hiv/aids

1st HALF `12 EPIDEMIOLOGY REPORT

WASHINGTON STATE • SEATTLE & KING COUNTY

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

Credits

This 80th edition of the HIV/AIDS Epidemiology Report includes data available through the end of June 2012. 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 which are used for further prevention and planning efforts. We also wish to acknowledge the outstanding assistance of our staff, including Michelle Perry and Christy Johnson (disease investigation); Susan Bosse (lab liaison); Sandy Hitchcock (data entry and quality assurance); Shirley Zhang and Leslie Pringle (data management); and Amy Bennett, Jen Reuer and Christina Thibault (epidemiologists). Note co-editor Jim Kent has relocated to Michigan. We all wish him the best.

HIV/AIDS Epidemiology Report Co-editors:

HIV/AIDS Epidemiology Program
Susan Buskin, PhD, MPH, Senior Epidemiologist
PHSKC HIV/AIDS Epidemiology
401 5th Avenue, Suite 1152, Seattle, WA 98104
206-263-2000

Infectious Disease Assessment Unit
Tom Jaenicke, MPH, MBA, MES
Section Manager/Senior Epidemiologist
Washington State Department of Health
PO Box 47838, Olympia, WA 98504-7838

Contributors to this Issue

Public Health – Seattle & King County

- Elizabeth Barash, MPH
- Amy Bennett, MPH
- Richard Burt, PhD
- Julie Dombrowski, MD
- Matt Golden, MD
- Jim Kent, MS
- Roxanne Kerani, PhD
- Nadine Snyder, BA
- Christina Thibault, MPH
- Hanne Thiede, DVM, MPH

University of Washington

- Ann Collier, MD
- Eli Kern

HIV/AIDS Reporting Requirements

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

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

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

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

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HIV/AIDS Epidemiology publications are online at:
www.kingcounty.gov/healthservices/health/communicable/hiv/epi.aspx.

Alternative formats provided upon request.
To be included on the mailing list or for address corrections,
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HIV/AIDS Epidemiology and Surveillance News

Executive Summary

HIV reporting

Medical providers please note that reporting requirements for HIV are summarized on page ii. Although HIV case reporting may be initiated by laboratory reporting and completed by health department staff, we greatly appreciate medical providers submitting case reports directly—especially for persons newly diagnosed with HIV or AIDS. Case report forms are available on-line or by calling (888) 367-555 (State) or (206) 263-2000 (King County). To ensure correct and timely data, reporting of patient deaths and diagnoses of public health significance (e.g. unusual strains) are also appreciated.

Tables and Figures

- 7,007 documented people living with HIV or AIDS (PLWHA) were residents of King County (which has an estimated total 7,200 – 8,000 PLWHA, see Table 1)
- 11,295 documented PLWHA were residents of Washington State (which has an estimated 11,500 – 12,700 PLWHA, Table 1)
- Five counties contain 86% of PLWHA: King County (62%), Pierce County (9%) Snohomish County (6%) Clark County (4%), and Spokane County (4%) (Table 2)
- In King County, males comprise 89% of PLWHA (Tables 3 & 4), most of them (87%) men who have sex with men (MSM, including MSM who injected drugs [IDU])
- In Washington State PLWHA were 86% male and of these, 82% were MSM including MSM-IDU (Tables 3 & 5)
- The most common decade of life for diagnosis of HIV was 30-39 for men and 20-29 for women (Table 6)
- Between 2009 and 2011, 24% of people with new HIV diagnoses were foreign born (Tables 8 and 9)
- Between 2002 and 2010, the percent of people newly diagnosed with HIV who were MSM increased and the percent of IDU decreased (Tables 8 and 9)

Care Cascade

Our local care cascade indicates roughly 56% of King County PLWHA are virologically suppressed; this is roughly double the national estimate.

Annual review of HIV/AIDS in King County

Locally we have seen decreases in overall case numbers in the past two years. We don't yet know if this reflects lowered transmission due to more widespread use of antiretrovirals (decreasing viral load and transmission risk) versus random variation, late reporting, or other factors. Among those people newly diagnosed with HIV between 2003 and 2011, there were increases in the proportion of MSM, Hispanic males, individuals less than 30 years of age, and 50 years of age or more. Decreases were seen in the proportion who were heterosexual and Black.

Comparing IDU who do and do not report male-to-male sex: National HIV Behavioral Survey (NHBS) 2009

NHBS surveys MSM, IDU, and heterosexuals over a three year cycle (one risk group each year). These 2009 data not only describe the second IDU cycle with 508 eligible participants but also put these data in to context with comparisons with the 2005 NHBS IDU cycle and IDU surveys between 1994 and 2011 indicating needle sharing among IDU may have decreased over time. Both amphetamine use and MSM status were strongly associated with HIV infection, with 3% of IDU having neither risk infected, and 52% of IDU with both risks having HIV infection.

HIV testing patterns from the Gay Pride 2012 Survey

In June 2012, 308 MSM were intercepted at Seattle's Gay Pride event and agreed to complete a brief survey (in exchange for a $5 coffee card). Most, (87%) had an HIV test in the past 2 years -- of 281 MSM who had ever tested for HIV and were negative by self-report. Lack of a recent HIV test was associated with older age, lower income and education, lack of health insur-

ance, and Hispanic ethnicity. Encouragingly, lack of recent testing was also associated with lower HIV risks, including 0-1 anal sex partner in the past year.

Time since last negative HIV test among new HIV cases in King County

HIV testing is recommended for adults and adolescents in the US, at least once for adults and adolescents, and more frequently for individuals with known HIV risk factors. To monitor HIV testing on a population level, we examined 1,733 individuals diagnosed with HIV in King County between 2006 and 2011. Of these, 1,299 (75%) had data about a last negative test, including reporting no prior HIV tests at all. Overall 14% never had a prior HIV test, 39% had a negative HIV test within one year, and 47% had an HIV test more than a year prior to their first positive diagnosis. Median CD4 counts were inversely associated with time since a last negative test. MSM did not have any time trends in decreased interest intervals (from a last negative to a fist positive test).

STD Summary

A new feature has been added to this issue of the report, a summary of sexually transmitted diseases in King County. This is thanks to the work of a 2012 Epidemiology Scholar, Eli Kern, and his supervisor, Dr. Roxanne Kerani.

News from the AIDS Clinical Trials Group (ACTG)

Hepatitis C virus (HCV) infection is more common than HIV infection in the US, and dually infected individuals with HIV and HCV can be more difficult to treat and face increased morbidity and mortality. HCV genotype 1, although common, has not responded to therapy as well as other genotypes. Newer regimens of triple-HCV drugs show promise. The AIDS Clinical Trials Group has initiated an open label clinical trial of triple therapy for HCV genotype 1 among HIV-infected individuals on HIV antiretroviral therapy.

We hope you find this 80th edition of the WA State/ King County HIV/AIDS Epidemiology Report useful and informative.

Snapshot of HIV / AIDS in King County and Washington

	King County	Washington
Estimated[a] number living with HIV/AIDS	7,200 to 8,000	11,500 to 12,700
Estimated new HIV infections 2011	320 to 340	500 to 600
Estimated 2011 deaths among people with HIV or AIDS	75	140 to 150
Proportion with HIV who know their HIV status	80% to 90%	80% to 90%
Reported[a] number of people living with HIV/AIDS	7,007	11,295

Table 1: Surveillance of reported HIV/AIDS cases, deaths, and people living with HIV/AIDS - King County, other Washington counties, Washington, and the United States (reported as of 6/30/2012)

		HIV	AIDS	Total
King County	New cases reported in 1st half 2012	97	38	135
	Cases reported year-to-date	97	38	135
	Cumulative Cases	3,319	8,447	11,766
	Cumulative Deaths	196	4,563	4,759
	Persons Living (prevalent cases)	3,123	3,884	**7,007**
Other Counties	New cases reported in 1st half 2012	59	44	103
	Cases reported year-to-date	59	44	103
	Cumulative Cases	1,971	5,051	7,022
	Cumulative Deaths	179	2,555	2,734
	Persons Living (prevalent cases)	1,792	2,496	**4,288**
Washington State	New cases reported in 1st half 2012	156	82	238
	Cases reported year-to-date	156	82	238
	Cumulative Cases	5,290	13,498	18,788
	Cumulative Deaths	375	7,118	7,493
	Persons Living (prevalent cases)	4,915	6,380	**11,295**
United States[b]	Cases reported as of 12/31/2010			
	Cumulative Cases	Unknown	1,163,575	Unknown
	Cumulative Deaths	Unknown	641,976	Unknown
	Persons Living (prevalent cases)	282,172	521,599	**803,771**

a. The difference between the estimated number (line 1) and the reported number (line 5) above include:
   i. A small number of AIDS diagnoses not yet reported (perhaps 5% of total AIDS reports).
   ii. An unknown number of people diagnosed with HIV infection but not yet reported.
   iii. An unknown number of people (10-20% of the total) infected with HIV but not yet diagnosed or reported.
b. U.S. data includes HIV and AIDS data from 50 states plus 6 U.S. dependent areas.

Table 2: Cumulative HIV/AIDS case counts and deaths by resident county at diagnosis, Washington (reported as of 6/30/2012)

County	Cumulative Cases	Deaths		Presumed Living			
		No.	%[a]	HIV	AIDS	Total	%[b]
Adams	7	1	14%	0	6	6	0.1%
Asotin	26	8	31%	6	12	18	0.2%
Benton	154	42	27%	44	68	112	1.0%
Chelan	76	28	37%	23	25	48	0.4%
Clallam	86	43	50%	19	24	43	0.4%
Clark	731	258	35%	205	268	473	4.2%
Columbia	7	3	43%	0	4	4	0.0%
Cowlitz	157	66	42%	45	46	91	0.8%
Douglas	9	2	22%	3	4	7	0.1%
Ferry	7	6	86%	0	1	1	0.0%
Franklin	89	22	25%	26	41	67	0.6%
Garfield	1	0	0%	1	0	1	0.0%
Grant	59	23	39%	13	23	36	0.3%
Grays Harbor	97	38	39%	21	38	59	0.5%
Island	94	43	46%	23	28	51	0.5%
Jefferson	41	18	44%	10	13	23	0.2%
King	11,766	4,759	40%	3,123	3,884	7,007	62.0%
Kitsap	330	135	41%	79	116	195	1.7%
Kittitas	24	10	42%	3	11	14	0.1%
Klickitat	17	8	47%	6	3	9	0.1%
Lewis	62	28	45%	11	23	34	0.3%
Lincoln	4	2	50%	0	2	2	0.0%
Mason	135	35	26%	43	57	100	0.9%
Okanogan	39	14	36%	7	18	25	0.2%
Pacific	35	13	37%	11	11	22	0.2%
Pend Orielle	9	6	67%	0	3	3	0.0%
Pierce	1,720	701	41%	474	545	1019	9.0%
San Juan	29	12	41%	6	11	17	0.2%
Skagit	105	45	43%	24	36	60	0.5%
Skamania	8	7	88%	0	1	1	0.0%
Snohomish	1,121	402	36%	288	431	719	6.4%
Spokane	783	341	44%	177	265	442	3.9%
Stevens	27	17	63%	6	4	10	0.1%
Thurston	297	108	36%	71	118	189	1.7%
Wahkiakum	3	0	0%	1	2	3	0.0%
Walla Walla	66	34	52%	8	24	32	0.3%
Whatcom	248	101	41%	61	86	147	1.3%
Whitman	24	4	17%	6	14	20	0.2%
Yakima	295	110	37%	71	114	185	1.6%
Total	**18,788**	**7,493**	**40%**	**4,915**	**6,380**	**11,295**	**100%**

[a] Percent of county cases who have died (row %).
[b] Percent of total presumed living cases in Washington (column %).

