up (N=58, provider with no follow-up done yet excluded), King County, WA

Tests done at follow-up*	Number of providers	Percent
HIV	57	98%
Creatinine or other kidney function tests	39	67%
Sexually transmitted infections (any, including syphilis alone)	44	76%
Liver function tests or hepatitis screening	6	10%

Case series of MSM initially screening for PrEP as HIV-positive

The following case series was compiled from reports of medical providers answering positively to the question on the PrEP Provider Survey about whether they had any patients screening for PrEP who were found to already be positive at screening. All people described are MSM, five were diagnosed with HIV in 2014, and the remaining eight men were diagnosed with HIV between January and July of 2015. Six are non-Hispanic Whites, five are Latinos, one each are Black and Asian/Pacific Islander. Five were born outside of the United States.

1. MSM patient in his 30s in a discordant relationship with an HIV-infected partner who discontinued ARV the prior year. The screening patient had symptomatic primary HIV infection (PHI) one month later and had a positive HIV PrEP screening test two months later. His initial and subsequent CD4 counts were high (>600) and he was started on ARV immediately. His viral load went from $5.9_{\log_{10}}$ to undetectable within two months of testing positive.

2. MSM patient in his early 20s in a discordant non-monogamous relationship with a (main) partner – the partner was on ARV and with a suppressed VL. The MSM in early 20s had symptoms of PHI after unprotected receptive oral sex with a non-main sexual partner. He requested an HIV test at the time of PHI symptoms which was not given and was (probably erroneously) diagnosed with non-HIV conditions. He screened for PrEP after an episode of unprotected sex with his main HIV+ partner, he self-prescribed his main partners' ARV as Post-Exposure Prophylaxis (PEP), and within a week screened for PrEP as HIV-positive. His initial VL was $3.5_{\log_{10}}$ with CD4 consistently >500. His genotype indicated a potential PEP-induced resistance to NRTI components of his partners' ARV. Within three months he is now suppressed on an integrase strand inhibitor (INSTI)-based with dual nucleoside regimen.

3. MSM patient in his early 40s in a discordant non-monogamous relationship with HIV-infected husband who was and remains on ARVs with an undetectable viral load. The patient visited his provider to discuss PrEP but did not get labs or respond to follow-up messages. The patient reported an illness consistent with PHI the month prior to this initial inquiry but he did not seek medical care or an HIV test. The patient returned the following year wanting to discuss PrEP again and tested positive on baseline labs. The patient and his spouse shared an outside sexual partner the same month as

this second PrEP inquiry. The outside partner liaison resulted in spouse testing positive for a non-HIV STI while the patient remained negative for other STI. The patient's initial viral load was $5.1_{\log 10}$ and his CD4 was in the 500s. The patient's last negative HIV test in the provider's medical record was 5 years earlier. The patient was started on an INSTI-based with dual nucleoside regimen. As of this writing, no repeat viral load or CD4 testing is available.

4. MSM patient in his mid 20s with multiple partners and inconsistent condom use. The patient is usually a bottom in sexual encounters. The patient saw his primary care provider to ask for PrEP and tested positive for HIV on baseline labs. The patient had a sexual partner three months prior to PrEP screening who told the patient that he/the partner was HIV negative; the patient later learned the partner was HIV positive. The patient had no acute illness in the interim. The patient's initial viral load was $4.7_{\log 10}$ and CD4 >600. The patient had no other STI testing in his medical record. The patient's last known negative HIV test was six years earlier. The patient's initial ARV regimen was a NNRTI-based with dual nucleoside regimen with which he became undetectable within six months. He switched to an INSTI-based with dual nucleoside regimen recently due to side effects and no repeat viral load testing is available.

5. MSM patient in his late teens, with multiple partners and inconsistent condom use as a bottom. Sexual debut was two years prior to his PrEP screening. He saw his primary care provider and tested HIV-positive on baseline labs. It was unclear from his medical record whether the patient had requested PrEP or had PrEP offered by his medical provider. The patient had an acute illness two months before testing HIV-positive and was seen in the clinic for this but was not tested for HIV at that time. His initial viral load was $5.5_{\log 10}$ and his CD4 was >700. He had no prior HIV testing in his medical record. He was started on an INSTI-based with dual nucleoside regimen the month after his first positive HIV test and his viral load is now suppressed (<40) with a CD4 above 600.

6. MSM patient in his 20s, tested negative about five months prior to his PrEP screening and started a monogamous new relationship with a presumptively negative partner at the time of that negative HIV test. He also had a pharyngeal STI diagnosed around this time. Five months later the patient was screened to start PrEP and was found to be HIV-positive and with another STI. Subsequently his new partner disclosed knowing he – the new partner – had previously been diagnosed with HIV, including previously being on antiretrovirals but he had not remained in care nor disclosed his HIV status to the patient. Initial labs for the patient included a VL of $5.2_{\log 10}$ and CD4 in the upper 400s. The patient initiated INSTI-based with dual nucleoside regimen soon after diagnosis, and he rapidly became suppressed and has done well.

7. MSM patient in his 30s, tested negative for HIV about eight months before his PrEP screening. He had two anonymous partners found on the Internet after that last negative HIV test; he did not use condoms and he was a bottom. His most recent partner told the patient that he/the partner had HIV but was on HIV medications. The patient came to clinic for PrEP and he tested as positive for HIV. The patient had a history of a rectal and pharyngeal STI earlier in the same year as his HIV diagnosis. His initial VL was $4.8_{\log 10}$ with a CD4 in the mid 300's. The patient became virally suppressed within half a year with CD4 >550.

8. MSM patient in his 20s with a last (self-reported) negative HIV test about two years before HIV screening. The patient reports a rocky relationship with a seronegative partner. The patient also had an anonymous partner a few months before PrEP screening and he had two STI diagnosed the same year. The patient came to the clinic for PrEP and was diagnosed with HIV. The patient's initial viral load was $2.7_{\log 10}$ with a CD4 >700. The patient was started on antiretrovirals and became virally undetectable rapidly, with his CD4 remaining >500.

9. MSM patient in his late 30s had a history of using PEP three times in the past as well as urethral and rectal STI in the past year before screening for PrEP. He initially screened HIV negative but postponed starting PrEP while he applied for PrEP DAP. Later that same month his PrEP DAP application was accepted, but as it had been more than two weeks, he received HIV screening again, and he was found to be HIV positive. His initial viral load was $6.4_{\log 10}$ with a CD4 count >500. Within two months after diagnosis he was virally suppressed and remains virally undetectable.

10. MSM patient in his 40s with multiple anonymous Internet partners reported symptoms of primary HIV infection and continued to report non-specific symptoms when he came to clinic seeking PrEP a couple of months later. He had no history of STI and stated he was a top who always used condoms when he was diagnosed with HIV at his PrEP screening. His initial CD4 count was <100 with a viral load of $6.3_{\log_{10}}$. As of his most recent tests, his viral load decreased by 4 logs but he remains (marginally) unsuppressed (viral load >200) and his CD4 is somewhat rebounding to above 250.

11. MSM patient in his 20s with multiple partners met via phone app; he reports two instances of unprotected intercourse. He had a negative HIV test seven months earlier and no history of STI. He came to clinic seeking PrEP and screened as HIV positive. His initial viral load was $5.4_{\log_{10}}$ with a CD4 <300. As of this writing, the patient has started antiretrovirals although his on-treatment viral load and CD4 values are unknown.

12. MSM patient in his 30s went in for PrEP screening and was diagnosed with HIV and simultaneously with another STI. He had recently travelled out of the area where he had multiple sexual partners followed by PHI symptoms. Since his last negative HIV test, approximately one year to 1.5 years earlier, he had a history of multiple mostly anonymous partners found by a variety of methods including Internet, phone app, and bathhouses. His first viral load was $4.8_{\log_{10}}$ with an initial CD4 in the mid 400s. His most recent viral load has not yet decreased a full log (decreasing to $4.2_{\log_{10}}$), and his CD4 increased to the mid 500s.

13. MSM patient in his mid 30s with a history of regular HIV testing and multiple partners who he meets on the Internet. He came in to his regular provider requesting PrEP following a negative HIV test four months earlier, and he screened as HIV positive. His initial VL was $5.2_{\log_{10}}$ which went to undetectable within four months. His CD4s remained high, >700.

MSM seroconverting while on PrEP

1. An MSM patient in his 20s presented as a new patient for consideration of HIV post-exposure prophylaxis (PEP) and a consultation for PrEP. The patient had an anonymous Internet sex partner four days earlier. The HIV PEP guidelines were discussed and he was not started on a PEP regimen but returned 12 days later (16 days after exposure) for an HIV RNA test, which was negative. He was started on PrEP at that time. Three months later, at his first follow-up visit, a 4th generation EIA test was positive, subsequently confirmed by a positive HIV RNA result. His initial CD4 count was in the low 500s with a viral load of roughly $4_{\log_{10}}$. His genotype revealed two resistance mutations consistent with poorly suppressed HIV due to PrEP use, plus a third NNRTI-resistance mutation (transmitted NNRTI resistance is prevalent in over 20% of newly diagnosed HIV infections in King County). Within 6 months the patient achieved an undetectable viral load on an INSTI-based regimen.

2. An MSM patient in his 30s had a discordant non-monogamous long-distance relationship with a partner on ARV with an undetectable VL. Patient had multiple other partners, a history of STI six months prior to his HIV diagnosis, and inconsistent condom use. He was seen by Primary Care Provider for unprotected anal sex and started on 30 day course of PEP (Truvada + raltegravir) within 72 hours of exposure. Upon follow up 6 weeks later, his HIV RNA and EIA were both negative and he reported no sexual partners since the high risk exposure six weeks prior. He was started on PrEP. Three months later, at his first follow up visit his EIA and Western Blot were positive. His initial viral load was $3.6_{\log_{10}}$ and CD4 never tested below the mid 900s. His genotype demonstrated a mutation consistent with PrEP breakthrough. He was started on ARV and his viral load was undetectable within one month and has remained undetectable.

3. An MSM patient in his early 30s was married to an HIV-infected husband. The patient has an open relationship and has been with his husband about four years. The patient was date raped and started on PrEP (medical records state PrEP and not PEP). Ten days later he tested positive for HIV and was switched from PrEP to antiretrovirals. At this time his viral load was low ($2.0_{\log_{10}}$) and his CD4 was in the 300s. Within two months his viral load was fully suppressed and his CD4 count has risen to >500.

Discussion

We saw many encouraging results in this survey. First, PrEP use is rapidly expanding in King County. Second, PrEP guidelines are, for the most part, being followed well.² Most medical providers screen for PrEP with a 4th Generation Eliza test, or NAAT, decreasing the number of false negatives and minimizing the window period for detection of HIV seroconversion. Providers are recommending PrEP for individuals at higher risk and some have declined to prescribe PrEP in lower risk situations. Among patients on PrEP, most are being seen regularly, getting frequent HIV tests, frequent STI screening, and frequent monitoring of creatinine.

There were numerous limitations in our analyses. Primarily, we don't know how representative provider participants were, nor to what extent are we missing PrEP providers in King County. Due to potentially missing providers, non-response, and providing categorical responses rather than continuous ones, our estimates of the number of people on PrEP ever and currently could be far off from reality. Further limitations include the uncertainty around estimates used for our calculations, including the 10% correction for excluded providers and the estimate of 5.4% of male King County residents being MSM (a midpoint between having a male partner within five years and ever as estimated by Purcell et al³). Results from **Table 8** may be incomplete, as providers may be conducting tests they didn't fill in on this open ended question due to potentially misunderstanding that the follow-up testing sought was only HIV-specific or only other than HIV, when in reality we were seeking all types of testing or screening.

Although the case series presented is too small to generate major conclusions, some themes are emerging. These include that some individuals have waited too long to inquire about and start PrEP, thus their screening test may be positive or falsely negative during seroconversion. Some individuals requesting PrEP have not had an HIV test for years, and their interest in PrEP may have been their only motivation for testing; others tested for HIV regularly. Many had notable histories

of STI and/or PEP use, suggesting they could have been good candidates for PrEP earlier. PrEP screening has become an important case finding method for HIV surveillance. Outside relations of non-monogamous serodiscordant couples may prove to be a more common source of HIV infections than the positive partner. Non-disclosure of status and condomless oral sex are both important and potentially preventable routes of HIV infection. We speculate that lack of health insurance may have played a role in delaying PrEP for some of the patients screening for PrEP as HIV-positive, perhaps this was more of an issue for the 5 of 13 (38%) foreign-born patients. We recommend that, when possible, medical providers with large panels of MSM have PrEP "starter packs" available so that individuals screening negative for HIV may start PrEP as soon as possible.

Contributed by Susan Buskin, Warren Dinges, Susan Mitchell, Vy Chu, Jessica Rongitsch, Alison Roxby, Michelle Perry, and Galant Chan

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Needle Exchange Client Surveys 2011, 2013, and 2015: drugs used, risk and protective behaviors, overdose, health insurance coverage, and health concerns

Background

The Public Health – Seattle & King County (PHSKC) Needle Exchange (NX) Program plays an essential role in the prevention of HIV, viral hepatitis, and opioid overdose for people in King County who inject drugs (PWID) and in prevention of the spread of HIV and viral hepatitis to the larger community. There are an estimated 23,000 residents in King County who use drugs by injection. Approximately 70–75% of this population have been or are currently estimated to be infected with hepatitis C virus (HCV).¹ Between 2008 and 2013, use of injection drugs (3.4%) or combined use of injection drugs and male-male sex (7.3%) accounted for 10.7% of new HIV diagnoses in King County.² Heroin-associated overdose is a problem that is on the rise nationally as well as in King County where overdose deaths increased by 58% from 2013 to 2014.³

The PHSKC NX Program was founded in 1989 and currently operates three sites: the Robert Clewis Center (located in downtown Seattle), The Robert Clewis Center 2 (located on Seattle's Capitol Hill), and the South County Outreach Referral and Exchange (SCORE) mobile unit. The program provides the following services: needle exchange, social work, linkage to substance abuse treatment, wound and abscess care, HIV and HCV screening, harm reduction education and support, and naloxone training and distribution. Narcan/naloxone is a drug that can reverse the effects of a heroin or opioid overdose. The NX operates under the broad authority given to health officers in local health jurisdictions by the Washington State Constitution.

Needle exchange sites do not collect personal information about clients. In order to characterize the client population and monitor and evaluate services, a two-week survey has been conducted every two to three years since 2004. The survey includes questions on sociodemographic characteristics, sexual behaviors, drug use and injection practices, self-reported HIV status, HIV and HCV testing history, health insurance status, overdose experience and response, and other topics of special programmatic interest.

Methods

The 2015 NX client survey was administered over two weeks in June at each of the three NX sites. The 4–7 minute survey was administered in person by trained interviewers using laptops or tablet computers

programmed with the REDCap application.⁴ Each NX client was approached and invited to participate in the survey during the two-week interview period. Among those who declined, basic demographics were collected. Survey responses were analyzed using Stata V 13 (StataCorp LP, College Station, Texas). We assessed trends in demographic and socioeconomic characteristics, drug use practices and overdose experiences across the 2011, 2013 and 2015 surveys using chi-squared test for linear trends. Select characteristics of NX survey participants were stratified by populations of interest, including men who have sex with men (MSM), non-MSM men, and women. Differences were assessed using Pearson's chi-squared test and Fisher's exact test was used for cell counts less than five. Unless otherwise stated, any reference to a drug in this report includes use of that drug by any route or mode of ingestion.

Results

Participants – A total of 409 NX clients participated in the 2015 survey (275 Downtown site, 80 Capitol Hill site, 54 SCORE); 232 NX clients (36%) declined to participate. The demographics of the decliners were similar to those who agreed to participate in the survey with regard to age and race/ethnicity. The proportion of decliners who were male was slightly higher than the proportion of participants who were male. Only one participant was excluded from the analysis based on high frequency of implausible values and inconsistent answering patterns. The 2011 survey had 401 participants, and the 2013 survey had 475 participants (**Table 1**).

Demographic and socioeconomic characteristics among participants in the 2011, 2013 and 2015 surveys

– Among the 2015 NX survey participants, 63% were male and 36% were female, with a higher proportion of females in 2015 compared to 2011 and 2013 survey cycles (**Table 1**). The median age in the 2015 survey was 35, similar to the age distribution in the 2011 and 2013 surveys although there was a small increase in the proportion of 30–39 year olds between 2011 and 2015. The participants were predominantly White (78%) and with a 2015 racial/ethnic distribution similar to 2011 and 2013 surveys. The racial distribution in this survey reflects the broader

population of King County with the exception of a slightly higher proportion of American Indians (AI/AN) and lower proportion of Asians. Educational attainment was lower than the general population of King County⁵, with a decreasing trend in the proportion of participants having a “bachelor’s degree or higher”. Almost 40% of 2015 survey participants reported their housing situation as “homeless”, which was a significant increase from 2011 and 2013 survey cycles and is much higher than the general population. Sixty-three percent of 2015 PH NX survey participants reported residing within the City of Seattle including Downtown, Central and South Seattle, while 30% reported residing within King County (North, East, or South) but outside Seattle, and 7% reported residing outside King County. Income among PH NX participants was much lower than the general population with over 80% of respondents reporting earning \leq 138% of Federal Poverty Line (FPL), which equates to a single annual income of \$16,248 or less.⁶ This is the cutoff for Medicaid eligibility in Washington State under the Affordable Care Act (ACA). Almost forty percent of 2015 PH NX survey participants reported being in jail or prison within the last 12 months, which represents a significant increase since the 2011 survey cycle.

Comparison of selected characteristics and self-reported HIV status among MSM, non-MSM men and women

— The 2015 survey included 32 MSM, 224 non-MSM men, and 147 female participants. Educational attainment and income were higher among MSM compared to non-MSM men and women (**Table 2**). MSM were more likely than non-MSM males and females to report having five or more sex partners ($p < .0001$). Methamphetamine was the most commonly reported drug used among MSM, whereas heroin was the most commonly reported drug used among non-MSM men and women (**Figure 1**). Forty-one percent of MSM participants self-reported testing positive for HIV compared to approximately 2% of non-MSM men and women. Seventy-one percent of MSM who did not report being HIV-positive reported having an HIV test within last six months compared to 44% of non-MSM men and 31% of women ($p = .015$).

Drug use trends among participants in the 2011, 2013 and 2015 surveys

— Almost 90% of survey participants reported using heroin, making it the most commonly used drug across the 2011, 2013 and 2015 survey cycles (**Table 3**). The proportion of participants using methamphetamine (**Figure 2**) significantly increased from 34% in 2011 ($p < .0001$) to 62% in 2015. During the same years cocaine use declined from almost 60% in 2011 to 42% in 2015 ($p < .0001$). In addition, the proportion of heroin-using NX survey participants reporting being hooked on prescription (Rx) type opiates prior to using heroin increased from 38% in 2011 to 53% in 2015 ($p < .0001$).

Secondary exchange and trends in needle use and sharing practices among participants in the 2011, 2013 and 2015 surveys

— Approximately eighty percent of participants reported not sharing syringes with others in the past three months; this rate has remained fairly consistent since the 2011 survey cycle (**Table 4**). Approximately 55% of 2015 participants reported not sharing other injection supplies (such as cookers, cotton, water, etc.). There was an increasing trend in the proportion of participants using their syringes only once before discarding them ($p < .0001$). The trend in proportion of participants reporting injecting in their femoral vein has significantly decreased from 32% in 2011 to 13% in 2015 ($p < .0001$).

To assess reach of the program to individuals who may not themselves visit NX locations in person, the 2015 survey asked about secondary exchange: “Are you getting syringes for anyone else today?” Thirty-seven percent reported getting syringes for others and, of these, 24% reported that, to their best knowledge, these others were not utilizing NX services in person. A little over a quarter of those acquiring syringes for others reported getting them for three or more people, whereas 51% reported acquiring syringes for just one other (data not shown).

Overdose experience and risk factors for overdose death among participants in the 2011, 2013 and 2015 surveys

— Twenty-three percent of 2015 survey participants reported experiencing a heroin or prescription opiate overdose (OD) within the past three months compared to 23% in 2013 and 13% in 2011 ($p = 0.003$) (**Table 5**). We saw a similar increasing trend in the proportion of participants who have witnessed an OD in the past year. Among those who witnessed an OD, 57% reported that they or someone else called 911 to respond to the event, a proportion consistent with previous years. Among those who reported using heroin or prescription opiates, almost 50% reported carrying Narcan/naloxone within the past three months. Among heroin and prescription opiate users not carrying Narcan/Naloxone, the top reasons for not carrying it were: “Didn’t know I could get it” (30%) and “Don’t need it” (20%) (data not shown). Those who did experience an OD in the past year were more likely to be younger, report being in jail or prison in past 12 months, use methamphetamine & heroin in combination, and inject alone (data not shown). Nearly 60% of 2015 survey participants reported never using alcohol, benzodiazepines (benzos), or other downers within a couple of hours before or after using heroin or prescription opiates, which shows a decreasing trend in concurrent use of commonly available substances that increase risk of opiate OD.

