hiv/aids

2016 EPIDEMIOLOGY REPORT

WASHINGTON STATE • SEATTLE & KING COUNTY

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

This 85th edition of the HIV/AIDS Epidemiology Report includes data available through the end of June 2016. 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); Leslie Pringle, Luke Syphard, and Shirley Zhang (data management); Jocelyn Castillo (graphics assistance); Teal Bell, Amy Bennett, Richard Burt, Jason Carr, Katelynne Gardner Toren, Julia Hood, Amanda Jones, Claire LaSee, Weiyi Li, Jen Reuer and Christina Thibault (epidemiologists); Julie Dombrowski, Lindley Barbee, David Katz, and Amanda Jones (peer reviewers); 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.

HIV reporting details: HIV and AIDS are reportable to the local health department within three working days. Case report forms are available online (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.

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:

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Alternative formats provided upon request.

To be included on the mailing list or for address corrections,

please call 206-263-2000 or email HIVepi@kingcounty.gov.

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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.

CDC: Centers for Disease Control and Prevention.

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 mm3 – 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 both 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.

DOH: Department of Health (Washington State unless noted otherwise).

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.

PHSKC: Public Health – Seattle & King County.

PLWH/PLWDH: People living with HIV or People Living with Diagnosed HIV (includes people living with AIDS unless otherwise specified).

PLWHA/PLWDHA: People living with HIV/AIDS or People Living with Diagnosed HIV/AIDS.

Rate: Rates are presented per 100,000 population unless otherwise specified.

STI: Sexually transmitted infection.

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

Progress Toward Achieving the Goals of the U.S. National HIV/AIDS Strategy (NHAS) and World Health Organization (WHO) Objectives:

The WHO has established a goal of ensuring that 90% of all persons infected with HIV know of their infection, that 90% of diagnosed persons are on antiretroviral therapy (ART), and that 90% of those on ART are virally suppressed. If each of these objectives is met, 73% of all HIV-infected persons – 81% of all HIV diagnosed persons - will be suppressed. Closely related to this international objective, the U.S. NHAS has established the following goals: 1) reduce new HIV infections, 2) improve health care access and HIV-related health outcomes, and 3) reduce HIV-related disparities. Key prevention interventions designed to achieve these goals include: HIV testing, ensuring that people with HIV receive medical care and are successfully treated with ART, condoms, the use of HIV pre-exposure prophylaxis (PrEP) in people at high-risk for HIV infection, and syringe exchange. This is the first HIV/AIDS Epidemiology Report to include a "dashboard" that summarizes King County's progress toward achieving the NHAS goals as well as additional locally-defined goals.

World Health Organization's 90-90-90 Goal:

King County has achieved WHO's 90-90-90 goal. We estimate that 81% of persons living with HIV in King County are virally suppressed. To date, the only nation in the world to achieve this objective is Sweden. With this report, to our knowledge, King County becomes the first large urban area in the U.S. to report successfully achieving WHO's goal.

NHAS Goal #1: Reduce HIV Infections

- **HIV diagnoses:** The rate of HIV diagnoses is decreasing. Between 2006 and 2015, the HIV diagnosis rate per 100,000 declined from 16 to 12 among King County residents (25% decline), and from 8 to 6 per 100,000 in WA.

- **HIV testing:** The number of MSM, the population most affected by HIV, receiving publicly funded HIV testing in King County continues to increase. Between 2007 and 2015 the number of publicly funded HIV tests among MSM increased from 4,649 to 6,549 (41% increase). Results from the 2014 National HIV Behavioral Surveillance system found that 94% of MSM knew their true HIV status. Additional targeted HIV testing is needed among persons at elevated risk. In 2015, 34% of MSM diagnosed with HIV in 2015 had not been tested in the past 2 years, and 21% of all persons diagnosed with HIV were diagnosed with AIDS within 6 months.

- **PrEP use:** Use of PrEP, particularly among MSM at high risk for HIV infections, continues to increase. The 2016 Pride survey of MSM found that 10% of all HIV uninfected MSM, and 26% of high-risk MSM, reported currently taking PrEP. Results from a 2016 survey of local PrEP providers suggest that 11% of MSM patients were currently taking PrEP, which closely aligns with Pride Survey data and suggests that these estimates are accurate.

- **Safer sex:** In addition to consistent condom use, individuals can reduce the risk of HIV transmission by making decisions about sexual behavior based on their own and their partners' PrEP use, HIV testing frequency, HIV status, and HIV medication use. Most HIV-uninfected MSM in King County have used at least one strategy to reduce their risk of HIV acquisition in the past year. In the 2016 Pride survey, 82% of sexually active MSM reported using any of the following strategies: consistent condom use, serosorting and other seroadaptive behaviors, and/or taking PrEP.

- **Syringe exchange:** Public Health and its partners exchanged approximately 7 million syringes in 2015. A paper published in 2016 by King County epidemiologists found that syringe sharing among PWID decreased from 1993 to 2013, which parallels declining HIV diagnosis rates in this population.

NHAS Goal #2: Improve Health Care Access and HIV-Related Health Outcomes

- **HIV care:** Early linkage and retention in HIV care are associated with better health outcomes. In 2015, nearly all people with a new HIV diagnosis in King County were linked to HIV care within 3 months of their diagnosis (95%), and the vast majority of all HIV-diagnosed persons remained in care (90%).

- **Viral suppression:** Most people in King County with an HIV diagnosis are successfully treated and the time between HIV diagnosis and viral suppression has decreased over time. An estimated 81% of people in King County diagnosed with HIV were virally suppressed. Time from HIV diagnosis to viral suppression continues to decline. Among individuals diagnosed with HIV in 2015, half were virally suppressed within three months of diagnosis; in 2007, it took about five times longer (1.3 years) for half of newly diagnosed people to achieve viral suppression.

- **Homelessness:** Results from a 2014 survey of King County residents in HIV care found that approximately 14% reported homelessness in the past year. This is slightly higher than the 2010-2012 estimate of 11%. Homelessness among persons living with HIV is a critical problem in King County, and an important barrier to ensuring that all HIV-infected persons successfully receive life-saving HIV treatment.

- **HIV/AIDS mortality:** The mortality rates among people living with HIV in King County declined 20% between 2006 and 2015.

NHAS Goal #3: Reduce HIV-Related Disparities

- Addressing disparities in HIV outcomes is a public health priority. For example, viral suppression among transgender individuals (75%) is lower than the estimated level of viral suppression observed among all persons with diagnosed HIV infection (81%). While racial disparities in new HIV diagnoses and viral suppression persist in King County, the magnitude of these disparities is smaller than that observed nationally and there have been recent successes in improving outcomes in some high priority groups. Among MSM, the greatest increase in viral suppression has been among Black MSM.

The Epidemiology of HIV/AIDS in King County and Washington State (WA)

- **New HIV Diagnoses:** In 2015, 446 persons with HIV infection were diagnosed in WA, including 237 persons (53%) diagnosed in King County.

- **HIV Prevalence:** At the end of 2015 there were an estimated 7,071 King County residents and 13,021 WA residents with diagnosed HIV infection. Approximately 0.34% of King County residents and 0.18% of WA residents have been diagnosed with HIV. King County is home to 29% of the WA population, but 52% of persons diagnosed with HIV.

- **Gender:** The vast majority of HIV cases in King County and WA are among men. In King County, approximately 88% of HIV cases are among men, 12% are among women, and <1% are among transgender persons.

- **Men Who Have Sex with Men (MSM):** HIV in King County and WA primarily affects MSM. More than two-thirds of all HIV infected persons are MSM.

- **Race:** HIV disproportionately affects Black individuals. In King County, 7% of residents are Black, but 19% of persons diagnosed with HIV are Black. In WA, these respective estimates are 4% and 17%. The disproportionate impact of HIV on Black persons reflects both an elevated risk of HIV among U.S.-born Blacks and a higher prevalence of HIV among foreign-born Black residents in the state. In King County, 44% of Black individuals with HIV infection are foreign-born (primarily born in sub-Saharan Africa) and 56% are U.S.-born. Among Black HIV-infected persons who are not MSM, 64% were born outside of the U.S.

- **Ethnicity:** HIV disproportionately affects Hispanic and Latino individuals. In King County, nearly 10% of residents are Hispanic or Latino, but 13% of persons diagnosed with HIV are Hispanic or Latino. In WA, these estimates are 12% and 14%, respectively.

- **Nativity:** HIV diagnoses in WA continue to become more concentrated among people born outside of the U.S. In King County, approximately 21% of residents were born outside of the U.S., while 34% of newly reported HIV diagnoses in 2015 were among foreign-born persons.

- **Age:** Most people living with HIV in WA are middle-aged; >60% of people living with diagnosed HIV are age 45 or older. The majority of middle-aged people with HIV acquired HIV and were diagnosed with HIV much earlier in their lives. Only about one-quarter of new HIV diagnoses each year are among persons age 45 or older.

- **Injection Drug Use:** A small proportion of new HIV diagnoses are among persons who inject drugs (PWID). In King County in 2015, 3% of new HIV diagnoses were among PWID who did not report other HIV exposures, and an additional 3% were among MSM who also reported injection drug use.

- **HIV remains a relatively rare infection in King County among U.S.-born residents other than MSM and PWID.** The estimated prevalence of diagnosed HIV infection among people outside of these defined exposure groups is 0.03% among Whites and Asians, 0.22% among Blacks, and 0.02% among Hispanics/Latinos.

PHSKC HIV/STD Program HIV Goals and Evaluation Metrics, 2016 Dashboard

	2020 Goals[1]			King County Data, 2014-2015		
	National	WA State	King County	2014	2015	Current Trend
HIV Prevention						
New HIV diagnoses, rate	↓ 25%	↓ 50%	↓ 25%[12]	13.5/ 100,000	11.6/ 100,000	**On pace to meet goal**
HIV testing						
- Know HIV status, MSM[2]	90%[13]	--	95%	94%	--	**On pace to meet goal**
- Late diagnosis[3]	--	--	20%	23%	22%	**On pace to meet goal**
- No recent testing[4], MSM	--	--	25%	37%	34%	**On pace to meet goal**
PrEP use, high-risk MSM[5]	--	--	50%	9%	26% (2016)	**On pace to meet goal**
Safer sex[6], HIV negative MSM	--	--	85%	77% (2015)	82% (2016)	**On pace to meet goal**
HIV Care, Morbidity, and Mortality[7]						
HIV care						
- Linked to care[8] in 1 month	85%	--	90%	93%	90%	**Goal met**
- Linked to care[8] in 3 months	--	--	95%[14]	94%	95%	**Goal met**
- In HIV care[9]	90%	90%	95%	89%	90%	**On pace to meet goal**
Viral suppression	80%	80%	90%	79%	81%	**Increasing**
Homelessness[10]	<5%	--	<5%	14%	--	**Goal not met**
HIV/AIDS mortality[11]	↓ 33%	↓ 25%	↓ 33% (1.0/100)	1.3/100	1.4/100	**Goal not met**
Disparities: Viral Suppression[7]						
Non-Hispanic White PLWDH	--	Reduce absolute difference by 50%	No difference between groups	81%	84%	**Goal not met**
Non-Hispanic Black PLWDH				72%	75%	
Hispanic/Latino PLWDH				75%	76%	
Transgender PLWDH				71%	75%	

Technical notes:

[1] 2020 goals use 2014 as the baseline;

[2] 2014 data from National HIV Behavioral Surveillance (NHBS-MSM4), the next NHBS-MSM survey will be in 2017;

[3] AIDS within 1 year of HIV diagnosis (see Monitoring Goals of National HIV AIDS Strategy [NHAS] article in this report);

[4] Among MSM with new HIV diagnoses, last HIV test >2 years ago or never tested;

[5] King County, "high-risk MSM" are defined as HIV-uninfected MSM with any: methamphetamine/popper use, 10+ sex partners, non-concordant condomless anal sex, bacterial STI diagnosis in past year (see Pride article);

[6] Defined as sexually active HIV-uninfected MSM who reported any of the following risk reduction strategies: PrEP use, serosorting, consistent condom use, other seroadaptive strategies (see Pride article);

[7] Among HIV-infected persons with diagnosed HIV infection;

[8] Among person with a new HIV diagnosis;

[9] In King County, defined as 1+ HIV care visit in a year (see NHAS article);

[10] Among PLWDH in HIV care, weighted data not available for 2015 (see MMP article);

[11] Age- and lag-adjusted mortality rates per 100 people living with HIV/AIDS (see NHAS article);

[12] The King County 2020 goal of a 25% reduction in the rate of new HIV diagnosis was established prior to initiation of End AIDS Washington, which has a goal of a 50% reduction for the same measure. The King County goal was based on data from 2008 to 2014 (19% decline in rate of new HIV diagnoses) and assumes an accelerated rate of decline with approximately 25% of new HIV cases imported from outside the U.S.

[13] NHAS goal for knowledge of HIV status (90%) is for all persons, not just MSM.

[14] The original King County goal of 85% was increased to 95% due to early achievement of this objective.

Abbreviations:
PrEP, pre-exposure prophylaxis for HIV; PLWDH, people living with diagnosed HIV; MSM, men who have sex with men.

King County

Table 1. People Living with HIV Disease as of December 31, 2015 by residence status, King County

	King County residents at diagnosis, still in King County		OOJ* residents at diagnosis, now in King County		All Cases of HIV Disease		Out-migrants diagnosed in King county but now living out of jurisdiction*	
	No.	%	No.	%	No.	%	No.	%
Total	5,166	100%	1,905	100%	7,071	100%	2,399	100%
Gender Identity								
Male	4,496	87%	1,693	89%	6,189	87.5%	255	63%
Female	632	12%	191	10%	823	11.6%	147	36%
Transgender	38	1%	21	1%	59	0.8%	2	<1%
Current Age								
< 13	13	0%	2	0%	15	0%	2	0%
13 - 24	102	2%	34	2%	136	2%	33	1%
25 - 34	612	12%	289	15%	901	13%	263	11%
35 - 44	1,043	20%	499	26%	1,542	22%	504	21%
45 - 54	1,854	36%	669	35%	2,523	36%	910	38%
55+	1,542	30%	412	22%	1,954	28%	687	29%
Race and Hispanic Origin								
White	3,140	61%	1,140	60%	4,280	61%	1,691	70%
Black	959	19%	369	19%	1,328	19%	338	14%
- U.S.-Born Black	474	9%	250	13%	724	10%	225	9%
- Foreign-Born Black	457	9%	106	6%	563	8%	103	4%
Hispanic (all races)	653	13%	261	14%	914	13%	227	9%
- U.S.-Born Hispanic	207	4%	128	7%	335	5%	129	5%
- Foreign-Born Hispanic	400	8%	117	6%	517	7%	86	4%
Asian	256	5%	49	3%	305	4%	53	2%
Native Hawaiian / Pacific Islander	19	0%	6	0%	25	0%	4	0%
American Indian / Alaska Native	50	1%	11	1%	61	1%	26	1%
Multiple Race	89	2%	69	4%	158	2%	60	3%
Exposure Category by Sex Assigned at Birth								
Male only:								
- Male / Male Sex (MSM)	3,479	67%	1,266	66%	4,745	67%	1,733	72%
- Injecting Drug Use (IDU)	131	3%	67	4%	198	3%	56	2%
- MSM and IDU	365	7%	231	12%	596	8%	278	12%
- Heterosexual Contact	149	3%	49	3%	198	3%	38	2%
- Pediatric	11	0%	7	0%	18	0%	4	0%
- Transfusion / Hemophiliac	13	0%	4	0%	17	0%	4	0%
- No Identified Risk	386	7%	87	5%	473	7%	96	4%
Female only:								
- Injecting Drug Use	72	1%	32	2%	104	1%	33	1%
- Heterosexual Contact	386	7%	118	6%	504	7%	121	5%
- Pediatric	21	0%	7	0%	28	0%	3	0%
- Transfusion / Hemophiliac	9	0%	2	0%	11	0%	2	0%
- No Identified Risk	144	3%	35	2%	179	3%	31	1%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of June 30, 2016.
* OOJ=out of jurisdiction; Outmigrants are people diagnosed with HIV in King County but now are living out of jurisdiction

Table 2. New HIV Cases, King County, 2010-2015

	New HIV Diagnoses									Late HIV Diagnoses
Year of HIV diagnosis:	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2011-2015**			**2010-2014***
	No.	**No.**	**No.**	**No.**	**No.**	**No.**	**No.**	**%**	**Rate**	**%**
Total	322	272	286	252	272	237	1,319	100%	13.3	27%
Gender Identity										
Male	282	237	234	213	229	204	1117	85%	22.5	26%
Female	35	33	48	38	39	31	189	14%	3.8	33%
Transgender	5	2	4	1	4	2	13	1%	---	27%
Age at HIV Diagnosis										
< 13	1	3	4	3	0	2	12	1%	0.8	0%
13 - 24	49	42	42	32	42	32	190	14%	13.1	14%
25 - 34	105	86	97	72	89	83	427	32%	26.4	22%
35 - 44	88	67	81	81	61	56	346	26%	23.1	28%
45 - 54	59	48	42	47	54	43	234	18%	16.3	37%
55+	20	26	20	17	26	21	110	8%	4.6	45%
Race and Hispanic Origin										
White	200	150	165	130	127	108	680	52%	10.8	24%
Black	39	55	57	53	68	60	293	22%	47.5	31%
- *U.S.-Born Black*	*26*	*25*	*25*	*20*	*29*	*25*	*124*	*9%*	---	*23%*
- *Foreign-Born Black*	*13*	*30*	*32*	*31*	*37*	*26*	*156*	*12%*	---	*38%*
Hispanic (all races)	53	44	31	40	31	39	185	14%	19.7	27%
- *U.S.-Born Hispanic*	*22*	*19*	*5*	*12*	*8*	*11*	*55*	*4%*	---	*17%*
- *Foreign-Born Hispanic*	*28*	*23*	*21*	*27*	*21*	*23*	*115*	*9%*	---	*32%*
Asian	15	16	19	15	33	26	109	8%	7.2	33%
Native Hawaiian / Pacific Islander	1	2	1	4	2	2	11	1%	14.2	60%
American Indian / Alaska Native	4	0	0	3	5	0	8	1%	12.2	58%
Multiple Race	10	5	13	7	6	2	33	3%	7.7	27%
Exposure Category by Sex Assigned at Birth										
Male only:										
- Male / Male Sex (MSM)	235	177	170	161	169	153	830	63%	---	23%
- Injecting Drug Use (IDU)	7	6	6	4	4	5	25	2%	---	48%
- MSM and IDU	21	28	27	17	16	7	95	7%	---	17%
- Heterosexual Contact	6	2	3	3	3	4	15	1%	---	59%
- Pediatric	0	3	1	2	0	1	7	1%	---	17%
- Transfusion / Hemophiliac	0	0	0	0	0	0	0	0%	---	---
- No Identified Risk	18	23	31	27	40	36	157	12%	---	45%
Female only:										
- Injecting Drug Use	6	4	6	1	4	2	17	1%	---	19%
- Heterosexual Contact	22	13	15	14	6	11	59	4%	---	37%
- Pediatric	1	1	2	0	1	1	5	<1%	---	40%
- Transfusion / Hemophiliac	0	0	0	0	0	0	0	0%	---	---
- No Identified Risk	6	15	25	23	29	17	109	8%	---	32%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of June 30, 2016.

Rates are per 100,000 residents.

* Late HIV diagnoses are those with an AIDS diagnosis within 12 months of their HIV diagnosis and are based on new HIV cases diagnosed between 2010 and 2014

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

	Proportion of Cases with Select Characteristic at HIV Diagnosis						
Characteristic:	**Male***	**Age>34 years**	**MSM***	**Heterosexual**	**Late HIV Diagnosis****	**Total**	
	%	**%**	**%**	**%**	**%**	**No.**	**%**
U.S.-Born***							
White	94%	54%	87%	2%	23%	569	71%
Black	89%	35%	73%	10%	23%	124	15%
Hispanic (all races)	93%	38%	85%	0%	17%	55	7%
Asian	91%	36%	73%	0%	29%	11	1%
Native Hawaiian / Pacific Islander	100%	38%	100%	0%	71%	8	1%
American Indian / Alaska Native	83%	67%	67%	0%	60%	6	1%
Multiple Race	97%	26%	90%	0%	26%	31	4%
Total	93%	49%	84%	3%	24%	804	100%
Foreign-Born***							
White	84%	50%	66%	9%	26%	44	11%
Black	40%	67%	7%	15%	38%	156	38%
Hispanic (all races)	89%	51%	70%	9%	32%	115	28%
Asian	80%	56%	48%	13%	35%	94	23%
Native Hawaiian / Pacific Islander	100%	67%	100%	0%	33%	3	1%
American Indian / Alaska Native	---	---	---	---	---	0	0%
Multiple Race	50%	50%	50%	50%	50%	2	0%
Total	68%	58%	41%	12%	34%	414	100%

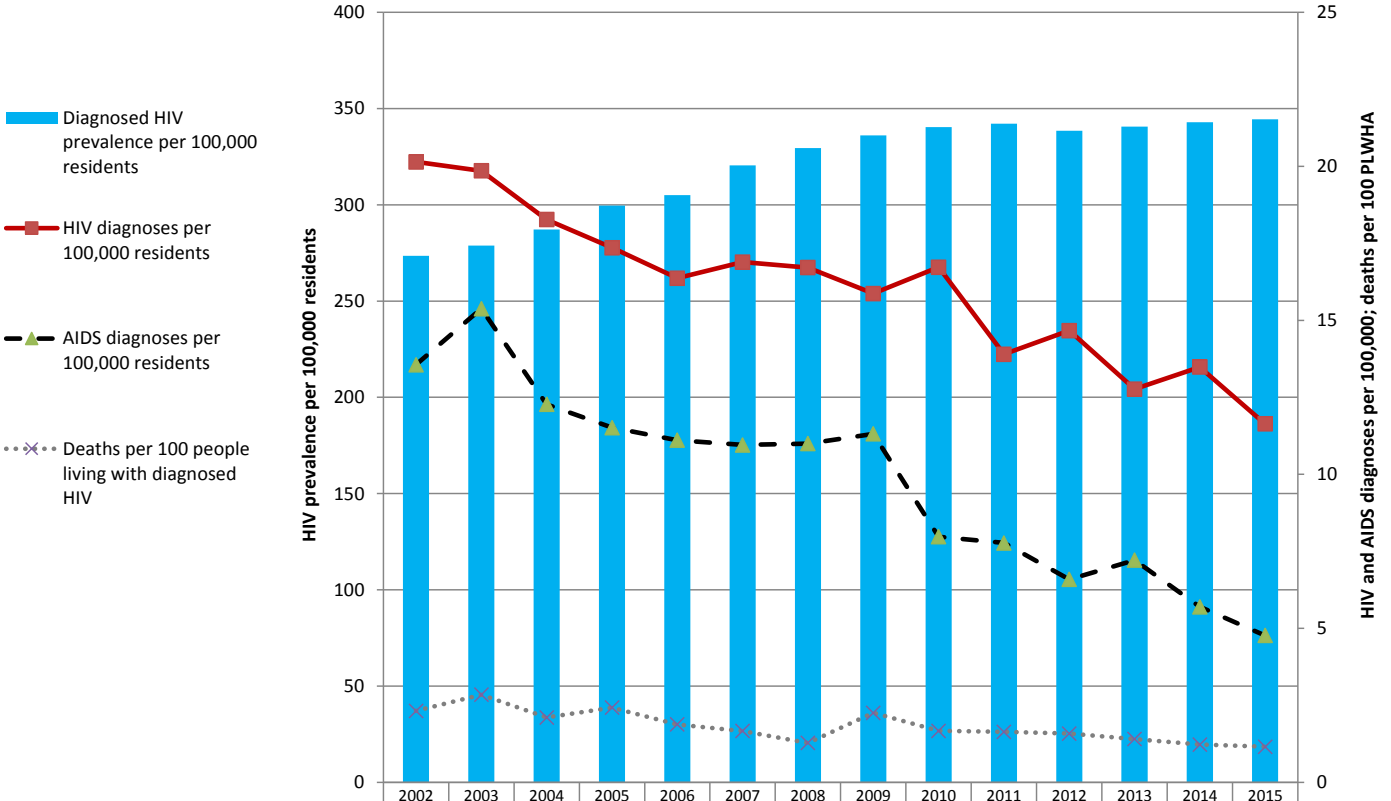
All HIV/AIDS surveillance data reported to the Washington State Department of Health as of June 30, 2016.

* Cases assigned male at birth

** Late HIV diagnoses are defined by an AIDS diagnosis within one year of HIV diagnosis and are based on new HIV cases diagnosed between 2010 and 2014.

*** Selection excludes 101 cases for which we do not have information about their foreign born status.

Figure 1. King County HIV diagnoses, AIDS diagnoses, deaths, and people living with diagnosed HIV/AIDS rates, 2002-2015



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Diagnosed HIV prevalence per 100,000 residents	273.5	278.8	287.2	299.6	305.0	320.4	329.5	336.1	340.3	342.1	338.5	340.6	342.8	344.4
HIV diagnoses per 100,000 residents	20.1	19.9	18.3	17.4	16.4	16.9	16.7	15.9	16.7	13.9	14.7	12.8	13.5	11.6
AIDS diagnoses per 100,000 residents	13.6	15.4	12.3	11.5	11.1	11.0	11.0	11.3	8.0	7.8	6.6	7.2	5.7	4.8
Deaths per 100 people living with diagnosed HIV	2.3	2.8	2.1	2.4	1.9	1.7	1.3	2.3	1.7	1.6	1.6	1.4	1.2	1.2

Table 4. AIDS diagnoses and cumulative deaths, King County

	Recent AIDS Diagnoses			Cumulative AIDS Diagnoses		Cumulative Deaths*	
	2011-2015			1981-2015		1981-2015	
	No.	%	Rate	No.	%	No.	%
Total	688	100%	7.0	8,822	100%	5,110	100%
Gender Identity							
Male	525	83%	10.6	8,140	92%	4903	94%
Female	105	17%	2.1	692	8%	283	5%
Transgender	6	1%	---	37	0%	11	0%
Age at AIDS Diagnosis						**Age at Death**	
< 13	0	0%	0.0	14	0%	7	0%
13 - 24	36	6%	2.5	287	3%	37	1%
25 - 34	146	23%	9.0	3,018	34%	1142	22%
35 - 44	167	26%	11.2	3,520	40%	2095	40%
45 - 54	195	31%	13.5	1,524	17%	1213	23%
55+	92	14%	3.8	506	6%	703	14%
Race and Hispanic Origin							
White	323	51%	5.1	6,341	71%	4090	79%
Black	160	25%	25.9	1,250	14%	563	11%
Hispanic (all races)	76	12%	8.1	760	9%	297	6%
Asian	42	7%	2.8	212	2%	69	1%
Native Hawaiian / Pacific Islander	7	1%	9.1	25	0%	10	0%
American Indian / Alaska Native	6	1%	9.1	106	1%	64	1%
Multiple Race	22	3%	5.1	175	2%	104	2%
Exposure Category by Sex Assigned at Birth							
Male only:							
- Male / Male Sex (MSM)	348	55%	---	6,187	70%	3754	72%
- Injecting Drug Use (IDU)	27	4%	---	370	4%	257	5%
- MSM and IDU	58	9%	---	936	11%	599	12%
- Heterosexual Contact	11	2%	---	188	2%	56	1%
- Pediatric	1	0%	---	7	0%	4	0%
- Transfusion / Hemophiliac	0	0%	---	65	1%	55	1%
- No Identified Risk	86	14%	---	424	5%	188	4%
Female only:							
- Injecting Drug Use	15	2%	---	165	2%	111	2%
- Heterosexual Contact	45	7%	---	418	5%	136	3%
- Pediatric	2	0%	---	23	0%	4	0%
- Transfusion / Hemophiliac	1	0%	---	11	0%	18	0%
- No Identified Risk	42	7%	---	75	1%	15	0%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of June 30, 2015.
Rates are per 100,000 residents.
* Includes 287 cases with an HIV-only Diagnosis and 4910 AIDS Cases. HIV was indicated as a cause of death for 74%

Table 5. People Living with HIV Disease as of December 31, 2015, King County

	HIV (not AIDS)			AIDS			All Cases of HIV Disease		
	No.	**%**	**Rate**	**No.**	**%**	**Rate**	**No.**	**%**	**Rate**
Total	3,344	100%	162.9	3,727	100%	181.6	7,071	100%	344.5
Gender Identity									
Male	2,936	88%	286.5	3,253	87%	317.4	6,189	88%	603.9
Female	380	11%	37.0	443	12%	43.1	823	12%	80.1
Transgender	28	1%	---	31	1%	---	59	1%	---
Current Age									
< 13	14	0%	4.4	1	0%	0.3	15	0%	4.8
13 - 24	114	3%	38.2	22	1%	7.4	136	2%	45.6
25 - 34	640	19%	186.8	261	7%	76.2	901	13%	262.9
35 - 44	878	26%	290.6	664	18%	219.8	1,542	22%	510.4
45 - 54	1,022	31%	356.2	1,501	40%	523.1	2,523	36%	879.3
55+	676	20%	133.1	1,278	34%	251.7	1,954	28%	384.8
Race and Hispanic Origin									
White	2,077	62%	164.5	2,203	59%	174.5	4,280	61%	339.0
Black	597	18%	460.9	731	20%	564.4	1,328	19%	1025.3
- *U.S.-Born Black*	*325*	*10%*	---	*399*	*11%*	---	*724*	*10%*	**---**
- *Foreign-Born Black*	*242*	*7%*	---	*321*	*9%*	---	*563*	*8%*	**---**
Hispanic (all races)	417	12%	206.7	497	13%	246.3	914	13%	453.0
- *U.S.-Born Hispanic*	*166*	*5%*	---	*169*	*5%*	---	335	5%	**---**
- *Foreign-Born Hispanic*	*220*	*7%*	---	*297*	*8%*	---	*517*	*7%*	**---**
Asian	142	4%	43.7	163	4%	50.2	305	4%	93.9
Native Hawaiian / Pacific Islander	9	0%	53.7	16	0%	95.6	25	0%	149.3
American Indian / Alaska Native	24	1%	180.0	37	1%	277.5	61	1%	457.5
Multiple Race	78	2%	84.2	80	2%	86.3	158	2%	170.5
Exposure Category by Assigned Sex at Birth									
Male only:									
- Male / Male Sex (MSM)	2,390	71%	---	2,355	63%	---	4,745	67%	---
- Injecting Drug Use (IDU)	57	2%	---	141	4%	---	198	3%	---
- MSM and IDU	231	7%	---	365	10%	---	596	8%	---
- Heterosexual Contact	60	2%	---	138	4%	---	198	3%	---
- Pediatric	14	0%	---	6	0%	---	20	0%	---
- Transfusion / Hemophiliac	4	0%	---	11	0%	---	15	0%	---
- No Identified Risk	205	6%	---	268	7%	---	473	7%	---
Female only:									
- Injecting Drug Use	36	1%	---	68	2%	---	104	1%	---
- Heterosexual Contact	217	6%	---	287	8%	---	504	7%	---
- Pediatric	20	1%	---	8	0%	---	28	0%	---
- Transfusion / Hemophiliac	4	0%	---	7	0%	---	11	0%	---
- No Identified Risk	106	3%	---	73	2%	---	179	3%	---

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of June 30, 2016.
Rates are per 100,000 residents.