Table 3: Demographic characteristics of people presumed living with HIV/AIDS – King County, other Washington counties, Washington, and the United States (reported as of 6/30/2012)

	King County		Other Counties		Washington State		Estimated U.S.[1]	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Sex								
Male	6,271	89%	3,463	81%	9,734	86%	597,928	74%
Female	736	11%	825	19%	1,561	14%	194,656	24%
Missing sex							11,187	
Age Group at diagnosis of HIV								
Under 13 years	39	1%	51	1%	90	1%	11,187	1%
13-19 years	128	2%	118	3%	246	2%	Not Known	
20-29 years	2,012	29%	1,264	29%	3,276	29%	Not Known	
30-39 years	2,881	41%	1,504	35%	4,385	39%	Not Known	
40-49 years	1,454	21%	934	22%	2,388	21%	Not Known	
50-59 years	408	6%	316	7%	724	6%	Not Known	
60 years and over	85	1%	101	2%	186	2%	Not Known	
Current Age as of 6/30/2012								
Under 13 years	13	0%	20	0%	33	0%	2,987	0%
13-19 years	26	0%	28	1%	54	0%	8,404	1%
20-29 years	465	7%	367	9%	832	7%	73,657	9%
30-39 years	1,233	18%	816	19%	2,049	18%	158,941	20%
40-49 years	2,654	38%	1,485	35%	4,139	37%	296,894	37%
50-59 years	1,922	27%	1,122	26%	3,044	27%	195,657	24%
60 years and over	694	10%	450	10%	1,144	10%	67,231	8%
Race/Ethnicity[2]								
White	4,661	67%	2,892	67%	7,553	67%	267,289	33%
Black	1,179	17%	552	13%	1,731	15%	325,405	40%
Hispanic	748	11%	545	13%	1,293	11%	163,104	20%
Asian & Pacific Islander	241	3%	150	3%	391	3%	8,342	1%
Asian	*222*	*3%*	*126*	*3%*	*348*	*3%*	*7,789*	*1%*
Native Hawaiian & Other PI	*19*	*0%*	*24*	*1%*	*43*	*0%*	*553*	*0%*
Native American or Alaskan Native	70	1%	89	2%	159	1%	2,931	0%
Multiple Race	107	2%	46	1%	153	1%	11,170	1%
Unknown Race	1	0%	14	0%	15	0%	25,530	3%
HIV Exposure Category								
Male-male sex	4,834	69%	2,169	51%	7,003	62%	400,388	50%
Injection drug use (IDU)	323	5%	472	11%	795	7%	133,918	17%
IDU & male-male sex	600	9%	355	8%	955	8%	45,833	6%
Heterosexual contact[3]	690	10%	756	18%	1,446	13%	208,723	26%
Blood product exposure[4]	29	0%	32	1%	61	1%	N/A[1]	
Perinatal exposure	31	0%	43	1%	74	1%	9,809	1%
Other/Undetermined[4]	500	7%	461	11%	961	9%	5,100	1%
Total	**7,007**	**100%**	**4,288**	**100%**	**11,295**	**100%**	**803,771**	**100%**

[1] U.S. persons living with HIV/AIDS were estimated for 12/31/2009 from data reported through 12/31/2010 & include AIDS cases for 50 states and 6 dependent areas, and HIV cases for 46 states and 6 dependent areas with confidential name-based HIV infection reporting as of 2006. Detailed data were not available for the remaining states. Unknown exposure cases are redistributed, and blood product cases are included as 'Other/Undetermined'.

a. CDC data for age at diagnosis were not available. The current age data were calculated as of 12/31/2009

b. Includes hemophilia, blood transfusion, and risk not reported or not identified.

[2] All race and ethnicity categories are mutually exclusive; Asian, Native Hawaiian, and Pacific islanders were grouped due to small cell sizes.

[3] King County and Washington data include presumed heterosexual cases (females who deny injection drug use but have had sexual inter-course with a man whose HIV status or HIV risk behaviors are unknown).

[4] Undetermined mode of exposure includes cases with incomplete information, and heterosexual contact where the heterosexual partner(s) are not known to HIV-infected, IDU, or bisexual male. One King/ WA case was probably infected through occupational exposure.

Table 4: People presumed living with HIV/AIDS by gender, race or ethnicity, and HIV exposure category – King County (reported as of 6/30/2012)

	White[a]		Black[a]		Hispanic		Asian & PI[a,b]		Native Am/AN[a,c]		Total[d]	
HIV Exposure Category	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Male												
Male-male sex	3,667	79%	402	34%	512	68%	156	65%	29	41%	4,834	69%
Injection drug use (IDU)	106	2%	58	5%	33	4%	5	2%	5	7%	210	3%
IDU & male-male sex	472	10%	42	4%	50	7%	4	2%	13	19%	600	9%
Heterosexual contact	46	1%	110	9%	24	3%	6	2%	0	0%	187	3%
Blood product exposure	14	0%	3	0%	0	0%	0	0%	0	0%	17	0%
Perinatal exposure	1	0%	8	1%	0	0%	2	1%	0	0%	12	0%
Undetermined/other	115	2%	180	15%	75	10%	35	15%	2	3%	411	6%
Male Subtotal	**4,421**	**95%**	**803**	**68%**	**694**	**93%**	**208**	**86%**	**49**	**70%**	**6,271**	**89%**
Female												
Injection drug use (IDU)	64	1%	33	3%	3	0%	0	0%	8	11%	113	2%
Heterosexual contact[e]	154	3%	267	23%	41	5%	23	10%	12	17%	503	7%
Blood product exposure	4	0%	8	1%	0	0%	0	0%	0	0%	12	0%
Perinatal exposure	2	0%	13	1%	2	0%	2	1%	0	0%	19	0%
Undetermined/other	16	0%	55	5%	8	1%	8	3%	1	1%	89	1%
Female Subtotal	**240**	**5%**	**376**	**32%**	**54**	**7%**	**33**	**14%**	**21**	**30%**	**736**	**11%**
Total	**4,661**	**100%**	**1,179**	**100%**	**748**	**100%**	**241**	**100%**	**70**	**100%**	**7,007**	**100%**

Table 5: People presumed living with HIV/AIDS by gender, race or ethnicity, and HIV exposure category – Washington (reported as of 6/30/2012)

	White[a]		Black[a]		Hispanic		Asian & PI[a,b]		Native Am/ AN[a,c]		Total[d]	
HIV Exposure Category	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Male												
Male-male sex	5,308	70%	573	33%	744	58%	219	56%	58	36%	6,992	62%
Injection drug use (IDU)	321	4%	96	6%	69	5%	8	2%	13	8%	510	5%
IDU & male-male sex	758	10%	65	4%	81	6%	6	2%	20	13%	955	8%
Heterosexual contact	136	2%	170	10%	66	5%	15	4%	8	5%	398	4%
Blood product exposure	37	0%	3	0%	2	0%	0	0%	0	0%	42	0%
Perinatal exposure	7	0%	20	1%	2	0%	3	1%	1	1%	35	0%
Undetermined/other	304	4%	242	14%	167	13%	58	15%	7	4%	785	7%
Male Subtotal	**6,871**	**91%**	**1,169**	**68%**	**1,131**	**87%**	**309**	**79%**	**107**	**67%**	**9,717**	**86%**
Female												
Injection drug use (IDU)	181	2%	58	3%	17	1%	4	1%	16	10%	279	2%
Heterosexual contact[e]	437	6%	385	22%	121	9%	57	15%	34	21%	1,047	9%
Blood product exposure	6	0%	9	1%	1	0%	3	1%	0	0%	19	0%
Perinatal exposure	7	0%	23	1%	5	0%	4	1%	0	0%	39	0%
Undetermined/other	51	1%	87	5%	18	1%	14	4%	2	1%	173	2%
Female Subtotal	**682**	**9%**	**562**	**32%**	**162**	**13%**	**82**	**21%**	**52**	**33%**	**1,557**	**14%**
Total	**7,553**	**100%**	**1,731**	**100%**	**1,293**	**100%**	**391**	**100%**	**159**	**100%**	**11,274**	**100%**

[a] And not Hispanic. All race and ethnicity categories are mutually exclusive.
[b] Due to small cell sizes, data have been combined for Asians, Native Hawaiians, and other Pacific Islanders.
[c] Native American or Alaska Native.
[d] Totals include 108 King County and 132 Washington persons classified as multiple race, and 0 King County and 15 Washington persons with missing race.
[e] Includes presumed heterosexual cases (females who deny injection drug use but have had sexual intercourse with a man whose HIV status and HIV risk behaviors are unknown).