Health care coverage/health issues among participants in the 2013 and 2015 surveys

— Fifty percent of participants in 2013 reported having health care coverage compared to nearly 90% in 2015 ($p < .0001$) (**Figure 3**). The majority of participants with coverage had Medicaid (76%) (data not shown). Forty-eight percent of participants reported receiving medical care from a “clinic or doctor’s office,” while 30% reported going to the emergency room (**Table 6**). Just over half of the participants reported having an abscess or soft tissue infection within the past 12 months. Almost a quarter reported receiving drug treatment within the past 12 months.

Discussion

Heroin use, reported by just under 90% of participants in each survey year, continues to be the drug most commonly used by Public Health Needle Exchange participants. A substantial increase in methamphetamine use, both alone (32% in 2011 to 58% in 2015) and in combination with heroin (14% in 2011 to 37% in 2015), was reported across all populations of interest: MSM, females, and non-MSM males. Prior to 2011, methamphetamine use was reported primarily among MSM needle exchange participants and combined use of heroin and methamphetamine together was uncommon. Our finding of increased methamphetamine use is disturbing, and is consistent with trends reported by the University of Washington Alcohol and Drug Abuse Institute (ADAI). The ADAI documented an increase in both heroin- and methamphetamine-involved overdose deaths in King County in 2014 (156 involving heroin, up from 99 in 2013 and the highest number recorded at least the last 20 years, and 70 involving methamphetamine, up from 44 in 2013), and noted that concomitant use of methamphetamine and heroin was common among decedents and strongly correlated with the increase in methamphetamine deaths.⁷ Further inquiry is needed to learn more about concomitant methamphetamine and heroin use: what is driving it and how these drugs interact physiologically.

The proportion of heroin users who reported being hooked on prescription type opiates before beginning to use heroin increased 39% over the three survey years, from 38% in 2011 to 53% in 2015. This trend mirrors phenomenon observed elsewhere in the country and documents a concerning change in the trajectory of opioid and opiate use. While more prominent among younger heroin users, we now see this trajectory across all age groups in the needle exchange client survey (age data not shown).

Reported sharing of syringes and injection paraphernalia with others remained unchanged over the three survey cycles. A clear majority of participants (about 80%) reported not sharing syringes during the past three months, while only 55% reported not sharing other

injecting equipment such as cookers, cottons and mixing water. Sharing of either syringes or injection supplies poses opportunity for HIV and HCV transmission. While sharing rates (measured as a yes/no binomial during the past three months) have remained resistant to further reduction in recent years, we have seen a welcome increase in reported one-time use of syringes, indicating that syringe sharing may actually be declining. In 2015 61% of participants reported that on average they use a syringe only once before discarding it, compared to 48% in 2011. This latter change is consistent with an increased volume of syringes distributed by the needle exchange program, up 22% from 2,308,092 at surveyed sites in 2011, to 2,831,887 in 2014, and projected to top 3.1 million in 2015. Also welcome was a greater than two-fold decrease in femoral injecting, reported by 13% of participants in 2015 compared to 21% in 2013 and 32% in 2011. Femoral injecting is associated deep vein thrombosis, damage to the femoral nerve, femoral artery necrosis and other health risks.⁸

The 2015 survey recorded a 25% increase in the proportion of clients who witnessed an opioid overdose event within the last three months, and 76% increase in the proportion who personally experienced an opioid overdose within this time frame compared to 2011. As noted earlier, King County recorded more heroin-related overdose deaths in 2014 than at any time at least since 1997. Following changes in WA State law regarding availability and possession of naloxone, Public Health’s Needle Exchange Program began issuing this overdose reversal medication through a co-located pharmacy at its downtown location and training clients about opiate overdose risks and response in the spring of 2012. The 2015 survey found that nearly half of opiate-using participants had possessed naloxone within the three months prior to interview compared to only 28% in 2013. New legislation passed in 2015 allows dispensing of naloxone by non-licensed personnel which will allow direct distribution by lay needle exchange staff to clients at Capitol Hill and South King County locations in addition to downtown Seattle. We anticipate this expanded access will increase the proportion of opiate-using clients who regularly carry naloxone and achieve the program’s goal of normalizing this practice.

Regarding behavioral cofactors associated with opiate overdose, 2015 survey findings are mixed. Overdose is more likely to occur after a period of not using, such as forced non-use during a period of incarceration, which may lead to a decrease in opiate tolerance level. In 2015, 36% of survey participants reported having been in jail or prison within the last 12 months compared to 29% in 2011. Use of benzodiazepines remained relatively stable across survey cycles (38%, 41% and 35% respectively), but use of benzodiazepines or alcohol at least some of the time within a few hours of using heroin or other opiates, declined from 55% in 2011 to 42% in 2015.

Both alcohol and benzodiazepines are depressant substances that can potentiate the effects of opiates. Finally, almost half of 2015 opiate-using participants reported injecting alone some of the time or always, behavior that elevates risk of death from an overdose event. An encouraging finding, even with increased access to naloxone, was that, among survey respondents who had witnessed an opiate overdose, 57% reported 911 was called at the last event they witnessed, which is consistent with the proportion reported in 2011 and 2013 (56% and 55% respectively). This finding was unexpected; we anticipated calls to 911 would decline as access to and possession of naloxone increased.

The increase in insurance coverage among needle exchange participants was remarkable between 2013, before implementation of the Affordable Care Act, and 2015, a year and a half into implementation. The proportion of survey participants who reported they had health insurance increased from 49% in 2013 to 87% in 2015. Washington State is a Medicaid expansion state and almost all of the increase reported in 2015 is attributable to this insurance source. Anticipating this finding of greatly increased insurance coverage, the 2015 survey also sought to get a snapshot of main health challenges identified by needle exchange clients. More in depth inquiry into health care needs was not possible in our short intercept interview format. Almost a third identified their main health concern as an issue related to addiction or drug treatment, while 9% identified concerns with abscesses or skin issues and another 9% identified concern about blood borne infections such as HIV and hepatitis C. Seven percent identified their main health concern as a dental or oral health issue, while 29% identified general health or other chronic conditions. Surprisingly, almost a quarter (24%) of 2015 participants reported they were currently receiving drug treatment and, of these, 79% reported they were receiving opiate substitution therapies, 72% methadone and 6% buprenorphine.

Finally, 41% of MSM and 2% of non-MSM participants in 2015 self-reported being HIV positive. While prior years' surveys asked about testing history and frequency, they did not ask about current HIV status, thus no historical trends in self-reported HIV status are given. We have reason to believe clients accurately reported their HIV status as our findings were consistent with recent National HIV Behavioral Surveillance System (NHBS) findings.¹

Overall, needle exchange survey findings continue to provide useful information to guide program development as well as helpful data to support collaborations with other providers. It is clear the program needs to do more at all service locations to address the escalating epidemic of heroin overdose and overdose deaths that are occurring throughout King County. The 2015 survey indicates that clients may benefit from more education regarding co-risk

factors associated with overdose and that possession and use of naloxone is not yet normalized among exchange program participants. Further, there is still much to be learned about co-use of methamphetamine and heroin in order to develop responsive and helpful programming for the increasing number of clients who are using these drugs together. And finally, now that a vast majority of exchange participants have health insurance coverage, more can be done to assure appropriate access to and utilization of primary medical, dental, mental health, and drug treatment care services, at both program and wider system levels. The information gathered in this series of surveys can be a helpful catalyst to achieve necessary changes in the array of intervention services available to people who are dependent on heroin and other injection drugs.

Contributed by Kim Kummer, Hanne Thiede and Michael Hanrahan

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Table 1. Demographic and socioeconomic characteristics of needle exchange survey participants, Public Health – Seattle & King County, 2011, 2013 and 2015

	2011		2013		2015		p-value
	n	%	n	%	n	%	
Total	401	--	475	--	409	--	
Gender							
Male	284	71%	329	69%	255	63%	0.019
Female	115	29%	143	30%	147	36%	
Transgender	1	<1%	3	1%	2	<1%	
Age (years)							
<30	125	31%	146	31%	126	31%	0.037
30-39	95	24%	123	26%	123	30%	
40-49	93	23%	112	24%	89	22%	
50-59	68	17%	73	15%	53	13%	
60+	17	4%	20	4%	14	4%	
Race/ethnicity (yes/no for each)¹							
White	306	77%	365	77%	318	78%	NS
Black	35	9%	44	9%	35	9%	
American Indian/AK Native	34	9%	22	5%	47	12%	
Asian/Pacific Islander	6	2%	14	3%	14	3%	
Hispanic	37	9%	50	11%	38	9%	
Other	9	2%	11	2%	9	2%	
Education							
Some high school or less	69	18%	93	20%	77	19%	0.006
Completed high school	112	29%	159	34%	116	29%	
Some college (<4yr degree)	137	35%	164	35%	168	42%	
Bachelor degree or higher ²	69	18%	59	12%	44	11%	
Housing status							
Permanent	171	44%	211	44%	170	42%	<.0001
Temporary/Unstable	113	29%	129	27%	77	19%	
Homeless ³	105	27%	135	28%	155	39%	
Zip code of residence							
City of Seattle	231	61%	302	64%	253	63%	NS
North King county	14	4%	25	5%	20	5%	
South King County	52	14%	82	17%	64	16%	
East King County	42	11%	37	8%	36	9%	
Outside King County	38	10%	29	6%	26	7%	
Income							
≤138% FPL ⁴	Not asked in 2011		386	82%	323	81%	NS
139-400% FPL			67	14 %	65	16%	
> 400% FPL			17	4%	13	3 %	
Jail/prison time 12 months							
Yes	112	29%	156	33%	146	37%	0.023

¹ Participants could report more than one race, percentages do not add to 100%

² P-value compares "Bachelor degree or higher" to all others

³ P-value compares "Homeless" to all others

⁴ FPL= Federal Poverty Level

NS = Not significant

Categories may not add up to total because of missing data for individual variables

Table 2. Characteristics of needle exchange survey participants stratified by population of interest, Public Health – Seattle & King County, 2015

	MSM ¹		non-MSM Men		Women		p-value
	n	%	n	%	n	%	
Total	32	--	225	--	147	--	
Education							NS
Some high school or less	2	6%	42	19%	30	20%	
Completed high school	10	31%	71	32%	35	24%	
Some college (<4yr degree)	14	44%	89	40%	65	44%	
Bachelor degree or higher	6	19%	21	9%	17	12%	
Housing status							NS
Permanent	16	50%	85	39%	68	46%	
Temporary/Unstable	6	19%	42	19%	29	20%	
Homeless	10	31%	94	43%	50	34%	
Income							NS
≤138% FPL ²	23	72%	173	78%	124	86%	
139-400% FPL	8	25%	39	18%	18	13%	
>400% FPL	1	3%	10	5%	2	1%	
Jail/prison time 12 months							NS
Yes	14	44%	88	40%	43	34%	
Number of sex partners past 12 months							<.0001
0	0	--	53	24%	31	21%	
1	4	13%	84	37%	66	45%	
2-4	10	31%	60	27%	33	22%	
5+	18	56%	28	12%	17	12%	
Drugs used (yes/no to each)³							
Powder cocaine by itself	4	13%	43	19%	18	12%	NS
Crack cocaine by itself	8	25%	82	37%	38	26%	NS
Speedball (cocaine & heroin together)	4	13%	58	26%	21	14%	NS
Methamphetamine by itself	26	81%	125	56%	81	56%	0.021
Goofball (meth & heroin together)	11	34%	89	40%	48	33%	NS
Heroin by itself	15	47%	211	95%	128	88%	<.0001
Prescription opiates	8	25%	93	42%	65	44%	NS
Benzodiazepines	8	25%	86	39%	45	31%	NS
Last HIV test (among those who did not report testing positive for HIV)							0.015
In last 6 months	12	71%	84	44%	42	31%	
In last 12 months	3	18%	38	20%	31	23%	
Over 12 months ago	2	12%	71	37%	61	46%	
Self-reported HIV status							<.0001
Positive	12	41%	3	2%	3	2%	
Negative	17	59%	187	95%	130	95%	
Don't know	0	--	6	3%	4	3%	

¹ MSM=Men who have sex with men

² FPL=Federal Poverty Level

³ Participants could report more than one drug, therefore percentages do not add to 100%; includes drugs used by any route

NS=Not significant

Categories may not add up to total because of missing data for individual variables

Figure 1. Drugs used in any form and by any route in past 3 months by population of interest, Public Health – Seattle & King County Needle Exchange Survey, 2011, 2013, 2015

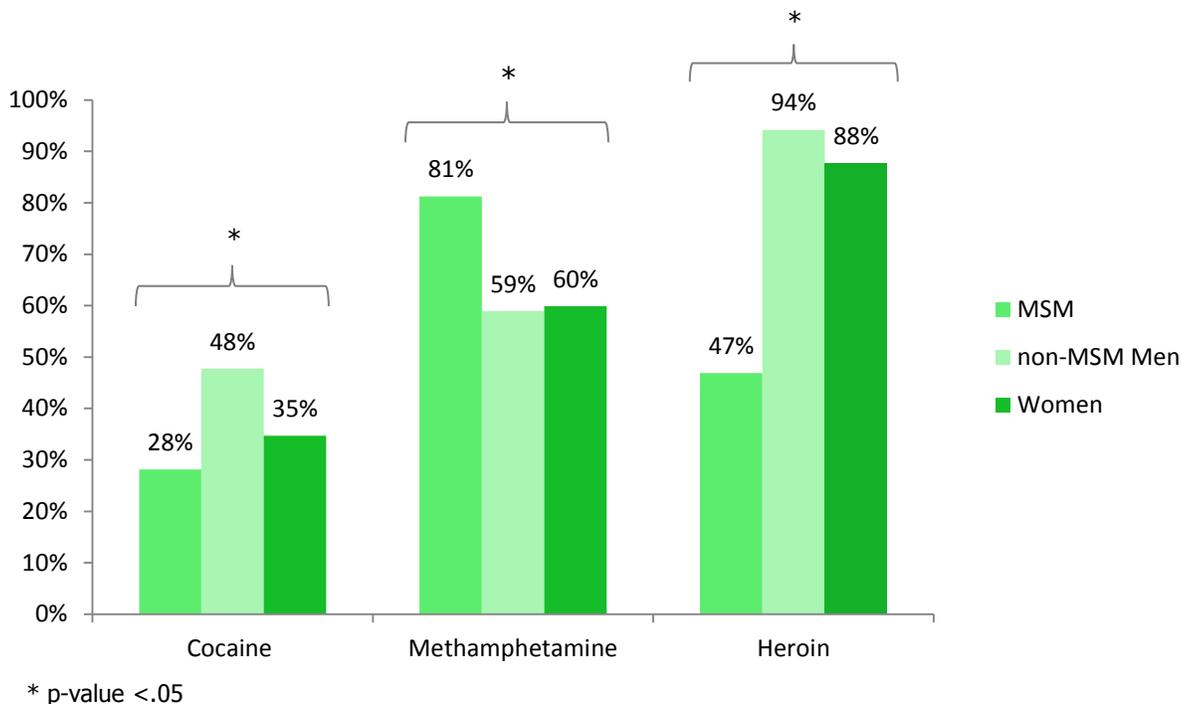


Table 3. Trends in drugs used by needle exchange survey participants, Public Health – Seattle & King County, 2011, 2013, 2015

	2011		2013		2015		p-value
	n	%	n	%	n	%	
Total	401	--	475	--	409	--	
Drugs Used (yes/no to each)¹							
Powder cocaine by itself	116	31%	107	23%	66	16%	<.0001
Crack cocaine by itself	144	38%	154	33%	129	32%	NS
Speedball (cocaine & heroin together)	144	38%	136	29%	85	21%	<.0001
Methamphetamine by itself	121	32%	246	53%	233	58%	<.0001
Goofball (meth & heroin together)	53	14%	129	28%	150	37%	<.0001
Heroin by itself	333	88%	388	83%	357	89%	NS
Prescription opiates	112	30%	163	35%	167	41%	0.001
Benzodiazepines	144	38%	191	41%	141	35%	NS
Hooked on prescription-type opiates prior to using heroin							
Yes	127	38%	177	45%	188	53%	<.0001

¹ Participants could report more than one drug, therefore percentages do not add to 100%. Includes drugs used by any route. Categories may not add up to total because of missing data for individual variables

Figure 2. Drugs used in any form and by any route in past 3 months, all participants, Public Health – Seattle & King County Needle Exchange Survey, 2015

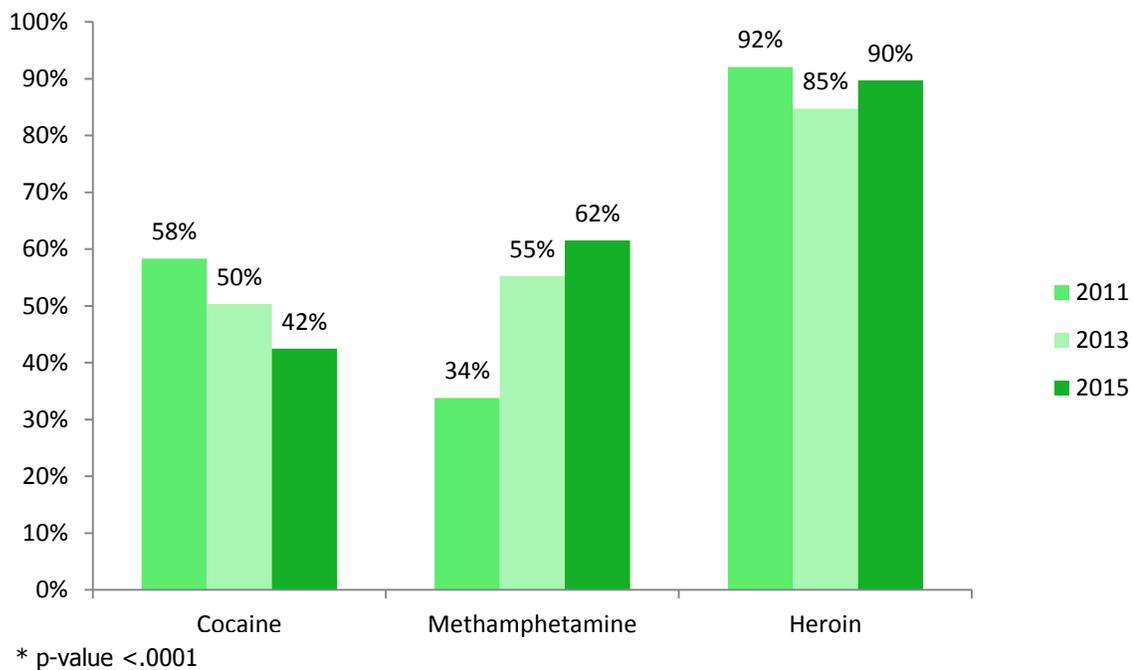


Table 4. Trends in syringe/injection equipment sharing and injection practices among needle exchange survey participants, Public Health – Seattle & King County, 2011, 2013, 2015

	2011		2013		2015		p-value
	n	%	n	%	n	%	
Total	401	--	475	--	409	--	
Number of people shared syringes with past 3 months							
0 others	310	81%	359	77%	328	81%	NS
1+ others	74	19%	106	23%	75	19%	
Number of people shared supplies with past 3 months							
0 others	221	58%	254	55%	222	55%	NS
1+ others	162	42%	210	45%	180	45%	
Number of uses before discarding syringe							
Once*	175	48%	168	42%	240	61%	<.0001
Twice	66	18%	84	21%	76	19%	
3+ times	127	34%	151	38%	80	20%	
Femoral injection past 3 months							
Yes	122	32%	97	20.8%	52	13%	<.0001

* P-value compares those using each syringe "once" compared to twice or more
 Categories may not add up to total because of missing data for individual variables

Table 5. Overdose experience and overdose-related behaviors among needle exchange survey participants who reported using heroin and/or prescription-type opiates within the last three months, Public Health – Seattle & King County, 2011, 2013, 2015

	2011		2013		2015		p-value
	n	%	n	%	n	%	
Total	345	--	406	--	362	--	
Self-reported OD past 12 months							
1+ time	45	13%	94	23%	82	23%	0.003
Witnessed OD past 12 months							
1+ time	146	43%	234	58%	190	54%	0.006
Called 911 last time witnessed an OD							
Yes	82	56%	129	55%	109	57%	NS
Possessed Narcan/Naloxone past 3 months							
Yes	Not asked		112	28%	168	47%	<.0001
Used alcohol, benzos, or other downers within a couple hours before or after using heroin or prescription-type opiates							
Never*	154	45%	192	50%	208	58%	0.001
Some of the time	134	40%	134	35%	117	32%	
Most of the time	25	7%	28	7%	21	6%	
Always	26	8%	29	8%	15	4%	

* P-value compares "Never" to all other categories

Categories may not add up to total because of missing data for individual variables

Figure 3. Current health insurance coverage among needle exchange survey participants, Public Health – Seattle & King County, 2013 and 2015

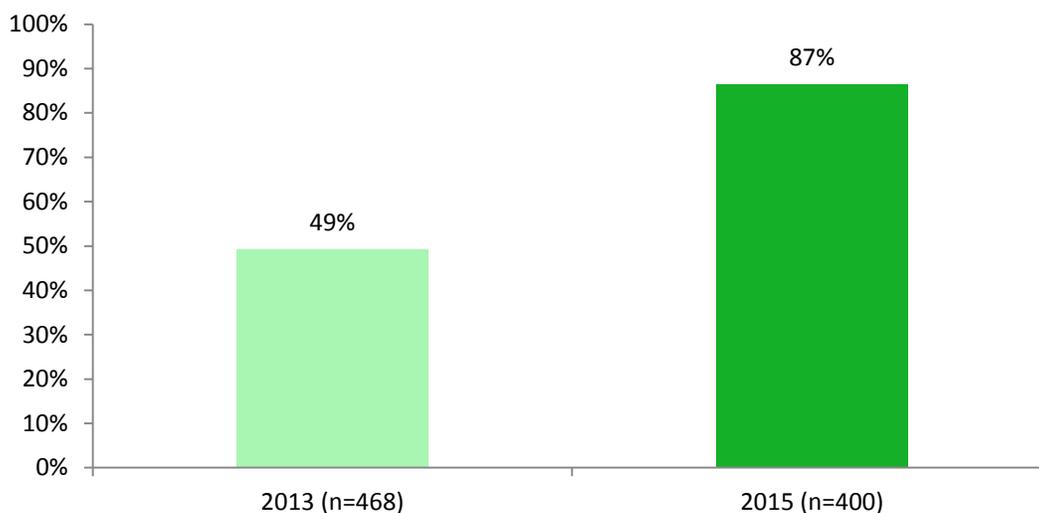


Table 6. Health insurance coverage and health issues among needle exchange survey participants, Public Health – Seattle & King County, 2015

	2015	
	n	%
Total	409	--
Where did you receive medical care?		
Clinic/doctor's office	192	48%
Emergency room	119	30%
Don't get medical care	42	11%
Urgent Care	14	4%
NX clinic/Robert Clewis Center	18	5%
Veteran's Affairs (VA)	7	2%
Other	7	2%
Had abscess or soft tissue infection in last 12 months		
Yes	209	51%
Received drug treatment		
Yes	93	24%
Single biggest health concern		
Addiction/drug treatment	116	32%
General health issues/chronic diseases	104	29%
Abscess/soft tissue infections	34	9%
Blood borne infections (HIV & HCV)	34	9%
Other	28	8%
Dental	24	7%
Mental health	13	4%
Homelessness	6	2%

Categories may not add up to total because of missing data for individual variables

Seattle Pride Survey 2014 and 2015: HIV testing, PrEP use, and seroadaptive behaviors

Background

HIV testing is necessary for awareness, prevention, and treatment of HIV. In the United States, it is estimated that 14% of individuals who have HIV are unaware of their HIV-positive status.¹ A 2012 study reported that just over half of adults (54%) in the United States had ever been tested for HIV.² With recent changes in testing, such as the FDA approval of an oral self-test in 2012³, and improved access to health care from the implementation of the Affordable Care Act⁴, we examined recent HIV testing among Washington State men who have sex with men (MSM) who comprise about 81% of people living with HIV in King County.