Table 6. Living HIV Cases* by Exposure Category, Sex Assigned at Birth and Race/Ethnicity as of December 31, 2015, King County

	White		Black		Hispanic		Asian		American Indian/ Alaska Native	
Exposure Category	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Males:										
Male / Male Sex (MSM)	3,343	82%	444	50%	627	75%	184	70%	25	60%
Injecting Drug Use (IDU)	92	2%	58	7%	31	4%	6	2%	5	12%
MSM and IDU	429	11%	60	7%	63	8%	8	3%	8	19%
Heterosexual Contact	48	1%	108	12%	34	4%	7	3%	0	0%
Pediatric	4	0%	11	1%	1	0%	2	1%	0	0%
Transfusion / Hemophiliac	13	0%	2	0%	0	0%	0	0%	0	0%
No Identified Risk	125	3%	200	23%	81	10%	55	21%	4	10%
Total Males	**4,054**	100%	**883**	100%	**837**	100%	**262**	100%	**42**	100%
Females:										
Injecting Drug Use (IDU)	59	26%	26	6%	4	5%	1	2%	9	47%
Heterosexual Contact	133	59%	273	61%	56	73%	24	56%	9	47%
Pediatric	4	2%	21	5%	2	3%	1	2%	0	0%
Transfusion / Hemophiliac	2	1%	8	2%	0	0%	1	2%	0	0%
No Identified Risk	28	12%	117	26%	15	19%	16	37%	1	5%
Total Females	**226**	100%	**445**	100%	**77**	100%	**43**	100%	**19**	100%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of June 30, 2016.

* Table excludes 25 Native Hawaiian and Pacific Islander cases due to small numbers. Also excluded are 158 cases reported as belonging to more than one racial or ethnic group.

Table 7. HIV among men who have sex with men (MSM) and all HIV cases, King County

	New HIV Diagnoses (2011-2015)				MSM HIV Cases Presumed Living in King County at the end of 2015	
	MSM HIV Cases		All HIV Cases			
	No.	%	No.	%	No.	%
Total	925	100%	1,319	100%	5,341	100%
Race and Hispanic Origin						
White	574	62%	680	52%	3,772	71%
Black	108	12%	293	22%	504	9%
Hispanic (all races)	142	15%	185	14%	690	13%
Asian	56	6%	109	8%	192	4%
Native Hawaiian / Pacific Islander	11	1%	11	1%	20	0%
American Indian / Alaska Native	5	1%	8	1%	33	1%
Other/Unknown	29	3%	33	3%	130	2%
Injection Drug Use						
Yes	95	10%	137	10%	596	11%
No	289	31%	385	29%	2,691	50%
Unknown	541	58%	797	60%	2,054	38%
Age at HIV Diagnosis					**Age at end of 2015**	
< 13	0	0%	12	1%	0	0%
13 - 24	161	17%	190	14%	83	2%
25 - 34	320	35%	427	32%	704	13%
35 - 44	242	26%	346	26%	1,113	21%
45 - 54	141	15%	234	18%	1,955	37%
55+	61	7%	110	8%	1,486	28%
Foreign-born Status						
U.S.-born	678	73%	804	61%	4,454	83%
Foreign-born	170	18%	414	31%	630	12%
Unknown	77	8%	101	8%	257	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

	New HIV Diagnoses (2006-2015)				Transgender HIV Cases Presumed Living in King County at the end of 2015	
	Transgender HIV Cases		All HIV Cases			
	No.	%	No.	%	No.	%
Total**	27	100%	2,872	100%	59	100%
Race and Hispanic Origin						
White	14	52%	1,577	55%	27	46%
Black	3	11%	568	20%	9	15%
Hispanic (all races)	7	26%	421	15%	17	29%
Other/Unknown	3	11%	306	11%	6	10%
Injection Drug Use						
Yes	6	22%	315	11%	16	27%
No	10	37%	1,348	47%	25	42%
Unknown	11	41%	1,209	42%	18	31%
Age at HIV Diagnosis					**Age at end of 2015**	
< 13	0	0%	21	1%	0	0%
13 - 24	6	22%	400	14%	2	3%
25 - 34	10	37%	926	32%	13	22%
35 - 44	6	22%	784	27%	12	20%
45 - 54	5	19%	510	18%	21	36%
55+	0	0%	231	8%	11	19%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of June 30, 2016.

* Identification of individuals that describe themselves as transgender relies on review of information in medical records and/or self-disclosure during partner services interviews, gender identity 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 that identified as transgender, 93% of HIV cases diagnosed 2006-2015 and 94% of persons presumed to be living in King County at the end of 2015 were assigned male at birth.

Table 9. Characteristics and HIV prevalence among participants in Seattle area National HIV Behavioral Surveys, 2013-2015

	2015		2014		2013	
	Injection Drug Users (IDU)		Men who have sex with men (MSM)		Heterosexuals	
Total N	535		503		401	
HIV seropositive	5% (26/533)		17% (81/479)		1% (3/401)	
MSM/IDU HIV positive	22% (13/59)		48% (15/31)		n/a	
HIV + unaware of status*	15% (4/26)		7% (6/81)		33% (1/3)	
	Total	**% HIV+**	**Total**	**% HIV+**	**Total**	**% HIV+**
Age (years)						
18-29	24%	2%	33%	8%	25%	0%
30-39	23%	9%	28%	18%	20%	2%
40-49	23%	6%	20%	23%	29%	1%
50+	29%	4%	20%	23%	26%	0%
Gender						
Male	64%	6%	100%	17%	62%	<1%
Female	36%	3%	n/a	-	38%	1%
Race/ethnicity						
White, non-Hispanic	66%	5%	62%	18%	16%	0%
Black, non-Hispanic	9%	6%	8%	13%	64%	1%
Hispanic	9%	4%	17%	13%	6%	0%
Other race	4%	0%	5%	18%	5%	0%
Multiracial	12%	8%	8%	27%	10%	0%
Previous 12 months						
Number of sex partners:						
0	18%	3%	n/a	-	n/a	-
1	32%	4%	18%	13%	18%	1%
2 to 4	34%	5%	30%	18%	37%	0%
5 to 9	8%	0%	22%	8%	18%	1%
10+	9%	15%	31%	25%	27%	1%
Male-male sex	11%	22%	100%	17%	n/a	-
STD diagnosis	5%	15%	17%	32%	8%	0%
Popper use	n/a	-	33%	26%	n/a	-
Amphetamine use (non-injection)	60%	5%	15%	44%	8%	0%
Amphetamine injection (any)	65%	6%	5%	54%	n/a	-
Injection drug use	100%	5%	6%	48%	n/a	-
Drug most frequently injected						
Heroin	67%	3%	30%	25%	n/a	-
Speedball	7%	3%	0%	0%	n/a	-
Cocaine	<1%	0%	0%	0%	n/a	-
Amphetamine	19%	10%	70%	63%	n/a	-
Other drug (mostly Heroin + meth)	6%	9%	n/a	-	n/a	
Receptive needle sharing	**38%**	**3%**	**19%**	**50%**	**n/a**	**-**

* By self-report

Table 10. New HIV Cases, Washington State, 2010-2015

	Newly Diagnosed Cases of HIV Disease								
Year of HIV diagnosis:	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2011-2015**		
	No.	**No.**	**No.**	**No.**	**No.**	**No.**	**No.**	**%**	**Rate**
Total	557	495	510	457	443	446	2,351	100%	6.8
Sex at Birth									
Male	486	427	423	383	367	377	1,977	84%	11.5
Female	71	68	87	74	76	69	374	16%	2.2
Age at HIV Diagnosis									
< 13	10	6	8	8	3	4	29	1%	0.5
13 - 24	75	68	80	73	67	68	356	15%	6.5
25 - 34	168	147	158	131	137	162	735	31%	15.4
35 - 44	155	126	132	131	107	99	595	25%	13.1
45 - 54	104	91	89	84	92	75	431	18%	9.0
55+	45	57	43	30	37	38	205	9%	2.2
Race and Hispanic Origin									
White	320	281	287	244	228	219	1,259	54%	5.1
Black	79	89	95	89	95	92	460	20%	38.1
Hispanic (all races)	*105*	*77*	*63*	*78*	*61*	*82*	*361*	*15%*	*8.8*
Asian	*26*	*24*	*31*	*24*	*38*	*35*	*152*	*6%*	*5.8*
Native Hawaiian / Pacific Islander	1	5	7	6	5	5	28	1%	13.3
American Indian / Alaska Native	*8*	*5*	*5*	*4*	*6*	*5*	*25*	*1%*	*5.6*
Multiple Race	*18*	*14*	*22*	*12*	*10*	*8*	*66*	*3%*	*4.9*
Hispanic only:	25	26	25	31	24	38	144	6%	5.8
- White	33	40	28	37	29	43	177	8%	5.0
- Black	0	1	0	2	0	2	5	0%	---
- Multiple / Other Race	9	3	4	3	6	3	19	1%	---
- Unknown Race	63	33	31	36	26	34	160	7%	---
Exposure Category by Sex at Birth									
Male only:									
- Male / Male Sex (MSM)	353	296	279	266	248	265	1,354	58%	---
- Injecting Drug Use (IDU)	24	17	14	14	13	17	75	3%	---
- MSM and IDU	28	47	42	33	28	20	170	7%	---
- Heterosexual Contact	18	9	6	5	9	9	38	2%	---
- Pediatric	7	4	1	3	2	2	12	1%	---
- Transfusion / Hemophiliac	0	0	0	0	0	0	0	0%	---
- No Identified Risk	56	54	81	62	67	64	328	14%	---
Female only:									
- Injecting Drug Use	9	14	7	6	9	15	51	2%	---
- Heterosexual Contact	49	30	32	31	24	23	140	6%	---
- Pediatric	3	2	2	1	1	2	8	0%	---
- Transfusion / Hemophiliac	0	0	0	0	0	0	0	0%	---
- No Identified Risk	10	22	46	36	42	29	175	7%	---

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of July 1, 2016.
Rates are per 100,000 residents.

Table 11. New HIV Cases by County and Combined Local Health District (HD), 2010-2015

	Newly Diagnosed Cases of HIV Disease									Cumulative Diagnoses		Late HIV Diagnoses
Year of HIV diagnosis:	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2010-2014**			**1981-2014**		**2009-2013**
	No.	No.	No.	No.	No.	No.	No.	%	Rate	No.	%	%
Adams Co.	0	1	0	0	0	1	2	0%	---	9	0%	---
Asotin Co.	2	1	0	1	0	1	3	0%	---	28	0%	---
Benton Co.	7	12	5	7	8	1	33	1%	3.6	163	1%	31%
Benton-Franklin HD	11	13	7	7	9	6	42	2%	3.1	258	1%	36%
Chelan Co.	5	4	3	3	4	5	19	1%	5.2	93	0%	---
Chelan-Douglas HD	7	5	3	5	4	8	25	1%	4.4	107	1%	---
Clallam Co.	1	3	4	3	1	4	15	1%	4.2	94	0%	---
Clark Co.	31	28	26	25	23	20	122	5%	5.6	828	4%	40%
Columbia Co.	0	0	0	0	0	0	0	0%	---	6	0%	---
Cowlitz Co.	5	3	5	1	4	1	14	1%	2.7	163	1%	---
Douglas Co.	2	1	0	2	0	3	6	0%	---	14	0%	---
Ferry Co.	0	0	0	0	1	0	1	0%	---	8	0%	---
Franklin Co.	4	1	2	0	1	5	9	0%	---	95	0%	---
Garfield Co.	0	0	0	0	0	0	0	0%	---	1	0%	---
Grant Co.	3	3	3	0	0	0	6	0%	---	58	0%	---
Grays Harbor Co.	5	4	7	1	3	4	19	1%	5.2	110	1%	---
Island Co.	3	1	3	3	2	0	9	0%	---	98	0%	---
Jefferson Co.	0	0	1	1	2	1	5	0%	---	42	0%	---
King Co.	323	270	286	252	272	237	1,317	56%	13.3	12,726	62%	27%
Kitsap Co.	2	6	11	7	6	9	39	2%	3.1	352	2%	---
Kittitas Co.	0	0	0	2	1	1	4	0%	---	29	0%	---
Klickitat Co.	0	0	1	0	0	0	1	0%	---	18	0%	---
Lewis Co.	0	5	1	1	1	1	9	0%	---	70	0%	---
Lincoln Co.	0	0	0	0	0	0	0	0%	---	4	0%	---
Mason Co.	11	7	9	3	1	5	25	1%	8.1	146	1%	---
NE Tri-County HD	0	1	0	3	1	1	6	0%	---	49	0%	---
Okanogan Co.	0	1	3	0	0	0	4	0%	---	45	0%	---
Pacific Co.	0	0	2	0	1	0	3	0%	---	35	0%	---
Pend Oreille Co.	0	0	0	0	0	1	1	0%	---	10	0%	---
Pierce Co.	60	57	52	60	44	63	276	12%	6.8	1,925	9%	32%
San Juan Co.	2	0	0	2	0	0	2	0%	---	31	0%	---
Skagit Co.	4	5	4	9	5	0	23	1%	3.9	121	1%	---
Skamania Co.	0	0	0	0	1	1	2	0%	---	11	0%	---
Snohomish Co.	33	33	39	28	35	35	170	7%	4.6	1,220	6%	38%
Spokane Co.	24	25	25	21	6	23	100	4%	4.2	850	4%	41%
Stevens Co.	0	1	0	3	0	0	4	0%	---	31	0%	---
Thurston Co.	12	7	4	8	5	8	32	1%	2.5	323	2%	33%
Wahkiakum Co.	0	0	0	0	1	0	1	0%	---	4	0%	---
Walla Walla Co.	0	0	3	0	0	0	3	0%	---	68	0%	---
Whatcom Co.	1	7	4	8	5	8	32	1%	3.1	271	1%	48%
Whitman Co.	1	1	0	0	1	2	4	0%	---	26	0%	---
Yakima Co.	16	8	7	6	9	6	36	2%	2.9	318	2%	50%
Statewide Total	**557**	**495**	**510**	**457**	**443**	**446**	**2,351**	**100%**	**6.8**	**20,444**	**100%**	**32%**

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of July 1, 2016.

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

Rates are per 100,000 residents.

Table 12. New HIV Cases by Foreign-Born Status and Other Select Characteristics, Washington State, 2011-2015

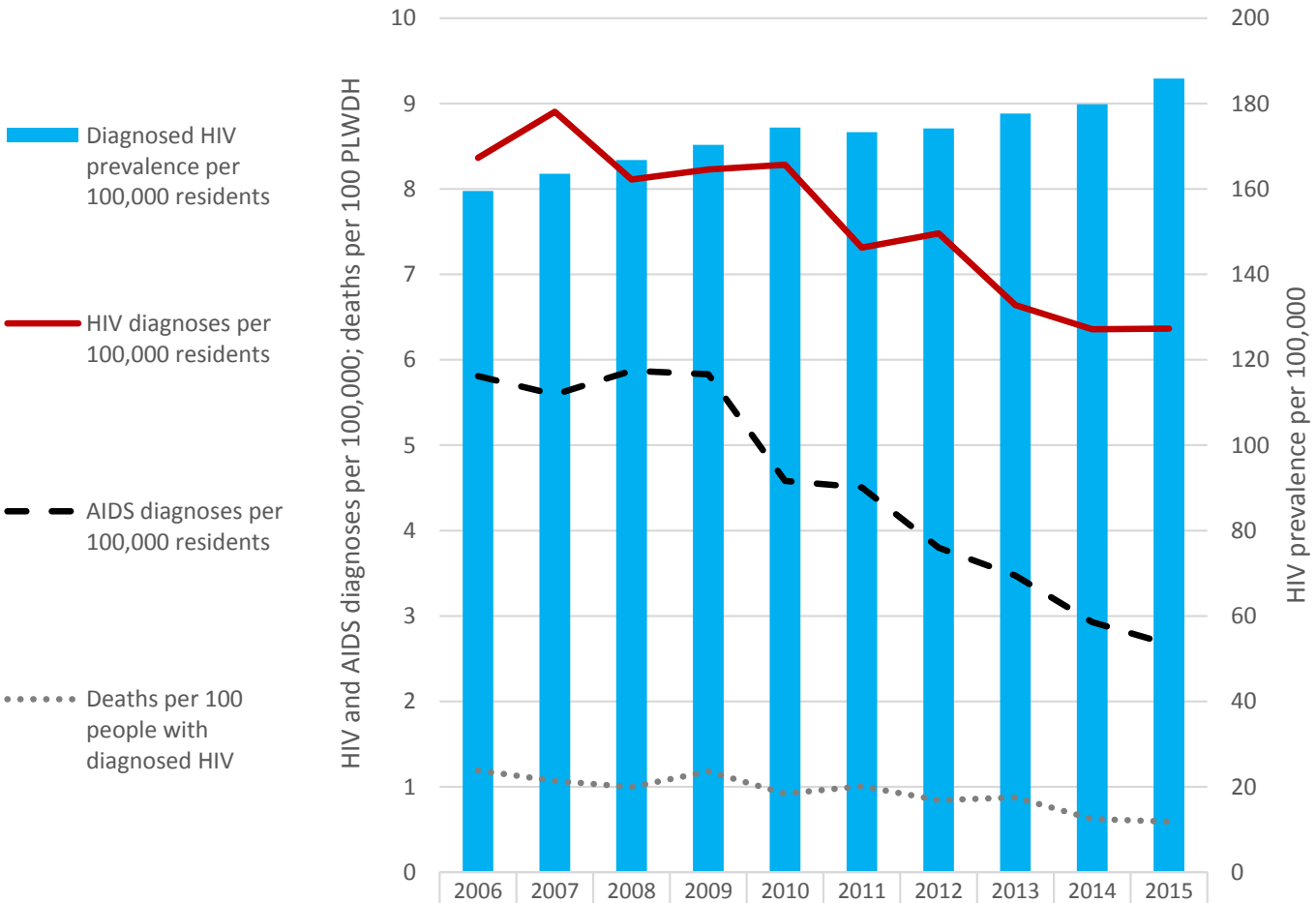
	Proportion of Cases with Select Characteristic at HIV Diagnosis							
Characteristic:	**Male**	**Age> 34 years**	**MSM**	**Hetero-sexual**	**Late HIV Diagnosis***	**Live in King Co.**		**Total**
	%	%	%	%	%	%	No.	%
U.S.-Born**								
White	91%	55%	79%	5%	34%	57%	1,001	72%
Black	86%	36%	70%	11%	24%	63%	194	14%
Hispanic (all races)	94%	26%	87%	2%	19%	55%	97	7%
Asian	93%	21%	86%	0%	29%	71%	14	1%
Native Hawaiian / Pacific Islander	70%	40%	70%	30%	60%	40%	10	1%
American Indian / Alaska Native	67%	57%	33%	14%	67%	29%	21	2%
Multiple Race	96%	31%	85%	2%	30%	57%	54	4%
Total	**90%**	**49%**	**77%**	**6%**	**32%**	**57%**	**1,391**	**100%**
Foreign-Born**								
White	84%	48%	59%	13%	28%	72%	61	10%
Black	40%	65%	5%	17%	35%	70%	224	35%
Hispanic (all races)	90%	50%	62%	10%	43%	57%	207	33%
Asian	78%	54%	42%	13%	37%	75%	126	20%
Native Hawaiian / Pacific Islander	85%	38%	62%	15%	31%	54%	13	2%
American Indian / Alaska Native	---	---	---	---	---	---	0	0%
Multiple Race	60%	20%	40%	40%	20%	40%	5	1%
Total	**69%**	**55%**	**38%**	**14%**	**37%**	**66%**	**636**	**100%**

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of July 1, 2016.

* Late HIV diagnoses (AIDS diagnosed within 12 months of an HIV diagnosis) based on new HIV cases diagnosed between 2010 and 2014

** Section excludes 324 cases for which we do not have information about nativity.

Figure 2: Washington State HIV diagnoses, AIDS diagnoses, deaths and people living with diagnosed HIV rates, 2006-2015



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Diagnosed HIV prevalence per 100,000 residents	159.5	163.6	166.8	170.3	174.4	173.3	174.2	177.7	179.8	185.9
HIV diagnoses per 100,000 residents	8.4	8.9	8.1	8.2	8.3	7.3	7.5	6.6	6.4	6.4
AIDS diagnoses per 100,000 residents	5.8	5.6	5.9	5.8	4.6	4.5	3.8	3.5	2.9	2.7
Deaths per 100 people with diagnosed HIV	1.2	1.1	1.0	1.2	0.9	1.0	0.8	0.9	0.6	0.6

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

	Recent AIDS Cases			Cumulative AIDS Cases		Cumulative HIV/ AIDS Deaths	
	2011-2015			1981-2015		1981-2015	
	No.	%	Rate	No.	%	No.	%
Total	1,194	100%	3.5	14,351	100%	3,342	100%
Sex at Birth							
Male	985	82%	5.7	12,856	90%	2,974	89%
Female	209	18%	1.2	1,495	10%	368	11%
Age at AIDS Diagnosis						**Age at Death**	
< 13	0	0%	0.0	32	0%	8	0%
13 - 24	68	6%	1.2	582	4%	21	1%
25 - 34	273	23%	5.7	4,735	33%	509	15%
35 - 44	305	26%	6.7	5,451	38%	1,188	36%
45 - 54	371	31%	7.7	2,550	18%	932	28%
55+	177	15%	1.9	1,001	7%	684	20%
Race and Hispanic Origin							
White	667	56%	2.7	10,328	72%	2,504	75%
Black	232	19%	19.2	1,801	13%	386	12%
Hispanic (all races)	166	14%	4.0	1,340	9%	239	7%
Asian	60	5%	2.4	313	2%	40	1%
Native Hawaiian / Pacific Islander	13	1%	6.2	52	0%	10	0%
American Indian / Alaska Native	16	1%	3.6	225	2%	68	2%
Multiple or Unknown Race	40	3%	3.0	292	2%	95	3%
Hispanic only:							
- White	77	6%	2.2	426	3%	95	3%
- Black	7	1%	---	43	0%	11	0%
- Multiple / Other Race	9	1%	---	51	0%	15	0%
- Unknown Race	73	6%	---	820	6%	118	4%
Exposure Category by Sex at Birth							
Male only:							
- Male / Male Sex (MSM)	615	52%	---	9,061	63%	1,977	59%
- Injecting Drug Use (IDU)	60	5%	---	901	6%	286	9%
- MSM and IDU	108	9%	---	1,448	10%	362	11%
- Heterosexual Contact	24	2%	---	415	3%	83	2%
- Pediatric	2	0%	---	16	0%	4	0%
- Transfusion / Hemophiliac	0	0%	---	156	1%	44	1%
- No Identified Risk	176	15%	---	859	6%	218	7%
Female only:							
- Injecting Drug Use	42	4%	---	400	3%	140	4%
- Heterosexual Contact	96	8%	---	873	6%	178	5%
- Pediatric	2	0%	---	23	0%	6	0%
- Transfusion / Hemophiliac	2	0%	---	49	0%	11	0%
- No Identified Risk	67	6%	---	150	1%	33	1%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of July 1, 2016.
Rates are per 100,000 residents.