Table 6: People presumed living with HIV/AIDS by gender and age at HIV diagnosis – King County and Washington (reported as of 6/30/2012)

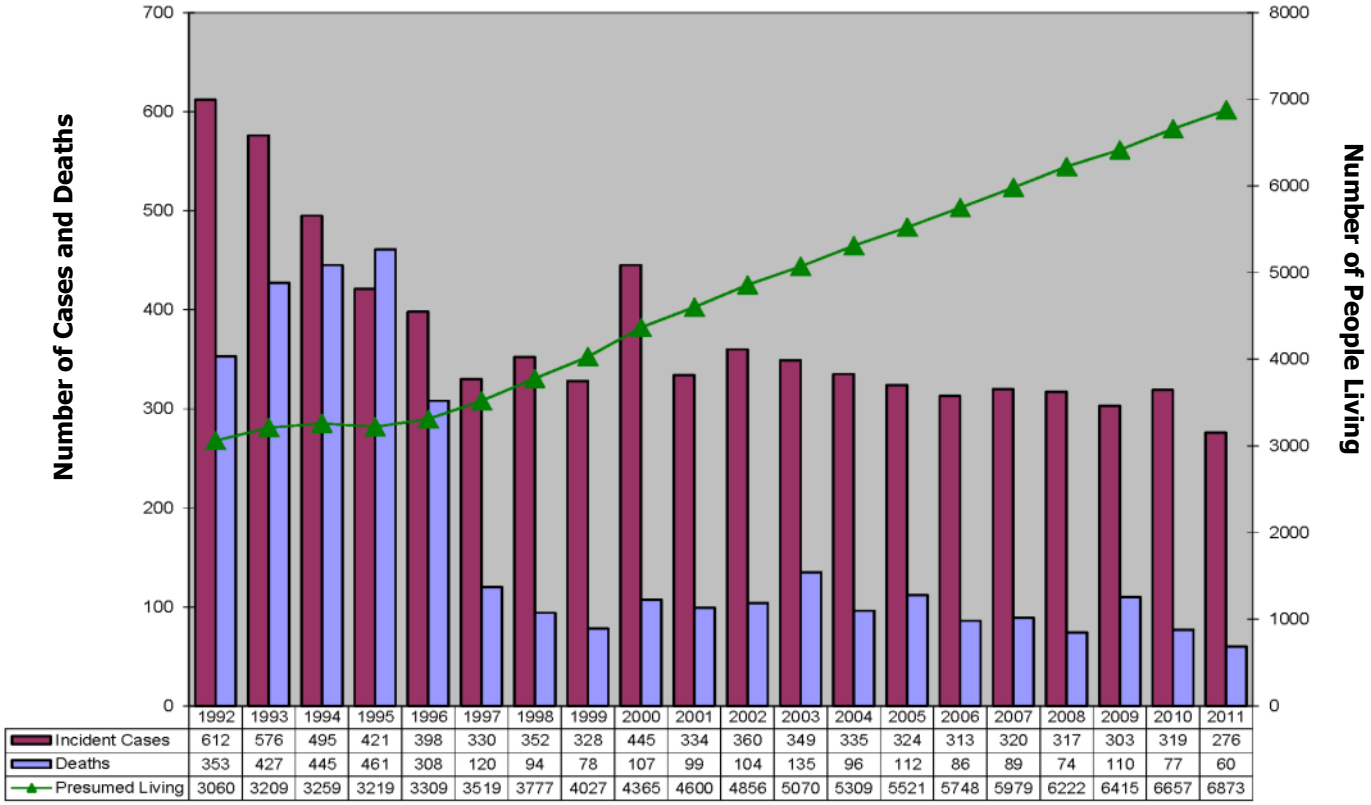
	King County				Washington			
Age at HIV Diagnosis	**Male**		**Female**		**Male**		**Female**	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Under 13 years	16	0%	23	3%	41	0%	49	3%
13-19 years	89	1%	39	5%	163	2%	83	5%
20-24 years	649	10%	94	13%	1,065	11%	229	15%
25-29 years	1,127	18%	142	19%	1,702	17%	280	18%
30-34 years	1,414	23%	135	18%	2,071	21%	267	17%
35-39 years	1,232	20%	100	14%	1,822	19%	225	14%
40-44 years	839	13%	77	10%	1,315	14%	177	11%
45-49 years	488	8%	50	7%	794	8%	102	7%
50-54 years	230	4%	40	5%	399	4%	70	4%
55-59 years	114	2%	24	3%	202	2%	53	3%
60 years and over	73	1%	12	2%	160	2%	26	2%
Total	**6,271**	**100%**	**736**	**100%**	**9,734**	**100%**	**1,561**	**100%**

Table 7: People presumed living with HIV/AIDS by race or ethnicity and place of birth[a] – King County and Washington (reported as of 6/30/2012)

	King County				Washington			
Race / Ethnicity	**U.S.-born**		**Foreign-born**		**U.S.-born**		**Foreign-born**	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**
White, non-Hispanic	4,334	78%	138	12%	7,026	79%	179	10%
Black, non-Hispanic	692	13%	461	39%	1,082	12%	601	34%
Male Black, non-Hispanic	*549*		*236*		*840*		*297*	
Female Black, non-Hispanic	*143*		*225*		*242*		*304*	
Hispanic	278	5%	410	35%	442	5%	719	41%
Asian & PI, non-Hispanic	63	1%	159	13%	104	1%	252	14%
Native American, non-Hispanic	63	1%	5	0%	150	2%	5	0%
Multiple or unknown race, non-Hispanic	94	2%	9	1%	140	2%	14	1%
TOTAL	**5,524**	**82%**	**1,182**	**18%**	**8,944**	**83%**	**1,770**	**17%**

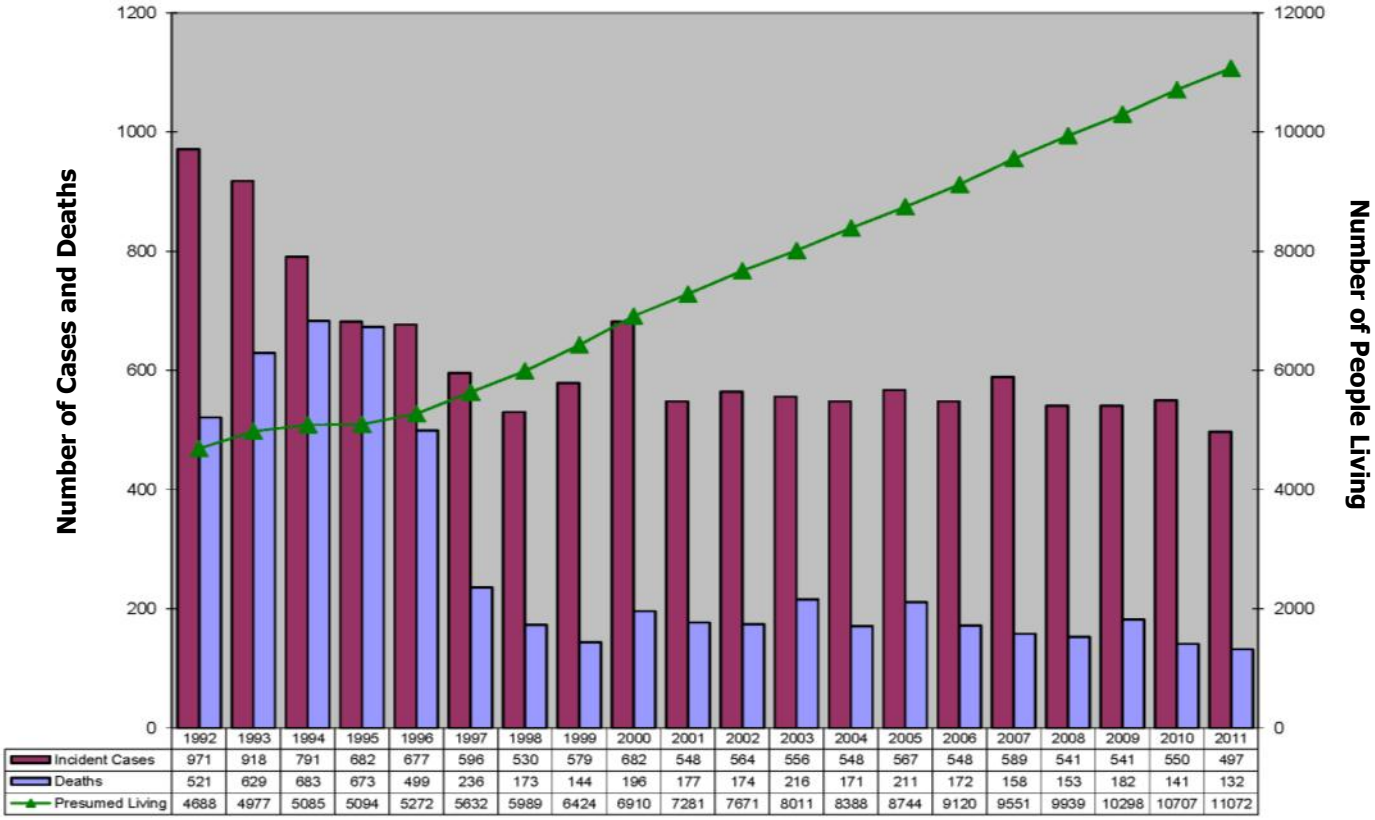
[a] Table 7 does not include 301 King County and 581 Washington cases missing place of birth information.

Figure 1: Number of new HIV/AIDS diagnoses, deaths, and people living with HIV/AIDS – King County (reported as of 6/30/2012)



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Incident Cases	612	576	495	421	398	330	352	328	445	334	360	349	335	324	313	320	317	303	319	276
Deaths	353	427	445	461	308	120	94	78	107	99	104	135	96	112	86	89	74	110	77	60
Presumed Living	3060	3209	3259	3219	3309	3519	3777	4027	4365	4600	4856	5070	5309	5521	5748	5979	6222	6415	6657	6873

Figure 2: Number of new HIV/AIDS diagnoses, deaths, and people living with HIV/AIDS – Washington (reported as of 6/30/2012)



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Incident Cases	971	918	791	682	677	596	530	579	682	548	564	556	548	567	548	589	541	541	550	497
Deaths	521	629	683	673	499	236	173	144	196	177	174	216	171	211	172	158	153	182	141	132
Presumed Living	4688	4977	5085	5094	5272	5632	5989	6424	6910	7281	7671	8011	8388	8744	9120	9551	9939	10298	10707	11072

Table 8: Demographic characteristics of King County residents diagnosed 1982-2011, by date of HIV diagnosis (reported through 6/30/2012)

	1982-2002		2003-2005		2006-2008		2009-2011[a]		Trend[b]
	N	%	N	%	N	%	N	%	2003-2011
TOTAL	**8,764**	**100%**	**1,008**	**100%**	**950**	**100%**	**898**	**100%**	
HIV Exposure Category									
Men who have sex with men (MSM)	6,415	76%	641	71%	588	73%	615	78%	up
Injection drug user (IDU)	508	6%	52	6%	39	5%	34	4%	
MSM-IDU	906	11%	80	9%	75	9%	63	8%	
Heterosexual contact[c]	524	6%	133	15%	104	13%	74	9%	down
Blood product exposure	96	1%	2	0%	1	0%	0	0%	
Perinatal exposure	27	0%	0	0%	3	0%	7	1%	
SUBTOTAL- known risk	*8,476*	*100%*	*908*	*100%*	*810*	*100%*	*793*	*100%*	
Undetermined/other[d]	288	3%	100	10%	140	15%	105	12%	N/A
Sex & Race/Ethnicity[e]									
Male	*8,155*	*93%*	*892*	*88%*	*827*	*87%*	*795*	*89%*	
White male	6,429	73%	563	56%	499	53%	506	56%	
Black male	835	10%	154	15%	116	12%	100	11%	down
Hispanic male	563	6%	111	11%	130	14%	126	14%	up
Other male	328	4%	64	6%	82	9%	63	7%	
Female	*609*	*7%*	*116*	*12%*	*123*	*13%*	*103*	*11%*	
White female	270	3%	27	3%	38	4%	29	3%	
Black female	234	3%	70	7%	66	7%	56	6%	
Hispanic female	42	0%	10	1%	7	1%	8	1%	
Other female	63	1%	9	1%	12	1%	10	1%	
Race/Ethnicity[e]									
White	6,699	76%	590	59%	537	57%	535	60%	
Black	1,069	12%	224	22%	182	19%	156	17%	down
Hispanic	605	7%	121	12%	137	14%	134	15%	
Asian & Pacific Islander	162	2%	36	4%	63	7%	47	5%	
Native American or Alaska Native	108	1%	12	1%	6	1%	5	1%	
Multiple race	120	1%	25	2%	25	3%	21	2%	
SUBTOTAL- known race/ethnicity	*8,763*	*100%*	*1,008*	*100%*	*950*	*100%*	*898*	*100%*	
Unknown race	1	0%	0	0%	0	0%	0	0%	N/A
Place of Birth									
Born in U.S. or Territories	7,800	91%	755	77%	669	74%	659	76%	
Born outside U.S.	744	9%	223	23%	238	26%	213	24%	
SUBTOTAL- known birthplace	8,544	*100%*	978	*100%*	907	*100%*	872	*100%*	
Birthplace unknown	220	3%	30	3%	43	5%	26	3%	N/A
Age at Diagnosis of HIV									
0-19 years	149	2%	8	1%	21	2%	25	3%	up
20-29 years	2,274	26%	206	20%	256	27%	249	28%	up
30-39 years	3,939	45%	426	42%	318	33%	272	30%	down
40-49 years	1,807	21%	283	28%	228	24%	213	24%	down
50-59 years	487	6%	71	7%	93	10%	110	12%	up
60+ years	108	1%	14	1%	34	4%	29	3%	up
Residence									
Seattle residence	7,488	85%	750	74%	692	73%	634	71%	
King County residence outside Seattle	1,276	15%	258	26%	258	27%	264	29%	