Additional HIV prevention tools used by MSM include seroadaptive behaviors and pre-exposure prophylaxis (PrEP). Seroadaptive behaviors include only having sex or only having unprotected sex with individuals of the same HIV serostatus.⁵ PrEP – antiretroviral therapy taken to prevent HIV infection – has been increasingly used and found to be highly effective at preventing HIV transmission.⁶ To monitor the uptake of interventions and behaviors of local MSM, we analyzed Seattle Pride Survey data for the past two years, 2014 and 2015.

Methods

Public Health – Seattle & King County (PHSKC) conducts an annual survey at the Seattle PRIDE parade, an event that draws roughly 350,000 parade participants and spectators, many of whom are MSM. Trained interviewers, disbursed along the parade route, approach parade participants and spectators, briefly explain the purpose of the survey and the \$5 coffee card incentive, and ask whether the person “is a Washington State resident who identifies as a man who has sex with men”. People answering affirmatively and indicating their willingness to participate are offered the survey, which may be self- or interviewer administered. Since 2009, 2,411 surveys were completed at the Pride Parade. In 2014 and 2015, the survey was also conducted at Noche Latina, Black Pride BBQ, and Trans* Pride, and in 2015, at Tacoma Pride. The survey assesses risk behaviors, access to and utilization of health services, and awareness and attitudes pertaining to HIV prevention strategies and campaigns. This article summarizes responses to the Pride Survey collected at the Pride Parade, Noche Latina, and Black Pride BBQ 2014-2015.

Participant characteristics

The Pride Survey was administered to roughly the same number of Washington State MSM in 2014 and 2015, with a total of 1,152 surveys administered in these two years (**Table 1**). Participants were 67% non-Hispanic White. Thirty-nine percent were under age 30 and 19% were 50 years of age or older. Homelessness was reported by 7% of respondents and 40% of respondents had annual incomes less than \$30,000. The majority of respondents (89%) possessed health insurance and 81% had a regular medical provider. Fourteen percent reported having an HIV diagnosis.

HIV testing

Among those who did not report an HIV-positive status, 62% had an HIV test in the past year and 90% had ever been tested for HIV (**Table 2**). Whites (55%) and Blacks (49%) were more likely to have had their last HIV test at “my doctor’s office” relative to Latinos (34%). Additional sites for a most recent HIV test were Gay City (11%), the STD Clinic (8%), a community organization (8%), or with a self-test (7%). A subset of respondents (13% of HIV-negative/unknown) reported that they receive electronic reminders to get tested. Roughly half of respondents (48%) indicated that they had undergone STD testing in the prior 12 months. The majority (52%) of respondents also indicated that their last HIV test was with a health care provider. When asked how respondents acquired information about HIV testing, 47% reported receiving information from their doctor. This was supported by the adjusted analyses, as having a regular medical provider was significantly associated with meeting the minimum HIV testing guidelines (**Table 3**).

Reported risk behaviors, 2015 survey

Drug use and sexual behavior questions referenced the previous 12 months (approximately June 2014 to June 2015). Any illicit drug use (including heroin, methamphetamines, crack, cocaine, or any injection drug use) was reported by 10% of respondents; 4% of respondents reported injection drug use. Few respondents (<3%) reported engaging in transactional sex. Most respondents had no (22%) or one (40%)

sexual partner in the past year; a minority of respondents reported 2-9 anal sex partners (27%) or 10 or more partners (10%) in the prior 12 months. Among respondents who did not report being HIV-positive, 11% reported condomless sex with an HIV-positive or status-unknown partner and 19% reported two or more condomless sex partners.

More than three quarters of MSM surveyed denied having condomless anal sex, were using at least one seroadaptive behavior, or were on PrEP (**Table 4**). Among seronegative or unknown status MSM, 29% reported only having sex with same-serostatus partners and 17% used condoms when their partner's serostatus was different from their own or unknown.

PHSKC defines high risk for HIV-uninfected MSM as report of any of the following in the past 12 months: methamphetamine use, amyl nitrate ("popper") use, a bacterial STD diagnosis (gonorrhea, chlamydia, or syphilis), ≥ 10 anal sex partners, or condomless anal sex with an HIV positive man or man of unknown HIV status; 26% of HIV-negative/status unknown respondents met at least one of these high risk criteria in the 2015 survey (**Table 1**).

Awareness and uptake of pre-exposure prophylaxis (PrEP), 2015 survey

Excluding respondents reporting an HIV-positive status, 65% of lower risk MSM and 85% of higher risk MSM had heard of PrEP. A total of 23% of high risk respondents (29 of 126) reported currently taking PrEP at the time of the survey and 33% (41/126) reported ever using PrEP (thus, 71% of ever-users were also current users, 29/41). These compare to 8% ever use and 63% awareness of PrEP among high risk men in 2014. Among lower risk respondents, the percent reporting ever using PrEP was 3% in 2015.

Reasons for not taking PrEP are listed in **Table 5**. Twenty-eight percent of respondents in 2014 and 46% in 2015 reported discussing PrEP with friends, family, and sex partners.

Summary & recommendations

The End AIDS Washington campaign is promoting four messages: 1) get insured, 2) get tested 3) get PrEP, and 4) get treatment, with the aim of reducing new HIV infections by 50% by 2020. The annual Pride Surveys are a good way to monitor the first three of these health interventions, and our findings demonstrate positive trends related to each of these outcomes. Specifically, the 2015 Pride Survey yielded these welcomed findings:

- Percent insured remains high (90%) 1.5 years following the implementation of the Affordable Care Act.
- MSM in the Seattle area test for HIV frequently: among HIV-negative/status unknown individuals, 91% had ever tested and 79% tested in the past two years.
- PrEP uptake and awareness is increasing steeply, especially among high risk MSM with 1/3 having ever used PrEP and nearly 1/4 (23%) using PrEP at the time of their survey.

Despite high levels of success in achieving these intermediate elements that will reduce new HIV infections, there is still room for improvement. Results from the Pride Survey support these recommendations:

- Messages about PrEP should be more detailed and nuanced, including information about support for the costs of PrEP (such as the Washington State PrEP Drug Assistance Program, <http://www.doh.wa.gov/YouandYourFamily/IllnessandDisease/HIVAIDS/HIVCareClientServices/PrEPDAP>), low levels of side-effects associated with PrEP, and how and where PrEP can be obtained (see King County PrEP webpage, which includes a list of local PrEP medical providers <http://www.kingcounty.gov/healthservices/health/communicable/hiv/prevention/prep.aspx>).
- As those with a regular medical provider were significantly more likely to have had an HIV test in the past year, messages about getting insured should emphasize the value of having a regular medical provider and explanations of health insurance options and subsidies.

Contributed by Julia Hood and Jillian Neary

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Table 1. Demographic information, men who have sex with men, 2014 and 2015 Pride Surveys*, King County, WA

Demographic Characteristic	n (%)
Year	
2015	590 (51)
2014	562 (49)
Venue	
Pride Parade	1011 (88)
Noche Latina	41 (4)
Black Pride BBQ	98 (9)
Age	
Less than 30	447 (39)
30-39	275 (24)
40-49	213 (19)
50+	214 (19)
Race	
White	748 (67)
Hispanic	158 (14)
Black	108 (10)
Asian	44 (4)
Mixed Race	41 (4)
Other	13 (1)
Education	
Some high school/high school graduate	124 (11)
Some college/vocational school	203 (18)
2-year college degree	218 (19)
4-year college degree	374 (33)
More than 4-year college degree	228 (20)
Income	
<15K	220 (19)
15K - <30K	224 (21)
30K - <50K	268 (24)
50K - <=100K	248 (22)
>100K	156 (14)
Have health insurance	1012 (89)
Have regular medical provider	920 (81)
Homeless†	39 (7)
Reported positive HIV status	152 (14)

* Restricted to males over the age of 14 who were Washington State residents and completed a survey at the Pride Parade, Noche Latina, or Emerald City Black Pride

† Homeless is defined as having lived on the street or in a shelter, hotel, or car in the last 12 months

Table 2. HIV and sexually transmitted disease (STD) testing by race/ethnicity among men who have sex with men without a prior HIV diagnosis, 2014 and 2015 Pride Surveys*, King County, WA

	White %	Black %	Hispanic %
Ever tested for HIV	91	93	87
Time since last test			
3 months or less	28	28	31
> 3 - < 6 months	23	24	30
> 6 - < 9 months	7	15	10
> 9 - < 12 months	10	11	1
More than 12 months	33	22	28
Number of tests in last 2 years			
0	22	16	19
1	21	19	18
2	23	23	24
3+	34	42	38
Venue of last HIV test			
"My doctor's office"	55	49	35
Gay City	10	11	13
Health Dept clinic	7	6	17
Community org.	6	16	13
STD Clinic – HMC	7	4	10
Home/self-test	8	7	5
Other	4	6	6
Study	1	1	2
Bathhouse	1	0	0
Source of information about HIV testing**			
My doctor	52	40	38
Local organization	44	45	54
Word of mouth/friends	36	25	35
Social media	23	28	29
Government website	20	15	22
Billboards/brochures	16	20	24
Ever used self-test	19	18	21
Ever tested because acute HIV symptoms	8	16	11
STD testing (past year)	49	45	44
Electronic HIV/STD testing reminder	13	14	9

* Restricted to males over the age of 14 who are Washington State residents and completed a survey at the Pride Parade, Noche Latina, or Emerald City Black Pride

**This question was asked in 2015 only.

Table 3. Demographic characteristics associated with testing in the prior 12 months, controlling for reported risk behaviors among men who have sex with men, 2014 and 2015 Pride Surveys*, King County, WA

	%	aRR†	95% CI
Age			
Less than 30	63	1.00	
30-39	63	1.15	(0.76, 1.74)
40-49	59	1.14	(0.71, 1.82)
50+	50	1.14	(0.71, 1.82)
Race			
White	58	1.00	
Hispanic	60	1.11	(0.69, 1.79)
Black	67	1.96	(0.99, 3.89)
Asian	53	0.95	(0.43, 2.09)
Other	70	1.79	(0.83, 3.88)
Income			
<15K	51	1.00	
15K - 30K	62	1.71	(1.00, 2.94)
30K - 50K	65	1.49	(0.88, 2.51)
50K - 100K	64	1.69	(0.98, 2.91)
>100K	55	1.10	(0.61, 2.00)
Residential information			
King County Resident	59	1.00	
Washington State Resident	63	1.22	(0.85, 1.75)
Regular medical provider			
Yes	61	1.75	(1.18, 2.60)‡
No	56	1.00	
Health insurance			
Yes	60	1.46	(0.86, 2.48)
No	57	1.00	

* Restricted to males over the age of 14 who are Washington State residents and completed a survey at the Pride Parade, Noche Latina, or Emerald City Black Pride and did not report an HIV-positive status

† Adjusted for number of men the respondent had anal sex with (categorical variable: 0, 1, 2-4, 5-9, 10+), condomless anal intercourse, unknown if engaged in condomless anal intercourse, marital status (not married, not married but in a committed relationship, married), and drugs (methamphetamine, cocaine, crack, heroin, and poppers)

‡ p-value <0.05

Table 4. Reported seroadaptive behaviors among men who have sex with men, 2015 Pride Survey, King County, WA

"Which of the following strategies have you used in the past 12 months specifically to reduce the possibility of getting HIV or giving HIV to someone else? "	HIV Status	
	Negative/Unknown	Positive
I used condoms for anal sex for all my partners	31%	14%
I only had sex with men who were the same HIV status as me	29%	18%
I used condoms for anal sex if I didn't know my partner's status or if his status differed from mine	17%	8%
I did not have anal sex	12%	14%
I took PrEP	9%	--
Whether I was a top/bottom depended on my partner's status	5%	6%
I only had sex with HIV negative partners if they were on PrEP	3%	11%
I only had sex with HIV positive partners if they were undetectable/taking HIV medicines	3%	23%
None of the above	22%	23%

Table 5. Reasons for not taking PrEP among men who have sex with men, 2015 Pride Survey, King County, WA

	Low Risk n=345 (%)	High Risk* n=97 (%)
I am at low risk for HIV and don't need PrEP	54%	39%
PrEP is too expensive/not covered by insurance	7%	10%
I don't know where to get PrEP	12%	20%
I don't know enough about PrEP	18%	15%
I am concerned about side-effects	5%	12%
Stigma around PrEP	1%	1%
I don't think that I would consistently take the medication	6%	5%

* High Risk: STD diagnosis, methamphetamine or popper use, 10+ sex partners, or non-concordant condomless anal sex in last year.

Background and methods

The Centers for Disease Control and Prevention (CDC) website asserts that “transgender communities in the United States are among the groups at highest risk for HIV infection”.¹ To learn more about the trans community in King County, PHSKC conducted an adapted version of the Pride Survey at Trans* Pride festivals in 2014 and 2015. The Trans* Pride Survey collected data on respondents’ demographic characteristics, access to healthcare, risk behaviors, HIV and STD testing behaviors, and awareness of HIV prevention strategies and campaigns. Trained survey staff members were disbursed among Trans* Pride attendees and administered the survey between 4PM and 9PM on the Friday of Pride weekend (the last weekend in June). Survey staff approached people at the event, briefly described the survey and its purpose, ascertained potential respondents’ willingness to complete the survey, and evaluated eligibility using the screening question: “do you identify as transgender, gender-queer, or non-binary?” The survey was interviewer- or self-administered and limited to completion in English. Respondents who completed the survey received a bag containing condoms, information about local services, and a \$5 coffee shop gift card.

PHSKC defines “cis” as having a current gender that corresponds to sex assigned at birth; “trans” as having a current gender that differs from sex assigned at birth; and “non-binary” as having a gender that does not fit within the binary male/female dichotomy. In this article, we compare three groups: (1) people assigned male at birth who currently identify as non-binary or as a trans woman; (2) people assigned female at birth and currently identify as a trans man; and (3) cis men who have sex with men (MSM) from other Pride Survey 2015 events. To facilitate comparisons, we excluded HIV-positive respondents from all analyses and weighted the cis MSM group to have the same age distribution as Trans* Survey respondents.

Results

After combining Trans* Pride Survey data from 2014 and 2015, there were 98 records corresponding to trans women and non-binary (NB) people assigned male at birth and 66 records corresponding to trans men. Whereas none of these records corresponded to someone reporting an HIV-positive status, the age-adjusted percent of cis MSM reporting being HIV-positive was 10.5%. After excluding HIV-positive respondents, 631 cis-MSM records were included in this analysis.

Results pertaining to risk behavior and access/uptake of health services are summarized in **Table 1**. Reported drug use was similar across groups. A larger proportion of Trans* Survey respondents reported being unstably housed and engaging in transactional sex. The number of penetrative sex partners was similar between cis MSM and trans women/non-binary people assigned male at birth; trans men reported, on average, fewer penetrative sex partners. Compared to cis MSM, a smaller proportion of Trans* Survey respondents reported engaging in serodiscordant condomless sex. A larger proportion of Trans* Survey respondents reported not knowing their HIV status compared to cis-MSM. Relatedly, a smaller proportion of Trans* Survey respondents reported ever being tested for HIV, being HIV-tested ≥ 2 times in the past 2 years, being STD-tested in the past 12 months, and ever using an HIV self-test. Among respondents who had ever tested, a larger proportion of Trans* Pride Survey respondents reported receiving their last test at a community organization. A smaller proportion of Trans* Survey respondents had heard of PrEP and treatment as prevention. Awareness of local HIV prevention media campaigns, however, was higher among Trans* Pride Survey respondents than cis MSM.

Dissatisfaction with health services appears common among Trans* Pride respondents (**Table 2**). A large proportion of respondents indicated that they postponed getting services because clinics aren’t trans-inclusive and have felt disrespected at health facilities. A minority of Trans* Pride respondents indicated that it was easy to obtain HIV services that were sensitive to the needs of transgender people. The majority of Trans* Pride Survey respondents indicated a preference for receiving care at a clinic that specializes in trans health issues.

Conclusion

Despite reporting similar risk profiles, Trans* Pride respondents appear to receive HIV/STD services less frequently relative to cis MSM. This might be partially attributable to negative perceptions of how health services are delivered. To inform how the delivery of health services to the trans community can be improved, PHSKC has conducted a qualitative evaluation of perceptions of local HIV/STD service providers. The data from this evaluation are currently being analyzed.

Contributed by Julia Hood

Reference

¹ <http://www.cdc.gov/hiv/group/gender/transgender/index.html>

Table 1. Reported risk behaviors and access/uptake of health services by gender category, Washington State, 2014 - 2015

	All Cis MSM ^o , parade, Noche Latina, BBQ, Tacoma, 2015 (n=631)	Assigned male at birth, NB/trans women, 2014-15 (n=98)	Assigned female at birth, trans men, 2014-15 (n=66)
In the past 12 months:			
Any drug use [^]	8%	11%	6%
Injection drug use	3%	2%	2%
Unstably housed*	6%	19%	21%
Transactional sex*	2%	14%	10%
Number of penetrative sex partners			
0-1	61%	65%	74%
2-9	30%	32%	22%
10+	8%	3%	5%
Condomless sex with HIV positive/status-unknown partner	16%	6%	9%
Unknown HIV status	5%	10%	12%
Insured	88%	83%	86%
Have regular medical provider	75%	80%	74%
Ever HIV tested	89%	77%	72%
Number HIV tests past 2 years			
0	18%	41%	40%
1	20%	26%	37%
≥2	62%	33%	23%
STD test	53%	45%	39%
Last HIV test venue			
My doctor's office	59%	51%	50%
Gay City	9%	12%	7%
Health Dept clinic	8%	9%	7%
Community org.	7%	16%	17%
STD Clinic – HMC	7%	7%	11%
Home/self-test	9%	0%	0%
Ever used self-test?	21%	7%	4%
Heard of PrEP	69%	44%	58%
Ever taken PrEP	10%	7%	3%
Aware of Treatment as Prevention	51%	43%	44%
Heard of campaign/brand:			
We are 1	24%	44%	53%
My HIV Moment*	20%	30%	26%
End AIDS Washington*	20%	22%	19%

^o Excludes HIV-positive respondents; cis MSM are weighted to have the same age distribution as Trans* Survey respondents

* Asked in 2015 only

[^] Heroin, crack, cocaine, methamphetamine, or any injection drug use

Table 2. Perceptions of health services among 2015 Trans* Pride Survey respondents[^]

	Strongly Agree/ Agree	Neutral	Strongly Disagree/ Disagree
Assigned male at birth, non-binary/trans women (n=73)			
I have postponed getting health services because clinics are not trans-inclusive.	38%	21%	40%
It is easy to obtain HIV services that are sensitive to the unique needs of trans people.	25%	43%	32%
I have felt disrespected at health facilities.	49%	16%	35%
I would prefer to receive medical care at a clinic that specializes in transgender health issues.	83%	11%	6%
Assigned female at birth, trans men (n=31)			
I have postponed getting health services because clinics are not trans-inclusive.	50%	31%	19%
It is easy to obtain HIV services that are sensitive to the unique needs of trans people.	4%	50%	46%
I have felt disrespected at health facilities.	64%	21%	14%
I would prefer to receive medical care at a clinic that specializes in transgender health issues.	76%	14%	10%

[^] These questions were only asked in the 2015 survey.