Table 14. People Living with HIV Disease as of December 31, 2015, Washington State

	HIV (not AIDS)			AIDS			All Cases of HIV Disease		
	No.	%	Rate	No.	%	Rate	No.	%	Rate
Total	5,945	100%	84.9	7,076	100%	101.0	13,021	100%	185.9
Sex at Birth									
Male	5,051	85%	144.8	6,087	86%	174.5	11,138	86%	319.2
Female	894	15%	25.4	989	14%	28.1	1,883	14%	53.5
Current Age									
< 13	38	1%	3.3	2	0%	0.0	40	0%	6.0
13 - 24	242	4%	25.7	49	1%	20.6	291	2%	94.9
25 - 34	1,174	20%	120.6	496	7%	89.9	1,670	13%	234.8
35 - 44	1,484	25%	164.0	1,277	18%	227.9	2,761	21%	412.1
45 - 54	1,798	30%	191.2	2,811	40%	269.2	4,609	35%	418.1
55+	1,209	20%	62.1	2,441	34%	87.7	3,650	28%	130.8
Race and Hispanic Origin*									
White	3,723	63%	75.5	4,413	62%	89.4	8,136	62%	164.9
Black	995	17%	399.1	1,139	16%	456.8	2,134	16%	855.9
Hispanic (all races)	775	13%	89.0	993	14%	114.1	1,768	14%	203.1
Asian	213	4%	40.1	245	3%	46.2	458	4%	86.3
Native Hawaiian / Pacific Islander	29	0%	65.5	38	1%	85.9	67	1%	151.4
American Indian / Alaska Native	64	1%	70.8	103	1%	113.9	167	1%	184.7
Multiple Race	142	2%	49.5	140	2%	48.8	282	2%	98.3
Hispanic only:									
- White	346	6%	46.3	334	5%	45.0	680	5%	91.3
- Black	14	0%	---	32	0%	133.0	46	0%	188.8
- Multiple / Other Race	51	1%	---	36	1%	---	87	1%	---
- Unknown Race	364	6%	---	591	8%	---	955	7%	---
Exposure Category by Sex at Birth									
Male only:									
- Male / Male Sex (MSM)	3,815	64%	---	4,143	59%	---	7,958	61%	---
- Injecting Drug Use (IDU)	182	3%	---	355	5%	---	537	4%	---
- MSM and IDU	465	8%	---	686	10%	---	1,151	9%	---
- Heterosexual Contact	137	2%	---	289	4%	---	426	3%	---
- Pediatric	32	1%	---	17	0%	---	49	0%	---
- Transfusion / Hemophiliac	6	0%	---	30	0%	---	36	0%	---
- No Identified Risk	414	7%	---	567	8%	---	981	8%	---
Female only:									
- Injecting Drug Use	117	2%	---	192	3%	---	309	2%	---
- Heterosexual Contact	532	9%	---	644	9%	---	1,176	9%	---
- Pediatric	44	1%	---	14	0%	---	58	0%	---
- Transfusion / Hemophiliac	5	0%	---	12	0%	---	17	0%	---
- No Identified Risk	196	3%	---	127	2%	---	323	2%	---

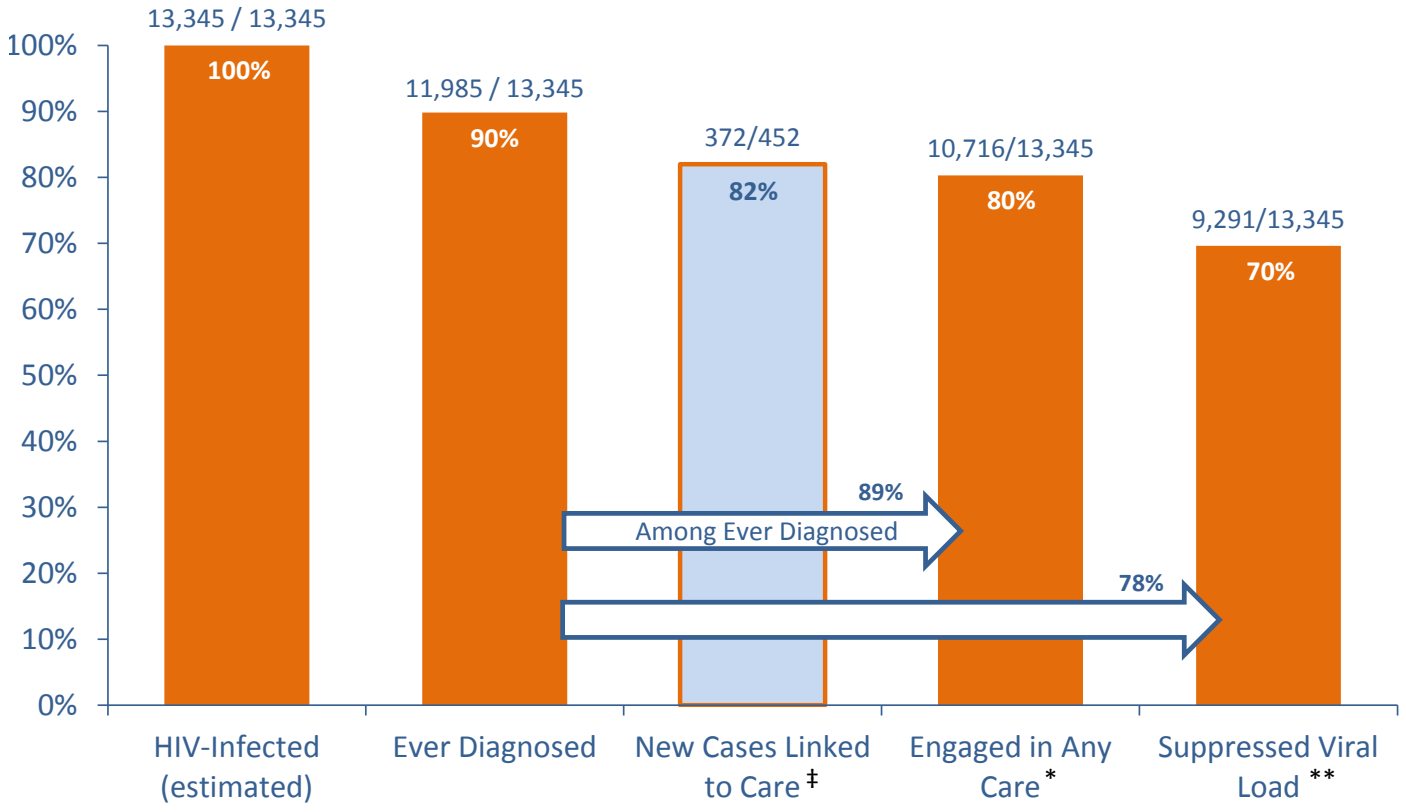
All HIV/AIDS surveillance data reported to the Washington State Department of Health as of July 1, 2016.
Rates are per 100,000 residents.
* Section excludes 9 cases (4 with HIV, 5 with AIDS) for which we do not have information about race or ethnicity.

Table 15. People living with HIV* by exposure category, sex assigned at birth and race/ethnicity, as of December 31, 2015, Washington State

	White		Black		Hispanic		Asian	
Exposure category	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Males:								
Male / Male Sex (MSM)	5,661	77%	706	50%	1,058	68%	251	68%
Injecting Drug Use (IDU)	326	4%	100	7%	77	5%	9	2%
MSM and IDU	847	11%	96	7%	129	8%	9	2%
Heterosexual Contact	139	2%	172	12%	84	5%	15	4%
Pediatric	14	0%	25	2%	4	0%	2	1%
Transfusion / Hemophiliac	30	0%	3	0%	2	0%	0	0%
No Identified Risk	366	5%	302	22%	200	13%	83	22%
Total Males	**7,383**	100%	**1,404**	100%	**1,554**	100%	**369**	100%
Females:								
Injecting Drug Use (IDU)	201	27%	54	7%	24	11%	2	2%
Heterosexual Contact	455	60%	453	62%	149	70%	59	66%
Pediatric	13	2%	36	5%	7	3%	2	2%
Transfusion / Hemophiliac	5	1%	8	1%	1	0%	3	3%
No Identified Risk	79	10%	179	25%	33	15%	23	26%
Total Females	**753**	100%	**730**	100%	**214**	100%	**89**	100%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of July 1, 2016.

Figure 3: HIV Care Continuum, Washington State, 2015



Based on HIV surveillance data reported to the Washington State Department of Health as of October 31, 2016

‡ Limited to newly diagnosed HIV cases linked to care within one month (30 days) of HIV diagnosis

* Includes cases with laboratory evidence of at least one HIV care visit in 2015

** Suppression based on whether the last reported viral load test result in 2015 was ≤ 200 copies/mL

HIV Rates, Trends, and Burden of Disease in Washington State

Although the number of people living with HIV in Washington continues to rise, both HIV incidence and HIV-related mortality appear to be on the decline.

This article is reprinted from its original publication in the Statewide Coordinated Statement of Need, 2017-2021, available at: http://www.doh.wa.gov/Portals/1/Documents/Pubs/150-092-HIVStatementOfNeed.pdf.

CDC estimates that there are approximately 1.1 million people living with HIV infection in the United States; as many as 13% with HIV do not know they are infected. The Washington State Department of Health estimates HIV prevalence to be at 13,000-14,000, or just over 1% of the national HIV burden. HIV prevalence in Washington is increasing about 3% per year, on average. Statewide, DOH estimates that about 10% of people living with HIV are not aware of their HIV status.

HIV incidence has steadily decreased over the past decade in Washington State. In 2006, the state's HIV diagnosis rate was 8.8 cases per 100,000 residents. In 2015, the state rate was 27% lower at 6.4 cases per 100,000. Similarly, the HIV transmission rate--the ratio of new cases compared to prevalent cases--has decreased more than 30% since the mid-2000s. There are likely many reasons for these decreases. However, most experts agree that the largest contributing factors are improved HIV testing behaviors in combination with better HIV treatment adherence resulting in more PLWDH achieving viral suppression.

Since the HIV epidemic began, nearly 7,000 people living in Washington have died as a result of their HIV illness. With effective treatment now widely available, HIV is considered to be a manageable, chronic disease. During 2010–2014, there were fewer than 100 HIV deaths per year in Washington, on average. During the 1990s, HIV deaths in Washington averaged more than 350 per year. The most common cause of death among people with HIV is liver failure, which often occurs as the result of co-infection with Hepatitis B or C.

The HIV epidemic has burdened some groups much more than others. To understand how HIV-related health disparities affect people in Washington State, the Department of Health convened a Special Emphasis Workgroup on HIV-Related Disparities (SEW-D) to examine the statewide data in more detail. Published in February 2015, the SEW's report describes HIV-related health disparities with regard to race and ethnicity, U.S.-born vs. foreign born, gay/bisexual men vs. heterosexual men and women, geography, age, and specified social determinants of health (income, education, and poverty). Based on these findings, the SEW-D identified the following specific disparities:

1. Overall: gay and bisexual men of all races/ethnicities, compared to heterosexual men, experience an actual disparity for HIV infection of more than 150:1. This disparity is being addressed in detail in the work being done within the current HIV Planning Steering Group (HPGS) framework.

2. U.S.-born Black residents experience disparities in participation in prevention (PrEP) and testing, in being linked to care, in retention in care and in viral load suppression (basically the entire care continuum, starting with prevention, needs to be improved for U.S.-born Blacks). Disparities for U.S. Blacks compared to Whites are 4:1 for HIV infection. Seventy- seven percent of U.S.-born Blacks, once diagnosed, are linked to care, compared to 90 percent of Whites. The data show that U.S.-born Blacks experience lower rates of retention in care and, as a result, are ten percentage points less likely to be virally suppressed than other groups.

3. Foreign-born Black residents experience disparities in the number of late diagnoses. Foreign-born Blacks are 100 times more likely to be infected than Whites and most likely to have been infected in their home countries, so testing as soon as possible after arriving in the U.S. would help address the disparity for HIV infection for foreign-born Blacks.

4. Foreign-born Hispanics also experience higher numbers of late diagnoses, experience lower levels of retention in care, and lower levels of viral load suppression (much of the care continuum).

Foreign-born Hispanics are three times more likely to be infected than Whites and are at elevated risk for late HIV diagnosis (43% diagnosed with AIDS within 12 months of HIV diagnosis) and have a low level of viral suppression (55%) relative to non-Hispanic Whites. These facts should prompt a new emphasis on HIV prevention, testing and retention in care for this disproportionately affected population. There is enough qualitative data to suggest that a number of these infections take place in the U.S. to warrant added emphasis on prevention.

People whose status in the U.S. is undocumented have greater challenges in accessing health care in general, which must be successfully addressed if undocumented people are to have access to prevention and stay retained in care.

5. Younger adults (ages 18-35) show lower rates of retention in care. Approximately 51 percent of younger adults are retained in care, compared to 58 percent total.

6. In addition, specific geographic areas were identified as "hot spots" for HIV infection, related to education and income levels of residents. This geocoded information needs further analysis to verify "hot spots" for HIV infection, for use in targeting prevention/testing efforts.

Although age is not typically considered an HIV risk factor, it should be noted that nearly half of all PLWH are at least 50 years of age. Hence, in addition to dealing with the need to treat and manage a chronic, life- threatening illness, these individuals also face vulnerabilities associated with aging and the development of other age-related health conditions.

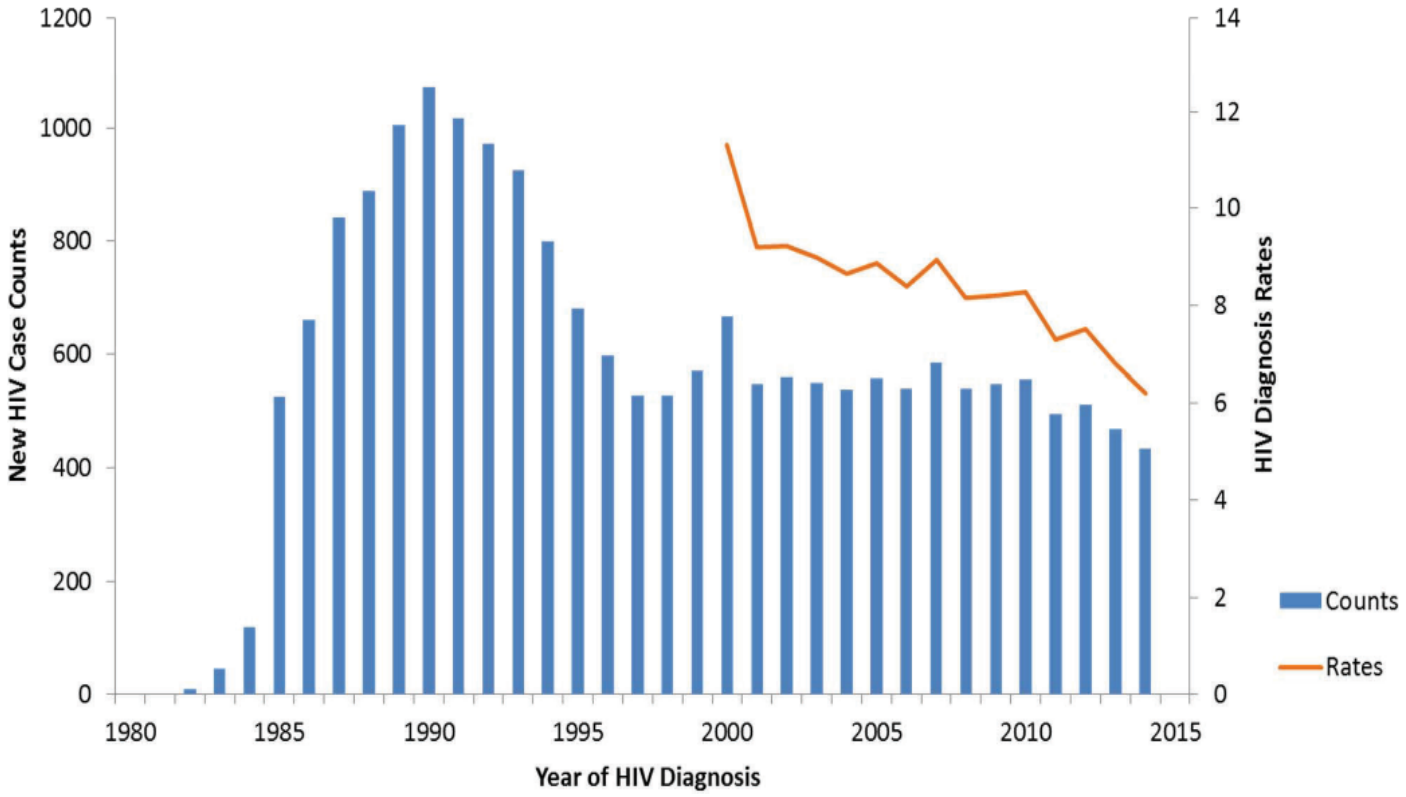
Contributed by Jason Carr

Table 1. Incident and Prevalent HIV Case Counts, WA State, 2007-2014 (Source: HIV Surveillance [eHARS])

Year	New HIV	Diagnosed, Prevalent Cases (PLWDH)	Annual Percent Change	Transmission Rate
2007	581	10,674	--	5.4%
2008	536	11,021	3.3%	4.9%
2009	549	11,365	3.1%	4.8%
2010	557	11,726	3.2%	4.8%
2011	495	11,730	0.0%	4.2%
2012	510	11,877	1.3%	4.3%
2013	457	12,228	3.0%	3.7%
2014	443	12,532	2.5%	3.5%

Based on surveillance data reported to the Washington State Department of Health as of 6/30/2016

Figure 1. Counts and Rates of New HIV Diagnoses, WA State, 1981-2014 (Source: HIV Surveillance [eHARS])



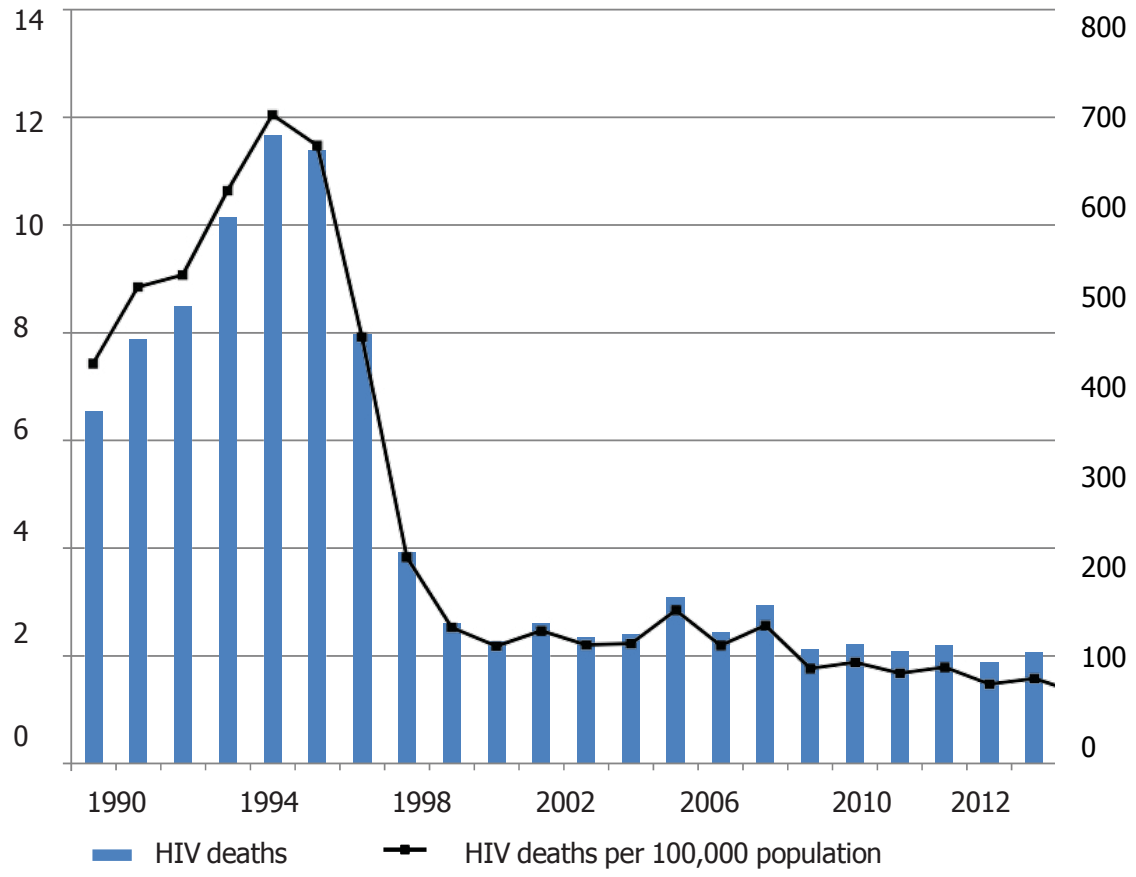
Over the past 10 years, HIV incidence has steadily declined in Washington. This encouraging trend suggests that HIV prevention efforts are working, and that the end of the HIV epidemic in our state could eventually become a reality.

Table 2. People Living with Diagnosed HIV Infection, by County of Current Residence, WA State (Source: HIV Surveillance [eHARS])

	HIV (not AIDS)			AIDS			All Cases of HIV Disease		
	No.	%	Rate	No.	%	Rate	No.	%	Rate
Adams Co.	3	0%	---	10	0%	---	13	0%	67.0
Asotin Co.	9	0%	---	13	0%	59.2	22	0%	100.2
Benton Co.	63	1%	33.8	62	1%	33.2	125	1%	67.0
Benton-Franklin HD	88	2%	32.2	104	1%	38.1	192	2%	70.3
Chelan Co.	24	0%	32.3	28	0%	37.7	52	0%	70.0
Chelan-Douglas HD	29	1%	25.4	35	1%	30.7	64	1%	56.1
Clallam Co.	29	1%	40.0	37	1%	51.0	66	1%	91.0
Clark Co.	287	5%	64.8	351	5%	79.3	638	5%	144.1
Columbia Co.	3	0%	---	5	0%	---	8	0%	---
Cowlitz Co.	49	1%	47.3	65	1%	62.7	114	1%	109.9
Douglas Co.	5	0%	---	7	0%	---	12	0%	30.2
Ferry Co.	1	0%	---	5	0%	---	6	0%	---
Franklin Co.	25	0%	28.9	42	1%	48.5	67	1%	77.4
Garfield Co.	0	0%	---	0	0%	---	0	0%	---
Grant Co.	16	0%	17.2	33	0%	35.5	49	0%	52.7
Grays Harbor Co.	27	0%	36.8	50	1%	68.2	77	1%	105.0
Island Co.	34	1%	42.5	38	1%	47.5	72	1%	90.0
Jefferson Co.	13	0%	42.3	24	0%	78.2	37	0%	120.5
King Co.	3,223	57%	159.8	3,708	53%	183.8	6,931	55%	343.6
Kitsap Co.	123	2%	48.1	168	2%	65.7	291	2%	113.7
Kittitas Co.	5	0%	---	23	0%	54.6	28	0%	66.5
Klickitat Co.	8	0%	---	9	0%	---	17	0%	81.5
Lewis Co.	15	0%	19.7	38	1%	49.8	53	0%	69.5
Lincoln Co.	2	0%	---	4	0%	---	6	0%	---
Mason Co.	38	1%	61.3	48	1%	77.4	86	1%	138.7
NE Tri-County HD	12	0%	18.5	20	0%	30.9	32	0%	49.4
Okanogan Co.	13	0%	31.2	23	0%	55.2	36	0%	86.3
Pacific Co.	12	0%	56.9	18	0%	85.3	30	0%	142.2
Pend Oreille Co.	2	0%	---	7	0%	---	9	0%	---
Pierce Co.	647	11%	78.8	729	11%	88.8	1,376	11%	167.5
San Juan Co.	11	0%	---	16	0%	99.4	27	0%	167.7
Skagit Co.	39	1%	32.6	49	1%	41.0	88	1%	73.6
Skamania Co.	3	0%	---	3	0%	---	6	0%	---
Snohomish Co.	397	7%	53.6	550	8%	74.2	947	8%	127.8
Spokane Co.	215	4%	44.4	295	4%	60.9	510	4%	105.3
Stevens Co.	9	0%	---	8	0%	---	17	0%	38.7
Thurston Co.	119	2%	45.1	160	2%	60.6	279	2%	105.7
Wahkiakum Co.	1	0%	---	4	0%	---	5	0%	---
Walla Walla Co.	15	0%	24.9	33	0%	54.9	48	0%	79.8
Whatcom Co.	68	1%	32.8	116	2%	55.9	184	1%	88.6
Whitman Co.	7	0%	---	10	0%	---	17	0%	36.6
Yakima Co.	87	2%	35.0	146	2%	58.7	233	2%	93.6
Statewide Total	**5,647**	**100%**	**81.0**	**6,935**	**100%**	**99.5**	**12,582**	**100%**	**180.6**

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of Dec 31, 2015. Note: Percentages (%) are rounded to the nearest whole number. Actual values may be less than they appear (e.g. 0.7% = "1%").

Figure 2. Age-Adjusted HIV Mortality, WA State, 1990-2013
(Source: HIV Surveillance [eHARS])



Over the past 10 years, HIV incidence has steadily declined in Washington. This encouraging trend suggests that HIV prevention efforts are working, and that the end of the HIV epidemic in our state could eventually become a reality.

HIV Co-Morbidities in Washington State

The presence of Hepatitis C or another STD can increase a person's chance of acquiring HIV and vice versa. Being co-infected can make treatment for both conditions more challenging, and greatly increases the risk of spreading HIV to sexual and needle-sharing partners.

This article is reprinted from its original publication in the Statewide Coordinated Statement of Need, 2017-2021, available at: http://www.doh.wa.gov/Portals/1/Documents/Pubs/150-092-HIVStatementOfNeed.pdf.

The presence of Hepatitis C or another STD can increase a person's chance of acquiring HIV and vice versa. Being co-infected can make treatment for both conditions more challenging, and greatly increases the risk of spreading HIV to sexual and needle-sharing partners. This article is reprinted from its original publication in the Statewide Coordinated Statement of Need, 2017-2021, available at: http://www.doh.wa.gov/Portals/1/Documents/Pubs/150-092-HIVStatementOfNeed.pdf.

HIV and Hepatitis C

Hepatitis C virus (HCV) and human immunodeficiency virus (HIV) are both spread through blood and body fluids and can be transmitted through shared injection drug equipment and sexual transmission. When injection drug equipment is shared between partners, the transmission risk is much higher for HCV compared to HIV. However, HIV is easier to transmit sexually compared to HCV. Most coinfections result from injecting drugs, but men and transgender persons who have sex with men (MSM/TSM) are also at increased risk for HCV/HIV coinfection via unprotected sex. Around 250,000 to 300,000 persons in the United States have HCV/HIV coinfection.

An estimated 8% of persons with HCV also have HIV, while 15% of those with HIV also have HCV. Health outcomes are usually poorer with HCV/HIV coinfection. A person with existing HIV infection is only one-fourth as likely to clear a new HCV infection. Liver disease progresses faster with HCV/HIV coinfection and survival is poorer if liver failure occurs. Liver cancer may be more common and a coinfected pregnant woman is more likely to transmit HCV to the infant.

HIV and Other STDs

Some STDs are more closely linked to HIV than others. In the United States, people who get syphilis, gonorrhea, and herpes often also have HIV, or are more likely to get HIV in the future. This is especially true among gay and bisexual men.

Activities that can put people at increased risk for both STDs and HIV include:

- Having anal, vaginal, or oral sex without a condom;
- Having multiple sex partners;
- Having anonymous sex partners;
- Having sex while under the influence of drugs or alcohol can lower inhibitions and result in greater sexual risk taking

HIV-negative sex partners are at greater risk of getting HIV from someone who is HIV-positive and acquires another STD. Being co-infected can overwhelm a person's immune system, causing a person to have more virus circulating in their blood, which makes them more infectious.

Ways to reduce risk of getting HIV and/or another STD include:

- Choosing less risky sexual behaviors;
- Using condoms consistently and correctly;
- Reduce the number of sex partners;
- Limiting or eliminating drug and alcohol use before and during sex;
- Having an honest and open talk with healthcare provider and ask whether they should be tested for STDs and HIV.
- Talking with their healthcare provider and find out if pre-exposure prophylaxis, or PrEP, is a good option for them to prevent HIV infection

Approximately 15% of the HIV-positive persons in care from 2009-2013 were co-infected with hepatitis C virus (HCV). Compared to persons who were not co-infected, these individuals were more likely to be younger, of 'Other' race/ethnicity, have income under the Federal Poverty Level, heterosexual and homeless. Almost 40% of the co-infected persons had an unsuppressed viral load, compared to 30% of those who were not co-infected. About two-thirds of the HIV/HCV co-infected experienced at least one unmet need, and approximately 22% of co-infected individuals used injection drugs in the prior 12 months, compared to 5% of those who were not co-infected.