[a] Due to delays in reporting, data from recent years are incomplete.
[b] Chi-square statistical trends in proportions ($p<.05$) were calculated for cases with known characteristics for the periods 2003-2005, 2006-2008, and 2009-2011.
[c] Includes presumed heterosexual cases (females who deny injection drug use but have had sexual intercourse with a man whose HIV status or HIV risk behaviors are unknown).
[d] Includes persons for whom exposure information is incomplete (due to death, refusal to be interviewed, or loss to follow up), persons exposed to HIV through their occupation, and patients who mode of exposure remains undetermined.
[e] All race and ethnicity categories are mutually exclusive; Asian, Native Hawaiian and Pacific Islanders were grouped due to small cell sizes.

Table 9: Demographic characteristics of Washington residents diagnosed 1982-2011, by date of HIV diagnosis (reported through 6/30/2012)

	1982-2002		2003-2005		2006-2008		2009-2011[a]		Trend[b]
	N	%	N	%	N	%	N	%	2003-2011
TOTAL	**13,610**	**100%**	**1,671**	**100%**	**1,678**	**100%**	**1,588**	**100%**	
HIV Exposure Category[d]									
Men who have sex with men (MSM)	9,001	69%	939	63%	944	67%	959	71%	up
Injection drug user (IDU)	1,240	10%	137	9%	102	7%	87	6%	down
MSM-IDU	1,382	11%	135	9%	123	9%	104	8%	
Heterosexual contact[c]	1,129	9%	276	18%	238	17%	184	14%	down
Blood product exposure	216	2%	5	0%	2	0%	0	0%	
Perinatal exposure	59	0%	0	0%	6	0%	25	2%	
SUBTOTAL- known risk	*13,027*	*100%*	*1,492*	*100%*	*1,415*	*100%*	*1,359*	*100%*	
Undetermined/other[d]	583	4%	179	11%	263	16%	229	14%	N/A
Sex & Race/Ethnicity[e]									
Male	*12,259*	*90%*	*1,416*	*85%*	*1,405*	*84%*	*1,363*	*86%*	
White male	9,694	71%	942	56%	881	53%	834	53%	down
Black male	1,156	8%	209	13%	188	11%	175	11%	
Hispanic male	899	7%	169	10%	215	13%	237	15%	up
Other male	510	4%	96	6%	121	7%	117	7%	
Female	*1,351*	*10%*	*255*	*15%*	*273*	*16%*	*225*	*14%*	
White female	725	5%	93	6%	113	7%	87	5%	
Black female	370	3%	99	6%	102	6%	89	6%	
Hispanic female	119	1%	31	2%	34	2%	21	1%	
Other female	137	1%	32	2%	24	1%	28	2%	
Race/Ethnicity[e]									
White	10,419	77%	1,035	62%	994	59%	921	58%	down
Black	1,526	11%	308	18%	290	17%	264	17%	
Hispanic	1,018	7%	200	12%	249	15%	258	16%	up
Asian & Pacific Islander	244	2%	62	4%	86	5%	83	5%	up
Native American or Alaska Native	198	1%	34	2%	23	1%	20	1%	
Multiple race	189	1%	32	2%	36	2%	42	3%	
SUBTOTAL- race/ethnicity	13,594	100%	1,671	100%	1,678	100%	1,588	100%	
Unknown race	16	N/A	0	N/A	0	N/A	0	N/A	

Table 9 continued on next page

[a] Due to delays in reporting, data from recent years are incomplete.
[b] Chi-square statistical trends in proportions ($p<.05$) were calculated for cases with known characteristics for the periods 2003-2005, 2006-2008, and 2009-2011.
[c] Includes presumed heterosexual cases (females who deny injection drug use but have sex with men not known to be HIV-infected).
[d] Includes persons for whom exposure information is incomplete (due to death, refusal to be interviewed, or loss to follow up), patients still under investigation, persons whose only risk was heterosexual contact and where the risk of the sexual partner(s) was (were) undetermined, persons exposed to HIV through their occupation, and patients who mode of exposure remains undetermined.
[e] All race and ethnicity categories are mutually exclusive; Asian, Native Hawaiian and Pacific Islanders were grouped due to small cell sizes.

Table 9 (Continued): Demographic characteristics of Washington residents diagnosed 1982-2011, by date of HIV diagnosis (reported through 6/30/2012)

	1982-2002		2003-2005		2006-2008		2009-2011[a]		Trend[b]
	N	%	N	%	N	%	N	%	2003-2011
TOTAL	**13,610**	**100%**	**1,671**	**100%**	**1,678**	**100%**	**1,588**	**100%**	
Place of Birth									
Born in U.S. or Territories	12,141	92%	1,305	80%	1,214	78%	1,136	76%	down
Born outside U.S.	1,094	8%	319	20%	343	22%	351	24%	up
SUBTOTAL- known birthplace	*13,235*	*100%*	*1,624*	*100%*	*1,557*	*100%*	*1,487*	*100%*	
Birthplace unknown	375	3%	47	3%	121	7%	101	6%	N/A
Age at diagnosis of HIV									
0-19 years	296	2%	15	1%	51	3%	56	4%	up
20-29 years	3,630	27%	361	22%	444	26%	424	27%	up
30-39 years	5,864	43%	626	37%	510	30%	464	29%	down
40-49 years	2,793	21%	482	29%	417	25%	379	24%	down
50-59 years	793	6%	152	9%	186	11%	193	12%	up
60+ years	234	2%	35	2%	70	4%	72	5%	up

[a] Due to delays in reporting, data from recent years are incomplete.
[b] Chi-square statistical trends in proportions ($p<.05$) were calculated for cases with known characteristics for the periods 2003-2005, 2006-2008, and 2009-2011.
[c] Includes presumed heterosexual cases (females who deny injection drug use but have sex with men not known to be HIV-infected).
[d] Includes persons for whom exposure information is incomplete (due to death, refusal to be interviewed, or loss to follow up), patients still under investigation, persons whose only risk was heterosexual contact and where the risk of the sexual partner(s) was (were) undetermined, persons exposed to HIV through their occupation, and patients who mode of exposure remains undetermined.
[e] All race and ethnicity categories are mutually exclusive; Asian, Native Hawaiian and Pacific Islanders were grouped due to small cell sizes.

HIV Infection, diagnosis, care status, and viral load level (the HIV Care Cascade) among King County residents

We first published the HIV Care Cascade for King County in the HIV Epidemiology Report 2nd Half 2011. Since these measures track the goals of our local HIV control strategy, we have updated the Cascade here.

Figure 1 shows the status of people living with HIV infection in King County as of June 30, 2011. These data are population-based from a mature HIV and viral load reporting system. The confirmed population-based numbers are conservative because some data are incomplete. Methods and additional details of creating this figure follow.

1. **People living with HIV.** There are an estimated 7,200 people living with HIV or AIDS (PLWHA) in King County. This estimate and all subsequent data include King County residents diagnosed with HIV and PLWHA who have moved into King County; those who have died or moved away are excluded. This estimate is calculated as 6,093 reported cases (see #2 below), divided by 85% (an estimated 80 - 90% of PLWHA know their status), and rounded to the nearest 100.

2. **Diagnosed cases of HIV.** Surveillance data indicate that as of June 30 2012, there were 6,093 PLWHA diagnosed and living in King County. Each reported case has a recent lab result, or was recently investigated to determine current residence, medical care utilization, and vital status.

3. **At least one care visit in the past year.** During the period July 1 2011 to June 30 2012, 72% (5,186 / 7,200) of PLWHA had some laboratory evidence of medical care. Of the 907 PLWHA without reported labs in this period, our investigations show 75 had no labs on any date, 226 had a last lab in the first half of 2011, 255 had a last lab in 2010, and 278 had a last lab before 2010.

4. **Continuously engaged in care or virologically suppressed in the past year.** We defined continuous engagement in care as PLWHA with at least two lab results over 90 days apart during the period 7/1/2011 to 6/30/2012. 52% of PLWHA (3,744 / 7,200) were engaged in care in this time period. An additional 13% (937 / 7,200) of PLWHA were virologically suppressed at the time of their last lab, but did not have any additional lab more than 90 days away from this. Thus a total of 65% (4,681 / 7,200) of PLWHA met these criteria.