Highlights from the 2014 Seattle area National HIV Behavioral Survey of Men Who Have Sex with Men

Introduction

Men who have sex with men (MSM) remain the group most impacted by HIV nationally and locally. Nationwide, MSM comprised 65% – and MSM who also had a history of injection drug use (MSM/IDU) an additional 3% – of the estimated 47,165 adults and adolescents diagnosed with HIV infection in 2013.¹ In King County, 87% of residents diagnosed with HIV between 2011 and 2013 were MSM (76%) or MSM/IDU (11%).² This report describes findings from the 2014 Seattle area National HIV Behavioral Surveillance (NHBS) survey of MSM (NHBS-MSM4). The CDC sponsors NHBS surveys in 20 large U.S. urban areas including the Seattle Division of the Seattle Metropolitan Statistical Area (King and Snohomish counties).³ The purpose of NHBS is to monitor prevalence and trends of HIV and HIV-related risk and prevention behaviors. Each year one of three populations at increased risk of HIV is surveyed using a common CDC protocol and questionnaire at all sites. We have reported results from earlier Seattle area NHBS surveys including MSM,^{4,5} IDU,⁶⁻⁸ and heterosexuals at increased risks⁹⁻¹¹ in earlier issues of the HIV/AIDS Epidemiology Report.

Methods

The CDC NHBS MSM surveys are conducted using venue-based sampling (VBS).¹² Prior to the survey we identified venues in the Seattle area (King County) that were frequented by MSM and would be eligible and accessible for recruitment. Every month, a sampling calendar was constructed by randomly choosing 18-20 venues and sampling times. During each sampling event, NHBS staff counted and intercepted men attending the venue and asked them if they were interested in participating in the study. A recreational vehicle with two private interview rooms served as a field office. Potential study participants were screened for eligibility (male sex at birth and male identity, 18 years or older, ever had oral or anal sex with a man, able to complete the survey in English or Spanish, no prior participation in that year, and residence in King or Snohomish County). Those who were eligible and provided informed consent completed an interviewer-administered survey about their sociodemographic characteristics, sexual and drug-use practices, and health history. Participants provided separate consent for HIV testing. We used rapid HIV testing on finger-stick specimens (OraQuick®) and those with reactive (“positive”) rapid test results provided a blood sample for Western Blot confirmatory testing. Participants received

a \$75 incentive, condoms, and information about local HIV prevention, health and social services. No personal identifiers were collected. The study was approved by the Washington State Institutional Review Board.

Results

Recruitment – Between June 6, 2014, and December 7, 2014, 4,246 people were approached in 103 recruitment events held in 42 individual venues. Of these 4,246 persons, 963 (23%) accepted and completed screening: 257 had never had a male sex partner, 72 had no male sex partner in the previous 12 months, 60 did not reside in King or Snohomish Counties, 22 did not consent to the interview, 13 were not male, 11 were previous participants, 10 had incomplete interviews, nine were not 18 years of age or older, three were not alert enough to interview, and three interviews were judged to be invalid. This left 503 participants eligible for the present analysis.

Sociodemographic characteristics –

The overall HIV prevalence in the Seattle area NHBS-MSM4 survey was 17%. Descriptions of HIV prevalence by sociodemographic characteristics, sexual behavior, substance use behaviors, and self-reported HIV status are included in **Tables 1, 2, 3, and 4**, respectively, and described in more detail in separate sections below.

The median age of participants was 34 years, with 33% <30 years (Table 1). Nearly one-quarter (24%) of MSM lived with a male partner. In comparison to the King County male population, the NHBS-MSM4 sample had a lower proportion of Asian and Pacific Islander men and higher proportions of men reporting Hispanic ethnicity and multiple races. Educational attainment and employment status were similar to the general population and median household income was in the same range. Health insurance coverage (86%) was similar to the general population, and higher than the most recent NHBS-MSM3 survey in 2011 (71%). We recruited men from 77 zip codes across King County (**Figure 1**). The majority of participants resided in Seattle, including 35% in combined zip codes 98102 and 98122 (Capitol Hill and the Central District).

Sexual behaviors – Most MSM (81%) identified as gay (**Table 2**). Almost half (49%) reported 5 or more male sex partners in the last 12 months, 12% reported sex with a woman, and 53% found a sex partner using a web site or app. Nearly one in three (32%) reported condomless anal sex with a male partner of opposite or unknown HIV status (non-concordant CAS) in the last 12

months, and 49% reported intentionally having CAS with a male partner of similar HIV status (i.e., serosorting). The survey included a series of questions about the most recent male partner: 38% were main partners and 62% were casual partners. Twelve percent of participants reported that this partner was HIV-infected, while 32% did not know the partner's HIV status. Men who self-reported being HIV-infected were much more likely to report an HIV-infected partner (48%) than men who reported being HIV-negative (6%) (data not shown). Over one-half (53%) had discussed their own and their partner's HIV status prior to the first time they had sex. Fifteen percent reported non-concordant CAS and 20% reported drug use during their last sexual encounter. Forty percent reported having concurrent (overlapping) male sexual partnerships during their most recent partnership.

Substance Use – Over one-half (53%) of MSM reported using any non-injection drugs other than marijuana in the last 12 months: 15% reported using methamphetamine, 21% cocaine, 14% painkillers (other than those prescribed), 13% ecstasy, and 33% poppers (Table 3). Seventy-three MSM (15%) reported ever injecting illicit drugs (data not shown) and 31 (6%) had injected in the last 12 months. Among these MSM, the most commonly injected drugs were methamphetamine, used by 84% and heroin used by 48%. Among the 26 MSM who reported injecting methamphetamine, 21 also used it by another route (data not shown). One-quarter (25%) reported bingeing on alcohol – having 5 or more alcoholic drinks in one setting – on 4 or more occasions in the last 30 days.

HIV Prevalence – Among the 503 MSM participants, 480 (95%) consented to HIV testing: 81 (17%) tested positive and 398 (83%) tested negative. One person (<1%) had an indeterminate confirmatory test although self-reported that he was HIV-infected (Table 4). Of the 81 MSM who had a positive confirmatory HIV test, 75 (93%) were among MSM who had self-reported HIV infection, while 6 (7%) were newly diagnosed as HIV-infected. Among the 6 MSM with new HIV diagnoses, 3 were White, 2 were Black and 1 reported another race/ethnicity (data not shown); 1 was age <30 years (median age=47, range=28-57). All 24 MSM who reported that they did not know their HIV status and consented to HIV testing tested negative.

HIV prevalence was significantly associated with age, with 4% prevalence among 18-24 year olds and 23% prevalence among 40+ year olds (Table 1). There were no significant differences in HIV prevalence across racial/ethnic groups or between foreign-born and U.S.-born MSM. HIV prevalence was significantly higher among

MSM who had lower educational attainment, were not currently employed, had lower household income, or were homeless in the last year. HIV prevalence was higher among MSM who had health insurance, which reflects increased access to some forms of health insurance among HIV-infected people.

HIV prevalence did not differ significantly by sexual identity among MSM, but was strongly associated with reported sexual risk behaviors (Table 2). Notably, 31% of MSM who reported having non-concordant CAS with their last partner were HIV-infected. HIV prevalence was significantly associated with number of male sex partners in the last 12 months, with the highest prevalence (26%) among MSM who reported the most (10+) partners. MSM who reported non-concordant CAS and a bacterial STD diagnosis in the last 12 months were also more likely to be HIV-infected. Among MSM who reported that their most recent male partner was HIV-infected, 64% were also HIV-infected. HIV prevalence was also higher among MSM who reported drug use at their last sexual encounter or concurrent male sexual partnerships with their last partner.

MSM who reported using methamphetamine, poppers, or injecting drugs in the last 12 months were significantly more likely to be HIV-infected than those who did not report those behaviors (Table 3). The highest HIV prevalence among substance-using MSM was among those who injected methamphetamine in the last year (54%).

HIV testing, PrEP and PEP use, and other health history – Nearly all (97%) participants had previously been tested for HIV. Among MSM who did not self-report being HIV-infected, 69% had tested within the last 12 months (Table 5). The most common reason for not testing in the last 12 months was the perception of being at low risk for HIV (59%) followed by being afraid of having an HIV-positive test (10%) (data not shown).

Among MSM who did not self-report being HIV-infected, two-thirds (67%) had ever heard about pre- or post-exposure prophylaxis (PEP or PrEP). (This was phrased as "anti-HIV medicine [also called antiretrovirals] – a pill – [that] could possibly be taken to prevent HIV infection.") Five percent reported taking PrEP in the past year and 4% reported ever taking PEP. Among MSM who had never taken PrEP, 61% stated that they would be willing to take PrEP every day if it lowered risk of HIV infection.

A minority of MSM had received any HPV vaccination, including 28% of MSM who had ever fallen into the recommended age range for vaccination (i.e., age <30 in 2014). However, 80% of unvaccinated MSM in this age group, and a similar proportion among older MSM, were interested in receiving the HPV vaccine. Among all participants, 64% reported hepatitis A vaccination and 70% reported any hepatitis B vaccination. Self-reported

prevalence of hepatitis C infection was 4% overall, with higher prevalences among MSM who ever injected drugs (18%) or had self-reported HIV infection (10%). Having an STD diagnosis in the last 12 months was 2.5 times higher among HIV-infected MSM (36%) than among those who self-reported being HIV-uninfected (14%).

Health-related characteristics among HIV-infected MSM – Among the 79 MSM who self-reported being HIV-infected, almost one-half (47%) were diagnosed >10 years ago and 7% were diagnosed in the last year (Table 6). Nearly all had health insurance (97%) and had seen a health care provider for HIV care within the last year (96%). Eighty-nine percent of HIV-infected participants reported taking antiretroviral (ARV) treatment. The reasons that the 7 HIV-infected MSM were not taking ARVs included: lacking the money or insurance (n=4), side effects (n=1), a poor relationship with their provider (n=1), “CD4 count and viral load are good” (n=1), just recently beginning medical care (n=1), and multiple reasons (n=1) (data not shown). Eighty-seven percent of HIV-infected MSM knew their most recent viral load, and it was undetectable in 81% of these men (70% of all MSM with self-reported HIV infection).

Nearly one-third (36%) of HIV-infected MSM reported having condomless anal sex in the last 12 months as a result of either their own undetectable viral load (32%) or their partner’s undetectable viral load (29%).

Factors associated with HIV testing in the last 12 months – We assessed factors independently associated with HIV testing in the last 12 months among MSM who were not HIV-infected (by self-report) using multivariable logistic regression (Table 7). The model included demographic characteristics and HIV risk behaviors that have been identified by the PHSKC HIV/STD Program as being predictive of HIV infection. (MSM who have one or more of these risk factors are recommended to receive HIV/STD testing every three months.) None of the demographic factors were significantly associated with HIV testing in the last 12 months, although the association between health insurance and increased HIV testing was of borderline significance. MSM reporting high risk sexual and drug use behaviors were more likely to receive HIV testing, including having an STD diagnosis, using poppers, or having ≥10 male sex partners. Fifty-nine percent of MSM who did not self-report being HIV-infected met the PHSKC HIV/STD Program criteria wherein HIV/STD testing is recommended every three months; 75% of them received HIV testing in the last year (vs. 69% in the overall sample) and 45% tested in the last three months (vs. 38% in the overall sample).

Factors associated with non-concordant condomless anal sex with a male partner –

We also assessed factors independently associated with non-concordant CAS in the last 12 months separately among MSM who did and did not self-report being HIV-infected. Among HIV-infected MSM, 50% reported any non-concordant CAS in the last 12 months. In a multivariable logistic regression model, only having ≥10 male sex partners in the last 12 months was significantly associated with non-concordant CAS (Table 8a). Among MSM who did not self-report being HIV-infected, having ≥10 male sex partners in the last 12 months, drug use during the last sexual encounter, and having ever taken PrEP were all significantly associated with non-concordant CAS (Table 8b). Of the 22 MSM who reported ever taking PrEP, 21 (95%) reported non-concordant CAS in the last 12 months.

Comments

HIV prevalence among MSM in the 2014 NHBS-MSM4 survey was 17%, which was slightly, but not statistically significantly, lower than the 19% prevalence in the 2011 MSM3 sample. Although the annual number of new HIV infections diagnosed in King County has declined since 2010, the prevalence of HIV has increased due to longer survival times. Therefore, our finding of lower prevalence in 2014 vs. 2011 may be a function of sampling error. The vast majority of HIV-infected MSM were aware of their status, and no participant who self-reported not knowing his status and consented to testing was HIV-infected. Most (69%) self-reported HIV-uninfected MSM had received HIV testing in the last year, which was higher than the 62% estimate from the 2011 survey. As expected, high risk sexual behaviors were associated with HIV testing, although only 45% of MSM who satisfied the PHSKC HIV/STD Program criteria for HIV/STD testing every three months had actually been tested for HIV within the past three months. MSM who self-reported being HIV-infected had very high levels of health insurance coverage (97%), recent engagement in HIV care (96% in the last year), ARV use (89%), and undetectable viral loads (70%). A sizeable proportion of HIV-infected MSM reported seroadaptive behaviors including condomless anal sex due to concordant HIV status with their partner (60%) or having an undetectable viral load (32%). Nevertheless, one-half of the HIV-infected MSM reported non-concordant CAS in the last year, and only 35-40% of these MSM also indicated that they engaged in condomless CAS based on viral load status.

Non-concordant CAS was somewhat more common in the 2014 NHBS-MSM survey (32%) than in the 2011 survey (28%), and the median number of male sex partners in the last year increased from 3 to 4 between 2011 and 2014. Self-reported STD diagnosis in the last year was also higher in 2014 (17%) than 2011 (12%).

Substance use estimates were relatively stable between the 2011 and 2014 surveys, including for reported methamphetamine use (16% in 2011 and 15% in 2014), poppers (30% and 33%), and injection drug use (7% and 6%). Binge alcohol use in the last 30 days decreased from 34% in 2011 to 25% in 2014. While MSM who reported high risk behaviors also tended to be more likely to report HIV testing, MSM who used methamphetamine were somewhat less likely to have tested for HIV in the last year (OR=0.6, 95% CI: 0.3-1.2). Among the small proportion of MSM who reported injecting methamphetamine, 54% were HIV-infected.

Among MSM nationally, HIV incidence is becoming increasingly concentrated among Black MSM and adolescent and young adult MSM.¹ Because of the cross-sectional nature of NHBS data, we could not measure HIV incidence, but the HIV prevalence among participating Black MSM declined from 36% from 2011 to 13% in 2014, and the prevalence among MSM age <25 remained at 4% between 2011 and 2014. Although the sample sizes for these subgroups were relatively small, these trend findings do not suggest a local hyper-epidemic among either subpopulation. However, two of the six new HIV diagnoses in the 2014 survey were among Black MSM, who comprised only 8% of the sample, which supports previous findings of unrecognized HIV infection among Black MSM. Given the small sample size and potential for selection bias, these results should be interpreted with caution.

This is the first NHBS-MSM cycle in which we have reported on attitudes and use of PrEP among MSM. To date, both efficacy and effectiveness data related to PrEP demonstrate that its use significantly decreases risk of HIV acquisition in the context of adequate adherence. Only 5% of HIV-uninfected MSM reported taking PrEP, which is lower than the 9% estimate in the 2014 Seattle Pride survey.² However, awareness of PrEP was higher in NHBS (67%) than the Pride survey (51%). The lower PrEP use estimate in NHBS may be a function of sampling or the question wording – i.e., the term “PrEP” itself was not used but rather “anti-HIV medicine...(that) could possibly be taken to prevent HIV infection.” One of the most stark findings in this analysis was that 21 of the 22 MSM who reported PrEP use also reported non-concordant CAS in the last year. These cross-sectional data preclude the ability to assess temporality, so it is not known if these MSM chose to initiate PrEP in response to previous behaviors, or engaged in non-concordant CAS as a direct result of using PrEP – or both. However, these data suggest that the MSM most likely to benefit from PrEP may be those accessing it.

All three NHBS MSM surveys in the Seattle area have utilized a common venue-based sampling protocol. Across the three local MSM cycles, participant

demographics have remained relatively stable, although there has been a small increase in participant age over time. VBS underrepresents MSM who do not attend the sampling venues and may produce a sample of MSM who practice higher-risk sex since a high proportion of venues were settings in which men may meet sex partners. NHBS is designed to survey populations at increased risk of HIV, and while the NHBS-MSM4 survey sample may not represent the general MSM population in King County, it may provide a more accurate snapshot of MSM at increased risk of HIV acquisition and transmission. While the behavioral data are self-reported and subject to social desirability bias, the vast majority of participants consented to HIV testing, providing an objective measure of HIV prevalence; further, participants reported high levels of risk behavior.

In conclusion, our findings highlight several HIV prevention and treatment successes among MSM in Seattle. High proportions of MSM engaged in safer sexual behavior, received recent HIV testing, and were knowledgeable about their HIV status. HIV-infected MSM reported high levels of engagement in their HIV care and viral suppression. Although not HIV-specific, the survey captured the impact of the Affordable Care Act with very high levels of health insurance coverage among MSM (86%), including 97% coverage among HIV-infected MSM. These data also identified several potential areas where increased prevention efforts could have a high level of impact, including a high proportion of HIV-infected MSM engaging in non-concordant CAS, a relatively high proportion of MSM not discussing their and their partner’s HIV status prior to sex, a continued association between methamphetamine use and prevalent HIV, a high prevalence of STDs among both HIV-infected and HIV-uninfected MSM, a low HPV vaccination rate among younger MSM, and a small but important fraction of HIV-infected MSM who either are not on treatment or not virally suppressed.