Contributed by Jason Carr

Table 1. Comparing Characteristics of People Living with Diagnosed HIV Infection Who Do or Don't Have a Hepatitis C Diagnosis, Washington State, as of Year-end 2014 (Sources: HIV [eHARS] and Hepatitis Surveillance)

	New HIV Diagnoses (2010-2014)				Total PLWH	
	Yes		No			
	No.	%	No.	%	No.	%
Total	1,011	100%	11,556	100%	12,567	100%
Stage of Disease						
HIV	359	36%	5,280	46%	5,639	45%
AIDS	652	64%	6,276	54%	6,928	55%
Sex at Birth						
Male	835	83%	9,926	86%	10,761	86%
Female	176	17%	1,630	14%	1,806	14%
Age						
< 13	0%	0%	47	0%	47	0%
13 - 24	13	1%	292	3%	305	2%
25 - 34	72	7%	1,521	13%	1,593	13%
35 - 44	192	19%	2,637	23%	2,829	23%
45 - 54	428	42%	4,099	35%	4,527	36%
55+	306	30%	2,960	26%	3,266	26%
Race and Hispanic Origin						
White	685	68%	7,271	63%	7,956	63%
Black	146	14%	1,893	16%	2,039	16%
Hispanic (all races)	92	9%	1,556	13%	1,648	13%
Asian	25	2%	391	3%	416	3%
Native Hawaiian / Pacific Islander	2	0%	62	1%	64	1%
American Indian / Alaska Native	26	3%	129	1%	155	1%
Multiple Race / Unknown	35	3%	254	2%	289	2%
Mode of HIV Exposure						
MSM/TSM	301	30%	7,354	64%	7,655	61%
IDU	310	31%	516	4%	826	7%
MSM/TSM IDU	269	27%	873	8%	1,142	9%
Heterosexual	**60**	**6%**	**1,510**	**13%**	**1,570**	**12%**
Blood / Pediatric / Other	**20**	**2%**	**134**	**1%**	**154**	**1%**
No Identified Risk	**51**	**5%**	**1,169**	**10%**	**1,220**	**10%**
County of Current Residence						
Clark Co.	24	2%	400	3%	424	3%
King Co.	455	45%	5,357	46%	5,812	46%
Pierce Co.	108	11%	859	7%	967	8%
Snohomish Co.	**40**	**4%**	**613**	**5%**	**653**	**5%**
Spokane Co.	**48**	**5%**	**336**	**3%**	**384**	**3%**
Other	**336**	**33%**	**3,991**	**35%**	**4,327**	**34%**
HIV Care Outcomes						
Engaged in Care	876	87%	9,282	80%	10,158	81%
Retained in Care	634	63%	6,323	55%	6,957	55%
Virally Suppressed	718	71%	8,030	69%	8,748	70%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of May 31, 2016.
MSM= Men who have sex with men; TSM = transgender women who have sex with men; IDU = People who inject drugs

Table 2. New HIV Diagnoses by Presence vs. Absence of a Concurrent STD Diagnosis, Washington State, 2010-2014 (Sources: HIV [eHARS] and STD [PHIMS] Surveillance)

	Concurrent HIV-STD Diagnosis?				Total PLWH	
	Yes		No			
	No.	%	No.	%	No.	%
Total	408	100%	2,053	100%	2,461	100%
Sex at Birth						
Male	397	97%	1,689	82%	2,086	85%
Female	11	3%	364	18%	375	15%
Age						
< 13	0	0%	35	2%	35	1%
13 - 24	94	23%	269	13%	363	15%
25 - 34	149	37%	592	29%	741	30%
35 - 44	98	24%	552	27%	650	26%
45 - 54	55	13%	405	20%	460	19%
55+	12	3%	200	10%	212	9%
Race and Hispanic Origin						
White	246	60%	1,114	54%	1,360	55%
Black	48	12%	398	19%	446	18%
Hispanic (all races)	71	17%	313	15%	384	16%
Asian	20	5%	123	6%	143	6%
Native Hawaiian / Pacific Islander	4	1%	20	1%	24	1%
American Indian / Alaska Native	5	1%	23	1%	28	1%
Multiple Race / Unknown	14	3%	62	3%	76	3%
Mode of HIV Exposure						
MSM/TSM	328	80%	1,114	54%	1,442	59%
IDU	4	1%	123	6%	127	5%
MSM/TSM IDU	55	13%	123	6%	178	7%
Heterosexual	5	1%	208	10%	213	9%
Blood / Pediatric / Other	0	0%	26	1%	26	1%
No Identified Risk	16	4%	459	22%	475	19%
County of Residence at Diagnosis						
Clark Co.	16	4%	117	6%	133	5%
King Co.	290	71%	1,113	54%	1,403	57%
Pierce Co.	31	8%	241	12%	272	11%
Snohomish Co.	21	5%	147	7%	168	7%
Spokane Co.	12	3%	89	4%	101	4%
Other	38	9%	346	17%	384	16%
Late HIV Diagnosis						
	72	18%	704	34%	776	32%
Linkage to Care						
	280	69%	1,274	62%	1,554	63%

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of April 30, 2016.
MSM= Men who have sex with men; TSM = transgender women who have sex with men; IDU = People who inject drugs

Table 3. HIV-Positive Persons in Care in Washington State by HIV/HCV Co-Infection, 2009-2013 (Source: Medical Monitoring Project)

Item	All Respondents	HIV/HCV Co-infection		
		HIV Only	HIV/HCV Co-infection	p-value
Sex at birth				0.0974
Male	87%	88%	83%	4.9%
Female	13%	12%	17%	4.8%
2010	557	11,726	3.2%	4.8%
Income				<0.0001
<100% FPL	31%	26%	59%	
>=100% FPL - <400% FPL	45%	47%	32%	
>=400% FPL	24%	27%	9%	
Sexual orientation (self-identified)				<0.0001
Homosexual	67%	71%	48%	
Heterosexual	23%	20%	39%	
Bisexual	8%	7%	11%	
Other/unclassified	2%	2%	3%	
Homeless				<0.0001
Not homeless prior 12 months	90%	92%	79%	
Homeless prior 12 months	10%	8%	21%	
Viral load suppression				0.0204
All viral loads in the last 12 months un-detectable, <=200 copies/mL	69%	70%	61%	
Care in the past 6 months				0.0206
Yes, received care in past 6 months	94%	93%	98%	
No care in past 6 months	6%	7%	2%	
Injection drug use in prior 12 months				<0.0001
No	92%	95%	78%	
Yes	8%	5%	22%	
Unprotected anal sex in prior 12 months				0.0131
No	63%	62%	72%	
Yes	37%	38%	28%	

Table 4. HIV Mortality among People Living with Diagnosed HIV Infection, by Whether Cases were Co-Infected with Hepatitis C, Washington State, 2010-2014 (Sources HIV [eHARS] and Hepatitis Surveillance)

Year of Death	HIV Only			HIV + Hepatitis C Co-Infected			Total Deaths among PLWDH	% of Total Deaths Co-Infected with Hepatitis C
	Deaths	PLWDH	Death Rate	Deaths	PLWDH	Death Rate		
	No.	No.	%	No.	No.	%	No.	%
2010	170	10627	1.6%	44	1107	3.8%	214	20.6%
2011	160	10658	1.5%	61	1082	5.3%	221	27.6%
2012	149	10850	1.4%	56	1038	5.1%	205	27.3%
2013	116	11225	1.0%	57	1026	5.3%	173	32.9%
2014	134	11556	1.1%	44	1011	4.2%	178	24.7%
Average:			**1.3%**			**4.7%**		**26.6%**

All HIV/AIDS surveillance data reported to the Washington State Department of Health as of May 31, 2016.
Death rate is per 100 people living with diagnosed HIV (PLWDH).

Table 5. STD Diagnoses and HIV Co-Infection among MSM, Washington State, 2010-2014 (Sources: HIV [eHARS] and STD [PHIMS] Surveillance)

	Gonorrhea	Syphilis
Total interviewed MSM cases	4548	1164
MSM cases screened for HIV (excluding prev. positives)	2504	505
Total no. of MSM cases reported as HIV-positive	1200	618
- previously HIV-positive	1064	540
- new HIV cases found via screening	116	61
- concurrent HIV diagnoses*	20	17
Screening yield	5%	12%
Missed screening opportunities	980 (22%)	119 (10%)
Average:		

* HIV diagnoses within 30 days (plus or minus) of STD diagnoses

The diagnosis of a bacterial STD continues to be an important, sentinel event indicating both a history of risky sexual behaviors and the need for HIV screening, especially among MSM/ TSM. As many as 12% of those screened are newly diagnosed with HIV infection. As more health care providers recognize and take advantage of these HIV screening opportunities, fewer MSM/TSM remain HIV infected but unaware. Nevertheless, missed screening opportunities continue to occur.

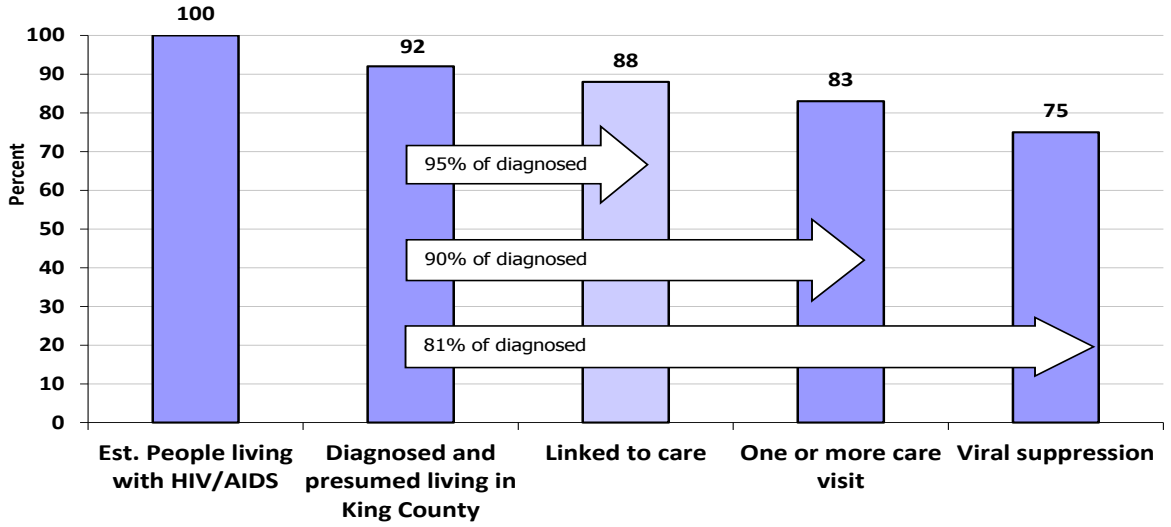
Monitoring the goals of the National Strategy for HIV/AIDS in King County and the King County HIV Care Continuum

King County data show an increasingly successful care continuum with four out of five individuals diagnosed with HIV demonstrating successful antiretroviral treatment as monitored by viral suppression in 2015. Other positive trends include that publicly funded HIV testing among men who have sex with men has been increasing and HIV diagnosis rates are declining. Nonetheless, disparities exist, especially when looking at viral suppression among U.S. born Latinos and Blacks.

This article is reprinted from its original publication in the Statewide Coordinated Statement of Need, 2017-2021, available at: http://www.doh.wa.gov/Portals/1/Documents/Pubs/150-092-HIVStatementOfNeed.pdf.

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, focusing on the HIV care continuum, the sequential steps from HIV diagnosis to linkage to care, engagement in care, and viral suppression. In recent years, the continuum has become an important conceptual and visual framework for identifying aspects of HIV prevention and care that require improvement. As shown in **Figure 1a,** an estimated 75% of persons living with HIV/AIDS (PLWHA) in King County – and 81% of diagnosed individuals - are virally suppressed. (Viral suppression is defined here to mean a viral load of <200 copies/mL.) For comparison, the Centers for Disease Control and Prevention (CDC) estimates that 55% of PLWHA in the U.S. -- based on jurisdictions with comprehensive viral load reporting -- were virally suppressed in 2013.[2] Each step in the continuum is associated with attrition. Approximately 8-12% of PLWHA are undiagnosed, while an additional 20% are diagnosed but are either entirely out of medical care or have received at least minimal care but are not virally suppressed.

Figure 1a: 2015 King County HIV Care Continuum (data reported through of June 30, 2016)



	Estimated people living with HIV/AIDS[a]	Diagnosed and presumed living in King County[b]	Linked to care in 2015[c]	One or more care visit[d]	Viral suppression[e]
Number of people	7400	6808	228/239	6157	5524

[a] Percent undiagnosed was calculated as 6% among MSM for King County[3]; prior estimate of 15% was used for non-MSM (based on CDC and Washington State estimates) resulting in an estimate of 7.3% overall, rounded up to 8% for a slightly more conservative estimate (this may be the most uncertain bar in the continuum). Estimated people living with HIV/AIDS is calculated by dividing "diagnosed and presumed living in King County" residents by .92.

[b] Diagnosed cases are those presumed living in King County during 2015. Individuals with no contact for ten or more years were presumed to have relocated or died (N=249). Others with unconfirmed deaths or relocations (identified, for example by online Internet database searches, but not confirmed by the new jurisdiction or another secondary source) and no laboratory results reported for > 18 months were also excluded (N=161).

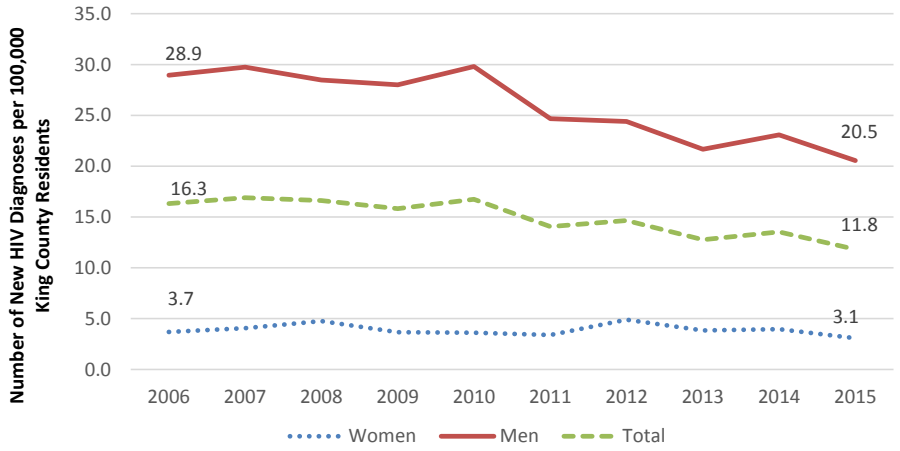
[c] Linked to care in 2015 is not a subset of earlier data (hence different color in the graph) and is based on the percent diagnosed in 2015 with a CD4 or viral load test within 3 months of diagnosis. The percent linked in the figure, 88%, is the percent of diagnosed cases in 2015 who linked (95.4%) times 92.0% to account for undiagnosed cases.

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

[e] Viral suppression is defined as the most recent viral load test result in 2015 less than 200 copies.

New HIV Diagnoses: Figure 1b presents trends in the new HIV diagnosis rate (number of HIV cases per 100,000 King County residents) in 2006-2015. Over the ten-year period, the rate of HIV diagnoses overall declined by 28% (X^2_{trend} $p<0.001$). This decline was evident among men (29% decline; X^2_{trend} $p<0.001$), but not consistent nor statistically significant among women (16% decline; X^2_{trend} $p=0.5$), who comprise a relatively small proportion of cases.

Figure 1b: Rate of new HIV diagnoses, overall and for men and women (according to gender assigned at birth) per 100,000 population per year, 2006 through 2015



Goal #1 Reducing New Infections

Public Health's primary strategies for reducing the number of new HIV infections include: 1) promoting safer sex, including condom use; 2) HIV testing; 3) HIV pre-exposure prophylaxis (PrEP); and 4) ensuring that persons with HIV are effectively treated. The tables and figures below present data on the first three of these strategies, the fourth strategy is addressed under the second NHAS goal (Goal #2 improving access to care and improving health outcomes).

(1) Promoting Safer Sex: Safer sex includes a variety of behaviors, including condom use, reducing one's number of sex partners, using PrEP, discussing HIV with partners and avoiding sex or adopting safer behaviors with partners who are HIV positive or of uncertain HIV status. HIV risk-reduction strategies reported by HIV uninfected MSM who attended the Seattle Pride Parade in 2015 or 2016 are listed in **Table 1** below. Over 80% of survey respondents endorsed one or more risk reduction strategy; the most commonly reported strategies were serosorting, followed by condom use. In 2015, Public Health – Seattle & King County (PHSKC) distributed about 500,000 condoms; the PHSKC STD provided PrEP to approximately 300 persons, and referred hundreds of additional persons for PrEP through other medical providers.

Table 1. Strategies used to reduce HIV risk reported by men who have sex with men (MSM) attending Seattle Pride Parade (excluding self-reported HIV-positives), 2015-2016, N=758

	Percent
Only had sex with people who were the same HIV status as me (serosorting)	32.3
Used condoms with all partners	29.9
Used condoms if I didn't know my partner's status or if their status differed from mine	18.3
Did not have sex	10.7
Used PrEP	9.4
Whether I was a top or bottom depended on my partner's status	5.1
Only had sex with HIV negative partners if they were on PrEP	3.0
Only had sex with HIV positive partners if they were undetectable or taking HIV medicines	2.1
None of the above	19.4

(2) HIV Testing: Figures 2a and 2b show trends in the number of HIV tests performed and numbers of people tested using Public Health funds between 2007 and 2015. Between 2007 and 2015, the total number of tests performed declined 13%, while the number of tests performed among MSM increased by 41%. This change reflects a concerted effort by PHSKC to focus HIV testing resources on the population at greatest risk for HIV infection, MSM.

Figure 2a: Publicly funded HIV testing in King County

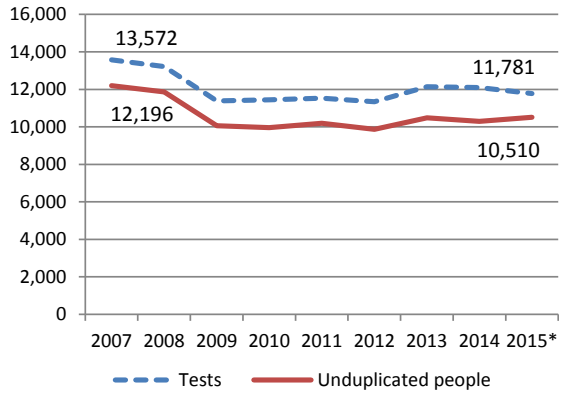
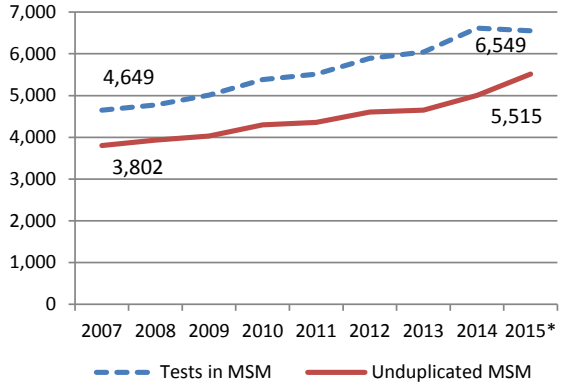


Figure 2b: Publicly funded HIV testing in King County among men who have sex with men (MSM)



*2015 data are incomplete as of 6/30/2016

HIV Test Positivity: Between 2007 and 2015, the percentage of MSM testing HIV positive declined from 2.6% to 1.2%; the overall test positivity remained stable between 0.3% and 0.2% **(Figure 3a). Figure 3b** includes local HIV testing history data reported by MSM, people who inject drugs (PWID), and heterosexuals who participated in the National HIV Behavioral Surveillance surveys, excluding those with a self-reported diagnosis of HIV. Most HIV-negative MSM (54%) reported at least one HIV test in the past six months.

Figure 3a. Percent of individuals stratified by MSM status, testing HIV positive through publicly funded HIV testing in King County

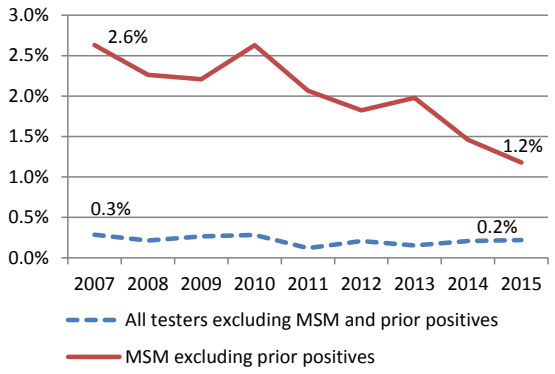
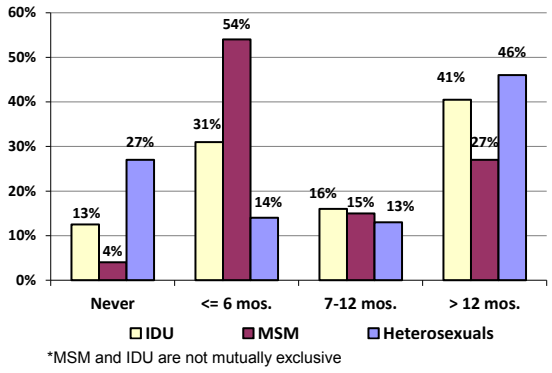


Figure 3b. HIV testing history (time since last HIV test) among people who inject drugs (PWID, in 2015), men who have sex with men (MSM, in 2014), and heterosexuals (in 2013) Seattle area National HIV Behavioral Surveys*



HIV Intertest Interval: PHSKC and the WSDOH recommend that MSM outside of long-term, HIV concordant, mutually monogamous relationships test at least annually, and that men at higher risk for HIV infection test for HIV and STIs quarterly (see http://www.findyourfrequency.com/). The intertest interval (ITI, the time between HIV tests) is a measure of how well those guidelines are being followed. Decreasing the ITI among persons with newly diangosed HIV infection (i.e. the time from last negative test to first positive test) minimizes the amount of time infected persons go without treatment and may be unknowningly exposing others to HIV. The median ITI remained relatively stable (between 8 and 12 months) for MSM diagnosed with HIV between 2009 and 2015 **(Figure 4a)**. Three quarters of MSM had ITI of 25 months or less in 2015 (excluding those who never tested or with unknown testing status), and 24% and 46% reported testing HIV negative in the 6 and 12 months prior to their HIV diagnosis (of all with known testing statuses). Throughout this period, 6% to 11% of MSM reported never testing negative for HIV prior to an initial HIV diagnosis. Since 2010 at least 84% 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 4b)**.

Figure 4a: Median and inter-quartile range (IQR) of intertest intervals (months between last negative and first positive test) of newly HIV diagnosed MSM, King County

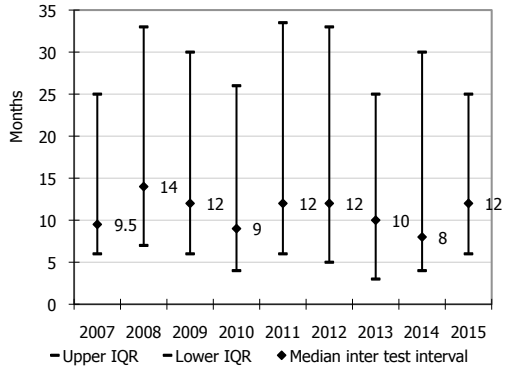
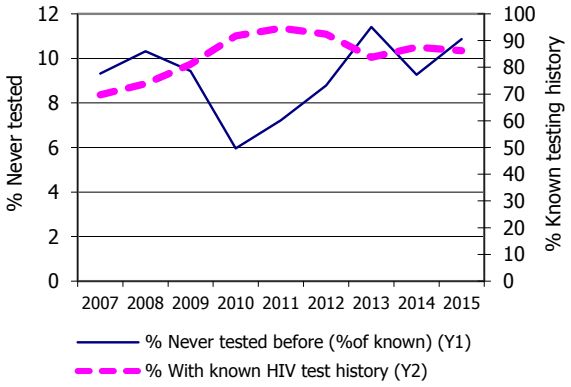
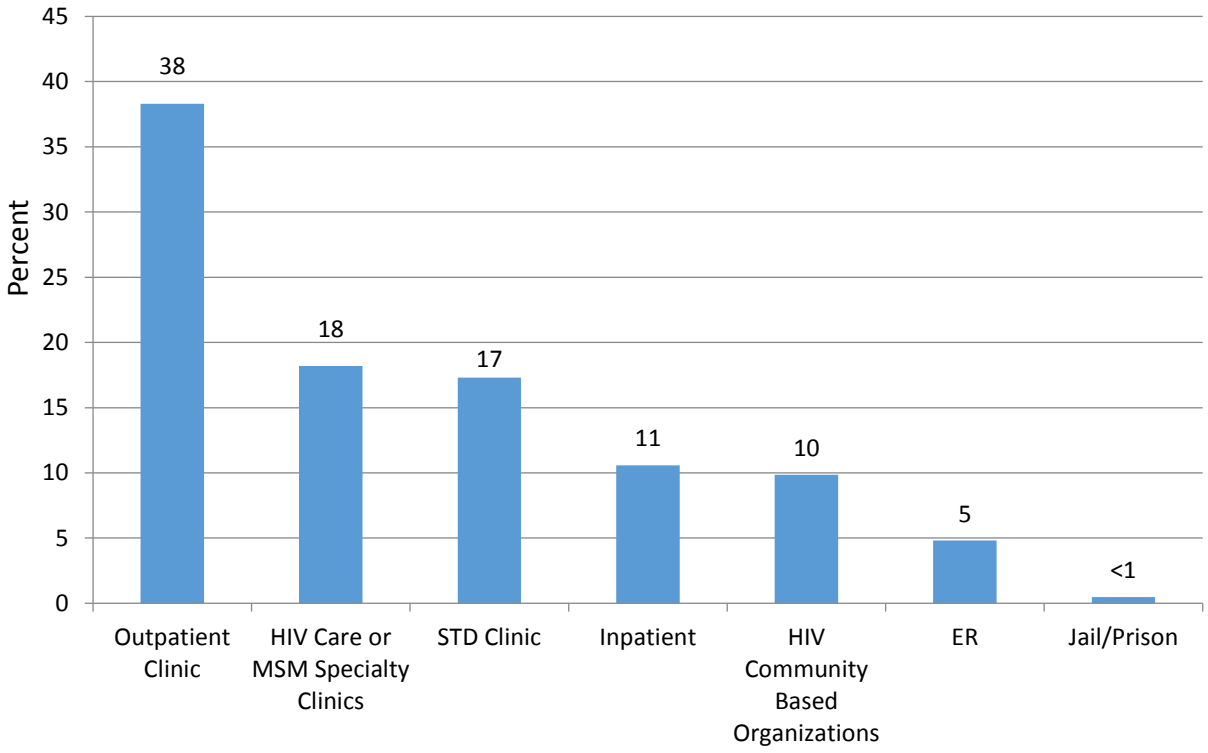


Figure 4b. Percent of MSM with a known testing history (Y2) and who never had an HIV test before an HIV diagnosis (Y1), King County



Place of HIV Diagnosis: Figure 5 presents information on where persons with newly diagnosed HIV infection were diagnosed. Inclusion is limited to individuals diagnosed with HIV in 2014 or 2015 with an HIV diagnosis at a local facility (n = 416), excluding diagnoses made out of state, or among individuals self-reporting earlier diagnoses. The Public Health – Seattle & King County STD clinic was the largest single diagnosing site for HIV infection, diagnosing 17% of all new infections in 2014 and 2015. A total of 22% of all cases were diagnosed through public health funded HIV testing, and 18% of cases were diagnosed by medical providers specializing in HIV (including University of Washington, Harboview, and Virginia Mason's HIV specialty clinics) or the care of MSM.