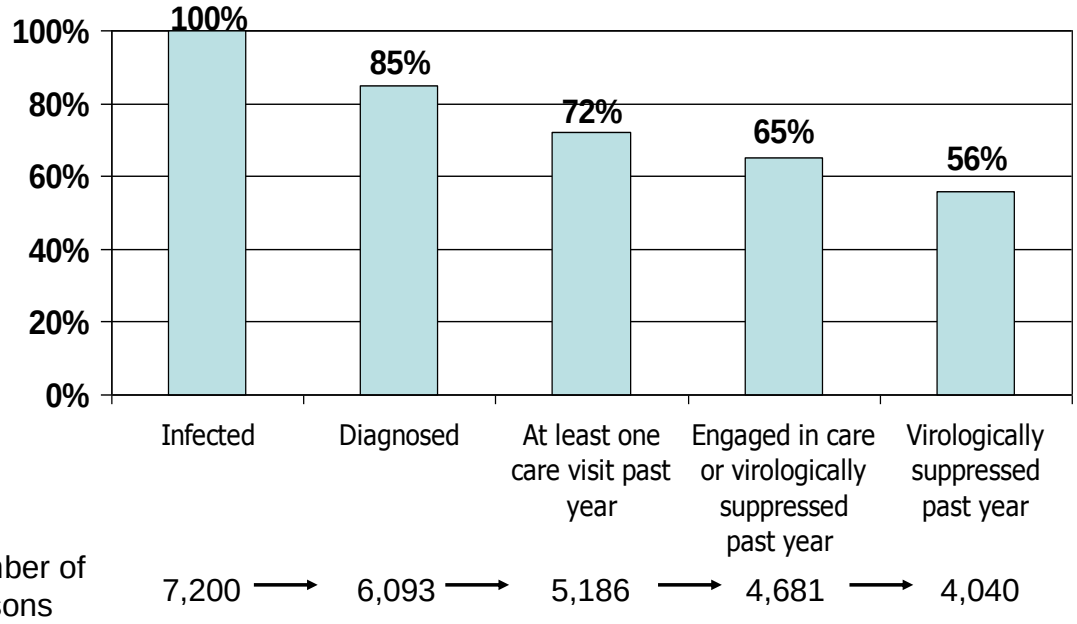
5. **Virologic suppression.** 4,040 / 7,200 or 56% of PLWHA in King County had a suppressed (undetectable or below 200 particles per microliter) viral load level at their last measurement 7/1/2011 to 6/30/2012. This indicates their HIV treatment is successfully keeping the virus in check. Of the 651 cases continuously engaged, but without evidence of suppression, 263 PLWHA had no VL reported, 179 had a VL of 200-4,999, and 199 (34%) and had VL over 5,000.

This care cascade gains importance as we increasingly look to HIV treatment not only for its role in improving the health of individuals, but also as a possible means to prevent HIV transmission and reduce the prevalence of HIV in our community. In the half year since we originally published this care cascade, the numbers and proportions have changed only slightly, but all the changes reflect better engagement in care and/or more accurate surveillance data in the deletion of duplicates, deaths, and relocations. Nationally, the CDC estimates that only 28% of all HIV-infected individuals have an undetectable HIV viral load. The estimate that 56% for King County residents living with HIV/AIDS have suppressed virus is thus encouraging. Increasing engagement in care at each step along the care cascade is now a major focus of public health efforts.

- *Submitted by Jim Kent, Julie Dombrowski, Matt Golden, and Susan Buskin*

Figure 1:

HIV Care Cascade in King County:
Estimated percent of PLWHA diagnosed, in care, engaged in care, and virologically suppressed as of June 2012



Annual Review of the Epidemiology of HIV and AIDS in Seattle & King County

This article summarizes the status of the HIV and AIDS epidemics in King County, Washington through June 30, 2012, based upon reports of people with AIDS or HIV infection.

Global and National Perspective

According to the World Health Organization, 34.2 million people worldwide were living with HIV or AIDS at the end of 2011, including 3.4 million children under 15 years of age.[1] On average, 0.8% of adults worldwide age 15-49 years are infected with HIV. In 2011, an estimated 2.5 million persons acquired HIV infection, and 1.7 million deaths occurred.

At the end of 2009 there were an estimated 1.2 million HIV-infected people in the United States, including 20% who remain undiagnosed and unaware of their status.[2] CDC calculates approximately 48,100 new infections occurred in the US in 2009[3], with over 17,700 deaths estimated in 2009.[4]

In 2010, the Seattle Metropolitan Statistical Area including King, Snohomish and Pierce counties, ranked 47th nationally for HIV cases with an annual rate of 13.0 diagnosed cases per 100,000 population. The highest metropolitan rates in the country were in Miami FL (49.7), Baton Rouge LA (43.0), New Orleans LA (36.9), and Jackson MS (34.0).[4] Note that some metropolitan areas with high HIV morbidity were not included as they did not yet have a mature HIV reporting system (in place for five years or more).

Trends in Diagnosis of HIV Infection

The number of new HIV diagnoses in King County has dropped to 315 per year (2005-2010) after being level at 350-400 new diagnoses from 1997-2004 (see Figure 1 on page 9). In 2011 only 276 new diagnoses were reported; we don't yet know whether this substantial decline is due to fewer new infections, delayed testing, or
other factors. Because there are many fewer HIV-related deaths (100) than diagnoses each year, the number of King County residents living with HIV/AIDS is increasing.

Based upon data reported through June 2012, we compared the characteristics of persons diagnosed with HIV infection during 2003-2005, 2006-2008, and 2009-2011. A chi-square test for trend was used to determine if there was a statistically significant change in proportion of cases for each group over those three periods (Table 1).

There have been only moderate shifts in the proportion of persons newly diagnosed with HIV infection among different groups over the past nine years. Between the three-year periods 2003-05 through 2009-11 a statistically significant increase in the proportion of cases occurred among men who have sex with men (up from 71% to 78% of the total) while declining among heterosexuals (15% to 9%). There was a slight increase observed in Hispanic males (from 11% to 14%) and a decrease in the proportion of total cases among Blacks (from 22% to 17%), and Black males (15% to 11%).

There was a statistically significant decrease in the proportion of King County residents age 30-49 years at diagnosis (from 70% to 54%), shifting toward increases among persons aged 0-29 years (21% to 31%), and those aged 50 and over (8% to 15%). At the same time, the population of people living with HIV has aged consistently over the past decade as HIV has become a chronic infection. In 1998, half of individuals living with HIV were age 0-39 and half were over age 40+. As of the end of June 2012, this median age was 47.

The overall perinatal transmission rate in King County and in Washington state is very low because of effective antiretroviral prophylaxis during pregnancy and at birth. Approximately 15-30 HIV-infected women give birth each year in Washington, and since 1997, one new perinatal infection was transmitted to an infant born in King County. This recent infection was from a mother not diagnosed with HIV infection at the time of delivery. Several additional recent perinatal infections were among children born elsewhere who moved to King County.

Incidence and Resistance Testing

Public Health–Seattle & King County participates in two CDC projects that characterize infection in persons newly diagnosed with HIV; to measure the number of new infections that are occurring each year, and to

measure the prevalence of transmitted antiretroviral drug resistance among people newly diagnosed with HIV. About two-thirds of newly diagnosed cases are included in these projects. The data reveal several characteristics of the HIV virus circulating within the local population:

► approximately 30% of new HIV diagnoses are among persons likely infected within the preceding 12 months.

► 14% of newly-diagnosed, treatment-naïve people have high-level resistance to one or more class of antiretroviral drugs; less than 1% are resistant to two or more classes of drugs. There has been a decrease in multi-class resistance and an increase in non-nucleoside reverse transcriptase inhibitor (NNRTI) resistance over the past six years.

► 10% of people recently diagnosed with HIV are infected with a non-B subtype of HIV-1. Most of these infections were among persons born in other countries.

Deaths among people with HIV

As of June 30, 2012 more than 4,750 King County residents with HIV infection have died. The total number of deaths among HIV-infected King County residents fluctuated between 70 and 140 annually from 1998 through 2010. Similar to the decrease in new diagnoses, 2010 and 2011 data portend a decrease in the numbers of deaths in recent years, although the decreases in deaths may be more likely to increase in the future due to delays in the reporting of deaths.

Some deaths are a direct result of HIV, including some people who learn their HIV status late in the course of disease, and some who experience treatment failures. Recently however an increasing proportion of deaths are unrelated to HIV infection, or partially-related.[7,8]

Number of People Living with HIV in King County

In 2009 the Washington State Department of Health estimated that 11,500 to 12,700 state residents, including 7,200 to 8,000 residents of King County are living with HIV or AIDS.[5,6] As described in the HIV Statistics Tables 3-7 of this Epidemiology Report, as of June 30, 2012, there were 7,007 reported cases of people who lived here at the time of diagnosis and are presumed to be living. Approximately another 500-1,200 have not been diagnosed and do not know their HIV status.

However after adjusting for substantial in-migration and out-migration based on investigation of current residence and medical care utilization, as of June 30, 2012, there are 6,093 people currently living with diagnosed HIV infection in King County. These cases are further described below.

Characteristics of People Living with HIV or AIDS

Table 2 presents the 6,093 reported cases currently residing in King County (diagnosed HIV prevalence), and an HIV prevalence rate based on 2009 (most current) population. The true HIV prevalence rates are about 15% higher when including people who have not yet been diagnosed. The HIV prevalence rates vary widely between population groups but are highest among men who have sex with men (MSM – 11%), injection drug users (IDU – 2%), MSM who also inject drugs (MSM/IDU – 15%), and foreign-born Blacks (1.5%). These four groups combined account for about 89% of diagnosed infections in King County and are emphasized in HIV testing and prevention programs.

Eighty-nine percent of people living with HIV or AIDS in King County are male. Most, 64%, are White, 18% are Black, 11% Hispanic, 4% Asian/Pacific Islander (API), and 1% Native American & Alaska Natives (NA/AN). Compared with non-Hispanic Whites, the prevalence rates are five times higher among foreign-born Blacks, twice as high among US-born Blacks, and 1.5 times higher among Hispanics.

Eight percent of cases do not have a reported behavioral exposure to HIV (using the standard CDC-defined categories plus re-assignment of women who deny injection drug use as heterosexuals, also called presumed heterosexual risk). Among cases with known exposure, 74% are MSM, 9% are MSM-IDU, 5% are IDU, 11% report having a heterosexual partner with HIV or at risk of HIV infection (including presumed heterosexuals), and fewer than 1% each were born to HIV-infected mothers or received blood products.

While the distribution of exposure categories differs by race, gender, and birth country, nearly all males are MSM, IDU, or foreign-born Blacks. Among White, Hispanic, and API men, MSM account for 73-83% of cases, and for 49-61% among Black or NA/AN men. MSM-IDU is the second most common exposure among White men (11%), Hispanic men (8%), and NA/AN men (25%). Foreign-born Blacks make up 28% of cases among Black men and are presumed to be mostly due to heterosexual transmission.

The vast majority of HIV-infected women are either IDU (16% of cases) or have a heterosexual partner who is IDU, bisexual, or is HIV-infected (68% of cases—including presumed heterosexuals). Heterosexual exposures account for approximately two-thirds or more of HIV cases in women regardless of race.

The place of birth for the 6,093 King County residents living with HIV was:

- 77% United States
- 7% Africa or Middle East
- 7% Mexico, Latin America and Caribbean
- 4% Asia, Australia, and Eastern Europe
- 1% Western Europe or Canada
- 4% unknown birthplace

Due to a high HIV prevalence among foreign-born Blacks, King County has a number of special prevention interventions targeting foreign-born Blacks. Their risk profiles, language, cultural, and educational needs differ from those of their US-born counterparts. The majority of reported cases among foreign-born Blacks are due to heterosexual transmission (55%), or have no reported risk (34%), relative to 61% of US-born Blacks reporting MSM or MSM-IDU risk, and 12% reported IDU.