Contributed by Sara Glick, Richard Burt, Carrie Shriver, Courtney Moreno, and Hanne Thiede

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Figure 1. Resident ZIP codes among participants in the 2014 Seattle area National HIV Behavioral Surveillance Survey of Men Who Have Sex with Men (NHBS-MSM4)

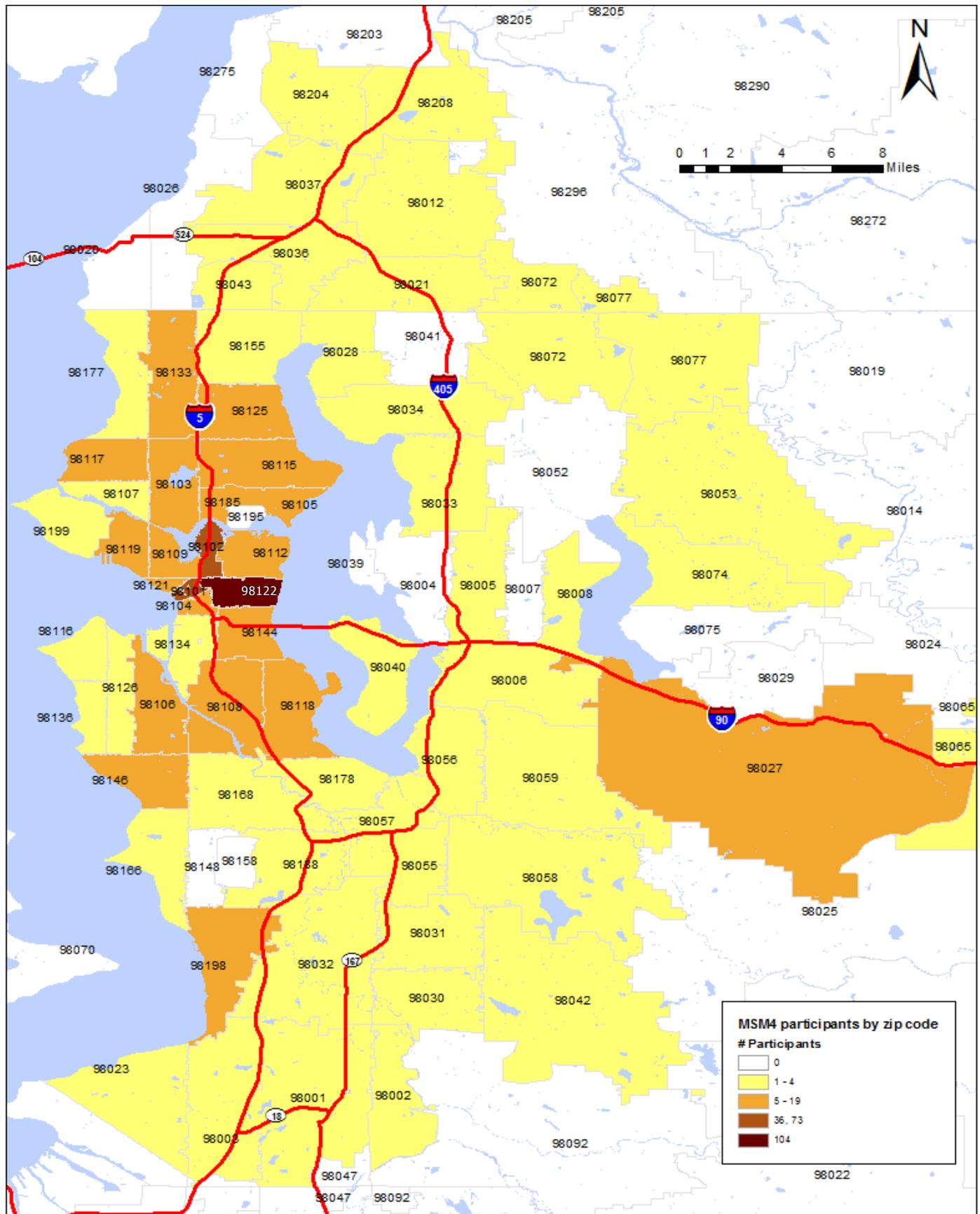


Table 1. Sociodemographic characteristics among participants in the 2014 Seattle area National HIV Behavioral Surveillance Survey of Men Who Have Sex with Men (NHBS-MSM4)

	Participants		HIV Prevalence		p-value ¹	King County ² %
	n	%	n/N	Row %		
Total	503		81/479	17%		
Age, years					<0.01	
18-24	80	16%	3/80	4%		12%
25-29	86	17%	11/82	13%		16%
30-39	141	28%	25/136	18%		20%
40-49	98	19%	21/90	23%		19%
50+	98	19%	21/91	23%		39%
Race/Ethnicity					0.27	
White	308	62%	51/291	18%		65%
Black	42	8%	5/39	13%		6%
Hispanic	85	17%	11/85	13%		9%
Asian/Pacific Islander	19	4%	2/17	12%		15%
Am. Indian/AK Native	5	1%	2/5	40%		1%
Multiple races	39	8%	10/37	27%		4%
Currently lives with male partner³					0.50	
No	375	76%	58/357	16%		
Yes	121	24%	22/116	19%		
Foreign-born					0.40	
No	438	87%	73/418	17%		80%
Yes	65	13%	8/61	13%		20%
Education					0.03	
High school or less	117	23%	24/114	21%		27%
Post-high school	177	35%	35/172	20%		29%
College grad. (4 years)	209	42%	22/193	11%		44%
Employed					0.02	
No	153	30%	34/149	23%		30%
Yes	350	70%	47/330	14%		70%
Household income, annual					<0.01	
<\$15,000	114	23%	35/111	32%		
\$15,000-\$34,999	117	24%	15/113	13%		
\$35,000-\$74,999	156	31%	22/146	15%		
\$75,000+	110	22%	8/103	8%		
(Median=\$71,811)						
Health insurance					<0.01	
No	70	14%	4/69	6%		15%
Yes	430	86%	76/407	19%		85%
Homeless, last 12 months					<0.01	
No	438	87%	63/416	15%		
Yes	65	13%	18/63	29%		

¹ Comparing HIV prevalence, X² test

² Data sources for King County estimates: Age, 2009-2013 American Community Survey age-specific estimates for males; Race, 2010 Census estimates for total population; Foreign-born, 2009-2013 American Community Survey estimates for males; Education, 2009-2013 American Community Survey estimates for males age 18+; Employment, 2009-2013 US Census Quick Facts for population age 16+ years; Income, 2009-2013 US Census Quick Facts for population; Health insurance, 2009-2013 US Census Quick Facts for population age <65 years

³ "A man you consider a boyfriend, spouse, significant other, or life partner"

Note: Some categories may not sum to total sample size due to missing data.

Table 2. Sexual identity and behaviors among participants in the 2014 Seattle area National HIV Behavioral Surveillance Survey of Men Who Have Sex with Men (NHBS-MSM4)

		Participants N=503		HIV Prevalence N=479		p-value ¹
		n	%	n/N	Row %	
Sexual identity	Gay/homosexual	406	81%	70/387	18%	0.16
	Bisexual	77	15%	11/74	15%	
	Straight/heterosexual	16	3%	0/15	0%	
LAST 12 MONTHS						
Number of male sex partners	1	115	23%	11/107	10%	<0.01
	2-4	143	28%	25/138	18%	
	5-9	95	19%	8/90	9%	
	10+	150	30%	37/144	26%	
Sex with female partner	No	442	88%	76/420	18%	0.07
	Yes	61	12%	5/59	8%	
Used a web site or phone app to find a sex partner						0.95
No		233	47%	38/223	17%	
Yes		263	53%	42/250	17%	
Non-concordant condomless anal sex with male partner²						<0.01
No		340	68%	40/325	12%	
Yes		159	32%	41/151	27%	
Intentional concordant condomless anal sex with male partner³						0.14
No		254	51%	34/238	14%	
Yes		240	49%	45/233	19%	
Bacterial STD diagnosis	No	417	83%	54/400	14%	<0.01
	Yes	85	17%	27/79	34%	
LAST MALE PARTNER						
Type of partner⁴	Main	192	38%	27/182	15%	0.33
	Casual	309	62%	54/295	18%	
Partner HIV status	Negative	280	56%	23/267	9%	<0.01
	Positive	60	12%	36/56	64%	
	Unknown	163	32%	22/156	14%	
	No	233	47%	25/177	14%	
Yes		263	53%	54/293	18%	0.23
Type of sex at last sexual encounter						<0.01
Oral sex only		162	32%	21/154	14%	
Anal sex with a condom		104	21%	13/98	13%	
Concordant condomless anal sex		162	32%	24/154	16%	
Non-concordant condomless anal sex ²		73	15%	22/71	31%	
Drug use at last sex encounter	No	402	80%	48/381	13%	<0.01
	Yes	101	20%	33/98	34%	
Concurrent male sexual partnerships, last 12 months⁵						<0.01
No		160	32%	12/146	8%	
Yes		201	40%	40/196	20%	
Not applicable, single encounter		140	28%	28/135	21%	

¹ Comparing HIV prevalence, χ^2 test

² Condomless anal sex with a male partner of opposite or unknown HIV status

³ Condomless anal sex with a male partner of the same HIV status

⁴ Main partner: "a man you have sex with and who you feel committed to above anyone else."
Casual partner: "a man you have sex with but do not feel committed to or don't know very well."

⁵ "During the past 12 months, when you were having a sexual relationship with this partner, did you have sex with other people?"

Note: Some categories may not sum to total sample size due to missing data.

Table 3. Substance use behaviors among participants in the 2014 Seattle area National HIV Behavioral Surveillance Survey of Men Who Have Sex with Men (NHBS-MSM4)

	Participants N=503		HIV Prevalence N=479		p-value ¹	
	n	%	n/N	Row %		
NON-INJECTION DRUG USE DURING LAST 12 MONTHS						
Any non-injection drug use (excluding marijuana)²						
	No	236	47%	25/225	11%	<0.01
	Yes	267	53%	56/254	22%	
Methamphetamine						
	No	429	85%	49/407	12%	<0.01
	Yes	73	15%	32/72	44%	
Powder cocaine						
	No	396	79%	64/374	17%	0.82
	Yes	107	21%	17/105	16%	
Painkillers						
	No	434	86%	71/411	17%	0.60
	Yes	69	14%	10/68	15%	
Ecstasy						
	No	439	87%	64/415	15%	0.03
	Yes	64	13%	17/64	27%	
Poppers						
	No	335	67%	41/322	13%	<0.01
	Yes	168	33%	40/157	25%	
INJECTION DRUG USE DURING LAST 12 MONTHS						
Any drug injection						
	No	472	94%	66/448	15%	<0.01
	Yes	31	6%	15/31	48%	
Injected methamphetamine, if any drug injection³						
	No	5	16%	1/5	20%	0.17
	Yes	26	84%	14/26	54%	
Injected heroin, if any drug injection³						
	No	16	52%	9/16	56%	0.37
	Yes	15	48%	6/15	40%	
ALCOHOL USE DURING LAST 30 DAYS						
Alcohol binge 4+ times						
	No	377	75%	58/357	16%	0.51
	Yes	126	25%	23/122	19%	

¹ Comparing HIV prevalence, X² test

² Non-injection drugs include: methamphetamine, crack cocaine, powder cocaine, downers (e.g., Valium, Ativan, Xanax), painkillers (e.g., Oxycontin, Vicodin, Percocet), hallucinogens (e.g., LSD, mushrooms), ecstasy or X, heroin that is smoked or snorted, poppers (amyl nitrite), GHB, Special K (ketamine), or other drugs named by the participant (e.g., Molly)

³ Among 31 participants reporting any injection drug use in the last 12 months

Note: Some categories may not sum to total sample size due to missing data.

Table 4. HIV prevalence and self-reported HIV status among participants in the 2014 Seattle area National HIV Behavioral Surveillance Survey of Men Who Have Sex with Men (NHBS-MSM4)

Serologic HIV Status					
Self-Reported HIV Status	Negative N=398 n (%)	Positive N=81 n (%)	Indeterminate N=1 n (%)	Did Not Consent To HIV Testing N=23 n (%)	TOTAL N=503 n (%)
Negative	374 (94%)	6 (7%)	0	19 (83%)	399 (79%)
Positive	0	75 (93%)	1 (100%)	3 (13%)	79 (16%)
Unknown	24 (6%)	0	0	1 (4%)	25 (5%)

Table 5. Health related factors among participants in the 2014 Seattle area National HIV Behavioral Surveillance Survey of Men Who Have Sex with Men (NHBS-MSM4)

	n/N	%
HIV TESTING		
Last HIV test¹		
≤3 months ago	158/421	38%
≤6 months ago	228/421	54%
≤12 months ago	291/421	69%
>12 months ago	114/421	27%
Never tested	16/421	4%
Number of HIV tests, last 2 years¹		
Median (25/75 IQR)	2 (1-4)	
PRE-EXPOSURE PROPHYLAXIS (PrEP) AND POST-EXPOSURE PROPHYLAXIS (PEP) FOR HIV		
Ever heard of PrEP or PEP ^{1,2}	286/424	67%
Ever taken PEP ^{1,2}	18/424	4%
Ever taken PrEP ^{1,2}	22/424	5%
Willing to take PrEP (if have not already) ^{1,2}	244/402	61%
OTHER INFECTIONS		
HPV vaccination³		
Among all MSM	74/473	16%
Among MSM age<30	44/156	28%
Interested in getting HPV vaccination (if have not already)³		
Among all MSM	318/407	78%
Among MSM age<30	95/119	80%
Hepatitis vaccination³		
Hepatitis A vaccination	289/450	64%
Hepatitis B vaccination	313/450	70%
HCV-infected, self-reported^{3,4}		
Among all MSM	18/493	4%
Among MSM who self-reported being HIV-uninfected	9/390	2%
Among MSM who self-reported being HIV-infected	8/79	10%
Among MSM who never injected drugs	5/419	1%
Among MSM who have ever injected drugs	13/73	18%
STD diagnosis (excluding HIV and hepatitis), last 12 months		
Among all MSM	85/502	17%
Among MSM who self-reported being HIV-uninfected	56/399	14%
Among MSM who self-reported being HIV-infected	28/78	36%

¹ Among participants who did not self-report being HIV-infected

² Questions asked about "anti-HIV medicine (also called antiretrovirals) – a pill – (that) could possibly be taken to prevent HIV infection".

³ Excludes participants who responded "don't know"

⁴ Excludes participants who reported never being tested for HCV (n=5)

Note: Some categories may not sum to total sample size due to missing data.

Table 6. HIV-related factors among self-reported HIV-infected participants in the 2014 Seattle area National HIV Behavioral Surveillance Survey of Men Who Have Sex with Men (NHBS-MSM4)

	N=79 n	%
Time since first HIV-positive test		
Within 1 year	5	7%
1-5 years	18	24%
6-10 years	16	22%
>10 years	35	47%
Health insurance	76	97%
Ever saw a healthcare provider for HIV care	79	100%
Time from HIV diagnosis to first medical contact		
<1 month	40	55%
1 month	22	30%
2+ months	11	15%
Time since last medical contact for HIV care		
<1 month	28	35%
1-3 months	21	27%
4-12 months	27	34%
>12 months	3	4%
Taking HIV antiretroviral (ARV) treatment	70	89%
Most recent HIV viral load result		
Undetectable	54	70%
<5,000	9	12%
5,000-100,000	3	4%
>100,000	1	1%
Don't know	10	13%
SEXUAL BEHAVIOR IN THE LAST 12 MONTHS		
Non-concordant condomless anal sex with male partner	39	50%
Intentional concordant condomless anal sex with male partner	46	60%
Condomless anal sex because of own undetectable viral load	24	32%
Condomless anal sex because of partner's undetectable viral load	22	29%

Note: Some categories may not sum to total sample size due to missing data.

Table 7. Sociodemographic characteristics and sexual and drug use behaviors associated with having an HIV test in the last 12 months among participants who did not report being HIV-infected in the 2014 Seattle area National HIV Behavioral Surveillance Survey of Men Who Have Sex with Men (NHBS-MSM4)

	HIV Test in Last 12 Months ¹		Unadjusted Model		Adjusted ² Model	
	n/N	Row %	Odds Ratio (95% CI)	p-value	Odds Ratio (95% CI)	p-value
Total	291/421	69%				
DEMOGRAPHIC CHARACTERISTICS						
Age <30 years						
No	186/269	69%	ref		ref	
Yes	105/152	69%	1.0 (0.6-1.5)	0.99	1.0 (0.6-1.6)	0.91
Race/Ethnicity						
White	175/256	68%	ref		ref	
Black	26/38	68%	1.0 (0.5-2.1)	0.99	1.0 (0.5-2.3)	0.90
Hispanic	52/74	70%	1.1 (0.6-1.9)	0.76	1.1 (0.6-2.0)	0.83
Other	34/48	71%	1.1 (0.6-2.2)	0.73	1.1 (0.5-2.5)	0.75
Foreign-born						
No	248/363	68%	ref		ref	
Yes	43/58	74%	1.3 (0.7-2.5)	0.37	1.2 (0.6-2.4)	0.68
Health insurance						
No	41/68	60%	ref		ref	
Yes	249/351	71%	1.6 (0.9-2.8)	0.08	1.6 (0.9-3.0)	0.11
HIV RISK BEHAVIORS IN LAST 12 MONTHS						
STD diagnosis						
No	238/364	65%	ref		ref	
Yes	53/57	93%	7.0 (2.5-19.8)	<0.01	4.9 (1.7-14.4)	<0.01
Methamphetamine use³						
No	263/378	70%	ref		ref	
Yes	28/43	65%	0.8 (0.4-1.6)	0.55	0.6 (0.3-1.2)	0.15
Poppers use						
No	186/292	64%	ref		ref	
Yes	105/129	81%	2.5 (1.5-4.1)	<0.01	2.2 (1.3-3.9)	0.01
≥10 male sex partners						
No	194/308	63%	ref		ref	
Yes	97/113	86%	3.6 (2.0-6.3)	<0.01	2.6 (1.4-5.0)	<0.01
Non-concordant condomless anal sex with male partner⁴						
No	202/300	67%	ref		ref	
Yes	89/118	75%	1.5 (0.9-2.4)	0.11	1.0 (0.6-1.7)	0.98
Any of the above HIV risk behaviors						
No	105/172	61%	ref			
Yes	186/249	75%	1.9 (1.2-2.9)	<0.01	N/A	

¹ Among participants who did not self-report being HIV-infected

² Adjusted for all other variables listed

³ Includes both non-injection and injection use of methamphetamine

⁴ Condomless anal sex with a male partner of opposite or unknown HIV status

Note: Some categories may not sum to total sample size due to missing data.

Table 8a. Sociodemographic characteristics and sexual and drug use behaviors associated with non-concordant condomless anal sex with a male partner among self-reported HIV-infected participants in the 2014 Seattle area National HIV Behavioral Surveillance Survey of Men Who Have Sex with Men (NHBS-MSM4)

Among self-reported HIV-infected MSM:	Non-Concordant Condomless Anal Sex with Male Partner ¹		Unadjusted Model		Adjusted ² Model	
	n/N	Row %	Odds Ratio (95% CI)	p-value	Odds Ratio (95% CI)	p-value
Total	39/78	50%				
DEMOGRAPHIC CHARACTERISTICS						
Age <30 years						
No	32/65	49%	ref		ref	
Yes	7/13	54%	1.2 (0.4-4.0)	0.76	2.0 (0.5-8.2)	0.34
Race						
White	27/50	54%	ref		ref	
Other ³	12/28	43%	0.6 (0.3-1.6)	0.35	0.7 (0.2-2.1)	0.55
Homeless, last 12 months						
No	29/61	48%	ref		ref	
Yes	10/17	59%	1.6 (0.5-4.7)	0.41	1.1 (0.3-4.1)	0.93
LAST 12 MONTHS						
Methamphetamine use⁴						
No	18/44	41%	ref		ref	
Yes	21/34	62%	2.3 (0.9-5.8)	0.07	1.5 (0.4-5.1)	0.51
Poppers use						
No	20/40	50%	ref		ref	
Yes	19/38	50%	1.0 (0.4-2.4)	1.0	0.5 (0.2-1.5)	0.21
≥10 male sex partners						
No	14/42	33%	ref		ref	
Yes	25/36	69%	4.5 (1.7-11.8)	<0.01	4.6 (1.6-13.5)	0.01
LAST MALE PARTNER						
Drug use during sexual encounter						
No	20/48	42%	ref		ref	
Yes	19/30	63%	2.4 (0.9-6.2)	0.07	1.7 (0.5-5.5)	0.36

¹ Condomless anal sex with a male partner of opposite or unknown HIV status

² Adjusted for all other variables listed

³ Black, Hispanic, and other racial groups combined due to small sample size

⁴ Includes both non-injection and injection use of methamphetamine

Note: Some categories may not sum to total sample size due to missing data.

Table 8b. Sociodemographic characteristics and sexual and drug use behaviors associated with non-concordant condomless anal sex with a male partner among self-reported HIV-uninfected or unknown HIV status participants in the 2014 Seattle area National HIV Behavioral Surveillance Survey of Men Who Have Sex with Men (NHBS-MSM4)

Among self-reported HIV-uninfected or unknown HIV status MSM:	Non-Concordant Condomless Anal Sex with Male Partner ¹		Unadjusted Model		Adjusted ² Model	
	n/N	Row %	Odds Ratio (95% CI)	p-value	Odds Ratio (95% CI)	p-value
Total	120/141	29%				
DEMOGRAPHIC CHARACTERISTICS						
Age <30 years						
No	76/269	28%	ref		ref	
Yes	44/152	29%	1.0 (0.7-1.6)	0.88	1.1 (0.7-1.9)	0.66
Race/Ethnicity						
White	70/255	27%	ref		ref	
Black	13/38	34%	1.4 (0.7-2.8)	0.39	1.6 (0.7-3.8)	0.24
Hispanic	22/74	30%	1.1 (0.6-2.0)	0.70	1.1 (0.6-2.2)	0.71
Other	14/49	29%	1.1 (0.5-2.1)	0.87	1.5 (0.7-3.2)	0.29
Homeless, last 12 months						
No	100/375	27%	ref		ref	
Yes	20/46	43%	2.1 (1.1-4.0)	<0.02	1.9 (0.9-4.2)	0.10
Ever taken PrEP³						
No	99/399	25%	ref		ref	
Yes	21/22	95%	63.6 (8.5-479.2)	<0.01	55.8 (7.1-438.8)	<0.01
LAST 12 MONTHS						
Methamphetamine use⁴						
No	98/377	26%	ref		ref	
Yes	22/44	50%	2.8 (1.5-5.4)	<0.01	1.3 (0.6-3.0)	0.56
Poppers use						
No	70/292	24%	ref		ref	
Yes	50/129	39%	2.0 (1.3-3.1)	<0.01	1.2 (0.7-2.0)	0.54
≥10 male sex partners						
No	63/308	20%	ref		ref	
Yes	57/113	50%	4.0 (2.5-6.3)	<0.01	4.0 (2.3-6.8)	<0.01
LAST MALE PARTNER						
Drug use during sexual encounter						
No	88/351	25%	ref		ref	
Yes	32/70	46%	2.5 (1.5-4.3)	<0.01	2.2 (1.2-4.2)	0.02

¹ Condomless anal sex with a male partner of opposite or unknown HIV status

² Adjusted for all other variables listed

³ Question asked about "anti-HIV medicine (also called antiretrovirals) – a pill – (that) could possibly be taken to prevent HIV infection"

⁴ Includes both non-injection and injection use of methamphetamine

Note: Some categories may not sum to total sample size due to missing data.

Medical care in King County: Medical Monitoring Project 2013 provider survey

Background

The Medical Monitoring Project (MMP) is an ongoing population-based surveillance system which assesses the clinical outcomes and behaviors of HIV-infected adults receiving care in the U.S. The project is currently conducted in 17 states and six cities by local and state public health departments in collaboration with the Centers for Disease Control and Prevention (CDC). The MMP Provider Survey is used to evaluate the capacity of the HIV provider workforce, including adoption of prevention and treatment guidelines, and improvements in diagnosis and linkage to care.