Figure 5. HIV diagnosis facility, 2014-2015, King County (n=416)



Late HIV Diagnosis: As shown in **Figure 6**, the percentage of individuals with newly diagnosed HIV infection diagnosed with AIDS within six months of, 12 months of, or concurrent with first testing HIV positive has declined by 27 – 34% over the past decade. In 2014 (the most recent year with a full year of follow-up available), 23% of all persons diagnosed with HIV, including 18% of MSM, 33% of PWID and 22% of heterosexuals were diagnosed with AIDS within 1 year of HIV diagnosis. In 2013 the HIV classification was changed in two ways that impact the definition late HIV diagnosis. First, individuals with a negative HIV test in the six months before their HIV diagnosis ceased to be considered late diagnoses if they were diagnosed concurrently with an AIDS-defining illness. Secondly CD4 percent <14% no longer leads to an AIDS diagnosis in persons with a concurrent absolute CD4+ count > 200 cells/µL. The median CD4 count at time of HIV diagnosis has been roughly stable since 2007, between 347 and 415 **(Figure 7).**

Figure 6: Late HIV diagnoses, as defined by AIDS diagnosis concurrently, within six months, or within one year of HIV diagnosis, King County 2006-2015

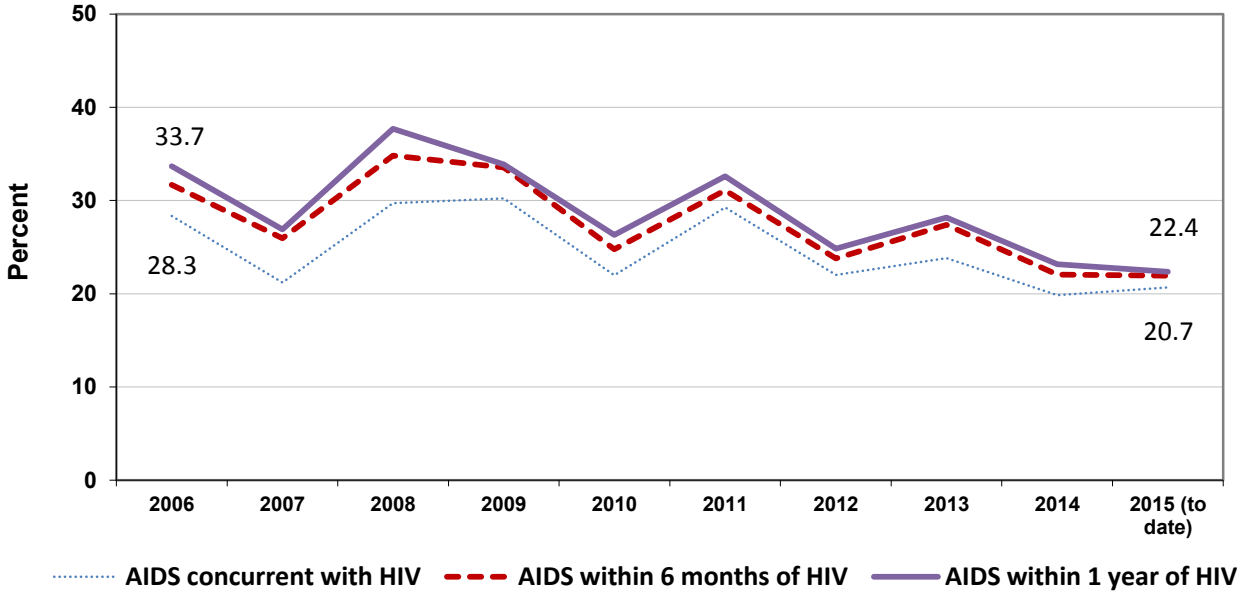
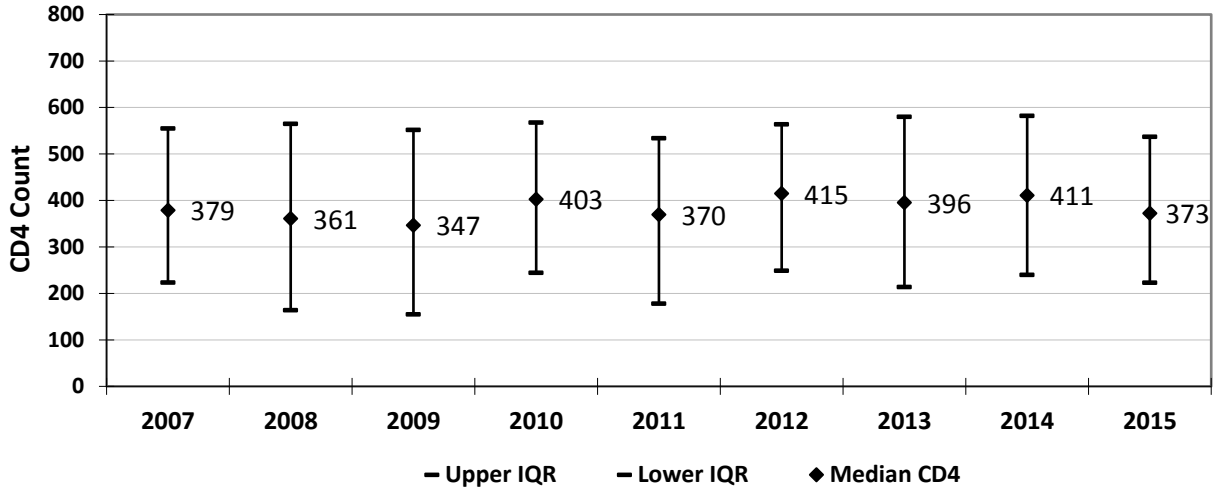
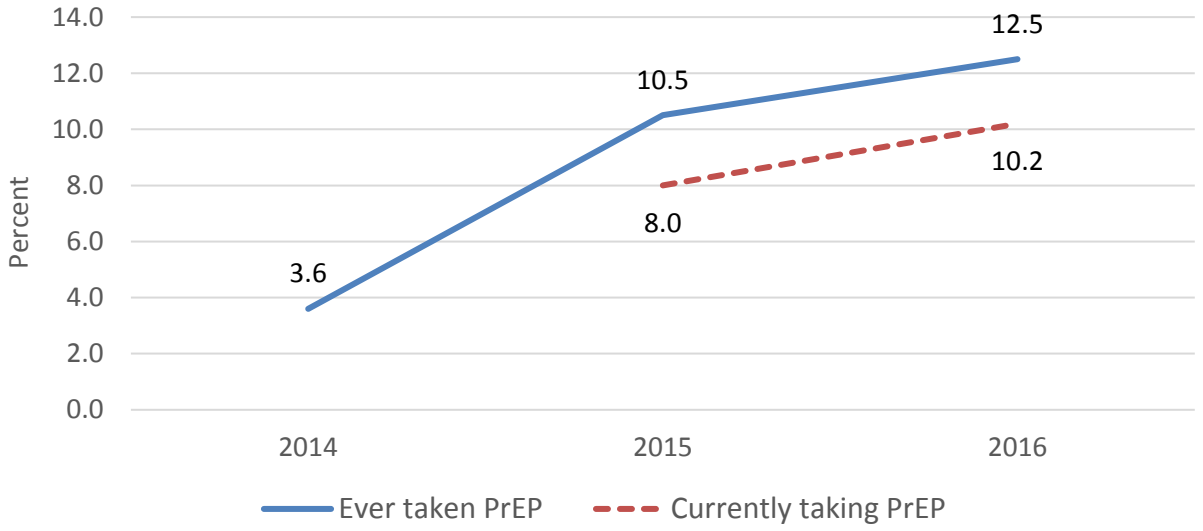


Figure 7: Median and inter-quartile range (IQR) of first CD4 counts among people newly diagnosed with HIV, King County



(3) Pre-exposure Prophylaxis (PrEP) for HIV: Among MSM who completed the Pride Survey – an annual survey conducted at the Seattle Pride Parade - and did not report an HIV-positive status, the percent reporting ever using PrEP increased from 4% in 2014 to 13% in 2016 **(Figure 8)**. PrEP use is higher among MSM at elevated risk of HIV infection than among men at lower risk (see the summary of Pride data in this issue of the Epidemiology report). Public Health and the Washington State Department of Health have specific PrEP implementation guidelines, provide and refer patients for PrEP, and maintain lists of medical providers willing to screen for and prescribe PrEP. (See http://www.kingcounty.gov/healthservices/health/communicable/hiv/prevention/~/media/health/publichealth/documents/hiv/For-Patient-PrEP-Providers-List.ashx and http://www.doh.wa.gov/Portals/1/Documents/Pubs/150-074-PrEPMedicalProvidersList.pdf.) A summary of data collected from medical providers on the King County list is presented elsewhere in this issue.

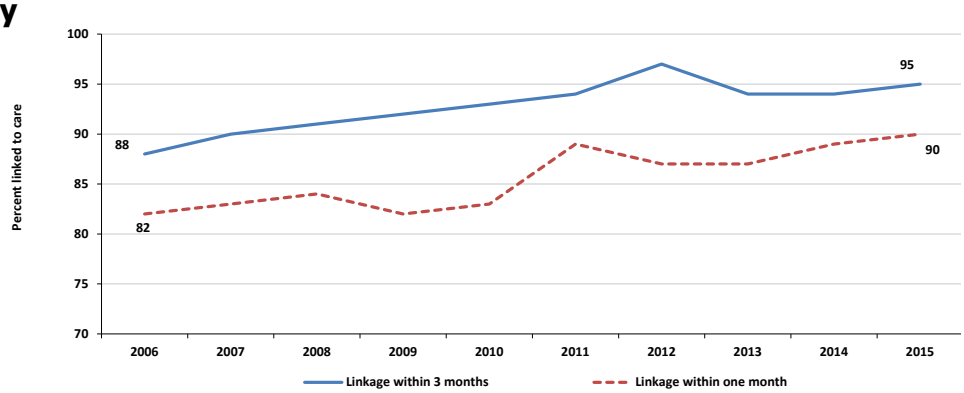
Figure 8: Pre-exposure prophylaxis use among HIV-uninfected men who have sex with men (MSM) attending Seattle Pride events 2014-2016



Goal #2: Increase access to care and improve health outcomes for all people living with HIV

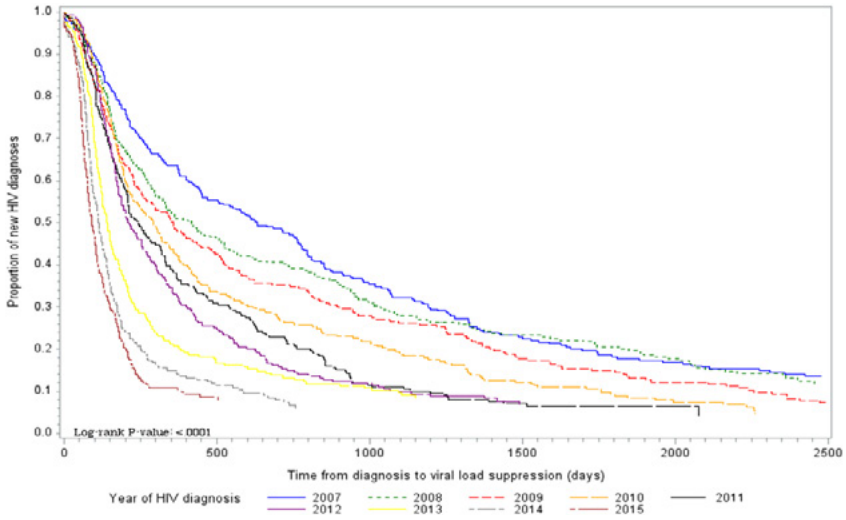
Linkage to Care: Figure 9a shows that shows that a high proportion of people newly diagnosed with HIV link to care within one or three months of diagnosis. In each year since 2007, 90% or more of all persons with newly diagnosed HIV infection have linked to HIV care within 3 months of diagnosis, defined as a reported CD4 count or viral load within three months of diagnosis. In 2015, 95% of people with newly diagnosed HIV infection were known to have linked to HIV care within three months and 90% within one month.

Figure 9a: Timely linkage to care (CD4 or viral load testing within 3 months of diagnosis), King County



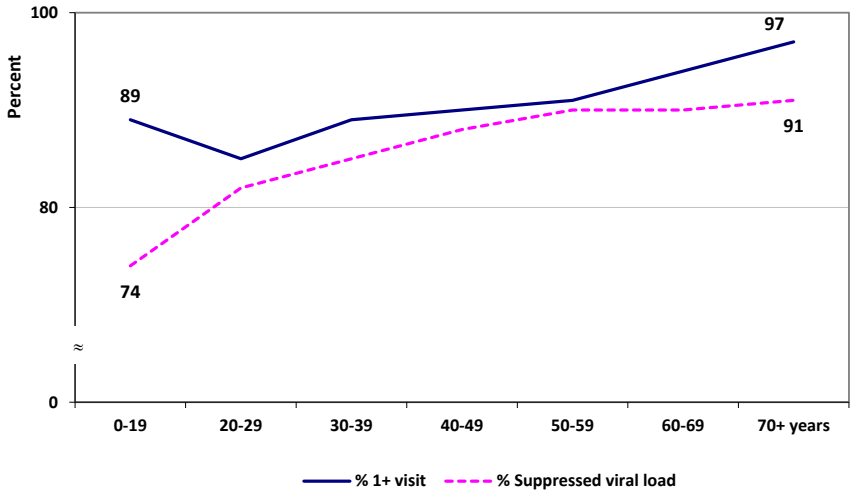
Time to Viral Suppression: Over the past decade, the time between HIV diagnosis and antiretroviral treatment initiation and viral suppression has shortened considerably. In the Figure below **(Figure 9b)**, the dramatic decrease in time to suppression is shown with a series of "survival curves". These curves show the percent of people with HIV diagnosed each year, 2007 to 2015, who remain without viral suppression at each time period, in days from diagnosis to either suppression or censoring (which can be death, relocation, or being censored due to observation ceasing at the time of this analyses). Viral suppression is based on an initial viral load < 200 copies/mL. At time of diagnosis (time 0) essentially 100% are not suppressed. For people diagnosed with HIV in 2007, half were virally suppressed in about 1.3 years. For individuals diagnosed with HIV in 2015, half were virally suppressed in about three months, 75% were suppressed within 6 months and 87% were suppressed within one year. These data were examined in October of 2016, so individuals diagnosed in the last quarter of 2015 have not yet been observed for a full year, and the percent suppressed within one year may increase.

Figure 9b: Differences in time to viral suppression by year of HIV diagnosis, King County, 2007–2015



Engagement with HIV Care: Figure 9c shows that engagement with care (percent with one or more reported laboratory test as a proxy for one or more visit) and viral suppression (viral load < 200) increased with age among adult PLWHA. Engagement was also higher among children and adolescents less than 20 years of age relative to those in their 20's. 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 9c: Percent with any visit and undetectable viral load by age in 2015, King County



CD4 Count and Viral Load (Figures 9d and 9e): 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/mm^3 (range 500-1500 cells/mm^3), and individuals with a CD4 count under 200 are considered severly immunosuppressed and are defined as having AIDS. In 2015, CD4 and viral load test values were available for 90% of diagnosed cases presumed living locally. More than 60% of PLWHA for whom laboratory data were available had a CD4 count over 500 cells/mm^3, and only 7% had a CD4 count under 200 cells/mm^3 **(Figure 9d)** In 2015, 86% PLWHA with laboratory data available had an undetectable viral load, and an additional 5% had a detectable viral load under 200 copies **(Figure 9e)**, making a total of 90% with viral suppression (viral load < 200; rounding to the closest integer resulted in the sum of subtotals being 1% higher than the total).

Figure 9d: Most recent CD4+ T-lymphocyte counts 2015, King County (based on 6,142 people with CD4 tests reported)

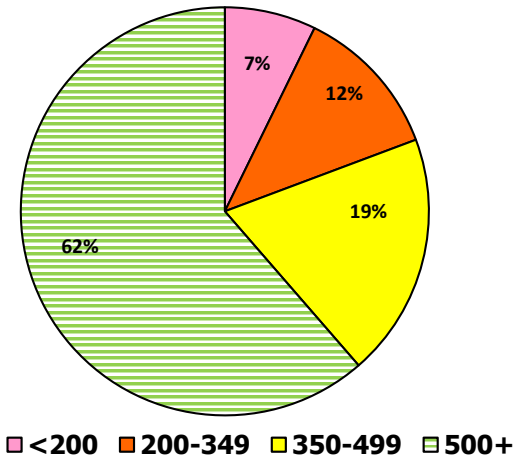
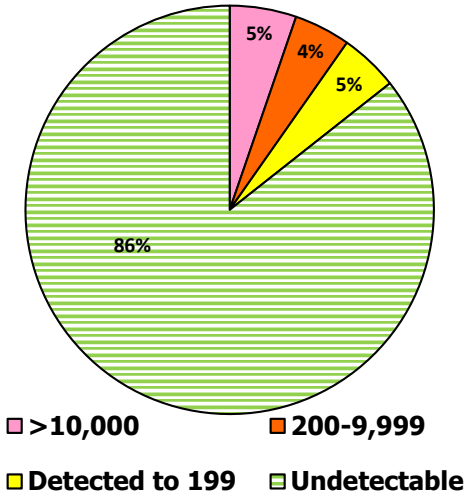


Figure 9e: Most recent plasma viral load 2015, King County (based on 6,120 people with viral load tests reported)



Factors Associated with Not Being Virally Suppressed or in HIV Care: We used a multivariate model to investigate the factors associated with (1) being viremic (viral load greater than 200 copies per mL), (2) not being in care in 2015, or both of these ourtcomes. Not being in care was defined by having no viral load, CD4, or other lab test (such as a genotype assay) reported in 2015 among people diagnosed in 2014 and earlier. A multivariate model teases out the individual associations of multiple factors (predictors) with an outcome after "adjusting" for all the factors in the model. This type of model allows one to identify factors that are associated with an outcome after the impact of the other factors in the model are taken away. The results are expressed as odds ratios (OR) with 95% confidence intervals (CI). An OR is an estimate of the relative risk of having the outcome. OR's below one suggest people with the factor are at lower risk of the outcome. OR's above one suggest people with the factor are at higher risk of the outcome. OR equal to one suggest there is neither a higher nor a lower risk of the outcome. In addition to all of the other factors listed in **Table 2**, we also adjusted for year of HIV diagnosis. Unless otherwise specified, the OR for each category are relative to all other people not in that category. For age, the reference category is people in their 30's. Statistical significance was determined by 95% CI which do not include the value of 1.0. PWID, Latinos and U.S.-born Blacks were all at elevated risk for being out of care or not being virologically suppressed. This finding highlights the disparties that characterize the local HIV epidemic.

Table 2: Factors Associated With (1) Not Being in Care in 2015 or (2) Not Having a Supressed HIV Viral Load (<200 Copies per mL), King County HIV Surveillance Data Reported As Of 6/30/2015+

Factor	Percent Out of Care or Not Suppressed	Adjusted OR*	(95% CI)
Total	**17%**		
People who inject drugs	22%	1.3	(1.1 – 1.6)
Men who have sex with men	15%	0.6	(0.5 – 0.7)
Foreign-born Latino	19%	1.7	(1.1 – 2.5)
US-born Latino	25%	1.7	(1.3 - 2.2)
Foreign-born Black	16%	1.2	(0.8 – 1.9)
US-born Black	26%	1.8	(1.5 – 2.1)
Female sex assigned at birth	18%	0.6	(0.5 – 0.8)
Male sex assigned at birth	17%	1.0	Reference category
<20 years of age	19%	0.9	(0.4 – 1.9)
20 – 29	26%	1.2	(1.0 – 1.6)
30 – 39	21%	1.0	Reference category
40 – 49	17%	0.7	(0.6 – 0.9)
50 – 59	14%	0.6	(0.5 – 0.7)
60 – 69	13%	0.4	(0.4 –0.7)
70+ years of age	10%	0.4	(0.3 – 0.8)

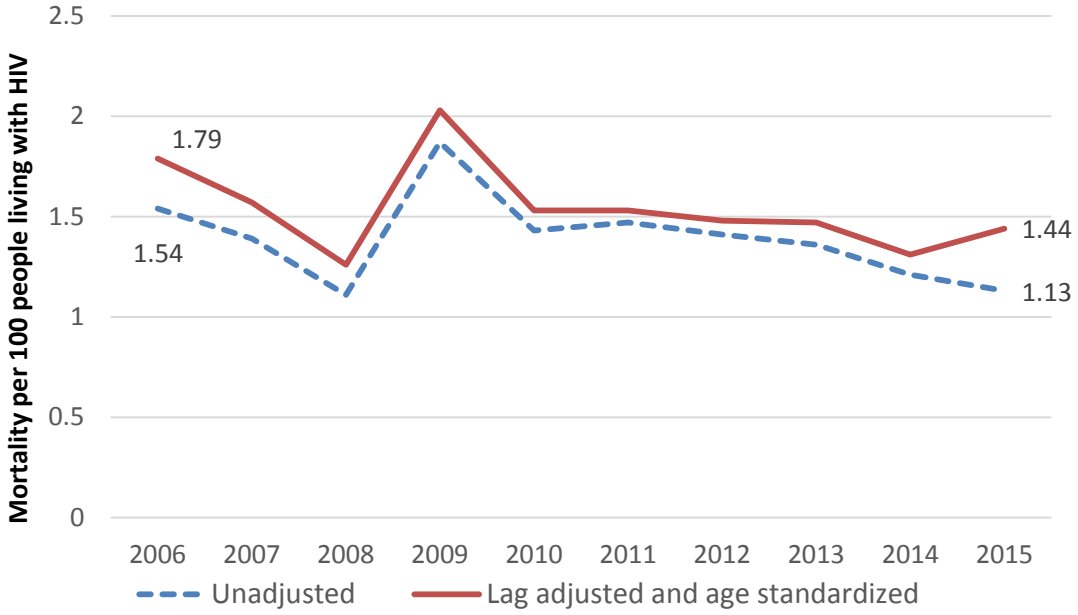
+ Analysis includes 5,648 persons in care and 1,132 persons who were not engaged with care or who were viremic (6,780 total). Excludes individuals diagnosed with recent HIV diagnoses (in 2015).

* OR (odds ratios) are adjusted for all of the other variables in the table plus year of HIV diagnosis.

CI= Confidence Interval.

Mortality: Mortality rates among PLWHA have declined over the last 10 years. As shown in **Figure 10**, age and lag adjusted mortality among PLWHA in King County has declined 20% between 2006 and 2015 (death ascertainment for 2015 was estimated to be 70% complete, with completeness increasing through 2007 [99% complete] and 2006 [100% complete]). Mortality rates in 2009 may have been artificially higher due to an investigation of HIV deaths conducted for individuals who died that year. Despite the long-term decline in the age-adjusted mortality rate seen in the figure, this rate has now been stable for more than five years, and the slowing in the decrease in death rates may be, at least partly, due to over-adjustment for reporting lag. The absence of further progress on this critical metric in the face of rising levels of viral suppression highlights the need to better understand the causes of death in persons dying with HIV in King County and develop new appraoches to improving their health.

Figure 10: Death Rates 2006-2015 Among King County Residents Diagnosed With HIV: (1) Unadjusted and (2) Adjusted for Changes in Age Distribution and Lags in Death Reporting.



Goal #3: Reduce Health-Related Disparities

Disparities in HIV Prevalence by Race/Ethnicity, Nativity, and HIV Risk: To estimate HIV prevalence among MSM, we assumed that 5.7% of males age 15+ years across all races/ethnicities were MSM.[4] Using this assumption, Black MSM were 52% more likely, Latino MSM were 39% more likely, and Asian MSM were 74% less likely to have an HIV diagnosis relative to White MSM **(Figure 11a)**. HIV infection remains relatively rare among women and heterosexual men who don't inject drugs, with fewer than 3 in 1,000 persons in all groups other than foreign-born-Blacks having diagnosed HIV infection **(Figure 11b)**. However, this prevalence varies markedly by race/ethnicity. In this figure, Whites and Asians are combined as the percent with diagnosed HIV was identical (0.028%). Based on U.S. Census data, approximately 25% of Blacks and 38% of Latinos in King County are foreign born. Excluding MSM and persons who inject drugs (PWID), we estimate that 1.5% of foreign-born Blacks and 0.2% of foreign-born Latinos in King County have diagnosed HIV infection. In 2015, 34% of all new HIV diagnoses in King County occurred in persons born outside of the US, including 7% of diagnoses in Whites, 43% of diagnoses in Blacks, 62% of diagnoses in Latinos, and 89% of diagnoses among Asian/Pacific Islanders (data not shown). Excluding cases occuring in MSM and PWID, the prevalence of diagnosed HIV infection is 7.8 times higher among US-born African Americans relative to Whites. Among PWID, HIV prevalence varies markedly by MSM status and methamphetamine use **(Figure 11c)**. Depending on methamphetamine usage, MSM were three to ten or more times as likely to have HIV infection relative to other PWID.

Figure 11: HIV diagnosis prevalence among MSM (men who have sex with men) by race/ethnicity, non-MSM/PWID (people who inject drugs) by race/ethnicity and nativity, and among PWID by MSM and methamphetamine use, 2015, King County

Figure 11a: Estimated percent of MSM** with an HIV diagnosis by race

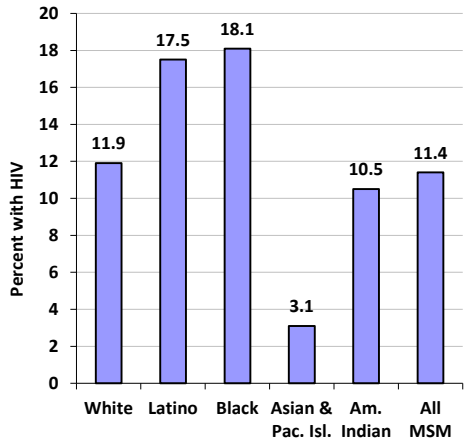


Figure 11b: Percent of non-MSM, non-PWID with HIV diagnoses

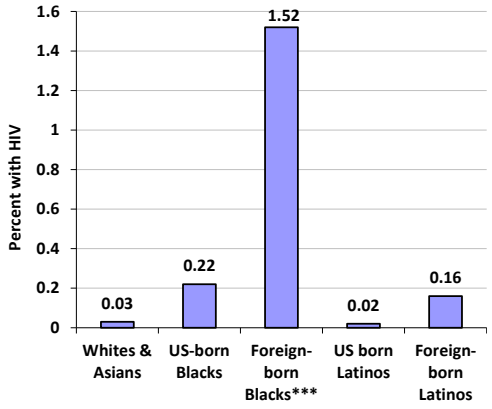
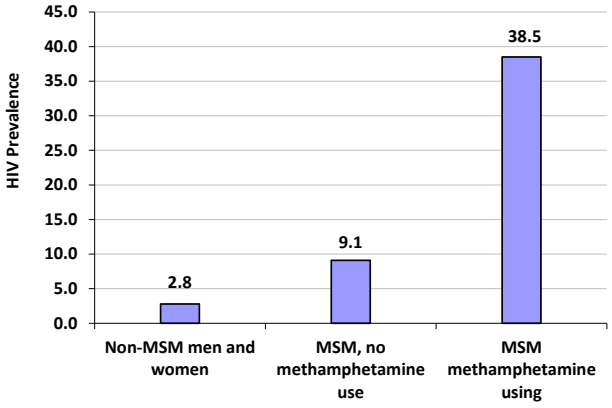


Figure 11c: HIV seroprevalence among people who inject drugs from Seattle area National Behavioral Surveillance, 2015



MSM = Men who have sex with men; PWID = People who use injection drugs

** MSM are estimated at 5.7% of King County 2015 male residents age 15 years and greater[4]

*** Foreign-born Blacks are estimated at 25% of Black/African/African-American residents; foreign-born Latinos are 38% of Latino residents

Disparities in HIV Care Continuum Measures by Race/Ethnicity, Nativity, and HIV Risk: Table 3 presents HIV care continuum data among persons diagnosed with HIV stratified by gender, race/ethnicity, nativity and HIV risk (among MSM, PWID and heterosexuals). (Please note that the percentages below differ from **Figure 1** in this section, which include all perons living with HIV, diagnosed and undiagnosed.) Virologic suppression is approximately 9% lower among Blacks than among Whites and 7% lower among PWID than among MSM (absolute differences). 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 whole[1].

Table 3: HIV-Care Metrics, Including Linkage to Care, Being in Medical Care and Viral Suppression for Selected Groups Living With HIV Infection, King County Washington 2015.