Sixty-four percent of King County residents living with HIV are currently age 35-54 years, and 20% are at least age 55 years of age. Another 14% are age 25-34, and just 2% are age 20-24. Seventy-five percent of HIV-infected individuals reside in Seattle, 9% on the Eastside or north of Seattle and Lake Washington, and 16% in south King County.

Immunologic and Virologic Status

The Washington Administrative Code requires that laboratories report all CD4 results and all HIV viral load results, regardless of level, to Public Health. While these data may be incomplete, they allow us to evaluate the immunologic status of many King County residents living with HIV infection, and to compare local metrics against the National HIV Strategy goals. As of June 30, 2012, we documented that 85% (5,186 of 6,093) of residents with HIV have received a recent (2011-12) CD4 or viral load laboratory result indicating they are accessing HIV medical care (Please see the preceding article in this issue "HIV Infection, diagnosis, care status, and viral load level (the HIV Care Cascade) among King County residents"). Among the 907 cases with no labs reported to Public Health in the past year, 53% had a lab reported in 2010-11, 39% before 2010, and 8% never had a lab reported. It is likely that many of those without labs since 2010 no longer live here but our information is outdated.

Among the 5,186 King County residents with recent lab results, the most recent reported CD4 result showed 9% had severe immune deficiency (CD4 under 200 cells), 36% had moderate immune deficiency (14% with 200-349 CD4 cells and 22% with 350-499 CD4 cells per microliter), and 55% had negligible or no immune deficiency (CD4 500 or over). The most recent reported viral load test result showed that 78% had no detectable viral load or a suppressed viral load of 200 or lower, and 22% had a detectable viral load.

[1] World Health Organization. Global AIDS Summary December 2011. Available at http://www.who.int/hiv/data/2012_epi_core_en.png
[2] Centers for Disease Control and Prevention, HIV Surveillance – United States, 1981-2008. MMWR 2011;60:689-693.
[3] Prejean J et al. Estimated HIV Incidence in the United States, 2006-2009. http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0017502
[4] Centers for Disease Control and Prevention. HIV Surveillance Report, 2009 (Vol. 21), Atlanta: US Department of Health and Human Services, CDC; June 2011. Available at http://www.cdc.gov/hiv/topics/surveillance/resources/reports
[5] HIV Prevalence Estimates in Washington State, HIV/AIDS Epidemiology Report, 1st Half 2009, Washington DOH
[6] Updated estimates of HIV infection in King County, HIV/AIDS Epidemiology Report, 1st Half 2009, PHSKC
[7] Buskin S et al. Deaths Among HIV-infected people in King County, WA, HIV/AIDS Epidemiology Report, 1st Half 2011, PHSKC
[8] Novoa AM et al. Increase in the non-HIV-related deaths among AIDS cases in the HAART era. Curr HIV Res. 2008;6:77-81.

Conclusions

King County has just over 6,000 residents diagnosed with HIV infection, including people who moved here after diagnosis in another state, and excluding those we believe have moved away. Over 4,750 HIV-infected persons have died since 1982. The number of new HIV infections has declined to about 315 each year since 2005, of which about one-quarter were not diagnosed with HIV until they had already developed AIDS. About 80-100 deaths occur each year.

The total number of people living with AIDS or with HIV infection in King County is increasing each year as new diagnoses exceed deaths among infected persons. Nearly ninety percent of all infections are among MSM, IDU, or foreign-born Blacks. Most HIV-infected King County residents are White men who have sex with men, are 30-45 years of age at the time of diagnosis, and reside in Seattle. The proportion of cases is increasing among men who have sex with men, Hispanic males, and people under age 30 or over age 50.

- *Contributed by Jim Kent and Amy Bennett*

Table 1: Nine year trends in the characteristics of new HIV diagnoses, King County, WA 2003 through 2011

Characteristics	2003-2011 N = 2856 Statistical Trend*	%
HIV Exposure Category		
Men who have sex with men (MSM)	Increasing	71-78%
Injection drug user (IDU)	No change	5%
MSM-IDU	No change	9%
Heterosexual contact	Decreasing	15-9%
Sex & Race/Ethnicity		
Male	No change	88%
White Male	No change	55%
Black Male	Decreasing	15-11%
Hispanic Male	Increasing	11-14%
Female	No change	12%
White Female	No change	3%
Black Female	No change	7%
Hispanic Female	No change	1%
Race/Ethnicity		
White, non Hispanic	No change	58%
Black, non Hispanic	Decreasing	22-17%
Hispanic	No change	14%
Asian or Pacific Islander	No change	5%
American Indian/ Alaska Native	No change	1%
Age at diagnosis of HIV		
0-19 years	Increasing	1-3%
20-29 years	Increasing	20-28%
30-39 years	Decreasing	42-30%
40-49 years	Decreasing	28-24%
50-59 years	Increasing	7-12%
60 + years	Increasing	1-3%
Residence		
Seattle	No change	73%
North and East King County	No change	9%
South King County	No change	18%
Place of birth, race, and exposure		
Born outside the US	No change	24%
Foreign-born Blacks	*Decreasing*	*11-8%*
Foreign-born who are not Black	*Increasing*	*11-16%*
Born in the US	No change	76%
Native-born Blacks	*No change*	*10%*
Native-born who are not Black	*No change*	*66%*

*These trends are based on statistical Table 8 (page 10), for cases residing in King County and reported as of 6/30/2012

Table 2. Characteristics of King County, WA residents living with HIV or AIDS as of 6/30/12

	Actual Reports		Diagnosed HIV Prevalence	
	Number Reported	Percent	2010[1] Population	Estimated Rate Per 100[2]
Total	6,093	100%	1,931,249	0.3%
Race/Ethnicity				
White, not Hispanic	3,917	64%	1,294,630	0.3%
Black, not Hispanic	1,106	18%	133,423	0.8%
Foreign-born Blacks	*458*	*8%*	*32,297*	*1.4%*
U.S.-born Blacks	*624*	*10%*	*101,126*	*0.6%*
Hispanic	653	11%	172,378	0.4%
Asian & Pacific Islander	233	4%	314,435	0.1%
Native American or Alaska Native	54	1%	16,383	0.3%
Multiple Race	124	2%	Not applicable	Not applicable
Unknown Race	6	<1%	Not applicable	Not applicable
Sex & Race/Ethnicity				
Male	5,403	89%	962,090	0.6%
White Male	3,696	61%	644,928	0.6%
Black Male	744	12%	68,247	1.1%
Hispanic Male	609	10%	91,252	0.7%
Asian or Pacific Islander Male	202	3%	149,641	0.1%
Native American or Alaska Native Male	36	1%	8,022	0.4%
Multiple or Unknown Race	116	2%	Not applicable	Not applicable
Female	690	11%	969,159	<0.1%
White Female	221	4%	649,702	<0.1%
Black Female	362	6%	65,176	0.6%
Hispanic Female	44	1%	81,126	<0.1%
Asian or Pacific Islander Female	31	1%	164,794	<0.1%
Native American or Alaska Native Female	18	<1%	8,361	0.2%
Multiple or Unknown Race	14	<1%	Not applicable	Not applicable
HIV Exposure Category				
Men who have sex w/men (MSM)	4,160	74%	39,000	10.7%
Injection drug user (IDU)	279	5%	15,000	1.9%
MSM-IDU	508	9%	3,150	16.1%
Blood product exposure	22	<1%	Unknown	Unknown
Heterosexual contact[3]	647	11%	1,300,000	<0.1%
Perinatal exposure	36	<1%	Unknown	Unknown
Subtotal- known exposure	5,652	100%	1,909,297	0.3%
Undetermined/ other	*441*	*8%*	*Not applicable*	*Not applicable*
Current Age as of 6/30/2009				
0-19 years	37	1%	461,892	<0.1%
20-24 years	114	2%	129,822	<0.1%
25-34 years	826	14%	312,717	0.3%
35-44 years	1,592	26%	296,790	0.5%
45-54 years	2,278	37%	291,132	0.8%
55-64 years	1,036	17%	228,217	0.5%
65 years and over	210	3%	210,679	<0.1%
Place of Birth				
US-born	4,717	77%	1,538,344	0.3%
Foreign-born	1,120	18%	392,905	0.3%
Unknown birthplace	256	4%	Not applicable	Not applicable

[1] 2010 bridged-race populations are from U.S. Census Bureau as of 3/7/2012, except estimates of foreign-born and foreign-born Blacks are from U.S. Census Bureau 2005-2009 American Community Survey.
[2] The HIV diagnosis rate is the total number of reported diagnoses divided by the population, and is presented as a percent. The true number infected including people who are not yet diagnosed, is estimated to be about 15% higher than this rate.
[3] Includes presumed heterosexual cases (women who do not inject drugs but have had sex with men of unknown HIV status).

Comparing injection drug users who do and do not report male-to-male sex: Results from the National HIV/AIDS Behavioral Surveillance survey of injection drug users in the Seattle area, 2009.

Introduction

Injection drug use represents a significant risk factor for HIV infection. In 2010 CDC estimates that 5,209 of the 47,129 persons (11%) diagnosed with HIV/AIDS infection in the 46 states with name-based HIV infection reporting were injection drug users (IDU), or injectors practicing male-to-male sex (MSM/IDU).[1] A comparable proportion of diagnosed and reported HIV/AIDS cases in King County 2009-2011 (93/774; 12%) had a history of drug injection.[2] However, the relative contributions of IDU and MSM/IDU differed markedly between King County and the national data. While MSM/IDU constituted 28% of all IDU nationally, they constituted fully 67% of King County cases.

In 2009 the National HIV/AIDS Behavior Surveillance (NHBS) system of the Centers for Disease Control and Prevention (CDC) surveyed drug injectors in 21 U.S. cities, including Seattle (NHBS-IDU2) as part of a continuing program to monitor HIV risk among IDU, MSM and persons at elevated risk for heterosexual HIV in successive years.[3] The 2009 survey extends a previous NHBS survey conducted among IDU in Seattle in 2005 (NHBS-IDU1) and two previous studies on Seattle-area IDU: RAVEN, which recruited from a collection of institutional settings 1994-1998,[4] and Kiwi, which recruited IDU from King County jails in1998-2002.[5] Findings from the previous studies have been summarized in previous Epidemiology Reports.[6;7]

We report here findings from the Seattle-area 2009 NHBS-IDU2 survey for a collection of sociodemographic, sexual, drug-associated, and HIV- and HCV-related variables frequently used to characterize IDU and their HIV and hepatitis C (HCV) associated risk. Because of the importance of MSM/IDU in the Seattle area HIV epidemic we present results comparing IDU with MSM/IDU to better define the distinctive characteristics of MSM/IDU, their risk behaviors and differentials in risk reduction measures between IDU without recent MSM exposure and MSM/IDU.