Methods

Providers who offer medical care to HIV-infected individuals were surveyed from January 2013 through January 2014. The MMP Provider Survey is conducted using a complex two-stage sample design in which states and territories are selected using probability proportionate to size (PPS) sampling. Facilities are then sampled from the selected areas using PPS based on number of persons receiving care for HIV infection. Physicians, nurse practitioners, and physician assistants were eligible to complete the survey if they practice at an MMP-selected facility, completed clinical training, and provided care to HIV-infected patients. Data are weighted in the analyses to account for probability of selection, clustering, unequal selection probabilities, and non-response adjustments. SAS survey procedures were used for analyses that account for the two-stage sampling design as well as the aforementioned events. All percentages reported are weighted. All analyses were performed using SAS 9.3 (SAS Institute, Cary, NC).

Results

The 2013 MMP Provider survey had an adjusted provider response rate of 79% in Washington State. Overall, 65 providers completed the MMP Provider Survey, the majority of whom were physicians (92%), non-Hispanic White (89%), and heterosexual/straight (84%) (**Table 1**). The average age of providers was 52 (95% CI: 49.9-52.7). Practitioners reported an average of 18 years providing care for HIV-infected patients (95% CI: 16.9-19.1) and provided continuous and direct patient care for an average of 101 HIV-infected individuals (95% CI: 72.3-130.6).

Most providers (73%) estimated that they spent 45-74 minutes with patients during an initial visit with HIV patients (average length of initial visit: 50.4, 95% CI: 44.9-55.8) and 55% of providers spent 25-34 minutes during follow-up visits (average length of follow-up visit: 26.7, 95% CI: 23.3-30.0) (**Table 2**). In general, providers tended to feel that the amount of time they are able to spend with patients is usually or always sufficient for both initial visits (73%) as well as follow-up visits (71%).

The majority of providers order genotypic tests for all newly diagnosed patients and prescribe ART regardless of CD4 count among patients for whom there are no barriers or contraindications to treatment (**Table 3**). Whereas 15% of providers indicated that they do not defer prescribing ART for any reason, 59% of providers indicated that they defer prescribing ART for between 1% and 10% of patients, including those with barriers and contraindications. Two-thirds of providers reported doing at least two of three ART adherence activities for most or all patients using ART. The three ART adherence activities examined were (1) assessing treatment adherence at every visit, (2) offering education and advice about tools to increase adherence, and (3) referral to supportive services, as needed, for patients who are non-adherent to ART. The proportion of providers who perform each of the adherence activities individually can be found in **Table 3**.

Almost half of all practitioners, regardless of facility type, believe that the number of patients they will be able to care for 5 years from now will remain the same and about a third of providers feel it may increase (**Table 4**). Overall, the majority of providers did not indicate having plans to leave clinical practice within the next 5 years; however, a large proportion (41%) of providers in private practice indicated that they were considering or planning on leaving clinical practice in the next five years.

The majority of providers indicated that prescription drug assistance plans (i.e. AIDS Drug Assistance Program [ADAP], Medicare, Medicaid, commercial insurance and pharmaceutical industry drug assistance plans) sufficiently met patients' HIV treatment needs (**Table 5**). However, 21% disagree or strongly disagree that the availability is sufficient for patients with Medicare, 20% for patients with pharmaceutical industry drug assistance plans, and 16% for patients fully reliant ADAP.

Roughly a quarter of providers (26%, 95% CI: 17%-35%) reported that they had ever prescribed pre-exposure prophylaxis (PrEP) and 70% (95%: 49%-90%) reported that they had ever prescribed non-occupational post-exposure prophylaxis (nPEP).

Discussion

This evaluation of MMP Provider Survey data identified some issues that might warrant additional evaluation. The racial/ethnic background of the providers does not correspond well to the racial composition of WA PLWH. This may result in some patients feeling uncomfortable with their medical providers and/or their options of medical providers for HIV-related medical care. About 16% of HIV providers identified as gay, lesbian, or bisexual, which may offer options to patients, if they desire a gay-identified provider, given that the majority of HIV patients in WA state are men who have sex with men.¹

Some providers, most notably among those in private practice, indicated plans to leave clinical practice within the near future. This is an issue larger than that for HIV primary care alone,² and planners are working on increased provider training options. Reports that Medicare insufficiently met patients' treatment needs is concerning, especially giving the aging demographic of WA PLWH.

There are limitations to this analysis, most notably, the relatively small number of providers included in the analysis. The geographical breakdown for providers surveyed is unknown, thus the data may not be representative of HIV medical providers throughout the state. Although a subset of providers reported that they may not be fully adherent to current HIV treatment guidelines, the survey was unable to capture the complete circumstances surrounding patient-provider interactions to put variations in adherence in context. Importantly, since the data were collected in 2013, they may imperfectly describe current practice.

Due to a growing interest in PrEP (see another provider survey on PrEP elsewhere in this issue) and nPEP to help stem HIV transmissions, we find it promising that a large proportion of the HIV care providers surveyed have prescribed these preventive therapies to HIV-negative individuals.

Contributed by Maggie Dorr and Julia Hood

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- 2 Stark R. The Looming Doctor Shortage. Washington Policy Center. Available at <https://www.washingtonpolicy.org/publications/notes/looming-doctor-shortage>. Accessed 9/18/15.

Table 1. Provider characteristics (n=65, unless otherwise noted), Medical Monitoring Project (MMP) Provider Survey, Washington State, 2013-2014

	Frequency	Weighted %	Weighted 95% CI
Race/ethnicity			
White, non-Hispanic	58	89%	78.9, 98.1
Asian	5	7%	0.8, 14.0
Hispanic	2	4%	0.0, 10.9
Age (n=63)			
<40	4	5%	0.0, 10.9
40-50	19	28%	14.1, 41.3
50-60	30	49%	35.6, 62.8
60+	10	18%	5.5, 30.4
Gender (n=64)			
Female	34	50%	34.5, 65.5
Male	30	50%	34.5, 65.5
Sexual orientation (n=63)			
Heterosexual/straight	51	84%	79.7, 88.8
Gay, lesbian, or bisexual	12	16%	11.2, 20.3
Years of practice			
<5	4	6%	0.2, 10.9
5-10	9	11%	5.9, 15.6
10-20	20	31%	20.1, 42.1
20-30	27	44%	30.7, 57.6
>30	5	9%	0.1, 16.8
Number of patients with HIV			
<50	20	33%	21.7, 44.2
50-99	23	35%	23.3, 46.5
100-199	10	15%	4.3, 26.5
200+	12	17%	5.8, 27.7
Profession			
Infectious Disease Physician	30	43%	31.2, 54.1
Other Physician	29	49%	40.4, 58.3
Nurse Practitioner/Physician Assistant	6	8%	3.1, 12.9
HIV Specialist	37	52%	41.4, 61.8

Table 2. Provider time spent with patients (n=65), Medical Monitoring Project (MMP) Provider Survey, Washington State, 2013-2014

	Frequency	Weighted %	Weighted 95% CI
Duration of initial visit (minutes)			
15-29	3	4%	0.0, 13.0
30-44	12	18%	4.7, 31.6
45-59	17	29%	12.1, 46.7
60-74	29	44%	21.4, 65.5
75-90	4	5%	2.3, 7.3
Sufficient time during initial visit			
Always	10	16%	2.8, 28.7
Usually	39	58%	44.4, 71.2
Sometimes	10	15%	6.8, 23.6
Never	6	11%	3.9, 18.6
Duration of follow-up visit (minutes)			
15-24	20	33%	14.3, 51.9
25-34	38	55%	39.7, 70.7
35-45	7	12%	2.0, 21.4
Sufficient time during follow-up visits			
Always	8	15%	2.4, 27.0
Usually	40	57%	47.8, 65.4
Sometimes	15	26%	15.5, 35.7
Never	2	3%	0.0, 7.8

Table 3. Genotypic tests and antiretroviral therapy (ART), Medical Monitoring Project (MMP) Provider Survey, Washington State, 2013-2014

	Frequency	Weighted %	Weighted 95% CI
Percent of providers who order an HIV genotype test for all newly diagnosed patients			
Overall	59	92%	86.1, 98.7
<50 patients with HIV	18	96%	94.2, 98.2
≥50 patients with HIV	41	91%	81.3, 100.0
Percent of providers who prescribe ART to patients with HIV regardless of CD4 level¹			
Overall	54	83%	72.8, 94.0
<50 patients with HIV	15	75%	54.8, 94.4
≥50 patients with HIV	39	88%	75.8, 99.7
Percentage of patients provider currently defers prescribing ART, for any reason			
0%	8	15%	5.4, 23.8
1-10%	37	59%	50.4, 68.0
11-25%	20	26%	15.8, 36.6
Percent of providers who perform the following with most or all HIV-infected patients seen for continuous or repeated care:			
For patients using ART, assess treatment adherence at every visit ²	62	97%	95.9, 97.3
Periodically re-offer ART to those that postponed	57	88%	83.9, 91.9
Discuss the benefit of ART in reducing risk of transmitting HIV to others with those not yet on ART	49	74%	62.9, 85.8
Offer education and advice about tools to increase adherence for patients on ART ²	35	54%	38.1, 70.0
For patients who are non-adherent to ART, refer for supportive services as needed ²	33	49%	37.2, 61.6
Provider does at least 2 of 3 ART adherence activities for most or all patients using ART			
Yes	44	67%	50.2, 83.1

¹ Among patients for whom there are no barriers or contraindications to treatment

² ART adherence activity

Table 4. Plans about future practice, stratified by facility type, Medical Monitoring Project (MMP) Provider Survey, Washington State, 2013-2014

	Ryan White Funded Facility (n=36)	Private Practice (n=17)
Number of patients provider will be able to care for 5 years from now		
Increase	36%	31%
Stay the same	48%	49%
Decrease	15%	9%
Will stop providing care for HIV patients	3%	12%
Provider plans to leave clinical practice within the next 5 years		
No	84%	59%
Yes	8%	9%
Unsure	8%	33%

Table 5. Availability of medication provided by the following prescription drug plans is sufficient to meet my patients' HIV treatment needs, Medical Monitoring Project (MMP) Provider Survey, Washington State, 2013-2014

	Frequency	Weighted %	Weighted 95% CI
ADAP			
Strongly Agree/ Agree	49	84%	70.7, 96.4
Neutral	0	0%	-
Disagree/Strongly Disagree	6	16%	3.6, 29.3
<i>Missing</i>	10	-	-
Medicare			
Strongly Agree/ Agree	40	73%	59.6, 85.5
Neutral	5	7%	5.9, 7.6
Disagree/Strongly Disagree	10	21%	8.5, 33.0
<i>Missing</i>	10	-	-
Medicaid			
Strongly Agree/ Agree	53	91%	89.7, 93.0
Neutral	4	5%	4.0, 5.9
Disagree/Strongly Disagree	3	4%	3.0, 4.4
<i>Missing</i>	5	-	-
Commercial insurance			
Strongly Agree/ Agree	51	85%	82.2, 87.7
Neutral	5	9%	5.1, 12.8
Disagree/Strongly Disagree	5	6%	4.9, 7.3
<i>Missing</i>	4	-	-
Pharmaceutical industry drug assistance plans			
Strongly Agree/ Agree	36	68%	55.1, 80.2
Neutral	9	13%	8.7, 16.9
Disagree/Strongly Disagree	11	20%	8.5, 30.6
<i>Missing</i>	9	-	-

Trends in the distribution of VACS mortality risk score, viral suppression, and CD4 counts among patients receiving HIV care in King County, Washington who participated in the Medical Monitoring Project, 2008-2012

Background

The Veterans Aging Cohort Study (VACS) Index is a weighted score that indicates mortality risk among individuals with HIV. Several diverse clinical cohorts have validated that higher VACS scores are associated with increased mortality risk as well as hospitalization, neurocognitive impairment, and frailty.¹ The score incorporates data on age, sex, race, CD4+ T lymphocyte count, viral load, and indicators of organ system injury. Among Medical Monitoring Project (MMP) participants in King County, Washington, we aimed 1) to evaluate the performance of the VACS Index in predicting mortality, and 2) to assess whether there were changes in VACS scores across MMP cycles.

Methods

MMP is a supplemental HIV surveillance program that collects cross-sectional interview and medical record abstraction (MRA) data on a random sample of persons receiving HIV care. We linked King County participants in the 2008-2012 MMP cycles to core HIV surveillance records using a unique identifier, birth date, and gender. Through this linkage, we identified deaths that occurred after MMP participation. VACS Index scores were calculated using MRA data for each MMP participant. We calculated substitute values for missing data on CD4 count, viral load, hemoglobin, platelet count, AST, ALT, and creatinine using multiple imputation. We present results incorporating imputed data, which were similar to results from complete case analyses. The performance of the VACS Index in predicting mortality was evaluated using area under the curve (AUC) statistics and Cox proportional hazards models. For reference, an AUC of 1 represents a perfect test and 0.50 represents a meaningless test. Differences in mean VACS score by MMP cycle were examined using multivariate linear regression models that adjusted for age, sex, race, nativity, risk transmission category, years since HIV diagnosis, smoking, and injection drug use.

Results

The 2008-2012 King County MMP samples comprised 991 individuals, of whom 46 had died by March 31, 2014. The estimated mortality rate was 2.2 per 100 person-years. Median follow-up time for censored participants was 3.7 years (95% CI 3.6-4.3). The median VACS

score was 16 (range 0-94). A 10-unit increase in VACS score was associated with a 60% increase in mortality risk (HR 1.60, 95% CI: 1.42-1.81, $p < 0.001$). The AUC, which quantifies the ability of the VACS score to predict mortality, was 0.78 (95% CI: 0.77-0.80).

The distribution of VACS scores was similar across MMP cycles (**Figure 1, Panel A**). In multivariate analyses, MMP cycle was not associated with mean VACS score ($p > 0.10$). The percentage of participants with a CD4 count of 500+ cells/mm³ and a suppressed VL (<500 copies/mL) increased from 42% to 58% and from 68% to 82%, respectively, between 2008 and 2012 (**Figure 1, Panel B**). In multivariate analyses, the association between MMP cycle and viral suppression and having a CD4 count of 500+ cells/mm³ strengthened over time. Though this trend did not reach statistical significance in this sample of PLWH in King County, the trend has been confirmed to be statistically significant in analyses of the entire population of PLWH in King County.²

Conclusions

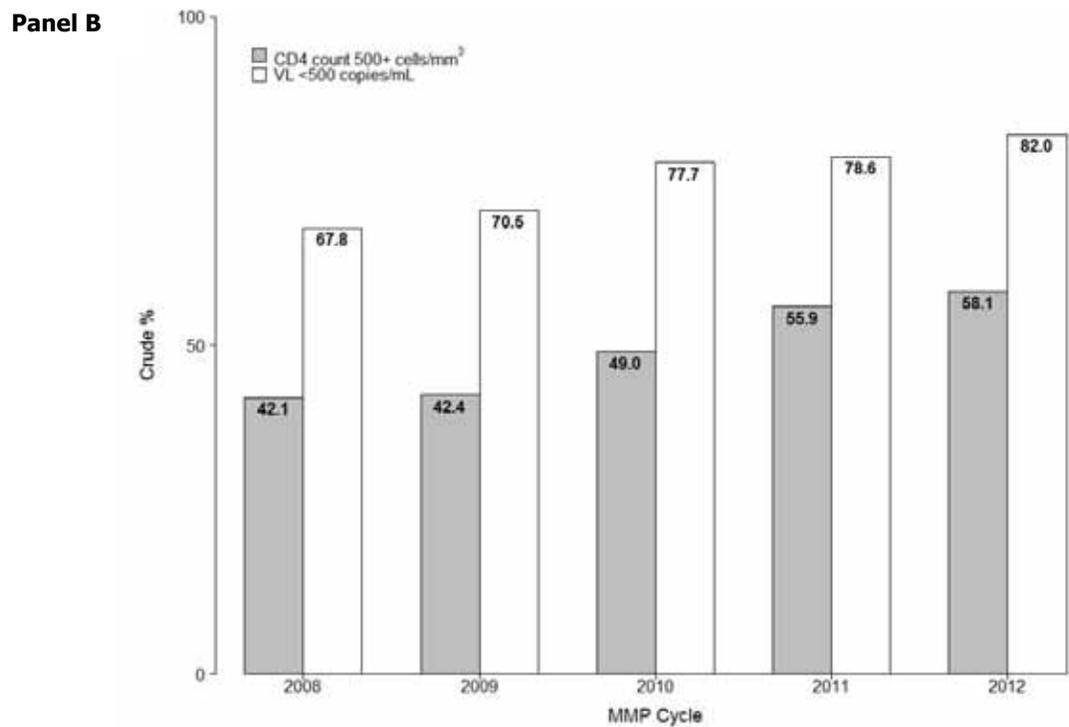
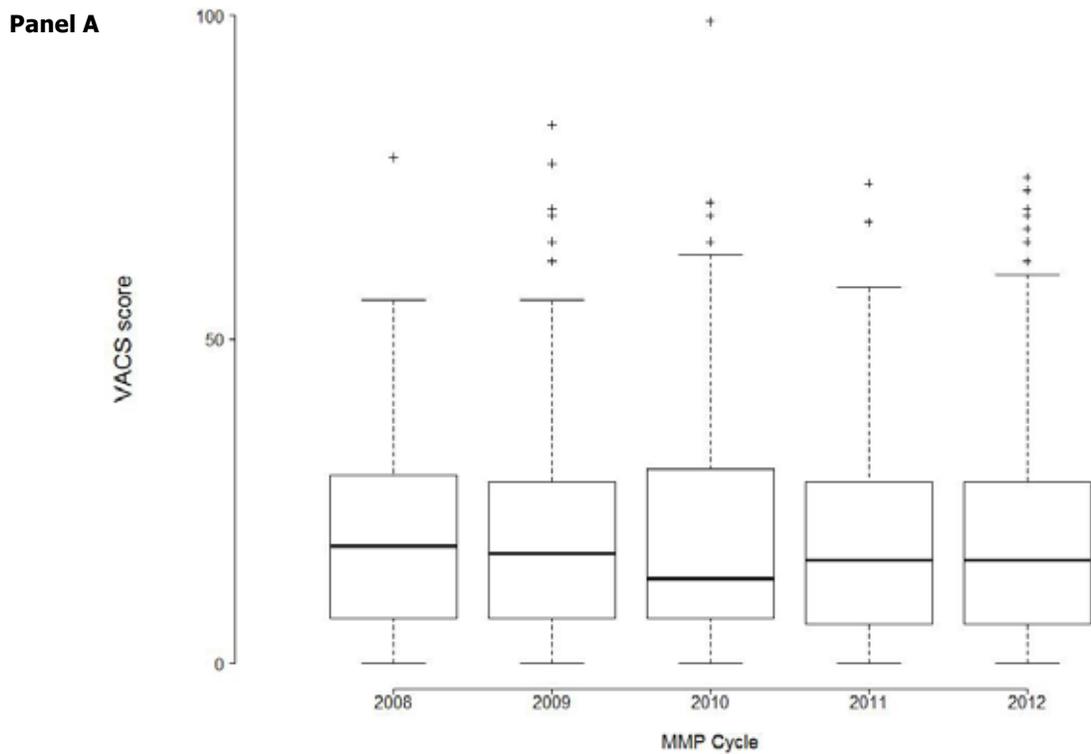
The VACS Index was predictive of mortality risk among adults receiving HIV care in King County. The performance of the VACS score was comparable to that reported for much larger clinical cohort studies.¹ Although we observed improvements in CD4 count and VL across MMP cycles, VACS scores remained stable over time. VACS does take into account shifts in the demographics and age of PLWH. The VACS Index may serve as a more nuanced and conservative indicator of health status than CD4 count and VL measures. Monitoring trends in the distribution of VACS scores in data representative of the underlying PLWH population may be useful for programs that seek to reduce morbidity and mortality risk among PLWH.

Contributed by Alexa Resler and Julia Hood

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Figure 1. Comparison of trends in the distribution of VACS mortality risk score (Panel A) and percentage virally suppressed and with CD4 counts ≥ 500 copies/mL (Panel B) among patients receiving HIV care in King County, Washington who participated in the Medical Monitoring Project, 2008-2012



Receipt of preventive services among persons receiving HIV care in King County, overall and by HIV care facility type, 2009-2012

Background

HIV-related and unrelated preventive care is an essential component of HIV care. Differences between patient populations, resources available, and care reimbursement profiles at HIV care outpatient facilities may impact the delivery of timely and appropriate preventive services. HIV care is provided by a broad range of facilities in King County, including two who are partially funded by the Ryan White Program, which supports access to medical care for low-income HIV-infected individuals. Using data collected by the Medical Monitoring Project (MMP) we assessed the delivery of preventive services to adults (≥ 18 years) receiving HIV care in King County (KC) and evaluated whether any differences were observed by facility type.

Methods

MMP uses a 3-stage sampling design to capture nationally and locally representative population-based surveillance data on patients receiving HIV care. MMP collects data on clinical presentation, treatment, behaviors, and outcomes of HIV-infected individuals using both patient interviews and medical record abstraction. We analyzed cross-sectional MMP interview and medical record data collected in KC from 2009-2012. Facility type was categorized as:

- Ryan White Program (RW)-funded: serving low-income people living with HIV (PLWH),
- LGBT-Friendly: predominantly serving lesbian, gay, bisexual, and transgender (LGBT) patients, and
- Other providers: hospitals, private clinics, managed care organizations, and community health centers.