	People living with diagnosed HIV in 2015 (PLWDH) (N)	New diagnoses in 2015	Percent of people living with diagnosed HIV (PLWDH) in King County in 2015 who:		
			Linked* to medical care within three months of diagnosis (among 2015 diagnoses)	Who had one or more care visit in 2015 of PLWDH	Whose most recent viral load in 2015 was suppressed <200 copies) of PLWDH
Total	**6,808**	**239**	**95%**	**90%**	**81%**
Gender					
Men (sex assigned at birth)	6,022	208	95%	91%	81%
Women (sex assigned at birth)	786	31	94%	90%	79%
Transgender**	57	8***	88%	89%	75%
Race, Ethnicity and Nativity					
Whites	4,296	111	95%	91%	84%
Blacks	1261	60	95%	89%	75%
Foreign-born Blacks	505	26	96%	90%	82%
US-born Blacks	756	34	94%	88%	71%
Latinos	817	39	95%	87%	76%
Foreign born Latinos	448	24	96%	89%	78%
US-born Latinos	369	15	93%	84%	74%
Asians	291	26	100%	91%	85%
Asians and Pacific Islanders	316	28	100%	92%	85%
Native Americans***	59	5***	100%	85%	71%
HIV Risk Factors					
Men who have sex with men (MSM)****	5,211	162	97%	91%	83%
People who inject drugs (PWID)****	883	24	87%	90%	76%
Heterosexuals	720	15	93%	82%	74%
Foreign Born	1,329	81	98%	90%	81%
Meth use prior to diagnosis, first collected in 2009	302	24	88%	90%	77%
Race/Ethnicity Among MSM					
White MSM	3,702	88	95%	92%	85%
Black MSM	495	23	96%	89%	73%
Latino MSM	640	30	100%	88%	79%

* "Linked" is based on percent of cases diagnosed in 2015 linking to care based on CD4 or viral load tests within 3 months of diagnosis. The numbers of newly diagnosed Native Americans, Pacific Islanders, and transgender individuals in 2015 were small (< 7) and the % linking to care should be in interpreted with caution.

** Transgender category includes transgender women (95%) and transgender men (5%)

*** Due to small numbers diagnosed in 2015 alone; recent diagnoses include 2014 and 2015.

**** MSM-PWID are included in both categories.

Table 4 presents information on the characteristics of persons living with HIV in King County who are not virally suppressed. An estimated 1,284 King County residents have been diagnosed with HIV infection, but are not suppressed. A total of 651 (51%) of these persons saw a medical provider at least once in 2015. While Black and Latino MSM are more likely to be unsuppressed (27% and 21% respectively relative to 15% of White MSM), almost half of unsuppressed persons are White and other (non-Black, non-Latino) MSM. The numbers presented highlight the fact that while the number of unsuppressed persons is substantial, the number of persons in each subpopulation defined by demographic characteristics or risk is relatively small.

Table 4: Number and characteristics of diagnosed persons living with HIV in King County who are not virally suppressed

Presumptively living with diagnosed HIV in King County		**Number without a suppressed viral load in 2015***	
Group	No.	**No. (% of group, row %)**	(% of unsuppressed, column %)
Total	6,808	**1,284 (19%)**	(100%)
Total MSM	5,211	**904 (17%)**	(70%)
Black MSM	495	**133 (27%)**	(10%)
Latino MSM	640	**137 (21%)**	(11%)
White MSM	3,702	**568 (15%)**	(44%)
Other MSM	374	**66 (18%)**	(5%)
People who use injection drugs (PWID)	876	**206 (24%)**	(16%)
Foreign-born Blacks (FBB)	505	**93 (18%)**	(7%)

* Includes individuals without a reported viral load as well as viral loads > = 200 copies / mL
MSM = men who have sex with men; PWID = people who use injection drugs

Contributed by:
Matthew Golden, Julia Hood, Sara Glick, Richard Burt, Katelynne Gardner Toren and Susan Buskin

References:

[1] National HIV/AIDS Strategy for the United States: Updated to 2020. July 2015. Available at https://www.aids.gov/federal-resources/national-hiv-aids-strategy/nhas-update.pdf. Accessed 9/10/15.

[2] Centers for Disease Control and Prevention. Monitoring selected national HIV prevention and care objectives by using HIV surveillance data—United States and 6 dependent areas, 2014. HIV Surveillance Supplemental Report 2016;21(No. 4). http://www.cdc.gov/hiv/library/reports/surveillance/. Published July 2016. Accessed 9/2/2016.

[3] Fellows IE, et al. A New Method for Estimating the Number of Undiagnosed HIV Infected Based on HIV Testing History, with an Application to Men Who Have Sex with Men in Seattle/King County, WA. PLoS One. 2015 Jul 21;10(7):e0129551.

[4] Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, King County data from 2013 and 2014

2016 Seattle Pride Survey

PHSKC (Public Health Seattle & King County) conducts an annual survey at the Seattle Pride Parade as a means to annually measure key HIV-related indicators in MSM (men who have sex with men). An estimated 10% of MSM were HIV-infected; 31% of HIV-negative/status unknown respondents met at least one of the PHSKC-defined criteria for being at higher risk for HIV. A total of 10% of all MSM and 26% of higher risk MSM reported currently taking PrEP (pre-exposure prophylaxis) at the time of the survey; 30% of higher-risk MSM reported ever using PrEP.

Background

In King County (KC), Washington, HIV is concentrated among men who have sex with men (MSM). MSM account for 70% of recent new diagnoses and 75% of people living with an existing HV diagnosis. Since 2009, PHSKC has conducted an annual survey at the Seattle Pride Parade as a means to measure key HIV-related indicators in a cross-sectional sample of MSM. The survey is adapted each year in response to changing programmatic needs. For example, a section on HPV vaccination was added to the 2016 survey as a means to evaluate the "I❤Genitals" campaign. This article summarizes data collected in June 2016 pertaining to healthcare access and utilization, drug use, sexual behaviors, HIV and STD testing, and pre-exposure prophylaxis (PrEP). Trends in PrEP awareness and uptake were assessed using Pride Survey data collected in 2009-2016.

Methods

Roughly 350,000 people, many of whom are MSM, attend the Seattle Pride Parade each year. Trained interviewers, dispersed along the parade route, approach parade participants and spectators, briefly explain the purpose of the survey, 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. Participants receive a $5 coffee card. Since 2009, PHSKC has collected 2,780 responses from Washington State residents who identify as MSM attending the Pride Parade.

This year, a large proportion (14%) of respondents skipped the question about HIV status. When analyzing questions pertaining to HIV acquisition risk and risk reduction strategies, we used multiple imputation by chained equations to impute missing values for HIV status. Age, time since last HIV test, drug use, sexual behavior, health insurance, and healthcare engagement variables were used to predict HIV status. Imputations and analysis of imputed datasets were conducted with IVEWare, a SAS-callable macro (IVEWare, Ann Arbor, MI; SAS, version 9.3, Cary, NC).

Results

The Pride Survey was administered to 369 MSM at the 2016 Pride Parade **(Table 1)**. Participants were 71% non-Hispanic White. Forty-three percent were under age 30 and 20% were 50 years or older. Unstable housing in the past 12 months was reported by 12% of respondents and 44% of respondents had annual incomes less than $30,000. About 10% of respondents were HIV positive.

Table 2 describes responses to general health questions in the overall sample and stratified by age group (<30 vs. ≥ 30 years old). The majority of both age groups possessed health insurance (90%). A smaller proportion of young MSM reported having a regular medical provider (71% vs. 90%), having a health visit in the last 12 months (79% vs. 93%), and having a medical provider who knows that the respondent has sex with men (64% vs. 84%). The majority of respondents (82%) reported some degree of interest in seeing a medical provider who specializes in issues affecting gay men. Most respondents (82%) indicated that they had heard of the HPV vaccine; 34% of young MSM reported that they had received at least one dose of the HPV vaccine and 20% reported having received 2-3 doses of the vaccine.

Tables 3-5 and all subsequent text describe respondents without diagnosed HIV. Recreational drug use in the prior 12 months was reported by 22% of respondents **(Table 3)**. A minority of respondents reported having both male and female partners (11%) and male and transgender partners (5%) in the prior 12 months. Condomless anal sex with an HIV positive partner or a partner of unknown status was reported by 8% and 11% of respondents, respectively. The most commonly reported seroadaptive sexual behaviors were: only having sero-concordant sex partners (36%), using condoms with all partners (28%), or using condoms for sero-discordant partners (21%). Based on a validated risk score defining factors associated with future HIV diagnosis, 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; 31% of HIV-negative/status unknown respondents met at least one of these high risk criteria.[1]

Most respondents (90%) had ever been tested for HIV, 57% had an HIV test in the past year, and 32% reported >2 tests in the last 2 years **(Table 4)**. High-risk respondents tested more frequently than low risk respondents. Of respondents who were ever tested for HIV, the majority of respondents (50%) reported receiving their last HIV test at their doctor's office; Gay City or the STD Clinic was the venue of last test for 10% and 6% of respondents, respectively. Half of respondents reported STD testing in the past year and 10% reported a chlamydia, gonorrhea, or syphilis diagnosis in the past year. A subset of respondents reported ever using an HIV self-test (16%) or receiving HIV/STD testing reminders (16%).

The majority of respondents (77%), including 75% of lower risk MSM and 84% of high risk MSM, had heard of PrEP; 12% had ever taken PrEP and 10% reported currently taking PrEP. A total of 26% of higher risk MSM reported currently taking PrEP at the time of the survey and 30% reported ever using PrEP. These compare to 23% current use and 33% ever use of PrEP among high risk men in 2015. Trends in PrEP awareness and uptake among Pride Survey respondents are illustrated in **Figure 1**. A minority of respondents (42% of high risk MSM and 16% of lower risk MSM) reported that a medical provider had spoken to them about PrEP in the last year. Reasons for not taking PrEP are listed in **Table 5**. The most common reason MSM cited for not taking PrEP was their perception that they were at low risk for HIV infection. This was true even among men defined as being at higher risk for HIV based on PHSKC criteria. The second most common reason given for not taking PrEP was "I don't know enough about PrEP".

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 2016 Pride Survey yielded these findings:

- Percent insured remains high (90%) 2.5 years following the implementation of the Affordable Care Act.
- MSM in the Seattle area test for HIV relatively frequently, though less often than recommended by PHSKC: among HIV-negative/status unknown individuals, 90% had ever tested, 78% tested in the past two years, and 57% had tested in the last year. Of higher risk MSM, 90% reported HIV testing in the prior 2 years.
- PrEP uptake and awareness remains high: 26% of high-risk MSM reported that they were currently using PrEP and 78% of all respondents reported that they had heard of PrEP, however most MSM, including most higher risk MSM, have not spoken to a medical provider about PrEP in the past year.
- HPV immunization rates among young MSM remain low.

Despite high levels of success in achieving these intermediate goals of End AIDS Washington, there is still room for improvement. Results from the Pride Survey suggest that additional effort is needed to connect MSM, particularly young MSM, to a regular medical provider to foster ongoing receipt of HIV-related and non-related health services, including HPV vaccination, PrEP, and HIV/STD testing. In particular, there is a need to increase regular HIV testing and discussions between medical providers and patients related to PrEP.

Contributed by Julia Hood

Reference:

[1] Menza TW, et al. Prediction of HIV acquisition among men who have sex with men. Sex Transm Dis. 2009 Sep;36(9):547-55.

Table 1: Characteristics of 2016 Seattle Pride Survey Respondents

	#	%
Total	N=369	100%
Age		
<30	157	43%
30-39	79	22%
40-49	59	16%
50+	72	20%
Race/Ethnicity		
White	258	71%
Hispanic	45	12%
Black	23	6%
Asian	17	5%
Other	6	2%
Multi-racial	17	5%
Educational Attainment		
<High School	14	4%
High School/GED	55	15%
Some college or vocational training	93	25%
2-year college degree	36	10%
4-year college degree	100	27%
>4-year college degree	71	19%
Annual Income		
<15,000	98	27%
15,001-30,000	61	17%
30,001-50,000	77	21%
50,001-100,000	86	24%
>100K	44	12%
Unstably housed in last 12 months	**45**	**12%**
Reported High Risk* Behavior	**120**	**33%**
Reported HIV+ Status		
Positive	30	8%
Negative	279	76%
"Don't Know"	8	2%
Missing	52	14%
Imputed HIV Status		
Negative/Don't know	332	90%
Positive	37	10%

Note: Missing values were excluded.

* High Risk= In the past 12 months, had an STD diagnosis, used meth or poppers, condomless sex partner with positive or unknown HIV status, 10 or more anal sex partners

Table 2: Responses to General Health Questions by Age Category, Seattle Pride Survey, 2016

	Total	<30 Years	≥30 Years
Has health insurance	90%	89%	91%
Has a regular medical provider	82%	71%	90%
Had a health visit in prior 12 months	87%	79%	93%
Medical provider knows respondent has had sex with men	75%	64%	84%
"Would you prefer to see a medical provider who specializes in issues affecting gay men?" (Assume there would be no additional cost in seeing a specialist)			
Yes – I'm currently seeing a specialist.	29%	29%	30%
Yes, and I'd consider switching from my current provider to a specialist.	25%	15%	32%
Yes, but I don't want to change health care providers.	29%	39%	21%
No, I'm not interested in seeing a specialist.	18%	18%	18%
Heard of the HPV vaccine	82%	82%	82%
Received HPV vaccine			
1 shot	11%	15%	9%
2-3 shots	12%	19%	6%

Note: Since 2012, the HPV vaccine is recommended for any MSM through age 26.

Table 3: Reported Risk Behaviors among HIV-Negative/Unknown Status^ MSM (n=332), Seattle Pride Survey, 2016s

	%
Drug Use in the Last 12 Months	
Injection drug use	5%
Methamphetamines	9%
Poppers	17%
Cocaine	10%
Crack	7%
Heroin	6%
Sexual Behavior in the Last 12 Months	
No sex in last 12 months	6%
Transactional sex	5%
Had male and female sex partners	11%
Had male and transgender sex partners	5%
# of male anal sex partners	
0-1	64%
2-4	21%
5-9	5%
≥10	9%
"How often discuss HIV status before sex with new partner?"*	
Never	10%
Sometimes	13%
Usually	22%
Always	56%
Had condomless anal sex with…	
HIV negative partner	53%
HIV positive partner	8%
Partner of unknown status	11%
"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?"	
Took PrEP	10%
Only had sex with people who were the same HIV status as me	36%
Used condoms with all partners	28%
Used condoms if I didn't know my partner's status or if their status differed from mine	21%
Whether I was a top or bottom depended on my partner's status	5%
Only had sex with HIV negative partners if they were on PrEP	4%
Only had sex with HIV positive partners if they were undetectable or taking HIV medicines	2%
Did not have sex	10%
None of the above	17%
Risk Level for Acquiring HIV, per PHSKC Definition#	
Low	69%
High	31%

^ Used multiple imputation to recover missing values.

* Unclear how respondents in long-term, monogamous relationships answered this question.

High Risk= In the past 12 months, had an STD diagnosis, used meth or poppers, condomless sex partner with positive or unknown HIV status, 10 or more anal sex partners

Table 4: HIV and STD Testing among HIV-Negative/Unknown Status^ MSM (n=332) , Seattle Pride Survey, 2016

	Overall %	High-Risk* N=96	Low-Risk* N=222
Ever tested for HIV	90%	94%	87%
# of HIV tests in past 2 years			
0	22%	10%	28%
1	22%	10%	27%
2	24%	26%	23%
3-4	19%	26%	16%
≥5	13%	28%	7%
Time since last test			
<1 year	57%	78%	47%
1-2 years	21%	11%	24%
≥3 years	22%	11%	29%
Ever used HIV self-test	16%	25%	12%
Venue of last HIV test (among ever-testers)			
Doctors Office	50%	53%	50%
Gay City	10%	13%	9%
STD Clinic	6%	7%	5%
Other	34%	27%	36%
STD• testing in last 12 months	50%	72%	40%
STD• diagnosis in last 12 months#	10%	32%	0%
Receive any HIV/STD testing reminders (e.g. text, email, calendar)	16%	27%	12%

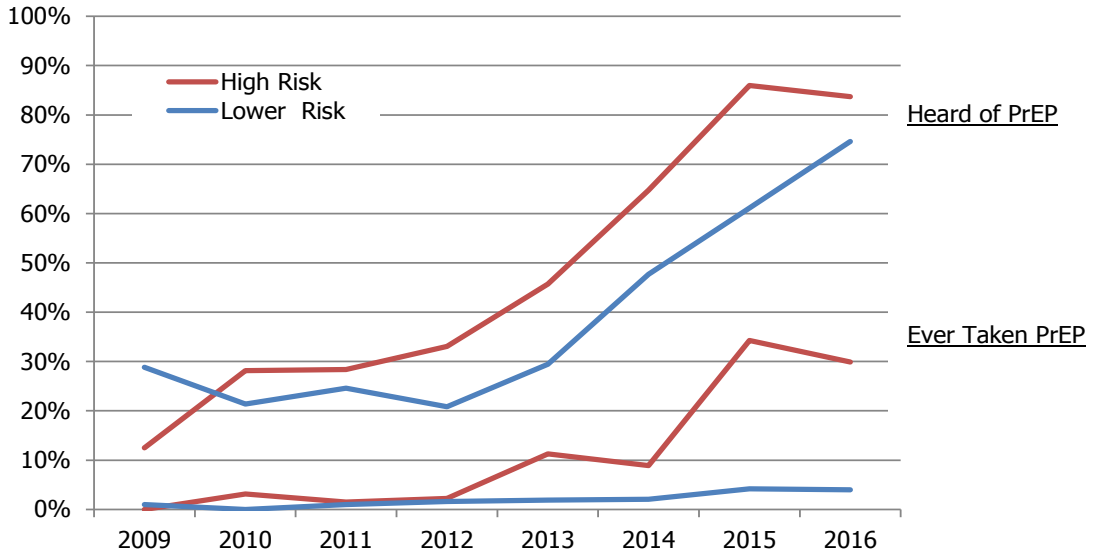
^ Used multiple imputation to recover missing values.

* High Risk= In the past 12 months, had an STD diagnosis, used meth or poppers, condomless sex partner with positive or unknown HIV status, 10 or more anal sex partners

• Participants were asked if they were "tested for" and "diagnosed with" syphilis, gonorrhea, or chlamydia.

Respondents who indicated that they had not tested in the past 12 months and skipped the question about an STD diagnosis were assumed to not have received an STD diagnosis in the past 12 months.

Figure 1. Awareness and Uptake of PrEP among HIV-Negative/Unknown Status MSM Attending Seattle Pride Parade



* High Risk= In the past 12 months, had an STD diagnosis, used meth or poppers, condomless sex partner with positive or unknown HIV status, 10 or more anal sex partners

Table 5: Reported Barriers to PrEP Use among HIV-Negative/Unknown Status^ MSM who are Not Currently Taking PrEP, Seattle Pride Survey, 2016

	Overall %	Low-Risk* N=222	High-Risk* N=96
"Has a medical provider talked to you about PrEP in the last year?"			
Yes	22%	16%	42%
Reasons why not taking PrEP:			
I am at low risk for HIV and don't need PrEP	50%	54%	34%
PrEP is too expensive/not covered by insurance	6%	4%	10%
I don't know where to get PrEP	7%	6%	13%
I don't know enough about PrEP	19%	20%	18%
I am concerned about side-effects	12%	7%	18%
Stigma around PrEP	5%	4%	9%
I don't think I would consistently take the medication	6%	5%	7%

* High Risk= In the past 12 months, had an STD diagnosis, used meth or poppers, condomless sex partner with positive or unknown HIV status, 10 or more anal sex partners.

^Used multiple imputation to recover missing values.

Highlights from the 2015 Seattle Area National HIV Behavioral Surveillance Survey of Injection Drug Use (NHBS-IDU)

The 2015 National HIV Behavioral Surveillance system conducted HIV and HCV testing among Seattle area persons who inject drugs (PWID), and measured related risk and prevention behaviors. The overall HIV prevalence among PWID in the Seattle area NHBS was 5%, but MSM who inject methamphetamines had an HIV prevalence of 38%. HCV prevalence was 66% and concentrated among older heroin injectors.

Introduction

People who inject drugs (PWID) are at increased risk of HIV and other infections – including hepatitis B and C – if they share syringes or other injection equipment. The rate of new HIV diagnosis among PWID has declined considerably both locally and nationally since the late 1980s. In the U.S. in 2014, new HIV diagnoses attributed to injection drug use comprised 6% of the estimated 43,899 new HIV cases, and 9% when HIV cases attributed to combined injection drug use and male-to-male sexual contact were included.[1] Locally, injection drug use accounted for 3% of HIV cases, and the combination of injection drug use and male-to-male sexual contact accounted for 6% (total 9%), in King County in 2014.[2] (Previous analyses of local National HIV Behavioral Surveillance data have suggested that the high HIV prevalence among MSM who inject drugs is likely attributed to sexual transmission.[3]) The 2012 Seattle area NHBS-IDU3 survey found an 8% prevalence of HIV among PWID. Opioid injection rates are on the rise, however, highlighting the need for ongoing HIV prevention efforts among PWID. The 2015 outbreak of approximately 200 HIV cases among PWID in Scott County, Indiana, demonstrated the extent and efficiency by which HIV can be transmitted in the context of injection equipment sharing and minimal harm reduction programs such as syringe exchange.[4]

This report describes findings from the 2015 Seattle area NHBS survey of IDU (NHBS-IDU4). In 2015, the CDC sponsored NHBS surveys in 20 U.S. urban areas including the Seattle Division of the Seattle Metropolitan Statistical Area (King and Snohomish counties).[5] 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. We have reported results from earlier Seattle area NHBS surveys including MSM,[6-8] IDU,[9-11] and individuals at risk for heterosexually-acquired HIV[12-14] in earlier issues of the HIV/AIDS Epidemiology Report.

Methods

The CDC NHBS-IDU surveys are conducted using respondent-driven sampling (RDS). RDS is a form of snowball sampling where participants are incentivized to recruit their acquaintances into the study. Recruitment starts with a small number of participants ("seeds") who are asked to recruit up to 5 of their peers. If those referrals are eligible and complete the study, they are asked to recruit a new "wave" of participants.

All data collection activities for NHBS-IDU4 were conducted at our main field office in Capitol Hill (Seattle) or our second field office in Auburn, Washington. Eligibility criteria included: resided in King or Snohomish County, age 18 years or older, and injected drugs in the past 12 months. 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 and hepatitis C (HCV) testing. We used rapid HIV and HCV testing on finger-stick specimens (OraSure Technologies). Those with reactive ("positive") rapid HIV test results provided a blood sample for Western Blot confirmatory testing; participants were invited to return to the study office to receive their confirmatory test results. Study staff provided newly diagnosed HIV-infected participants with referrals to HIV care, including PHSKC's One-On-One Program. Participants received a $50 incentive (+$10 for each referral), condoms, and information about local HIV prevention, health and social services. The study collected no personal identifiers and was approved by the Washington State Institutional Review Board.

Results

Recruitment

The study was open for recruitment between June and November, 2015. Study staff recruited 17 seeds, of whom 11 recruited at least one participant. Over 20 recruitment waves, 627 participants were screened, and 535 participants were eligible for the present analysis. Among the 92 not included, the majority (70%) reported no injection drug use in the previous 12 months. All 535 eligible participants consented to both the interview and HIV testing, while 15 participants did not consent to HCV testing.

Sociodemographic Characteristics

The sample of PWID was largely male (64%) and white (66%), with a median age of 41 years **(Table 1)**. Socioeconomic conditions reflected very high rates of unemployment, annual household income <$10,000, homelessness, and incarceration. The vast majority of PWID in Seattle had health insurance (92%) and had seen a health care provider in the past 12 months (87%).

Sexual Behaviors

The majority of participants identified as straight or heterosexual, with 31% of women and 19% of men reporting gay or bisexual identity **(Table 2).** Among the 18% of men who had sex with another man (MSM) in the past year, 65% reported >1 male partner. HIV non-concordant condomless anal or vaginal sex with a sex partner in the past year was reported by 63% of MSM and 38% of non-MSM.

Drug Use Practices

Heroin continues to be reported as the drug most frequently injected among Seattle area NHBS-IDU participants, reported by 80% either alone (67%) or in combination with cocaine (7%) or methamphetamines (6%) **(Table 3)**. An additional 19% of participants reported that they typically injected only methamphetamines, of whom 27% were MSM. While syringe sharing in the previous 12 months was reported by a minority (37%) of PWID, the majority (65%) shared other drug injection equipment in the past year. The median age at first drug injection was 20 years (25th/75th interquartile range [IQR]: 17-27). Approximately one-third (35%) of PWID reported that they had previously been "hooked on painkillers", which began at the median age of 18 years (IQR: 15-22).

HIV Testing and Prevalence

Among PWID who self-reported being HIV-uninfected, 47% had received an HIV test in the last year, 65% had tested in the past 2 years, and 89% had tested at least once in their lifetime.

A total of 26 (4.9%) of the 533 participants with valid HIV test results in the study were HIV-infected on confirmatory testing. (Two participants had an indeterminate HIV test result and one was reactive on the rapid test but refused confirmatory testing.) Twenty-two (85%) of the 26 HIV-infected persons were aware of their status. Among the 106 PWID who reported that they did not know their HIV status, 2 were HIV-infected.

As shown in **Table 1**, HIV prevalence was highest among 30-39 year olds (9%) and those with incomes <$10,000 (7%). However, there were no statistically significant differences in HIV prevalence by gender, race/ethnicity, education, employment, or incarceration history. HIV prevalence was higher among PWID who were not homeless, likely due to housing benefits provided to HIV-infected persons. **Table 2** highlights that HIV prevalence was highest among male PWID reporting a gay sexual identity (58%). **Table 3** shows that this elevated risk among MSM-PWID is largely associated with methamphetamine injection with a 38% HIV prevalence among MSM who primarily inject methamphetamine. HIV prevalence is also lower among PWID who inject multiple times a day as compared with PWID who inject less frequently; likely because the latter are more likely to be methamphetamine injectors.

HCV Testing and Prevalence

Overall, 84% of all PWID had ever been tested for HCV.

The majority (66%) of the 520 participants who consented to rapid HCV testing in the study had a reactive ("positive") result. Among those with a positive HCV test, 74% were aware of their status, 18% thought they were negative, and 8% had never tested before. Among those with a negative HCV test, 66% were correctly aware of their status, 6% reported that they were HCV-infected, and 28% had never tested before.

Among PWID under the age of 30, 41% had a positive HCV test **(Table 1)**. This increased to 86% among PWID age 50+. Contrary to the epidemiology of HIV, HCV prevalence was significantly lower among MSM (53%) than non-MSM (71%) **(Table 2)**. Likewise, the prevalence of HCV differed significantly by most common injection drug with the lowest prevalence among methamphetamine users, possibly because they reported injecting less frequently **(Table 3)**. HCV prevalence was higher among PWID who reported sharing drug injection equipment.

Uptake of Prevention and Treatment Services

Drug Use: In the past year, 39% of all PWID had been enrolled in drug treatment. Among PWID who reported any opioid use, 27% reported methadone treatment and 5% reported buprenorphine treatment **(Table 4)**. The vast majority of all PWID (79%) used a local syringe exchange, which was also the most common source of new syringes. Twenty percent of PWID reported overdosing in the past year and 56% witnessed an overdose. Nearly one-half (44%) of PWID had obtained naloxone, and over one-half (56%) of those with naloxone had used it to reverse an overdose.

HIV: Among PWID who self-reported being HIV-infected prior to study participation, all had seen a health care provider for HIV care, and 87% were currently on antiretroviral therapy. Only 13% of PWID had heard of PrEP (pre-exposure prophylaxis) for HIV; 1 person reported taking PrEP in the past year.

HCV: Among the 51% of PWID who self-reported having a prior HCV diagnosis, 16% reported any past treatment for HCV. The vast majority of PWID with self-reported HCV (73%) had heard of the new treatments that "consist of taking pills for a few months and no interferon shots." Six percent reported having completed one of these treatments, 8% were waiting, 6% wanted treatment but were unable, and 55% were interested.

Comments

In 2015, the overall HIV prevalence among PWID in the Seattle area NHBS was at a historic low (5%). This is likely due, at least in part, to robust harm reduction programs (e.g., syringe exchange) and an associated decline in syringe sharing over time.[15] Moreover, King County has among the highest rates in the U.S. of engagement in HIV care and viral suppression among HIV-infected persons, which substantially reduces transmission risk at both the individual and population levels. Indeed, self-reported ART use in the past year was 87% among the HIV-infected PWID in our sample. Unfortunately, the HIV prevalence among MSM who inject methamphetamines remains extraordinarily high (38%). While MSM-PWID were only 5% of our sample, they comprised over one-third of the HIV infections. These data suggest that methamphetamine-injecting MSM should be a priority population for PrEP.