Methods

The 2009 NHBS-IDU2 survey recruited participants by respondent-driven sampling.[8] This is a variation of snowball sampling in which participants are given coupons with which to recruit further waves of participants and are paid when new recruits bring in the coupons. It has been proposed as an advantageous means of accessing hidden populations (such as IDU, MSM and sex workers). We initially recruited six seeds, chosen to broadly represent the racial, sex, MSM status, drug preference and residential diversity of Seattle-area IDU. Eligibility criteria required participants to be 18 years of age or older, demonstrate evidence of injection in the previous 12 months by physical signs or detailed knowledge of injection practices, be able to complete the survey in English and reside in King or Snohomish Counties. For this analysis we excluded two otherwise eligible transgender participants.

Interviews were conducted in the offices of a Public Health clinic located in northern downtown Seattle. After obtaining informed consent, trained interviewers administered a face-to-face, approximately 40 minute survey using a hand-held computer. A standardized NHBS study questionnaire was used, which elicited information on participants' sociodemographic characteristics, medical history, HIV status, HIV testing history, and sexual and drug-using behaviors. Participants provided separate consent for HIV and for HCV counseling and testing. Participants were paid $25 for the interview, $15 for an HIV test, $15 for a HCV test and $10 for each coupon returned by an eligible participant. Because HCV testing was initiated in the course of the study, only about half of study participants were offered HCV testing. Study procedures were reviewed and approved by the Washington State Institutional Review Board.

In NHBS-IDU2, 508 participants were recruited who met the eligibility requirements for the current analysis between June 17 and November 25, 2009. Five of the initial 6 seed recruited at least one study participant. The majority of participants (70%) derived from one seed. There were 16 waves of recruitment. Six participants reported being recruited by a stranger. Of the 1333 coupons distributed, 652 (49%) were brought in

by an eligible participant.

MSM/IDU are defined as participants who reported male-to-male sex within the previous 12 months; injectors reporting no such sex will be referred to as IDU. Amphetamine injection status is defined based on participants' report of the drug they most frequently injected. We present results that have not been adjusted by the procedures by which RDS analysis attempts to compensate for the potential recruitment biases inherent in the method.[9] We opted for unadjusted analyses because no convincing and generally recognized method has emerged for determining p-values in statistical testing using adjusted RDS estimates.

We present several logistic regression analyses assessing variables associated with outcomes of interest. These analyses all evaluate associations of the outcome with age, race, sex, education, income, area of residence. For logistic regression analyses in which there was evidence of differential effects of amphetamine injection among IDU and MSM/IDU, a four category variable based on MSM and amphetamine injection status of participants was used. The final models incorporate and present those variables found to be significantly ($p \leq 0.05$) and independently associated with the outcome of interest.

Results

Sociodemographics

A total of 508 individuals included in the analysis; 60 of these (12%) were MSM-IDU. MSM/IDU tended to be younger than IDU (**Table 1**). A higher proportion of MSM/IDU were White race and a lower proportion Black. MSM/IDU were more likely to live in Central District (zip code 98122) and Capitol Hill (98102 and 98112) than IDU. A substantial proportion of both groups reported residence in downtown Seattle.

MSM/IDU reported higher levels of education and income than IDU (**Table 2**). Educational attainment for both groups fell well below that of King County as a whole, where census figures indicate 45% were college graduates.10 Similarly, the income of both IDU and MSM/IDU was far below that of the general King County population (with 84% having a yearly income <$20,000 vs. 38% in census data).[10] Similar high proportions of both IDU and MSM/IDU reported current homelessness and recent incarceration, indicating a common degree of social marginalization.

HIV prevalence and testing

Overall, 40 of the 505 participants (8%) with definitive test results tested HIV-positive (**Table 3**). Of these, 10 (25%) reported not being aware of being positive. In logistic regression analyses HIV prevalence varied by area of residence, with higher rates in downtown Seattle and lower rates in the more outlying area of King County. No significant association with HIV status was found for age, race, sex, education or income.

There were striking differences in HIV prevalence based on MSM and amphetamine injection status, ranging from 3% among IDU not reporting amphetamines as the drug they most frequently injected to 52% among MSM amphetamine injectors. Amphetamine injectors had higher HIV prevalence both among MSM/IDU and IDU. MSM had higher HIV prevalence both among amphetamine injectors and those reporting other primary injection drugs.

Among participants not reporting a previous HIV-positive test result, 16% reported an HIV test in the previous 3 months, 29% in the previous 6 months and 51% in the previous 12 months. In logistic regression analyses, a variable combining MSM and amphetamine injection status showed the only significant association with an HIV test in the previous 12 months. Amphetamine injecting MSM/IDU (with 94% reporting a test) had an odds ratio of 16 compared to the baseline non-amphetamine injecting IDU (**Table 4**). MSM/IDU not injecting amphetamines had a likelihood of testing similar to the baseline group. This implies that the difference seen in HIV testing between amphetamine injecting MSM/IDU and others was not a product of sociodemographic differences.

Drug-associated behavior

MSM/IDU were much more likely to report amphetamines as the drug most frequently injected than IDU (57% vs. 2%) (**Table 5**). Heroin was the most frequently used drug for 88% of IDU compared to 33% of MSM/IDU. Both groups reported polydrug use. 19% of MSM/IDU reporting amphetamines as the drug they most frequently injected also reported heroin injection in the previous 12 months. 10% of IDU reporting heroin as the drug they most frequently injected also injected amphetamines. MSM/IDU tended to have initiated injection at an older age than IDU and to have been injecting fewer years. Injection frequency was lower among MSM/IDU than IDU.

Compared to IDU, MSM/IDU reported lower levels of sharing in every category of injection equipment enumerated in Table 5, though not every comparison attained statistical significance. Both groups reported lower levels of needle sharing than sharing cookers, cottons or water, or backloading. The differential

between sharing needles and other injection equipment was most pronounced when evaluated in terms of behavior with last injection partner. The overall proportion reporting 12 month needle sharing in NHBS-IDU2 was substantially below that seen in the 2005 NHBS-IDU1 survey, which in turn was well below that reported in the earlier RAVEN and Kiwi studies (**Figure 1**). Two surveys of Needle Exchange users in 2009 and 2011 were consistent with lower levels of needle sharing in later years.[11]

In logistic regression analyses only age and the variable combining MSM and amphetamine injection status attained significant association with the sharing of: (1) needles, (2) cookers, cottons or water, and (3) backloading (Table 6). Older participants were less likely to report sharing all three categories of injection equipment. MSM amphetamine injectors were least likely to report sharing each category.

Sexual behavior

Of the 97 participants reporting ever having male-to-male sex (comprising 18% of male participants), 60 (62%) reported male-to-male sex in the previous year. Only half of MSM/IDU with a male partner in the last 12 months reported a homosexual orientation, with 35% reporting a bisexual and 15% a heterosexual orientation.

Compared to IDU, MSM/IDU reported higher numbers of sex partners, and were more likely to report and a bacterial STD diagnosis and exchange sex (exchanging money or drugs for sex) in the previous 12 months (**Table 7**). A high proportion of both groups reported unprotected sex in the previous 12 months. MSM/IDU were more likely than IDU to report mutual disclosure of HIV status before first sexual contact with new sex partners.

At last sexual contact, MSM/IDU were more likely than IDU to report a casual partner and to have engaged and in oral sex and in anal sex. Use of drugs during sex was high in both groups. There was little difference between the groups in knowledge of their partner's HIV status or (among those practicing vaginal or anal sex) the proportion reporting any unprotected sex and unprotected vaginal or anal sex with a partner of unknown or opposite HIV status (non-concordant, unprotected sex).

Hepatitis related variables

Overall, 75% of NHBS-IDU2 participants tested positive for HCV in an EIA test, indicating a history of HCV infection (**Table 8**). Twenty nine percent of those seropositive for HCV reported being unaware of their status. There was no evidence that MSM/IDU differed from IDU in the proportion HCV seropositive, HCV seropositives unaware of their status, ever having an HCV test, or self-reported hepatitis B (HBV) or hepatitis A (HAV) status. MSM/IDU were more likely than IDU to report vaccination for HBV and HAV.

In logistic regression analyses, there was no independent association of HCV seropositivity with race, sex, income, area of residence, drug most frequently injected or MSM status. HCV seropositivity was strongly associated with the years participants had been injecting, and also with lower education levels and older age (**Table 9**).

Overlap between IDU and MSM/IDU social networks

Because the RDS methodology of NHBS-IDU2 is based upon participants recruiting other IDU into the study, data obtained in the course of the study comparing the characteristics of recruiters and the people they recruited allowed an assessment of the degree of the overlap of the social networks of MSM/IDU and IDU. Homophily measures the disproportionate tendency of a group to recruit persons similar to themselves. A zero value for homophily indicates a recruitment likelihood consistent with the representation of a group in the study population. Positive and negative homophilies indicate disproportionately more and less likelihood of recruitment of persons similar to the recruiter. In NHBS-IDU2 relatively high homophiles were found for IDU recruiting other IDU (0.61) and MSM/IDU recruiting other MSM/IDU (0.53). Analogous measures of the tendency for cross-group recruitment suggested substantial network isolation of IDU from MSM/IDU one another (-0.53 and -0.61, respectively)

Figure 2 illustrates the recruitment chains for NHBS-IDU2 participants by MSM status. The recruitment chain for seed 4 consisted predominantly of MSM/IDU. The principal chain, from seed one, included sparse representation of MSM/IDU. The chains from seed 2 and 3 include intermediate proportions of MSM/IDU. The uneven representation of MSM/IDU in the different recruitment chains offers an additional indication of segregation by MSM status in the social networks of drug injectors.

Limitations

Interpretation of the results of the NHBS-IDU2 survey is complicated by questions about the extent to which the RDS recruitment used yielded a study population which accurately characterized Seattle-area IDU. We have found substantial differences between the results of the NHBS-IDU2 survey reported here, the 2005

Table 1: Demographic characteristics of participants in the Seattle-area 2009 National HIV Behavioral Surveillance survey of injection drug users survey (NHBS-IDU2)

	IDU		MSM/IDU[1]		Totals		p-value
	N	***%***	***N***	***%***	***N***	%	
Age, in years							
18 - 29	45	10%	8	13%	53	10%	<.001
30 - 39	98	22%	23	38%	121	24%	
40 - 49	133	30%	23	38%	156	31%	
≥ 50	172	38%	6	10%	178	35%	
Race							
White	259	58%	44	75%	303	60%	.06
Black	88	20%	3	5%	91	18%	
Hispanic	24	5%	5	9%	29	6%	
Native American	25	6%	2	3%	27	5%	
Asian	1	0.2%	0	0%	1	0.2%	
Multiple races	50	11%	5	9%	55	11%	
Sex							
Male	270	60%	60	100%	330	65%	-
Female	178	40%	0	0%	178	35%	
Nativity							
US born	438	98%	58	97%	496	98%	.51
Foreign born	9	2%	2	3%	11	2%	
Area of residence							
North Seattle	62	14%	10	17%	72	15%	<0.0001
Downtown Seattle	194	45%	23	38%	217	44%	
Capitol Hill	9	2%	8	13%	17	4%	
Central District	37	9%	17	28%	54	11%	
South Seattle	51	12%	1	2%	52	11%	
South King County	56	13%	0	0%	56	11%	
East King County	20	5%	1	2%	21	4%	
Snohomish County	2	1%	0	0%	2	0.4%	
Total	448		60		508		

[1]Men reporting both male-to-male sex and injection drug use in the previous 12 months.