The following types of preventive services were evaluated, listed here according to whether the receipt of service was based upon self-report or medical record documentation:

- Self-reported: HIV/STI risk reduction counseling, smoking cessation advice.
- Documented in medical records: STI screening (chlamydia, gonorrhea, & syphilis), lipids screening, PCP prophylaxis.
- Self-reported or documented in medical records: cervical cancer screening, influenza vaccination.

For each preventive service, we generated weighted prevalence estimates for KC HIV care patients overall and for each facility category. Multivariate weighted Poisson regression models estimated the relative risk of achieving performance measures, comparing RW-funded to non-RW-funded clinics.

Results

Participants in MMP 2009-2012 were sampled from 21 HIV care facilities. The weighted percent of HIV care patients served by RW-funded, LGBT-friendly, and 'other' facilities was 43%, 19%, and 38%, respectively (**Table 1**). Compared to non-RW-funded facilities, RW-funded facilities served proportionately more patients who were Black, female, less educated, lower income, younger, more recently diagnosed with HIV, and had public or RW-only health insurance. MSM comprised 79% of PLWH receiving medical care in KC; 40% of MSM received HIV care at other facilities, 37% at RW-funded facilities, and 24% at LGBT-friendly providers.

Figure 1 describes receipt of preventive health services in prior 12 months unrelated to sexual health. In summary, 80% (95% CI: 76-85%) of all patients received a flu shot and 69% (95% CI: 63-74%) of all patients underwent lipid screening. Among smokers, 78% (95% CI: 70-85%) reported receipt of smoking cessation counseling. Among patients with CD4 counts < 200 cells/mm³, 79% (95% CI: 69-89%) were prescribed PCP prophylaxis. Among women, 68% (95% CI: 58%-79%) had a Pap test. Receipt of these services did not vary significantly by facility type.

Figure 2 describes receipt of sexual health services among sexually active MSM in the prior 12 months. Half (50%, 95% CI: 43-56%) of sexually active MSM reported receipt of HIV/STI risk reduction counseling. Chlamydia, gonorrhea, and syphilis screening were documented for 29% (95% CI: 23-35%), 31% (95% CI: 25%-36%), and 52% (95% CI: 45-59%) respectively of sexually active MSM. In multivariate analyses that controlled for differences in patient demographics and reported risk behaviors, significant differences were observed by facility type: patients at RW-funded facilities were more likely to receive risk reduction counseling and undergo STD screening than patients at LGBT-friendly clinics and 'other' facilities (**Table 2**).

Conclusions

In KC, the majority of HIV care patients received key preventive services, though there is room for improvement. Among sexually active MSM (79% of our HIV care population), receipt of sexual health services was low, especially at non-RW-funded HIV facilities. There are limitations to this analysis: services provided outside of regular HIV care clinics would not be captured in medical record abstractions (thus underestimating

receipt of service); self-report may be imperfect (under- or overestimating receipt of service); and sexual behavior may be nuanced beyond the data points collected (numbers of partners and condom use). Strategies to further augment preventive care, including sexual health services, should be implemented in all HIV care settings.

Contributed by Dana Meranus and Julia Hood

Table 1. Description of adults receiving HIV care in King County by facility type, 2009-2012

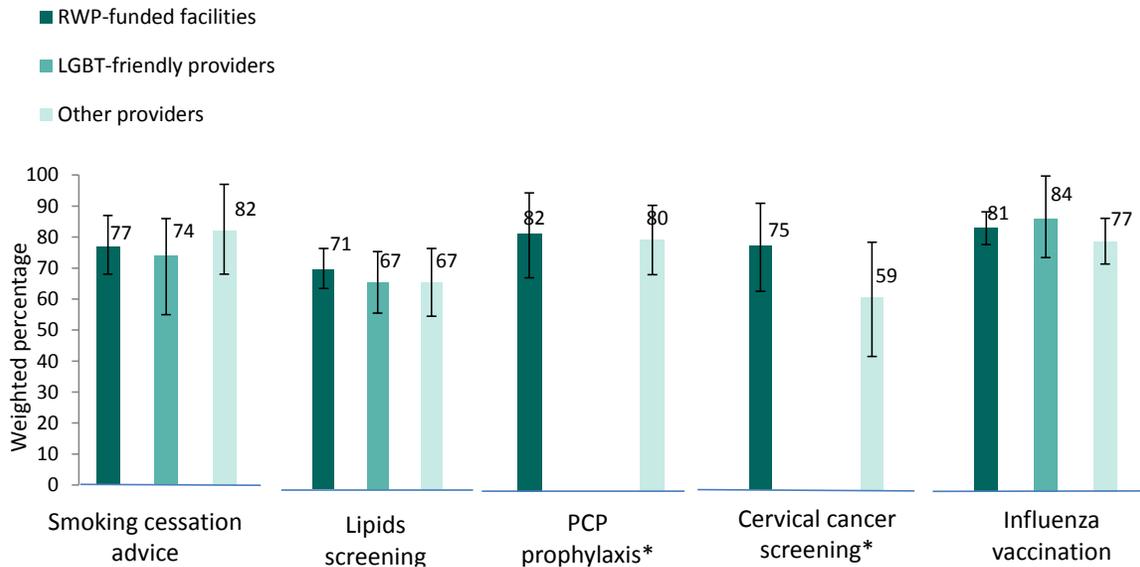
	Ryan White n facilities=2 n respondents=326		LGBT*-friendly n facilities=3 n respondents=123		Other n facilities=16 n respondents=255	
	Weighted % (95% CI)					
Sex†						
Male	85	(80-89)	99	(98-100)	90	(86-92)
Race/ethnicity†						
White	56	(49-62)	83	(75-91)	71	(64-77)
Black	21	(16-26)	--	--	12	(7-17)
Hispanic	11	(7-15)	9	(4-15)	8	(4-12)
Other	12	(7-18)	--	--	9	(6-13)
Age†						
<45 years	53	(46-60)	25	(17-33)	31	(23-40)
Risk group†						
MSM	67	(61-73)	99	(97-100)	83	(78-89)
Educational attainment†						
< 4-year college degree	78	(73-83)	57	(48-67)	68	(60-75)
Nativity†						
Foreign-born	18	(14-23)	--	--	17	(11-24)
Any drug use (12 months)						
Yes	47	(41-53)	44	(32-56)	36	(30-42)
Time since HIV diagnosis†						
<5 years	28	(21-35)	16	(4-27)	13	(7-18)
Federal poverty level†						
<139%	69	(64-75)	16	(11-22)	33	(24-41)
Health insurance status†						
Private only	11	(8-15)	61	(53-69)	47	(37-56)
Any public	74	(69-80)	36	(28-44)	48	(37-59)
Uninsured/Ryan White only	11	(7-15)	--	--	4	(1-8)

† Statistically different at $p < 0.05$, chi-square test

Data are not presented where the coefficient of variation (CV) is $> 30\%$ (indicated by --).

* LGBT=lesbian, gay, bisexual, and transgender

Figure 1. Receipt of preventive care services at HIV care facilities by facility type, in King County, 2009-2012



* Data not reported where CV > 30%

Figure 2. Receipt of sexual health services among sexually active MSM by facility type in King County, 2009-2012

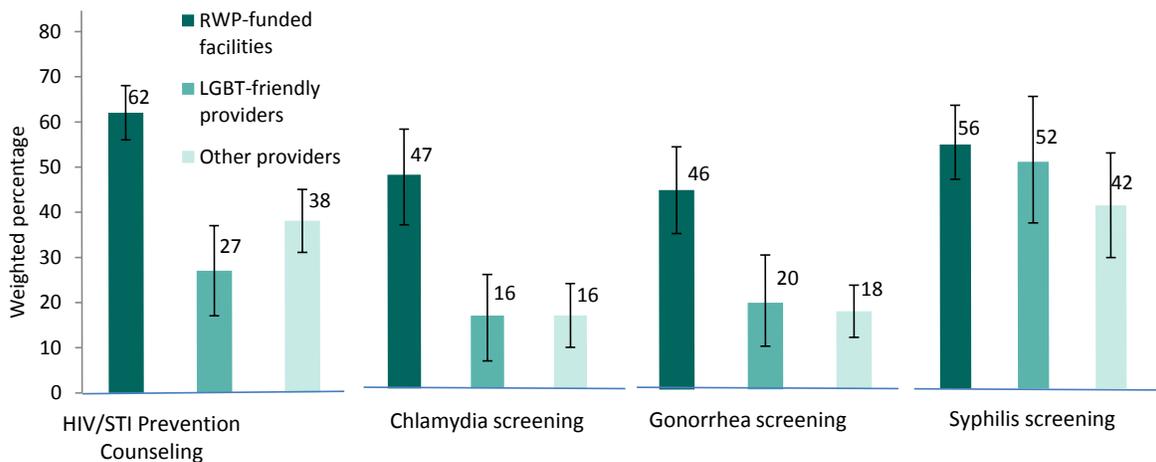


Table 2. Association between facility type and receipt of sexual health services among sexually active MSM, King County (2009-12)

Data source		LGBT*-Friendly† aRR (95% CI)§	Other providers† aRR (95% CI)
Self-report	HIV/STI prevention counseling	0.53 (0.37-0.76)	0.64 (0.50-0.81)
Medical Record	Chlamydia screening	0.32 (0.17-0.62)	0.35 (0.22-0.56)
	Gonorrhea screening	0.41 (0.22-0.74)	0.41 (0.27-0.62)
	Syphilis screening	0.84 (0.61-1.15)	0.70 (0.51-0.96)

† Adjusted for age, race, federal poverty level, unprotected sex, total partners, and drug use. Reference group = Ryan White Program-funded HIV clinic; bolded estimates indicate statistical significance (p<0.05)

* LGTB=lesbian, gay, transgender, & bisexual

§ ARR=adjusted relative risk, CI=confidence interval

King County Sexually Transmitted Disease (STD) Report through June 2015

Table 1: King County STD morbidity by gender and disease §

	2014		2015	
	2014 Q2*	YTD	2015 Q2*	YTD
Gonorrhea (GC)	525	975	680	1344
Men who have sex with Men (MSM)	280	536	355	678
Urethral GC	109	195	129	248
Rectal GC	121	235	171	308
Pharyngeal GC	134	256	155	295
Women (genital only)	130	245	169	356
Men who have sex with women (MSW)	88	141	122	242
Chlamydia (CT)	1865	3700	2036	4097
MSM	304	602	355	729
Urethral CT	117	217	117	229
Rectal CT	175	361	229	467
Women (genital only)	1101	2181	1178	2336
Men who have sex with women (MSW)	349	676	341	701
Syphilis†	103	213	146	291
Primary and secondary	41	93	73	124
Early latent	26	53	39	82
Late+ unknown duration	36	66	33	84
Early* syphilis: MSM	62	132	101	188
Early* syphilis: Women	1	5	2	3
Early* syphilis: MSW	3	6	6	7
Congenital syphilis	0	1	1	1

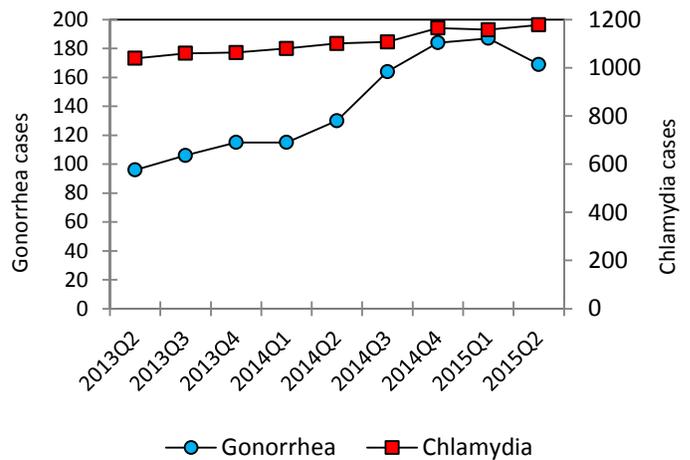
§ <5 cases of GC, CT & syphilis reported in transgender persons in YTD 2015

† Total cases (all stages)

* Includes primary, secondary, and early latent syphilis cases

Figure 1: Quarterly King County STD morbidity, women and men who have sex with women

a. Women (note different scales)



b. Men who have sex with women (note different scales)

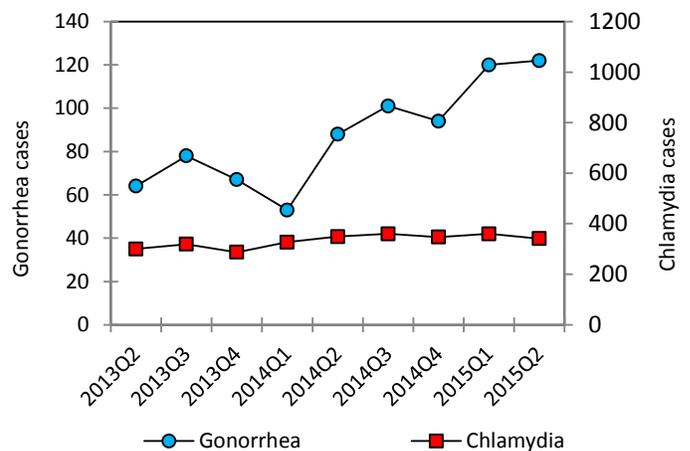
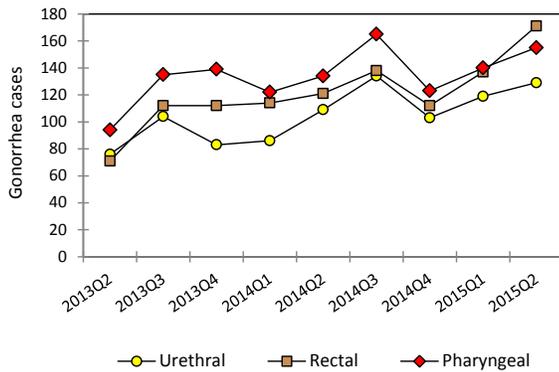
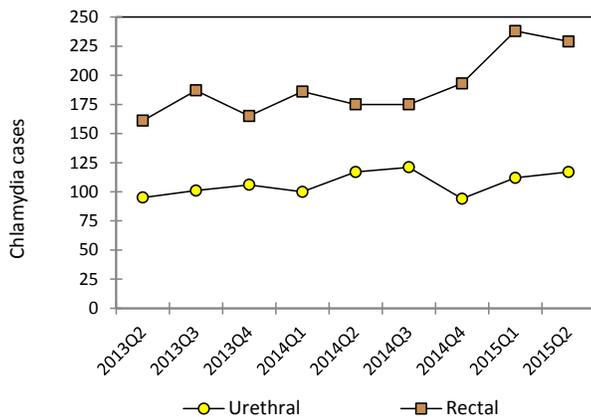


Figure 2: Quarterly King County STD morbidity among Men who have sex with men

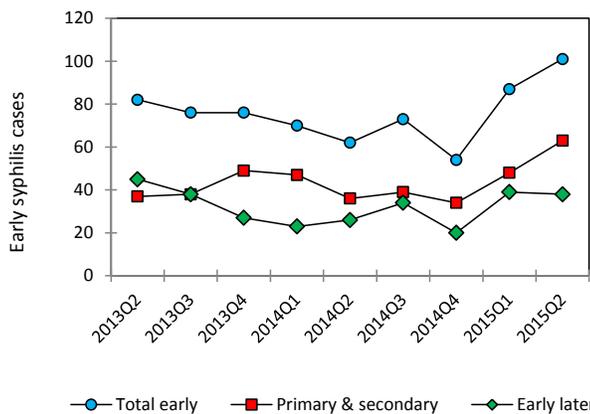
a. Gonorrhea, by site



b. Chlamydia, by site

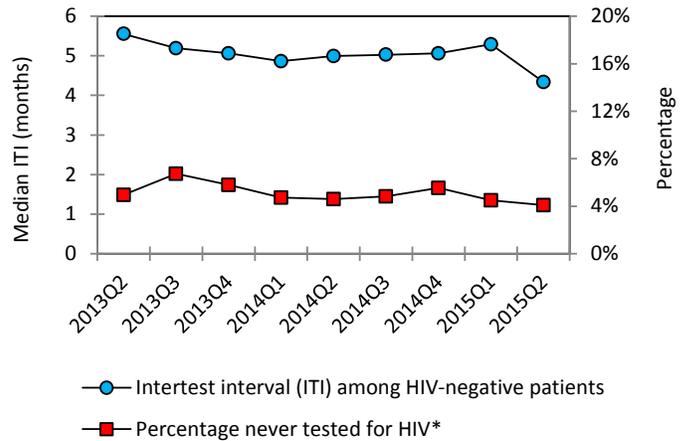


c. Early syphilis*



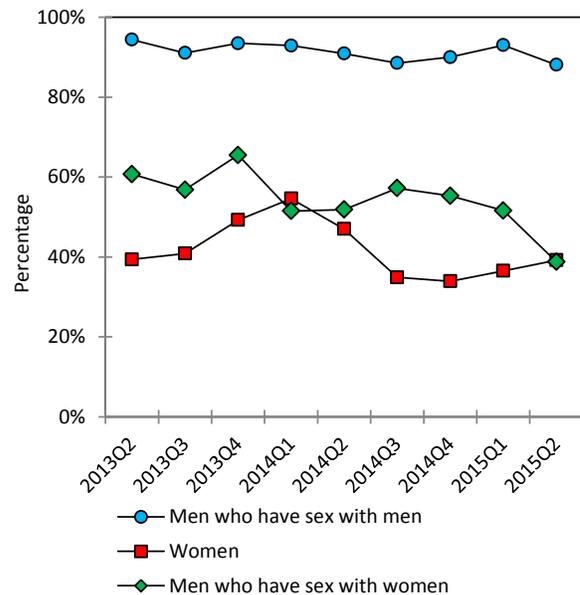
* Early includes primary, secondary, and early latent syphilis cases

Figure 3: HIV testing among PHSKC STD Clinic men who have sex with men (MSM). HIV testing is recommended annually for low-risk MSM and quarterly for high-risk MSM (note different scales)



* Denominator includes patients who reported never testing or negative/unknown results

Figure 4: Percentage of King County residents with a bacterial STD tested for HIV (excludes HIV+ residents). Public health recommends that all individuals diagnosed with a bacterial STD be tested for HIV



The AIDS Malignancy Clinical Trials Consortium (AMC)

The AIDS Malignancy Consortium (AMC) Seattle would like regional HIV providers and oncologists to know about the AMC sponsored research that is being conducted at Harborview Medical Center, the Virginia Mason Medical Center and the PolyClinic. The aim of sharing this information is to establish a connection between the AMC and local clinical providers, and to increase awareness of the AMC sponsored cancer research among providers and HIV+ patients. We hope that this will provide access for your patients to the AMC sponsored research studies. The AMC is enrolling people in several protocols.

The AMC is a National Cancer Institute-supported clinical trials group founded in 1995 to support innovative trials for AIDS-related cancers. The AMC is composed of over 37 clinical trials sites worldwide, five working groups, an administrative office, a statistical office, and an operations and data management office. Collectively, these components develop and oversee the scientific agenda, manage the groups' portfolio of clinical trials and other scientific-based studies, and help to develop new protocols. Four of the working groups deal with the cancers that affect HIV-positive patients—Kaposi's sarcoma, lymphomas, human papillomavirus-related cancers (for example, anal and cervical cancers), and non-AIDS defining cancers (for example, lung cancer, head and neck cancer, liver cancer). The laboratory working group oversees the central laboratories of the AMC and develops laboratory studies to answer important scientific questions related to cancer in HIV-positive patients. In addition, all of the groups within the AMC are working to expand the AMC globally and to conduct clinical trials for AIDS-related cancers in diverse patient populations in the United States, South Africa, Zimbabwe, Uganda, and Kenya. More information on the AMC can be found on the AMC website at <http://pub.emmes.com/study/amc/public/index.htm>

The studies currently enrolling include:

1. Safety and efficacy treatment studies of:
 - Kaposi's sarcoma
 - Non-Hodgkin's lymphoma
 - Hodgkin's lymphoma
 - Advanced solid tumors (histologically confirmed solid malignancy that is metastatic or un-resectable and for which standard curative or palliative measures do not exist or are no longer effective)
 - Non-small cell lung cancer

2. HPV vaccination efficacy in young HIV-positive males (13 to 26 years)
3. The ANCHOR study – an anal cancer prevention trial

The research coordinators/nurses at each participating site are:

1. Virginia Mason Medical Center: Alina Bischin (Research Coordinator), Alina.Bischin@VirginiaMason.org, Office: 206-342-6921; Leila Ponce, CCRP, (Research Coordinator), Leila.Ponce@VirginiaMason.org, Office: 206-342-6926
2. Harborview Medical Center: Lindsay Legg, LPN (Research Coordinator), lmlegg@u.washington.edu, Office: 206-744-8748
3. PolyClinic (ANCHOR Trial only): Gary Brown (Research Coordinator), Gary.Brown@PolyClinic.com, Office: 206-860-4761

Contributed by David Abouafia and Leila Ponce

The REPRIEVE Study: University of Washington (UW) AIDS Clinical Trials Unit

The UW AIDS Clinical Trials Unit is participating in the first-ever large scale clinical trial to test a strategy to prevent cardiovascular disease among people living with HIV, which has been named REPRIEVE. REPRIEVE stands for Randomized Trial to Prevent Vascular Events in HIV. Participants in this trial will be contributing meaningfully to the pursuit of new medical knowledge.