Similar to previous NHBS surveys, HCV prevalence was high among PWID (66%) and concentrated among heroin users. Among those age <30 years, HCV prevalence was already 41%, suggesting that primary prevention interventions need to be targeted at the youngest PWID. This was the first NHBS-IDU cycle conducted after the introduction of the new, easier-to-use HCV curative therapies, and history of HCV treatment increased slightly between 2012 (10%) and 2015 (16%).

Between 2012 and 2015, the percent of PWID who primarily used methamphetamines increased substantially from 9% to 19%, despite a similar proportion of MSM in each survey. This demonstrates increasing methamphetamine injection in Seattle area women and men who are not MSM. These findings highlight the potential for HIV transmission between high HIV prevalence and low HIV prevalence populations, if injection equipment sharing occurs between MSM and non-MSM.

These data also provide a snapshot of other service utilization and needs for PWID. While 39% of PWID had participated in some drug treatment in the past year, only 5% had used buprenorphine (Suboxone) which is likely in much higher demand. Use of local syringe exchange programs was high, along with naloxone possession and use. However, given the high observed overdose rates, there is still a need for expanded naloxone distribution efforts. There are substantial efforts underway to expand local drug user health services, which could include HCV testing and linkage to care, increased access to buprenorphine treatment and naloxone, and a supervised drug consumption site. If any or all of these interventions are implemented, these NHBS-IDU data will likely serve as one source of baseline data by which the coverage impact of some of the interventions can be measured.

Contributed by: Sara Glick, Richard Burt, Courtney Moreno, Jake Ketchum, and Hanne Thiede

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Table 1: Sociodemographic Characteristics among Participants in the 2015 Seattle Area National HIV Behavioral Surveillance Injection Drug Use (NHBS-IDU4) Survey

	Participants		HIV Prevalence		HCV Prevalence	
	N	%	% HIV+	p-value[1]	% HIV+	p-value[1]
TOTAL			**5%**		**66%**	
Gender identity				**0.25**		**0.30**
Female	191	36%	3%		62%	
Male	343	64%	6%		68%	
Transgender[2]	1	<1%	0%		100%	
Age, years				**0.05**		**<0.01**
18-29	130	24%	2%		41%	
30-39	125	23%	9%		62%	
40-49	123	23%	6%		68%	
50+	157	29%	4%		86%	
Race/Ethnicity				**0.78**		**0.08**
White	352	66%	5%		63%	
Black	50	9%	6%		84%	
Hispanic	47	9%	4%		67%	
Asian/Pacific Islander	5	1%	0%		40%	
Am. Indian/AK Native	14	3%	0%		69%	
Multiple races	65	12%	8%		62%	
Foreign-born				**0.15**		**0.21**
No	521	97%	5%		66%	
Yes	14	3%	14%		50%	
Education				**0.70**		**0.38**
High school or less	361	67%	4%		66%	
Post-high school	150	28%	6%		66%	
College grad. (4 yrs)	24	4%	4%		52%	
Employed				**1.00**		**0.02**
No	488	91%	5%		67%	
Yes	47	9%	4%		50%	
Household income, annual				**0.03**		**0.03**
<$10,000	296	56%	7%		70%	
$10,000+	236	44%	3%		60%	
Homeless, currently				**0.04**		**0.84**
No	224	42%	7%		65%	
Yes	309	58%	3%		66%	
Homeless, last 12 months				**0.01**		**0.75**
No	143	27%	9%		67%	
Yes	392	73%	3%		65%	
Incarcerated, last 12 months				**0.10**		**0.22**
No	319	60%	6%		67%	
Yes	214	40%	3%		63%	

[1] Comparing HIV or HCV prevalence, χ^2 test or Fisher exact test (if cell size ≤5);

[2] The NHBS survey does not distinguish between transgender men and transgender women, and does not include an option for non-binary, genderqueer, or other.

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

Table 2: Sexual Identity and Behaviors Among Participants in the 2015 Seattle Area National HIV Behavioral Surveillance Injection Drug Use (NHBS-IDU4) Survey

	Participants		HIV Prevalence		HCV Prevalence	
	n	%	% HIV+	p-value[1]	% HIV+	p-value[1]
Sexual identity among women[2]				**0.50**		**0.30**
Straight/heterosexual	132	69%	2%		58%	
Gay/homosexual	8	4%	0%		63%	
Bisexual	51	27%	6%		71%	
Sexual identity among men[2]				**<0.01**		**0.04**
Straight/heterosexual	277	81%	2%		71%	
Gay/homosexual	20	6%	58%		45%	
Bisexual	44	13%	7%		61%	
Previous 12 months						
Men with male sex partners				**<0.01**		**<0.01**
No	282	82%	2%		71%	
Yes	60	18%	22%		53%	
Number of male sex partners among MSM				**0.02**		**0.12**
1	21	35%	5%		71%	
2-4	22	37%	23%		45%	
5+	17	28%	44%		41%	
Non-concordant condomless vaginal or anal sex among MSM[3]				**0.37**		**0.22**
No	22	37%	29%		63%	
Yes	38	63%	18%		47%	
Number of opposite gender sex partners among non-MSM				**0.58**		**0.01**
0	95	20%	3%		81%	
1	161	34%	4%		60%	
2-4	159	34%	3%		67%	
5+	57	12%	0%		65%	
Non-concordant condomless vaginal or anal sex among non-MSM[3]				**0.09**		**0.22**
No	294	62%	4%		69%	
Yes	179	38%	1%		64%	

[1] Comparing HIV or HCV prevalence, χ^2 test or Fisher exact test (if cell size ≤5).
[2] Among persons who identify as female or male.
[3] Condomless vaginal or anal sex between partners of unknown or opposite HIV status.
Note: Some categories may not sum to total sample size due to missing data.

Table 3: Drug Use Practices Among Participants in the 2015 Seattle Area National HIV Behavioral Surveillance Injection Drug Use (NHBS-IDU4) Survey

	Participants		HIV Prevalence		HCV Prevalence	
	n	%	% HIV+	p-value[1]	% HIV+	p-value[1]
Most common injection drug				**0.05**		**<0.01**
Heroin alone	360	67%	3%		71%	
Methamphetamine alone	99	19%	10%		40%	
Speedballs (heroin+cocaine)	35	7%	3%		79%	
Goofballs (heroin+meth)	34	6%	9%		69%	
Other	7	1%	0%		83%	
Previous 12 months						
MSM status by most common injection drug				**<0.01**		**<0.01**
Non-MSM	473	89%	3%		67%	
MSM, not meth	33	6%	9%		76%	
MSM, methamphetamine	27	5%	38%		26%	
Average injection frequency				**<0.01**		**0.15**
>1/day	383	72%	3%		68%	
1/day – 1/week	111	21%	13%		61%	
<1/week	40	7%	5%		55%	
Shared syringe				**0.06**		**0.02**
No	334	63%	6%		62%	
Yes	200	37%	3%		72%	
Shared cookers, cottons, or water				**0.41**	**<0.01**	
No	**188**	**35%**	**6%**		**56%**	
Yes	**346**	**65%**	**4%**		**71%**	
Shared any injection equipment				**0.29**		**<0.01**
No	**176**	**33%**	**6%**		**56%**	
Yes	**358**	**67%**	**4%**		**70%**	

[1] Comparing HIV or HCV prevalence, $\chi 2$ test or Fisher exact test (if cell size ≤5).
Note: Some categories may not sum to total sample size due to missing data.

Table 4: Uptake of Prevention and Treatment Services among Participants in the 2015 Seattle area National HIV Behavioral Surveillance Injection Drug Use (NHBS-IDU4) Survey

	Participants	
	N	%
DRUG USE, PAST 12 MONTHS		
Enrolled in drug treatment		39%
Methadone treatment[1]	132	27%
Buprenorphine treatment[1]	23	5%
Used a local syringe exchange	418	79%
Overdosed	108	20%
Witnessed an overdose	296	56%
Obtained naloxone	232	44%
Used naloxone (if obtained)	131	56%
HIV		
Among self-reported HIV infected PWID:		
Saw HIV care provider, ever	23	100%
Currently on antiretroviral therapy	20	87%
Among self-reported HIV-uninfected or unknown HIV status PWID:		
Heard of PrEP	67	13%
Took PrEP in past year	1	<1%
Took PEP in past year	2	<1%
HCV		
Among self-reported HCV-infected PWID:		
Any HCV treatment (if self-reported HCV+)	43	16%
Had heard of new HCV treatments2 (if self-reported HCV+)	193	73%
Use of and interest in new HCV treatments[2] (if self-reported HCV+)		
Completed	15	6%
Waiting to start	21	8%
Wanted but were unable	15	6%
Interested	146	55%
Not interested or not sure	67	25%

[1] Among PWID who reported any opioid use in the past year (n=487).

[2] Question asked about treatments that "consist of taking pills for a few months and no interferon shots."

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

Behavioral and Clinical Characteristics of Patients Receiving HIV Care in King County Medical Monitoring Project, in 2013-2014

The Medical Monitoring Project (MMP) collects behavioral and clinical data on a representative sample of adults in HIV care. MMP data collected between June 2013 and May 2015 suggest that nearly all HIV care patients in King County were prescribed antiretroviral therapy and a large proportion of HIV care patients were virally suppressed. However, King County HIV care patients face other challenges, including unstable housing and methamphetamine use that may jeopardize their HIV care and overall quality of life.

Background

As of December 31, 2013, the estimated number of persons with a diagnosis of human immunodeficiency virus (HIV) infection or acquired immunodeficiency syndrome (AIDS) was 949,931 for the United States[1] and 7,502 for King County, WA.[2] HIV surveillance programs in the United States collect limited information about people who have received diagnoses of HIV infection and AIDS. Supplemental surveillance projects collect more detailed information about care-seeking behaviors, healthcare use, and other behaviors among persons living with diagnosed HIV (PLWDH). Together, these data inform program planning, resource allocation, HIV prevention efforts, evaluation of existing clinical and social services, and development of new HIV-related interventions.

Methods

The Medical Monitoring Project (MMP) is a supplemental surveillance system that collects annual cross-sectional clinical, sociodemographic, and behavioral data on randomly selected adults (18 years and older) living with HIV. Until mid-2015, MMP used a three stage sampling design to obtain representative samples of adults receiving HIV/AIDS care. Only HIV care patients who visited an HIV care facility participating in MMP between January and April of a given year could be sampled for MMP. Data collection for MMP is conducted in 16 states and Puerto Rico, areas where 73% of the total PLWDH population in the United States reside. During face-to-face or telephone interviews, information on demographics, adherence to HIV medication regimens, behavioral risk factors, and service utilization is collected. Medical record abstractions (MRA) are conducted to collect clinical data pertaining to diagnoses, medications, laboratory results, and health service utilization. A more detailed description of the MMP methodology is available elsewhere.[1,3]

This article describes King County data from the MMP 2013 and 2014 cycles, collected between June 2013 and May 2015. This article is modeled after a report that was generated for the national MMP sample, available here: http://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-hssr-mmp-2013.pdf; results from this report are listed in **Table 1** allowing the characteristics of King County MMP participants to be compared to MMP participants nationally.[1] The data were weighted for probability of selection and nonresponse to be representative of adults receiving outpatient medical care for HIV in King County. It should be noted that the MMP sampling design was intended to yield estimates for the PLWDH population in care in Washington State, not to yield county-level estimates; as such, the results from this analysis should be interpreted with caution. Statistical software (SAS, version 9.3, Cary, NC) was used for analysis of weighted data.

Results

Of the 634 King County HIV care patients sampled for MMP in 2013-2014, 453 contributed data to the present analysis. In 2013-2014, the majority of adults receiving HIV care in King County were male (88%), non-Hispanic White (60%), 45 years or older (68%), had a high school degree or higher (89%), were born in the United States (82%), and had lived with HIV for 10 or more years (69%) **(Table 1)**. HIV care patients in King County, compared to HIV care patients nationwide, were significantly (based on non-overlapping confidence intervals) more likely to have been male, non-Hispanic White, post-high school educated, above the federal poverty threshold, and identified as homosexual. About 12% of patients experienced unstable housing and 4% were incarcerated in the 12 months preceding their interview. Approximately one-third (32%) were at or below the federal poverty line.

Nearly all adults receiving HIV care in King County reported that they were currently taking antiretroviral medicine for HIV (96%, see **Table 2**). Among patients with CD4 counts <200 cells/mm , 73% had a prescription for PCP prophylaxis documented in their medical records. Eighty-five percent reported having received a flu shot in the past 12 months, most current smokers (70%) reported having a discussion about smoking cessation with their medical providers, and three-quarters of women reported that they had a pap smear in the prior 12 months. Based on review of participants' medical records, nearly two-thirds of sexually active MSM in HIV care had a syphilis test (65%) and about 38% had a chlamydia or gonorrhea test in the past 24 months.

MMP participants are asked whether they needed various services funded by the Ryan White program in the prior 12 months. If they indicated that they needed the service, they are asked whether they received the service in the prior 12 months. **Figure 1** illustrates the responses to this component of the MMP interview. The mostly commonly received services were dental care (60%) and case management (58%). Despite the very widespread receipt of dental services, 28% of all respondents - 32% of all persons reporting any need for dental services – had an unmet need for dental services. In contrast, only 4% of respondents - 6% of all persons reporting a need for case management – reported an unmet need. The percent of all participants indicating that they needed, but had not received, other specific services was generally low, from 1% (HIV prevention education) to 9% (mental health services). However, among persons reporting that they needed specific services, the percentage for whom that need was unmet was often substantial: 43% for peer support, 30% for housing assistance, 29% for transportation assistance, 25% for mental health services, and 22% for drug and alcohol counseling. These findings demonstrate a need to expand access to these services.

Substance use in the last 12 months was common among adults in HIV care in King County: 34% were current smokers, 19% were binge drinkers (in one sitting, ≥5 alcoholic drinks for men and ≥4 drinks for women), 40% used recreational non-injection drugs (including marijuana, cocaine, methamphetamines, poppers, and other drugs), and 9% used injection drugs **(Table 3)**. Aside from alcohol and tobacco, the most commonly reported drugs were marijuana, methamphetamines, and poppers, which were utilized by 30%, 17%, and 13% of patients, respectively. Among adults in HIV care, roughly 38% reported condomless sex in the past year and 17% reported condomless sex with an HIV-negative or status unknown partner **(Table 4)**. Of those reporting serodiscordant condomless sex, 12% were virally unsuppressed per their most recently documented viral load test result; only an estimated 2% of all participants were unsuppressed and reported having condomless sex with a persons who was not known to HIV infected. Starting in MMP 2014, participants were asked if their HIV-negative partners used PrEP (pre-exposure prophylaxis); in this cycle, 15% of those engaging in serodiscordant condomless sex reported that they had an HIV-negative condomless sex partner who was taking PrEP. Recreational drug use (excluding marijuana) was associated with serodiscordant condomless sex [relative risk (RR)= 1.51, 95% CI=1.18, 1.94, p=.0002] and being virally unsuppressed [RR=1.20, 95% CI=0.91, 1.57, p=0.17] in bivariate analyses.

Discussion

This article reports several indicators pertaining to the health of adults receiving HIV care in King County. Nearly all HIV care patients in King County were prescribed antiretroviral therapy and many received crucial clinical and social services. Since these data were collected, the Ryan White program has expanded funding for dental care, which may reduce the unmet need for dental care reported here. Many HIV care patients were unstably housed and reported recreational drug use, which may jeopardize HIV care and overall quality of life, and substantial number of persons reported an unmet need for housing, transportation, and drug and alcohol treatment. These findings highlight the needs to be incorporated into future HIV prevention and care planning. For more information about MMP in King County, please visit our website: http://www.kingcounty.gov/healthservices/health/communicable/hiv/epi/MedicalMonitoring.aspx.

Contributed by: Julia Hood

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[1] Centers for Disease Control and Prevention. Behavioral and Clinical Characteristics of Persons Receiving Medical Care for HIV Infection—Medical Monitoring Project, United States, 2013 Cycle (June 2013–May 2014). HIV Surveillance Special Report 16. http://www.cdc.gov/hiv/library/reports/surveillance/#panel2. Published January 2016. Accessed 13SEPT2016.

[2] HIV/AIDS Epidemiology Unit, Public Health – Seattle & King County and the Infectious Disease Assessment Unit, Washington State Department of Health. HIV/AIDS Epidemiology Report 2nd Half 2010.

[3] McNaghten, A.D., et al., Improving the representativeness of behavioral and clinical surveillance for persons with HIV in the United States: the rationale for developing a population-based approach. PLoS One, 2007. 2(6): p. e550.

Table 1. Characteristics of Patients who Receive HIV Care in King County, Medical Monitoring Project, 2013-2014

	King County		Nationally	
	Weighted Percent	Weighted 95% CI	Weighted Percent	Weighted 95% CI
Gender				
Male	88	84 - 91	72	69 - 74
Female	11	7 - 14	27	24 - 30
Transgender	1	0 - 2	2	1 - 2
Sexual Orientation				
Homosexual	65	60 - 70	50	46 - 54
Heterosexual	23	19 - 27	42	38 - 46
Bisexual	12	9 - 15	8	7 - 9
Race/ethnicity				
White, non-Hispanic	60	54 - 66	32	25 - 38
Black, non-Hispanic	18	14 - 22	43	34 - 52
Hispanic or Latino×	14	10 - 18	21	15 - 28
Asian, non-Hispanic	2	1 - 3	1	1 - 1
Multiracial, non-Hispanic	6	3 - 8	3	2 - 4
Age at time of interview (years)				
18–24	1	0 - 2	3	2 – 4
25-34	10	7 - 13	12	N/A
35-44	21	17 - 25	20	N/A
45-54	41	65 - 46	37	N/A
≥55	27	21 - 33	29	N/A
Education				
Less than high school	11	7 - 14	21	18 - 24
High school diploma or GED	19	15 - 23	26	25 - 28
More than high school	70	64 - 77	52	49 - 56
Born in the United States	82	78 - 86	80	74 - 86
Time since HIV diagnosis (years)				
<5	15	11 - 20	20	18 - 22
5–9	16	11 - 20	20	18 - 22
≥10	69	63 - 76	60	57 - 63
HomelessΔ at any time#	12	9 - 16	8	7 - 9
Incarcerated >24 hours#	4	2 - 6	5	4 - 6
Percent of Federal Poverty Level°†				
<100% FPL	32	27 - 37	47	43 - 51
>100% FPL	68	63 - 73	53	49 - 57
100% FPL – 139% FPL	*20*	*7 - 13*	*N/A*	
139% FPL – 400% FPL	*31*	*27 - 36*	*N/A*	
≥ 400% FPL	*26*	*22 - 31*	*N/A*	

Note: This table summarizes interview data. "N/A", or "not available", indicates numbers that were not included in CDC's published report describing national MMP data.[1]

× Hispanics or Latinos might be of any race. Participants are classified in only one category.

Δ Living on the street, in a shelter, in a single-room–occupancy hotel, or in a car.

In the last 12 months.

* Participants could select more than one response for health insurance or coverage for antiretroviral medications.

° Income from all sources, before taxes, in the last calendar year.

† Poverty guidelines as defined by the Department of Health and Human Services (HHS); more information regarding the HHS poverty guidelines can be found at http://aspe.hhs.gov/poverty/faq.cfm.

Table 2. Receipt of Clinical Services, Medical Monitoring Project, King County, 2013-2014

	Weighted Percent	95% CI
Currently Taking Antiretroviral Medication(s)†	96	94 - 98
Received Seasonal Flu Vaccination†	85	82 - 89
Received Smoking Cessation Counseling (among current smokers)†	70	62 - 78
Had a Pap Smear (among women)†	76	64 - 88
PCP Prophylaxis (among patients with CD4 count <200 cells/mm3)‡	73	61 - 85
STD Testing (among sexually active MSM)‡		
Chlamydia testing	38	31 - 45
Gonorrhea testing	37	30 - 44
Syphilis testing	65	59 - 72

† In prior 12 months per self-reported data.

‡ In prior 24 months per medical record data.

Note: Neisseria gonorrhoeae testing was defined as documentation of a result from culture, gram stain, nucleic acid amplification test (NAAT), or nucleic acid probe. Chlamydia trachomatis testing was defined as a result from culture, direct fluorescent antibody (DFA), enzyme immunoassay (EIA) or enzyme-linked immunoassay (ELISA), NAAT, or nucleic acid probe. Syphilis testing was defined as a result from non-treponemal syphilis tests (rapid plasma reagin [RPR], Venereal Disease Research Laboratory [VDRL]), treponemal syphilis tests (Treponema pallidum hemagglutination assay [TPHA], T. pallidum particle agglutination [TP-PA], microhemagglutination assay for antibody to T. pallidum [MHA-TP], fluorescent treponemal antibody absorbed [FTA-ABS] tests) or dark-field microscopy.

Figure 1: Reported Met and Unmet Need for Ryan White Funded Services, Medical Monitoring Project, King County, 2013-2014

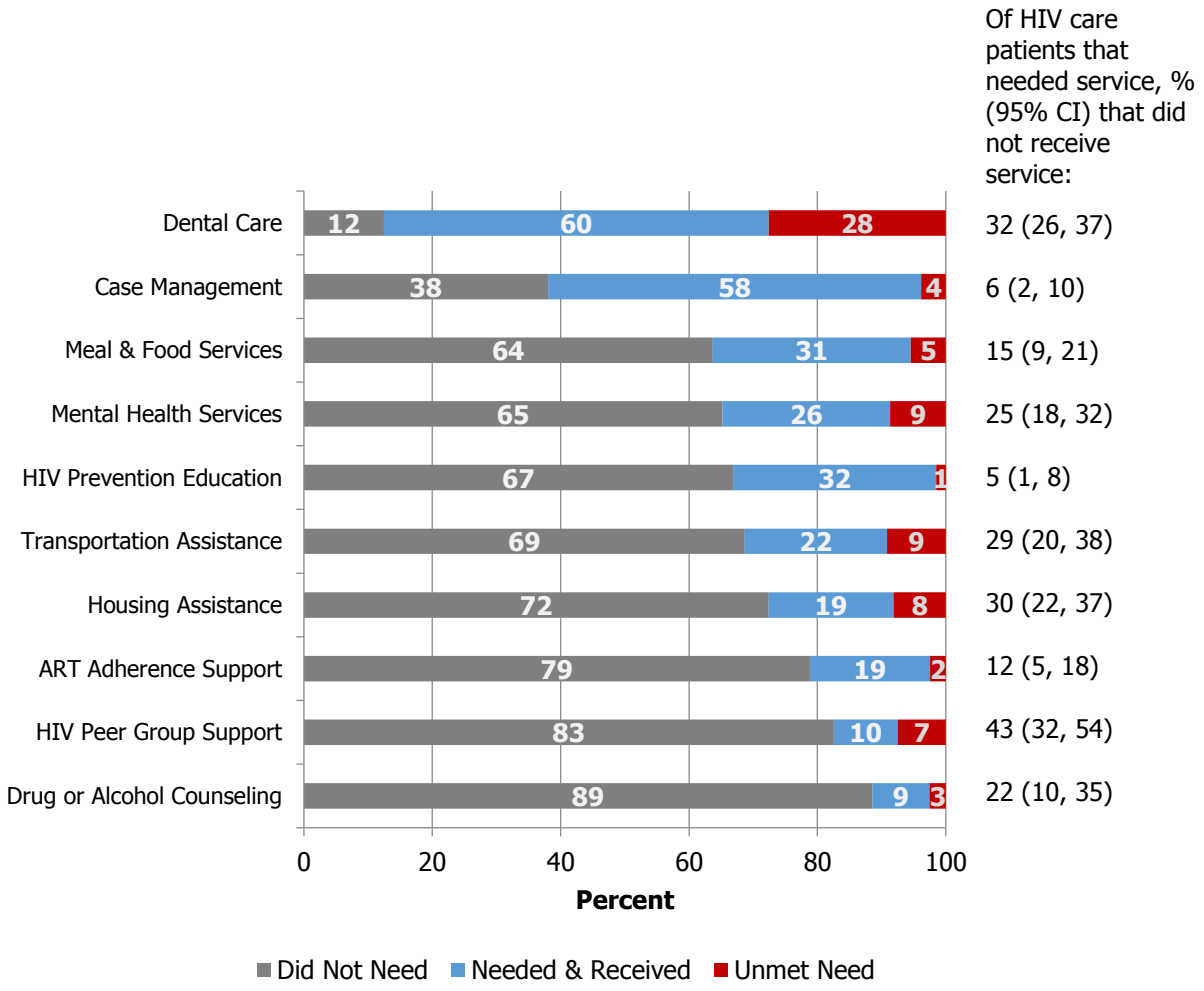

Table 3. Reported Substance Use During the 12 Months Before Interview, Medical Monitoring Project, King County, 2013-2014.

	Weighted Percent	Weighted 95% Confidence Interval
Smoking status		
Never smoked	36	30 - 41
Former smoker	31	25 - 36
Current smoker	34	29 - 38
Any alcohol use°,†	77	72 - 81
Binge drinking× (during past 30 days)	19	15 - 23
Use of any non-injection drugs†	40	35 - 54
Use of any injection drugs†	9	6 - 12
Types of drugs used (injection or non-injection)†		
Marijuana	30	25 - 35
Methamphetamine (crystal meth, tina, crank, ice)	17	12 - 21
Poppers (amyl nitrate)	13	10 - 16
Cocaine	10	7 - 14
GHB	7	4 - 9
Crack	4	2 - 5
Downer (e.g., Valium, Ativan, or Xanax)	4	2 - 7
Heroin or opium	3	1 - 4
Painkiller (e.g., Oxycontin, Vicodin, or Percocet)	3	2 - 5
X or Ecstasy	3	2 - 5

Note: Information on substance use was based on patient report during interview.

† In prior 12 months.

° Participants who drank at least 1 alcoholic beverage during the 12 months preceding the interview. Alcoholic beverage was defined as a 12-ounce beer, 5-ounce glass of wine, or moren1.5-ounce shot of liquor.

× Participants who drank ≥5 alcoholic beverages at one sitting (≥4 for women) during the 30 days preceding the interview.

Table 4. Sexual Activity During the 12 Months Before the Interview—Medical Monitoring Project, King County, 2013-2014

	Weighted Percent	Weighted 95% Confidence Interval
Sexual Risk Behaviors		
Not sexually active	36	31 - 41
Sexually Active, missing information about specific sexual behaviors	3	1 - 5
Vaginal or anal sex with condoms only	20	17 - 24
Condomless vaginal or anal sex with only HIV-positive partners	22	17 - 27
Condomless vaginal or anal sex with at least one HIV-negative or unknown status partner	17	13 - 20
Gender of Sex Partner		
Reported by Male Respondents:		
Not sexually active	34	28.8 – 39
Male partners only	56	49.7 – 62
Male and female partners	2	0.4 – 3
Female partners only	8	5.3 – 11
Male and transgender partners	<1	0 – 11
Reported by Female Respondents:		
Not sexually active	54	40 – 67
Male partners only	42	29 – 56
Male and female partners	4	0 – 10
Reported by Transgender Respondents:		
Transgender partners	100	100 - 100

Note: Information on sexual behavior was based on patient report during interview.

2016 Survey of Provider Experiences with PrEP (Pre-Exposure Prophylaxis) in King County, Washington

We conducted a survey of medical providers in King County prescribing PrEP (pre-exposure prophylaxis), our third annual survey of such providers. Survey findings include an estimate that over 3,000 patients of King County providers have been prescribed PrEP. After adjusting for non-response we estimate 10-11% of King County men who have sex with men were prescribed PrEP as of June 2016.

Background

In 2010, a landmark study was published demonstrating an extremely high efficacy (>90%) of HIV prevention among men who have sex with men and transgender women with high levels of adherence to pre-exposure prophylaxis (PrEP or Truvada™ comprised of emtricitabine/tenofovir).[1] More recently, results of the United Kingdom PROUD study and the French IPERGAY study demonstrated 86% reduction in new HIV-infections with Truvada™ PrEP.[2,3] Both studies ceased their non-treatment or delayed treatment study arms because of the high level of efficacy observed in persons taking PrEP. A survey of 657 men of Kaiser Permanente patients in the San Francisco Bay area showed zero HIV infections at follow-up using Truvada™ PrEP.[4]

On July 16, 2012 the U.S. Food and Drug Administration approved TruvadaTM for HIV prevention.[5] In April 2014, Washington State launched the first U.S. PrEP drug assistance program (PrEP DAP) to reduce or even eliminate financial barriers for PrEP.[6] Another PrEP use barrier is that 20% of people at high risk for HIV have reported they do not know where to get PrEP.[7]

In response, in May of 2014 Public Health – Seattle & King County created a dynamic list of medical providers willing to screen patients for PrEP and prescribe PrEP. Medical providers on this list have now participated in three annual surveys including questions on the size of their PrEP practices, methods of promoting PrEP adherence, and other factors. The 2014 and 2015 results were previously published in the 2014 and 2015 HIV Epidemiology reports.[6,8] In June 2016 we launched the third annual PrEP survey to King County medical providers.

In this report, we present results from the 2016 PrEP Provider 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 currently (as of August 2016) receiving PrEP.

Methods

Three populations received the survey: (1) medical providers who had volunteered to be on the King County PrEP provider list; (2) King County medical providers who had volunteered to be on a similar list hosted by the Washington State Department of Health; and (3) medical providers who had used viral load testing three times or more for PrEP screening. (PHSKC identifies these instances while investigating reports of people with undetectable viral loads who have not been previously reported to the health department as having HIV infection.) Medical providers with bad or missing email addresses were excluded, as surveys were exclusively distributed by email. Non-respondents received a minimum of five 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 to estimate how many patients they had who were currently using PrEP, how many they had prescribed PrEP to in the past year, and how many of their patients had applied for or been on PrEP DAP. To estimate the actual number of individuals currently receiving PrEP in King County, we converted ranges to midpoints (e.g., 1-4 was changed to 2.5).

To estimate the total number of King County residents currently using PrEP, we adjusted for non-response (dividing the estimated sum of patients currently prescribed PrEP by the response rate). We further added an additional 10% as a possible upper limit of this estimate to adjust for providers prescribing PrEP who were not included in the survey (e.g. those not on any of our source lists or with bad and missing emails).

Other questions in the survey included:

- a tally of patients being screened for PrEP in the past year who were already HIV infected
- the number of seroconverters, if any, seen in the past year
- an estimate of what proportion of patients requested PrEP themselves versus PrEP being recommended by a provider
- under what circumstances might the provider "routinely recommend" PrEP
- had the provider ever declined a request to prescribe PrEP and why
- a section of questions regarding other medical practices, including follow-up frequency and routine follow-up screenings used and preventive services offered at PrEP screening/evaluation and follow-up visits.

We compared selected key findings of the 2016 PrEP Provider survey with comparable findings from 2014 and 2015.[6, 8]

Survey Results

The survey was sent to 150 medical providers and completed by 114, resulting in a 76% participation rate. Included in the 114 responses were three "group" responses. The group responses consisted of two to five providers submitting a single survey -- leaving 108 completed surveys for analyses. Excluding those with no current patients on PrEP, almost half of the providers had a medium PrEP caseload (5-19 patients, 43%), and over one quarter had a small PrEP caseload (1-4 patients, 29%), or large PrEP caseload (20 or more patients, 29%) **(Table 1)**. The proportion of patients receiving PrEP prescriptions from large volume providers was 89%, 9% received PrEP from medium providers and 2% from small providers. A similar breakdown was present for the number of patients to whom the providers prescribed PrEP in the past year, and providers tended to have smaller caseloads of individuals who applied for or who were receiving PrEP DAP.

Table 1. Size and Characteristics of PrEP Practice, 108 Participants in PrEP Provider Survey, King County, WA, 2016

	Number medical providers with this range of patients			
	0/un-known	**1-4**	**5-19**	**20+**
Number of patients currently using PrEP	10	28 (29%)	42 (43%)	28 (29%)
Number of patients prescribed PrEP in last year	7	31 (31%)	45 (45%)	25 (25%)
Number applied for WA State PrEP Drug Assistance Program	29	44 (56%)	23 (29%)	12 (15%)

Eleven of 2,854 patients (0.4% or four tenths of one percent) prescribed PrEP in the past year tested HIV positive as part of their initial medical evaluation prior to initiating PrEP. The 2015 PrEP provider survey included summaries of similar cases.[8] An additional three patients of participant providers seroconverted after being prescribed PrEP. Last year we estimated 1,950 patients of King County medical providers were currently being prescribed PrEP[8] and this year our estimate starts with the lower bound of 3,347, the sum of patients currently using PrEP from survey participants (Table 2). Additional estimates of King County PrEP use, adjusting for 24% non-response and an additional 10% for non-inclusion, ranging up to 4,844 are presented in the table.

Table 2. Estimated Number of King County Residents Prescribed PrEP

Source	N using PrEP	Prevalence of PrEP use among est. 41,719 uninfected MSM living in King County
A. Sum of estimated numbers of patients from survey participants	3,347	n/a
B. Sum above (A) adjusted for 24% non-response of surveyed medical providers	4,404	n/a
C. Sum above (B) adjusted for a 10% increase due to missing providers (missing and bad emails, not being included in any of the sources used to identify participants)	4,844	n/a
D. MSM: middle estimate (B) decreased by an estimated 5% non-MSM	4,184	10.6%

MSM= men who have sex with men; n/a = not applicable

For the purpose of the estimating PrEP use among men who have sex with men (MSM), we have assumed that 95% of the patients on PrEP are MSM. Approximately 41,719 HIV negative MSM live in King County as of the end of 2015 (823,339 men age 15 and higher times 5.7% estimated to be MSM[9] = 46,930 minus about 5,211 prevalent HIV cases), suggesting about 10.6% (8% - 12%) of all MSM without HIV may be using PrEP, an increase from our estimate of 5% in 2015.[4]

Of 102 providers with PrEP experience, 72% 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 3)**.

Table 3. Proportion of PrEP Requests Made by Patient (versus initiated by provider) among 102 Provider Participants with PrEP Experience (prescribed in past year or managing at least one patient on PrEP), King County, WA

PrEP requested by patient	Number of providers	Percent
Never to some (0-39%)	9	9%
About half (40-59%)	19	19%
Most (60-89%)	28	27%
Nearly all to all (90%-100%)	46	45%

MSM= men who have sex with men; n/a = not applicable

Participant medical providers nearly universally routinely recommended PrEP for MSM with early syphilis, rectal gonorrhea, or non-virally-suppressed HIV-infected sex partners **(Table 4)**, risk factors identified as indications for recommending PrEP according to local PrEP implementation guidelines. Few participants (29%) recommended that all of their MSM patients initiate PrEP. Some providers responded to an open-ended question about indications for PrEP reporting that they recommending PrEP to transgender men and women having sex with men and commercial sex workers.

Table 4. Routine Recommendations for PrEP, 67 Provider Participants, King County, WA

Patient categories:	Percent of providers who routinely recommend PrEP	No patients in this group or do not have a routine response
MSM (men who have sex with men) with early syphilis	99%	25%
MSM with rectal gonorrhea (GC)	99%	22%
Serodiscordant MSM (partner not suppressed or not on antiretroviral therapy)	99%	25%
Serodiscordant MSM (partner unknown suppression)	99%	24%
MSM engaging in condomless anal intercourse in past year	97%	6%
Other serodiscordant (non-MSM) individuals	94%	32%
MSM with methamphetamine use	89%	32%
MSM with urethral GC or chlamydia	88%	18%
MSM with popper use	81%	44%
All MSM	29%	6%

Most provider participants, 79 of 101 (78%), reported testing PrEP patients with either a 4th Generation HIV blood testing (i.e. an assay that detects both anti-HIV antibody and HIV-1 antigen) or a nucleic acid test [NAT], relatively sensitive tests for HIV infection **(Table 5)**. Forty-eight percent of medical providers reported initiating PrEP on the day they first evaluated patients interested in PrEP and not waiting for HIV test results before initiating prophylactic therapy (i.e. same day start).

Table 5. Screening Tests used Prior to PrEP Prescription, Limited to 101 Participants who had Prescribed PrEP in Past Year, King County, WA

Immunoassay based (EIA/WB)	20%
Combined Antigen/Antibody (4th Generation)	75%
Rapid/point-of-care test	22%
Nucleic acid test (NAT)/RNA/Viral load	16%

Many provider participants had not yet declined a request for PrEP. Of those who did not prescribe PrEP, patient loss to follow-up and low risk of HIV were the most common reasons; fewer providers have declined prescribing PrEP due to kidney function or adherence concerns **(Table 6)**.

Table 6. Reasons Why Providers Did Not (or Declined to) Prescribe PrEP (ever) of 101 Provider Participants, King County, WA

Due to:	Percent who have declined	Percent not applicable (have not needed to make this decision yet)
Low risk	39%	17%
Patient lost to follow-up	40%	30%
Kidney function	16%	21%
Adherence concerns	14%	22%

Of providers who had prescribed PrEP in the prior year, all reported providing patients with adherence counseling **(Table 7)**. The next most common methods of promoting adherence to PrEP were contacting patients if they missed an appointment (94%) and calling, texting, or emailing appointment reminders (83%).

Table 7. Methods to Promote PrEP Adherence, Limited to Participants who had Prescribed PrEP in the Past Year, King County, WA

Methods	Number of providers
Adherence counseling	100%
Contact if miss a follow-up appointment	94%
Reminders of upcoming appointments (call/text)	83%
Withhold PrEP if follow-up not done	67%

Most, 57%, participant providers had patients return for a first follow-up one month after starting PrEP and even more participant providers had patients return for ongoing follow-up quarterly (87%), with minor variations **(Table 8)**.

Table 8. Frequency of Follow-up Appointments, Limited to Participants who had Both Prescribed PrEP and Done One or More Follow-up Visit, King County, WA

	FIRST follow-up visit	Ongoing follow-up visits
In one month	57%	N/A
In (or every) 3 months	40%	87%
In (or every) 6 months	3%	10%
In one year	N/A	3%

When asked about their knowledge of PrEP guidelines,[6] providers were almost evenly split with 50% reporting advanced knowledge, 49% reporting intermediate knowledge and 1% reporting knowing little to nothing about the recommendations.

Medical providers were given an optional prevention questionnaire with questions concerning screening and vaccination practices conducted at PrEP evaluation and follow-up appointments. A total of 98 providers responded to the questions about their preventive screenings at time of initial assessment/evaluation for PrEP, and 94 answered questions about preventive activities at PrEP follow-up. **Table 9** has responses sorted by percent endorsing each practice. Most providers are following recommended guidelines for HIV and other STI screening, including syphilis and at least a one-time screen for hepatitis B (followed by vaccination for those without HBV immunity -- by prior infection or vaccination).

Table 9. Screening and Other Preventative Care Given at PrEP Evaluation and Follow-up, King County, WA (Based on 98 providers)

Tests done at evaluation or follow-up*	At PrEP evaluation/ screening % of 98	At PrEP follow-up visits % of 94
HIV	99%	95%
Syphilis screening	98%	80%
HBV screen	93%	14%
Gonorrhea	91%	74%
Creatinine or other kidney function tests	79%	69%
HPV for <=26 years of age	74%	47%
Seasonal influenza vaccine	71%	57%
HBV vaccine (as indicated)	70%	41%
HAV screening	57%	7%
HAV vaccine (as indicated)	54%	29%
CMP	52%	30%
BMP	48%	43%
CBC	45%	20%
HSV 1 / 2 IgG	19%	14%

As the third survey year, there has been significant growth in the number of PrEP providers included -- from 22 to 150 surveyed with 76% to 82% participating. To look at growth in current PrEP use, taking away the impact of the increase in the numbers of providers surveyed, we looked at providers who participated both in 2014 and in 2016 (N=14). Those providers reported a total of 310 current users in 2014 and 1,678 current users in 2016 (an increase of over 400%). There has also been a growth in the number of high-volume PrEP providers (those reporting 20 or more patients with PrEP prescriptions) from 6 in 2014 to 14 in 2015 and now 28 in 2016. Likewise, there has been growth in the estimated number of PrEP recipients (after adjusting for provider response rate) in King County WA from 402 in 2014 to 4,403 in 2016.

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, with providers preferentially prescribing PrEP to persons at high risk for HIV infection.[10] Most medical providers screen for PrEP with a 4th Generation Anti-HIV-1/2 and HIV-1 Antigen Combo Assay, or NAT combined with older immunoassays, decreasing the number of false negatives and minimizing the window period for detection of HIV seroconversion. Among patients on PrEP, most are being seen regularly, getting frequent HIV and STI screening, and recommended renal function monitoring.

There were numerous limitations in our analyses. Primarily, we don't know how representative provider participants were of all PrEP prescribers, the extent to which our methods failed to identify PrEP providers or the validity of provider reported outcomes, which were not consistently based on systematic queries of clinical medical records. Due to these and potentially other factors, our estimates are imprecise. Further limitations include the uncertainty around estimates used for our calculations, including the 10% correction for excluded providers and the estimate of 5.7% of male King County residents being MSM (based on local data from the Behavior Risk Factor Survey[9]). However our estimation of 10.6% (ranging from 8.0% to 11.6%) of local area MSM using PrEP is consistent with data from the 2016 Seattle Pride survey of MSM, where 10% of respondents stated they currently were taking PrEP and 12% had ever used PrEP (see accompanying article on the 2016 Pride survey in this issue).

Conclusion

Our findings demonstrate the rapid increase in PrEP use among MSM in King County, with an estimated 3,347 to 4,844 MSM – approximately 10% of all HIV negative MSM – now on PrEP. This estimate is consistent with findings from our Pride survey, suggesting that our estimates are valid.

Contributed by Susan Buskin, Warren Dinges, Matthew Golden

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Surveillance Investigations of Emtricitabine/Tenofovir HIV Preexposure Prophylaxis (PrEP) Resistance in King County, Washington

King County public health HIV control efforts include promotion of antiretroviral use among persons living with HIV, and use of PrEP among persons at high risk for HIV acquisition. The only drug FDA approved for use as PrEP in the U.S. is the combination of emtricitabine and tenofovir (TruvadaTM). In an effort to prevent transmission of HIV that is resistant to these drugs and to safeguard the efficacy of PrEP at the community-level, we used HIV surveillance data to identify persons with evidence of infection with a virus resistant to both emtricitabine and tenofovir, and provided outreach to them to promote their engagement in care and treatment. We identified fewer than two dozen persons who were highly viremic (viral load above 10,000) with infections potentially resistant to emtricitabine/tenofovir, many of whom had made recent progress in reductions in viremia.

Background

Despite a stellar record of effectiveness,[1-3] PrEP is not effective in preventing infections caused by viruses resistant to emtricitabine and tenofovir. Since 2003, Public Health – Seattle & King County has tracked drug resistance among people diagnosed with HIV infection in King County. In April of 2016, routine public health HIV surveillance and partner services investigations identified a potential case of transmission of emtricitabine/tenofovir resistant HIV (including A62AV, K65R, and M184V mutations) in an individual reporting a high level PrEP adherence. This prompted us to look at dual resistance to emtricitabine and tenofovir resistance among viremic King County residents living with HIV infection.

Our goal was to find and conduct an intervention with emtricitabine/tenofovir resistant, viremic individuals. Resistance would be measured at any time in the past, due to the possibility of archived resistance which may not be found in subsequent testing. Viremia would be measured by plasma viral load above 10,000 copies. These individuals would have the potential to transmit HIV that is resistant to PrEP. Once identified, disease investigators attempted to contact infected persons with the goal of promoting their successful treatment.

Methods

King County actively engages HIV-infected individuals with barriers to care in several ways, including these two ongoing, related projects, the Care and Antiretroviral Promotion Project (CAPP) and the Max Clinic. The CAPP team regularly attempts to contact individuals who are either not receiving regular HIV-related medical care or who are not virally suppressed with the goal of helping them receive medical care and achieve viral suppression. CAPP gives participants a $50 incentive for participation. The Max clinic is a walk-in clinic for persons who have not been able to achieve viral suppression despite prior efforts to link them to care and address identified barriers to care. Many Max patients struggle with substance use, mental illness, incarceration, homelessness and unstable housing. The Max clinic provides patients with intensive medical and nonmedical case management, bus passes and cellphones and incentives for success in receiving care.

Washington State participates in a CDC-funded expanded surveillance project called Molecular HIV Surveillance (MHS) to collect genotypic sequences of people with HIV infection to describe drug resistance, viral subtypes, and HIV transmission clusters.[4] We used MHS data to identify individuals with emtricitabine/tenofovir resistance, and employed the CAPP investigation team to conduct harm reduction work among individuals with emtricitabine/tenofovir resistance and high levels of viremia (> 10,000 copes at a most recent viral load test). We defined emtricitabine/tenofovir resistance as one or more genotypic test (at any time in the past) demonstrating intermediate to high level resistance to both emtricitabine and tenofovir as interpreted by the Stanford algorithm.[5]

Results

Of roughly 7,000 King County residents diagnosed with HIV infection, we found 21 individuals with a reported viral load >10,000 copies per mL and emtricitabine/tenofovir resistance. Of the 21, on further investigation, 17 were adults thought to be currently living in King County. This corresponds to a prevalence of highly viremic emtricitabine/tenofovir resistance of approximately 3 out of 1,000 individuals living with diagnosed HIV infection. Of the 17, six achieved suppressed viral loads (<200 copies per mL) and another individual had a viral load < 500 by October 2016. These seven include three who had some Public Health intervention through CAPP. Of the remaining 10 persons with resistant infections, three had a recent history of incarceration, including one who is currently incarcerated as of July 2016 and three had attended the Max clinic or were being actively sought by Max Clinic staff for enrollment in the clinic. Excluding Max patients and the one currently incarcerated individual, six additional people were thought to be in the area with high level viremia with a virus resistant to emtricitabine/tenofovir. Three had participated in CAPP previously (2014 through 2016). One is reported by the medical provider to be of frail health with multiple co-morbidities and not suitable for further intervention, one is on ART but has not had recent laboratory testing or responded to CAPP outreach, and one has been out of care since 2015 and CAPP staff have been unable to contact him.

Conclusion

There has been a rapid growth in PrEP use in King County (please see companion article regarding the 2016 PrEP provider survey). Significant emtricitabine/tenofovir drug resistance among highly viremic individuals remains very rare in our diagnosed, HIV-infected population at approximately 3 in 1,000 persons. PHSKC is employing intensive outreach to prevent the transmission of PrEP-resistant HIV and ensure that persons infected with ART-resistant HIV receive appropriate medical care.

Contributed by Susan Buskin, Mark Fleming, Tony Trinh, and Matthew Golden

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Transitions in Acute HIV Research

The PIC is now only able to offer follow-up to a very small subset of previously enrolled participants who fit the scientific priorities of projects looking at functional and anatomic reservoirs. The participants who are not part of this sub-group have been notified that the PIC is no longer able to continue their follow-up.

Although the Primary Infection Clinic will no longer be enrolling new participants, the University of Washington AIDS Clinical Trials Unit (UW ACTU) at Harborview has a new protocol available, called The EARLIER Study, which will provide immediate antiretroviral therapy to individuals diagnosed with acute HIV infection.

The EARLIER Study is designed to assess the impact of early ART on the establishment of HIV reservoirs and HIV-specific immunity. Understanding viral reservoirs remains an important concept in HIV research. Although these cellular reservoirs are established early in acute infection, very early ART may limit reservoir development.

Theoretically, ART initiated in the earliest stages of HIV infection could limit the size and genetic diversity of viral reservoirs, thereby improving the chance of an HIV cure. This study will address this question by looking at various measures of HIV reservoirs in people who begin treatment during the acute infection time period.

The main measurements will be from blood, looking at cell-associated HIV DNA in CD4+ T-cells, HIV-specific CD4+ and CD8+ T-cell responses, unspliced HIV RNA in CD4+ T-cells, escape mutations, and integration sites. Some participants will also be asked to have (optional) procedures to look at other anatomic reservoirs: lumbar puncture as a reflection of CNS reservoir and/or flexible sigmoidoscopy to look at gastrointestinal reservoirs.

Eligible participants are people who have untreated acute HIV infection and have not taken PrEP or PEP within the prior 2 months. For this study, acute infection will include people who meet any of these laboratory criteria: negative HIV antibody with detectable HIV RNA, or reactive HIV antibody with negative or indeterminate result Western Blot or Geenius assay, or positive Western Blot or Geenius assay without the p31 band.

People referred to the study with lab results showing acute infection will have an enrollment visit that includes *immediate* initiation of ART with protocol-provided Genvoya® (Elvitegravir/ Cobicistat/ Emtricitabine/ Tenofovir alafenamide). Genvoya® will be provided for the duration of the 72-week study. Treatment and follow-up will be coordinated with the referring and/or primary care provider and clinical lab results shared with these providers.

For more information or to schedule a screening/ enrollment appointment, please contact Janine Maenza at janine@uw.edu or 206-667-5743, or Eric Helgeson at ehelgeso@uw.edu or 206-744-8883.

Contributed by Janine Maenza, MD, and Michael Louella

Make a Difference with the UW Aids Clinical Trials Unit

Today's Volunteers Help Us Find Tomorrow's Answers

HIV treatment is better than ever today because individuals just like you chose to participate in clinical trials. Yet challenges remain.

Our efforts to improve the health of all people living with HIV must continue. And we need to find a cure.

Since 1987, we've conducted state-of-the-art clinical trials at the UW ACTU. We're consistently part of breakthrough research that leads to better care for everyone.

Our mission is to cure HIV and reduce the burden of disease due to HIV infection and its complications, including tuberculosis and viral hepatitis.

Many of our studies are chosen, designed and conducted with guidance from people living with HIV.

Participating in a study is an important decision for anyone to make. We hope that our staff — along with talking with your doctor, a family member, or a friend — will help you better understand the ins & outs of participating in research.

Why Participate?

- **Free access to expensive medicines**
- **Frequent lab monitoring at no cost**
- **Confidential, personalized care**
- **Access to after-hours on-call staff, 24/7**
- **No insurance required**

Anyone interested in learning more about our studies can call our screening nurse Eric Helgeson, RN at 206.744.8883 or send an email to actu@uw.edu.

Current Studies

Studies to Improve the Health of People Living With HIV:

THE REPRIEVE STUDY

for HIV+ people on HIV medications with healthy levels of cholesterol

Even when a person's viral load is very low, HIV infection continues. HIV causes 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.

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

LENGTH OF STUDY: up to 6 years

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**

Participants will receive $20 for the annual visit, and $10 for the quick visits, starting at Entry.

THE CANNABIS STUDY

for HIV+ people on meds with an undetectable viral load

Despite being undetectable, people living with HIV have ongoing inflammation, which is the body's reaction to infection, a state where some of your immune cells remain constantly activated.

HIV damages the lining of your intestines soon after infection. This damage also leads to chronic inflammation, which can allow chemical messengers and bacteria in the gut to migrate through the wall of the intestines and get into your blood.

HIV thus sets up a vicious cycle of mucosal damage in your gut, chronic inflammation and overall immunological dysfunction.

This study will see if cannabis use has an impact on inflammation, on rectal abnormalities and on the HIV reservoir.

LENGTH OF STUDY: 2-4 weeks (a screening visit, followed by a procedure visit)

REQUIREMENTS:

- **HIV+ men & women on meds, 21–70 years old**
- **Undetectable viral load for at least 2 years**
- **T-Cell count is above 350**
- **Current use of cannabis 3 times or more per week for at least 6 months (with no other illicit drug use)**

—OR —

- **Have not used cannabis or any other illicit drug use in the past 12 months**
- **No heart disease, hep C, chronic inflammatory bowel disease, autoimmune disorders, uncontrolled asthma or diabetes requiring insulin**
- **Not pregnant or breast feeding**
- **No antibiotics in past 3 months**
- **Able and willing to self–administer Fleet enemas and collect stool at home**

Participants will receive $200 for the study.

THE INMIND STUDY

for HIV+ people who are undetectable on meds with at least mild neurocognitive impairment

Despite having an undetectable viral load, 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**

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

LENGTH OF STUDY: about 96 weeks

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**

Participants will receive $20.00 per study visit, starting at Entry. Additional compensation is provided for procedure visits.

Studies Related to Curing HIV:

THE RUXOLITINIB STUDY

for HIV+ people on meds for at least 2 years with an undetectable viral load

Although antiretroviral therapy (ART) provides a way to treat people living with HIV, it is unable completely reduce the inflammation caused by HIV. This increases target cells allowing HIV to persist, and keeps the immune system from restoring itself.

Ruxolitinib, an FDA-approved drug, disrupts the pathway that leads to production of some of the proteins that signal your immune system to activate—the same proteins that are are involved in the damage that HIV does to the body. This is why we are considering it as a treatment for people with HIV.

The goal of this study is to learn more about the effects of ruxolitinib on inflammation in people who have HIV. We want to learn if ruxolitinib can change your viral load and how it interacts with ART in the blood.

LENGTH OF STUDY: up to 12 weeks

REQUIREMENTS:

- **HIV+ men & women, 18 –75 years old**
- **Undetectable HIV viral load for 2 years**
- **NO STRIBILD, PREZISTA, REYATAZ, KALETRA, EVOTAZ, GENVOYA OR PREZCOBIX**
- **Staying on ART with no change in medication 12 weeks before or during study**
- **No chronic hepatitis B or hepatitis C**
- **No heart, lung, liver, kidney or neurological problems**
- **Not pregnant, planning pregnancy or breast feeding**
- **CD4+ (T-cell) count 350 or higher**

Participants will receive $20 for each visit, starting at Entry & $100 for the longer 6 hour visits

THE ROMIDEPSIN STUDY

for HIV+ people with an undetectable viral load

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.

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

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)**

Participants will receive $20.00 per study visit, starting at Pre-Entry. Additional compensation is provided for procedure visits.

THE SIROLIMUS STUDY

for HIV+ people with a 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**

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.

LENGTH OF STUDY: about 11 months

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**

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

Hepatitis C Studies:

THE VIRAL HEPATITIS C INFECTION LONG-TERM COHORT (HCV-LTC) STUDY

for all people with Hepatitis C alone OR with Hepatitis 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.

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

LENGTH OF STUDY: About 260 weeks (5 years)

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

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**
- **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.**

Participants will receive $20.00 per study visit, starting at Entry.

THE HEP C COMBO STUDY

for HIV+ people living with hepatitis C

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 and 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**
- **Previous treatment for hepatitis C is allowed**
- **Undetectable HIV viral load**
- **Must be taking Isentress®, Prezista®, Tivicay® or Reyataz® 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**

Participants will receive $20.00 per study visit, starting at Entry.

Other Clinical Trials Currently Enrolling HIV Negative or HIV-HCV Coinfected Individuals

HIV Negative?

PrEP STUDY

DISCOVER is a new clinical study for men who have sex with men and trans women who have sex with men. This study is to evaluate if a once-daily investigational medicine can help reduce the risk of getting HIV infection from sex ("PrEP", or Pre-exposure Prophylaxis).

TO BE ELIGIBLE:

- You must be at least 18 years of age
- You must be HIV negative

If you are accepted into the DISCOVER Study, you will receive study-related exams, lab tests, and study medicine at no cost.

For more information, please contact:

discover@tribalmed.com or
info@seattleidc.com

Or go to www.clinicaltrials.gov and search NCT number 02842086

GILEAD

DISCOVER

HIV and HCV? GS-US-366-1992:

This study is for individuals who have both HIV-1 and hepatitis C (HIV-1/HCV co-infected). This study will test the efficacy, safety, and tolerability of the HCV treatment HARVONI (LDV/SOF) for HIV-1/HCV co- infected people who are willing to switch their HIV-1 treatment to GENVOYA (EVG/COBI/FTC/TAF) or ODEFSEY (FTC/RPV/TAF) prior to HCV treatment with HARVONI (the HIV-1/HCV Co-Stars study). This is a phase 3 study running for approximately 37 weeks. For information please contact Dr. Shalit's Study Coordinator Mark at 206-624-1441 or <mark@tribalmed.com>. In Tacoma, please contact Shauna Applin, ARNP at (253) 597-3815.