The goal of the REPRIEVE trial will test a strategy to reduce the risk of cardiovascular disease –including heart attack and stroke – among people living with HIV. Previous studies have shown that HIV-infected individuals are at higher risk for cardiovascular disease than individuals without HIV.

Among HIV-infected individuals, cardiovascular disease risk is thought to be influenced by traditional risk factors – such as cigarette smoking, high blood pressure, diabetes, and high cholesterol – and also by factors unique to HIV, such as chronic inflammation. The goal of the REPRIEVE trial is to determine whether treatment with a statin medication (pitavastatin) reduces the risk of cardiovascular disease among HIV-infected individuals with relatively low traditional risk scores and for whom statins would not otherwise be recommended according to US cholesterol treatment guidelines.

Statins are medications which lower cholesterol levels in the blood, but which have also been shown to have anti-inflammatory effects. Statins have already been shown to reduce the risk of cardiovascular disease in the general population among individuals felt to be at high

risk for cardiovascular disease based on traditional risk factors. At the conclusion of the REPRIEVE trial, we will know whether statins reduce the risk of cardiovascular disease among HIV-infected individuals with relatively low traditional risk scores.

To be eligible for the REPRIEVE trial, a participant:

- Must be HIV-infected and between the ages of 40 and 75.
- Must be on antiretroviral therapy (ART) for at least 6 months prior to study entry, with CD4 > 100 and planning to continue ART.
- Must not have a history of cardiovascular disease (including heart attack, stroke, or mini-stroke) or liver cirrhosis.
- Must not already be among those recommended to receive statin therapy according to the 2013 American College of Cardiology/ American Heart Association Guidelines (eligible if LDL <190, triglycerides <500).
- Must not be currently using a statin drug.
- Must not be pregnant or planning a pregnancy during the study.

Participants will be randomized (like flipping a coin) to take either:

- Pitavastatin 4 mg, one pill daily
- Placebo for pitavastatin, one pill daily

Pitavastatin is a statin that has been approved by the US Food and Drug Administration for the treatment of high cholesterol. Not all participants in the trial will have high levels of cholesterol, as per the trial design. Advice on healthy diet and exercise will be given to all participants in the trial. Pitavastatin has been shown to be safe in individuals taking antiretroviral medications. It is strongly recommended that participants in this trial continue to take their prescribed antiretroviral medications.

Participants will have visits approximately every 4 months during the trial. Trial participation for individual participants will be up to 6 years, depending on when someone enters into the trial.

For more information or to schedule a screening appointment, please contact Eric Helgeson at ehelgeso@uw.edu #206-744-8883 or Christine Jonsson at cjonsson@u.washington.edu #206-744-8886.

Contributed by Michael Louella

A CURE-RELATED RESEARCH STUDY

Scientists working on treatment or cure of HIV see a potential to combine these antibodies with latency-reversing agents with the hope of promoting clearance of the viral reservoir. Another approach is to test whether combination of antibodies could provide a long-acting alternative or supplement to daily antiretroviral therapy.

THE VRC01 STUDY

FOR HIV+ PEOPLE
ON MEDS FOR 2 YEARS
WITH AN
UNDETECTABLE VIRAL LOAD

This study is being done to see if an experimental **monoclonal antibody (mAb)** can reduce the number of hidden HIV-infected cells.

Antibodies are a type of protein that helps the human body fight viruses or bacteria infections.

Antibodies can be manufactured like a drug and **infused or injected** into the body for treatment or prevention of diseases.

Monoclonal means that the antibody has been made under controlled conditions, so that all the antibodies in the product are the same.

The goal of this study is to see if VRC01 is **safe and well tolerated** in individuals with HIV who are on HIV medications, and also to see if it **decreases** the number of HIV-infected cells in the blood.

REQUIREMENTS:

- ♥ HIV+ women & men, **18-65 years old**
- ♥ On combination antiretroviral therapy continuously for **at least 2 years** with an **undetectable** viral load
- ♥ T-Cell count **greater than 200**
- ♥ No active **Hepatitis B or C**
- ♥ Not pregnant, planning pregnancy or breast feeding **during the study** and **for 12 weeks after** completion of study drug.
- ♥ Men & women both willing to use contraception during the study and **for 12 weeks after** the last infusion
- ♥ Weight between **117-253 pounds**



Other monoclonal antibodies similar to VRC01 have already been used to treat other diseases like cancer, infections, & autoimmune disorders. This **particular HIV antibody** was discovered in a person living with HIV who was able to keep his/her virus under control **without HIV medications**.

research helps
help research



THE REPRIEVE STUDY

FOR HIV+ PEOPLE ON HIV MEDICATIONS WITH HEALTHY LEVELS OF CHOLESTEROL



REQUIREMENTS

- HIV+ men & women, **40 -75 years old**
- On HIV meds for **at least 6 months**
- CD4 **greater than 100**
- LDL cholesterol **less than 190**
- Triglycerides **less than 500**
- No **liver cirrhosis**
- No history of **stroke** or mini-stroke
- Plan to stay on your meds for the duration of the study
- No **heart disease**
- Not pregnant, breast feeding or planning pregnancy

Even when a person's viral load is very low, HIV infection continues to cause **inflammation** (irritation) inside the body, which may lead to the development of **cardiovascular disease** (CVD).

HIV+ people have an increased risk of developing CVD, yet no proven **preventative strategies** for CVD exist for them. **Statins**, drugs used to lower cholesterol, are widely used by HIV-negative people, but little research has been done to see how HIV+ people on

therapy respond to them.

This investigational study looks at how safe and effective one statin drug,

Pitavastatin® is for people with HIV.

Length of study: up to **6 years**

Pitavastatin® is **FDA-approved** to prevent cardiovascular disease, but it has not yet been approved to treat people living with HIV.

Participants will receive **\$20 for the annual visit**, and **\$10 for the quick visits**



Previous studies have shown that people living with HIV are at **higher risk for cardiovascular disease** than individuals without HIV.

**CALL ERIC HELGESON
206-744-3184
FOR MORE INFO**

CAN WE REDUCE THE RISK OF CVD FOR PEOPLE LIVING WITH HIV?

Among people living with HIV, cardiovascular disease risk is thought to be influenced by traditional risk factors – such as **cigarette smoking, high blood pressure, diabetes, and high cholesterol** – and also by factors unique to HIV, such as **chronic inflammation**. The goal of the REPRIEVE study is to determine whether treatment with a statin medication (pitavastatin) reduces the risk

of cardiovascular disease among HIV+ people with relatively low traditional risk scores and **for whom statins would not otherwise be recommended** according to US cholesterol treatment guidelines.

Statins are medications which lower cholesterol levels in the blood, but which have also been shown to have **anti-inflammatory effects**. Statins

have already been shown to reduce the risk of cardiovascular disease in the general population among people felt to be at high risk for cardiovascular disease based on traditional risk factors. At the conclusion of the REPRIEVE study, we will know whether statins **reduce the risk of cardiovascular disease** among people living with HIV with relatively low traditional risk scores.

*People on ART
now live longer
than they used to, so
now other diseases
and infections are the
leading cause of
death in the
HIV+ population.
This study looks to
prevent CVD.*



A STUDY
TO IMPROVE THE HEALTH
OF PEOPLE
LIVING WITH HIV

THE HCV-LTC STUDY

FOR ALL PEOPLE WITH HEP C
OR WITH HEP C + HIV

In the past few years, there has been a rapid development of new, more effective treatments for **hepatitis C (HCV)**.

And yet, we don't know much about the **long-term outcomes** for people, especially

those living with HIV, who have been treated with these new medicines.

This observational study will help us to understand the impact of **successful OR unsuccessful** Hep C treatment on a person's health over

many years.

It will also help us understand how long **resistance** to new Hep C medications lasts in a person and whether it affects **future Hep C treatments**.

LENGTH OF STUDY:
About 260 weeks (5 years)

SCHEDULE OF STUDY VISITS:
Screening, Entry, then every 6 months for 5 years.

THIS IS AN
OBSERVATIONAL STUDY
AND **DOES NOT**
PROVIDE ANY
MEDICATION.

REQUIREMENTS:

- **Women & men** at least 18 years old who are infected with Hep C **OR** co-infected with Hep C + HIV
- Completed treatment for Hep C within the past 12 months **as part of a clinical trial**
- Not currently on Hep C treatment (you may start a new treatment once you join this study)
- Be willing to make **2 study visits** a year
- **Other requirements** to be discussed.



DID YOU KNOW?

In the United States, hepatitis C is over **4 times more common** than HIV

About 1 in 4 people living with HIV in the US are co-infected with HCV. Co-infection is even more common among HIV+ injection drug users, of whom about 80% also have HCV.

research helps
help research

...HOW WILL I KNOW IF I AM CURED OF HEPATITIS C?

Being cured will prevent the progression of liver fibrosis and can reduce the risk of liver cancer. However, the chance of **being cured depends on a number of elements**, including the virus genotype, your medical history, the extent of your liver damage and how well you respond to treatment.

You are deemed cured if the virus **cannot be detected in your blood six months** after the end of treatment. This is known as a **sustained virologic response, or SVR**. As the number of available treatments for hepatitis C has increased, so has the chance of being cured. However, **not all people**

who undergo treatment will be cured. Some people will not respond to current treatment options. During treatment it is possible that the virus becomes undetectable but returns to detectable levels after the end of the treatment. This is known as a **relapse**.

THE HEP C COMBO STUDY

FOR HIV+PEOPLE LIVING WITH HEPATITIS C

When you have both HIV and Hep C, each disease makes the other one worse. You can get sicker faster, and it is hard to treat both at the same time.

People with both can develop liver damage or liver cancer more quickly than people who have only Hep C.

Our research on the interactions of Hep C and HIV treatment can help people living with these viruses lead a healthier life.

Since our modern HIV meds help people keep HIV under control, **end stage liver disease**, largely due to **hepatitis C**, has emerged as a leading cause of death in people living with HIV.

People with **both HIV and hep C** have had a poor response to previous therapies.

The use of interferon has been particularly problematic for HIV+ people. Limitations like this have led to **low rates of hep C treatment** in people also living with HIV .

The purpose of this study is to see if an investigational **combination therapy of 3 drugs: ABT-450/r (ritonavir) + ABT-267 + ABT-333, + ribavirin (RBV)** will be safe & well-tolerated.

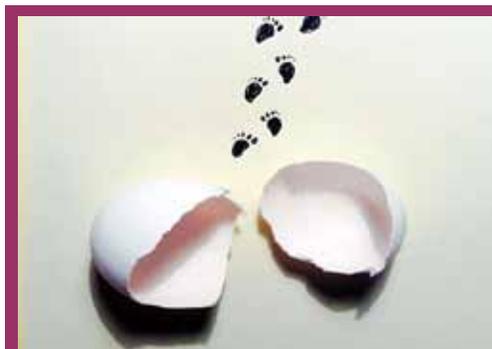
We also want to see if this combination will result in sustained virologic response (*hep C cure*) rates higher than 70%.

Length of Study:
About 48 weeks.

Study Visits:
Screening, Step 1 entry, and weeks 1, 2, 3, 4, 6, 8, 10, 12, 16, 20, 24, 28, 36 and 48

REQUIREMENTS:

- ♥ Men & women 18 yrs & up living with **HIV & hepatitis C (genotype 1)**
- ♥ Must have a **detectable hepatitis C viral load** & a hepatitis C antibody for **more than 6 months**
- ♥ **No previous treatment** for hepatitis C
- ♥ **Undetectable HIV viral load**
- ♥ Must be taking **Isentress®** or **Prezista®** for their HIV
- ♥ **CD4 higher than 200**
- ♥ **No active hepatitis B** infection
- ♥ **Not pregnant**, breast feeding or planning pregnancy —or if you are a male, do not have a partner who is pregnant
- ♥ BMI (body mass index) 18-38



Now that many people are doing well on HIV therapy, **other diseases** are now leading causes of illness & death for people living with HIV. Our studies try to change why this is.



A STUDY
TO IMPROVE THE HEALTH
OF PEOPLE
LIVING WITH HIV

THE ROMIDEPSIN STUDY

FOR HIV+ PEOPLE
WITH AN
UNDETECTABLE
VIRAL LOAD



REQUIREMENTS

- HIV+ men & women, **18 yrs or older**
- CD4+ count is **higher than 300**
- Have an **undetectable** viral load with no blips
- Taking a **Sustiva®** or **Isentress®** based regimen
- No **Hepatitis B** or **C** infection
- Are **not pregnant**, breast feeding or planning pregnancy
- Willing and able to have **an IV infusion** over 4 hours
- White blood cell collection (**3-4 hour procedure**)

This study will test whether **one dose** of an investigational drug called **romidepsin** will wake up the sleeping or hidden HIV in your body and bring it out of hiding.

We will also test whether your body and your HIV medicines will begin to **clear out** the exposed virus from areas in your body where HIV has been stored.

LENGTH OF STUDY:
About **8 to 10** weeks

SCHEDULE OF VISITS:
Screening, Pre-Entry, Entry, Day 1, Day 2, Day 14, Day 28, and possibly Day 56

Participants will receive **\$20.00** per study visit, starting at Pre-Entry.



Interested in helping research find a cure for HIV?

Additional compensation is provided for procedure visits.

Call Eric Helgeson
206-744-3184
for more information
or to schedule
an appointment.

It will be a number of years before these cure experiments are turned into an effective strategy, even if the 'kick and kill' approach turns out to be the right one.

SCIENTISTS TRY 'KICK AND KILL' STRATEGY TO DESTROY HIV

Several different approaches are being tried to halt ongoing infection, but the one that has received the most attention has been the so-called '**kick and kill**' approach.

Initially, **gene-stimulating drugs** are given that 'kick' the normally quiet central memory cells into becoming activated and producing some HIV. The

hope is that by becoming activated, the cells turn into '**effector**' cells with short lives and the so-called **reservoir** of long-term infected cells is drained.

It is possible that, if the reservoir is sufficiently emptied, the body's own **immune system** could keep HIV suppressed in the very few left.

There may need to be further stages where drugs are given that **actively target** and **kill off** the activated reservoir cells, driving their number down still further, and then an **immune therapy** might be given that magnifies the body's natural immune response to HIV and contains the activation of the tiny number of HIV-infected cells that remain.

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**A CURE-RELATED
RESEARCH STUDY**

Sirolimus is a medication that suppresses the immune system. It is usually given to patients after a kidney transplant to prevent their new kidney from being rejected. Sirolimus prevents the activation of T- cells by inhibiting their response to a cytokine (a chemical messenger in the body) called Interleukin-2 (IL-2).



THE SIROLIMUS STUDY

FOR HIV+ PEOPLE
WITH VERY LOW OR
UNDETECTABLE
VIRAL LOAD

Sirolimus (also known as rapamycin) is a chemical that was discovered as a product of bacteria found on Easter Island.

This investigational study looks at the **safety** of sirolimus in people with HIV who are undetectable on HIV meds.

We want to learn whether sirolimus:

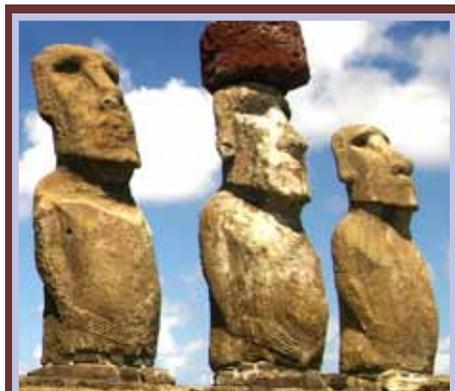
- will decrease **inflammation & immune activation** in the body
- will **change the level of HIV** in your blood

- will **interact** with your HIV meds

Length of study: about 11 months

Sirolimus is approved by the FDA to prevent organ rejection in patients receiving kidney transplants. It has also been used to prevent complications after stem cell transplants and as a treatment for certain kinds of cancers in people living with HIV.

Participants will receive **\$20** for each **regular visit** & **\$10** for each **quick blood draw visit** starting at Entry



This study evaluates an intervention that may have an impact on HIV viral reservoirs, which has implications for HIV cure

REQUIREMENTS

- ♥ HIV+ men & women, **18 years old & up**
- ♥ On combination antiretroviral therapy for **at least 24 months** with very low or an **undetectable** viral load
- ♥ **Not taking** protease inhibitors or cobicistat to treat your HIV
- ♥ T-Cell count **400 or greater**
- ♥ **No active Hepatitis B or C**
- ♥ No untreated latent TB or recent TB
- ♥ **No recent shingles** & not on medicine for shingles
- ♥ Not pregnant or breast feeding during study or for 12 weeks after stopping sirolimus
- ♥ **No history** of cancer

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THE INMIND STUDY

FOR HIV+ PEOPLE
UNDETECTABLE ON MEDS
WITH AT LEAST MILD
NEUROCOGNITIVE IMPAIRMENT



REQUIREMENTS

- ♥ HIV+ men & women, **18 years** & up
- ♥ On meds for 1 year with an **undetectable** viral load (allowed **only one "blip"** in the past 6 months)
- ♥ At least **mild HIV-associated neurocognitive impairment** on tests (done at screening)
- ♥ Able to complete the neuropsychological tests **in English**
- ♥ **No medical condition** (not related to HIV) that may cause cognitive impairment
- ♥ No current **hepatitis C**
- ♥ No prior or current use of any **integrase inhibitor** or **maraviroc**
- ♥ No **active syphilis** or treatment for syphilis
- ♥ Other qualifications to be discussed

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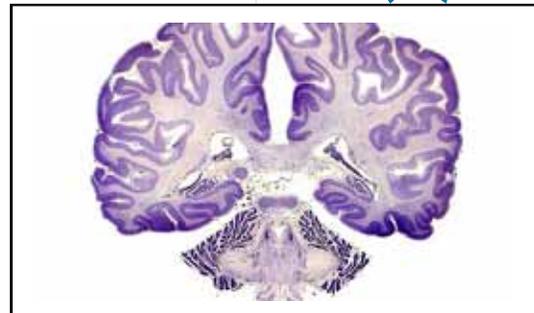
Despite being undetectable, people living with HIV often have cognitive dysfunction (**HIV-associated neurocognitive disorder**, or **HAND**) which includes **asymptomatic neurocognitive impairment (ANI)** and **mild neurocognitive disorder (MND)**.

This investigational study wants to see if adding **maraviroc (MVC)** & **dolutegravir (DTG)** will improve neurocognitive functioning for HIV+ people who have at least **mild neurocognitive impairment**.

Participants will add one of the following to their current therapy:

- **placebos** for both MVC + DTG
- **DTG active drug** +

- MVC placebo
- both **MVC + DTG** active drugs



HIV+ people often have cognitive problems, which may be due to inflammation of the central nervous system

Length of study: about **96 weeks**

People will be assessed with **neurocognitive tests** and **questionnaires** about their daily functioning, with an option to undergo **spinal taps**.

Participants will receive \$20 for each visit, starting at Entry

Additional compensation is provided for procedure visits.

Our CHARTER study also documented the association between immune system functioning and neurocognitive impairment, with lower CD4+ lymphocyte nadirs predicting increased neurocognitive impairment.

Call Eric Helgeson
206-744-3184
for more information or to schedule an appointment.

UW AIDS Clinical Trials Unit

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NO
'MAGIC'
CURE



Join and support
the research effort
to find a cure for HIV –
which, for the first
time in 30+ years
of the epidemic,
is possible.

OUR COMMITMENT TO YOU

A study visit at the **UW AIDS Clinical Trials Unit (ACTU)** includes physical examinations, obtaining a wide variety of often costly laboratory tests, and spending more time with a clinician to answer all your questions.

Our commitment to you is to use your contributions to our studies wisely and respectfully as we monitor and evaluate your physical health and response to any study drug.

This also includes providing you with accurate, up-to-date information about HIV and its effect on your body, and steps you can take to minimize its impact.

We will also keep you informed of any new information about study medications you are taking, and advancements toward a cure or vaccine.

And once the study has been completed, we will share the results with you.

Progress in conquering HIV infection is a team effort, and you are a critical and much appreciated part of that team.

THE ROLE OF RESEARCH STUDIES

HIV clinical trials are carefully designed research studies that involve people and are designed to **answer specific questions** about the safety and effectiveness of **treatment for HIV and related conditions**.

Clinical trials are vitally important because there are **no other direct ways to learn** how different people respond to medications, treatments, or therapeutic approaches..

Clinical trials may **study experimental medications** to treat HIV and AIDS, FDA approved **medications used in new ways or in new combinations**, or medications to prevent or treat related infections. They may also study ways



to help persons manage their HIV medications and the long-term **general health of persons with HIV**.

Results of these studies have helped **establish the standard** for the management of HIV disease and form the **basis of current treatment guidelines**.

HOW HAS MAGIC JOHNSON SURVIVED FOR 20 YEARS?

He got experimental drugs **before** they were released to the general public

...but there were many people who **volunteered for clinical trials** that got the same benefits for new drugs at

This progress in the treatment of HIV+ people has resulted in **dramatic reductions** in AIDS-related deaths in the U.S. and other countries of the developed world.