NHBS-IDU1 survey and what had been seen in the 1994-2002 RAVEN and Kiwi studies.[11;12] While methods have been proposed to adjust for recruitment biases in RDS,9 these adjustments are currently incompatible with conventional statistical testing and we have not incorporated them. These considerations need not necessarily invalidate the current findings. Comparisons within the NHBS-IDU2 study population are likely to elucidate true relationships even if the overall sample does not fully represent the Seattle IDU universe. In any event, the NHBS-IDU2 survey represents a substantial quantity of data in hand and there is no available alternative source of information on Seattle-area IDU without comparable caveats.

Table 2: Socioeconomic characteristics of participants in the Seattle-area 2009 National HIV Behavioral Surveillance survey of injection drug users (NHBS-IDU2)

	IDU		MSM/IDU[1]		Totals		p-value
	N	***%***	***N***	***%***	***N***	%	
Education							
< High school grad	121	27%	10	17%	131	26%	0.003
High school grad	193	43%	20	34%	213	42%	(trend)
Post high school	116	26%	24	41%	140	28%	
College grad	17	4%	5	9%	22	4%	
Yearly income							
$0 - $4,999	176	40%	15	25%	191	38%	0.03
$5,000 - $9,999	128	29%	18	31%	146	29%	(trend)
$10,000 - $19,999	75	17%	14	24%	89	18%	
$20,000 +	66	15%	12	20%	78	16%	
Currently homeless							
No	244	55%	37	62%	281	55%	0.30
Yes	203	45%	23	38%	226	45%	
Incarcerated, 12 months							
No	278	62%	44	73%	322	64%	0.09
Yes	169	38%	16	27%	185	37%	
Total	448		60		508		

[1]Men reporting both male-to-male sex and injection drug use in the previous 12 months.

Table 3. Associations of HIV seropositivity in logistic regression analyses; among participants in the Seattle-area 2009 National HIV Behavioral Surveillance survey of injection drug users (NHBS-IDU2)

	HIV Seropositive		
	% Positive	n/N	Adjusted Odds Ratio
Overall	8%	40/505	
Region			
North Seattle	8%	7/88	1.00
Downtown	12%	25/216	3.36
South Seattle	6%	6/104	0.63
South King County	0%	0/56	0.00
East King County	5%	1/21	1.06
			p = 0.003

Table 3 (Continued): Associations of HIV seropositivity in logistic regression analyses; among participants in the Seattle-area 2009 National HIV Behavioral Surveillance survey of injection drug users (NHBS-IDU2)

	HIV Seropositive		
	% Positive	n/N	Adjusted Odds Ratio
MSM* and amphetamine injection status[1]			
IDU			
Not amphetamines	3%	15/435	1.00
Amphetamines	20%	2/10	7.74
MSM/IDU			
Not amphetamines	28%	7/25	10.21
Amphetamines	52%	16/31	46.85
			p < .0001

[1]Based on whether participants reported amphetamines as the drug they most frequently injected and whether they reported male-to-male sex in the previous 12 months.

Table 4: Associations of HIV testing in the previous 12 months in logistic regression analyses, broken down by whether participants reported amphetamines as the drug they most frequently injected and whether they reported male-to-male sex in the previous 12 months; among participants in the Seattle area 2009 National HIV Behavioral Surveillance survey of injection drug users (NHBS-IDU2)

	HIV test, 12 months		
	% Tested	n/N	Adjusted Odds Ratio
Overall	51%	228/446	
IDU			
Not amphetamines	49%	197/399	1.00
Amphetamines	33%	3/9	0.52
MSM/IDU			
Not amphetamines	53%	10/19	1.15
Amphetamines	94%	16/17	16.49
			p = 0.001

Table 5: Drug-related variables; among participants in the Seattle-area 2009 National HIV Behavioral Surveillance survey of injection drug users survey (NHBS-IDU2)

	IDU		MSM/IDU		Totals		p-value
	N	***%***	***N***	***%***	***N***	%	
Drug most frequently injected							
Heroin	395	88%	20	33%	415	82%	<0.0001
Speedballs	31	7%	4	7%	35	7%	
Cocaine	11	3%	1	2%	12	2%	
Amphetamines	10	2%	34	57%	44	9%	
Other drug	1	0.2%	1	2%	2	0.4%	
Age first injected							
≤ 15	82	18%	6	10%	88	17%	0.006
16 - 20	158	35%	15	25%	173	34%	
21 – 25	93	21%	11	18%	104	21%	
26 +	113	25%	28	47%	141	28%	
Years Injecting							
0 – 5	48	11%	14	23%	62	12%	<0.0001
6 – 15	105	24%	19	32%	124	25%	
16 – 25	103	23%	19	32%	122	24%	
> 25	190	43%	8	13%	198	39%	
Injection frequency							
< 1/week	42	10%	17	30%	59	10%	<0.0001
1/week – 1/day	102	24%	22	39%	124	27%	
> 1/day	286	67%	17	30%	303	62%	
In previous 12 months:							
Shared needle	142	32%	12	20%	154	31%	0.06
Shared cooker	271	61%	28	47%	299	59%	0.04
Shared cottons	231	52%	21	35%	252	50%	0.01
Shared water	230	52%	22	37%	252	50%	0.03
Backloaded	155	35%	12	20%	167	33%	0.03
With last injection partner:							
Shared needle	44	10%	3	5%	47	9%	0.23
Shared cooker, cottons or water	219	49%	20	33%	239	48%	0.02
Backloaded	60	14%	5	9%	65	13%	0.28
Binged on alcohol[1]	92	21%	11	18%	103	20%	0.68
Drug or alcohol treatment							
Ever	377	85%	51	85%	428	85%	0.92
Previous 12 months	156	35%	19	32%	175	35%	0.61
Totals	448		60		508		

[1]Defined as 5 or more drinks (4 for females) repeated 4 or more times in the past 30 days.

Table 6: Associations of any sharing of injection equipment in the previous 12 months in logistic regression analyses; among participants in the Seattle-area 2009 National HIV Behavioral Surveillance survey of injection drug users survey (NHBS-IDU2)

	N	Needles		Cookers, cottons, or water		Backloaded	
		% Sharing	Adjusted Odds Ratio	% Sharing	Adjusted Odds Ratio	% Sharing	Adjusted Odds Ratio
Overall	508	31%		62%		33%	
Age							
18 - 29	52	40%	1.00	71%	1.00	32%	1.00
30 - 39	120	37%	0.82	71%	0.92	43%	1.65
40 - 49	156	28%	0.51	58%	0.50	32%	0.96
≥ 50	179	27%	0.46	57%	0.42	29%	0.73
			p = 0.03		p = 0.004		p = 0.02
MSM and amphetamine injection status[1]							
IDU							
Not amphetamines	434	32%	1.00	64%	1.00	35%	1.00
Amphetamines	10	40%	1.27	50%	0.46	30%	0.66
MSM/IDU							
Not amphetamines	25	28%	0.76	64%	0.85	28%	0.59
Amphetamines	34	12%	0.24	32%	0.21	12%	0.21
			p = 0.02		$p = 4 \times 10^{-4}$		p = 0.01

[1]Based on whether participants reported amphetamines as the drug they most frequently injected and whether they reported male-to-male sex in the previous 12 months.

Comments

Our findings confirm that MSM/IDU represent a socio-demographically distinct subpopulation among Seattle-area injectors differing from other IDU in age, race, area of residence, education and income. Preliminary results from the venue-based NHBS-MSM3 survey of Seattle-area MSM showed an HIV prevalence among MSM/IDU participants of 42%, comparable to the 39% seen in the present report. This consistency across differing recruitment methods argues that these prevalence figures are not simply an artifact of recruitment methodology. While the majority of new HIV cases in the Seattle area occur in MSM with no history of drug injection,2 the high HIV seroprevalence in MSM/IDU indicate that they continue to be a population of particular interest in the local HIV epidemic.

There has been a long term trend towards rising HIV prevalence among Seattle-area IDU. Seroprevalence among Seattle-area MSM/IDU was 22% in the 1994-1997 RAVEN study, 18% in the 1998-2002 Kiwi study and rose to 39% in the present report. Among IDU seroprevalence rose from 1.5% in RAVEN to 1.6% in Kiwi to 3.7% in the present report. A portion of the difference in seroprevalence can be attributed to increased survival following the widespread introduction of effective anti-retroviral treatments in 1996. The number of IDU presumed living with HIV infection increased 65% from 1994 to 2009 (from 199 to 324) and the number of MSM/IDU increased 52% (from 364 to 554) (Jim Kent, personal communication).

MSM/IDU Seattle-area NHBS-IDU2 participants reported higher levels of several HIV risk reduction behaviors than IDU participants. MSM/IDU reported lower levels of sharing needles, cookers, water, and cottons, and backloading. Amphetamine injecting MSM/IDU reported higher levels of HIV testing in the previous 12 months

Table 7: Sexual behavior among participants in the Seattle-area 2009 National HIV Behavioral Surveillance survey of injection drug users survey (NHBS-IDU2)

	IDU		MSM/IDU		Totals		p-value
	N	***%***	***N***	***%***	***N***	%	
Previous 12 months							
Number sex partners							
0	103	23%	0	0%	103	21%	<0.0001
1	161	36%	9	15%	170	34%	
2 - 4	122	28%	18	31%	140	28%	
5 – 9	25	6%	14	24%	39	8%	
10 +	32	7%	18	31%	50	10%	
STD diagnosis	10	2%	7	12%	17	3%	0.0001
Exchange sex							
Males	24	9%	15	25%	39	12%	<0.001
Females	57	32%			57	32%	-
Any unprotected sex[1]	267	78%	43	84%	310	79%	0.33
Mutual disclosure of HIV status[2]							
With no new partners	87	52%	15	30%	216	47%	0.01
With any new partners	81	48%	35	70%	116	43%	
Totals	448		60		508		
At last sexual contact[1]							
Type of last partner							
Main partner	198	60%	18	31%	216	56%	<0.0001
Casual partner	86	26%	33	58%	119	31%	
Exchange partner	46	14%	6	12%	52	13%	
Sexual activity							
Vaginal sex only	292	89%	6	11%	298	77%	<0.0001
Anal sex only	3	1%	28	50%	31	8%	
Both vaginal and anal sex	10	3%	1	2%	11	3%	
Oral sex only	25	8%	21	38%	46	12%	
Knew partner's HIV status	211	65%	42	74%	253	66%	0.19
Any unprotected sex[3]	74	24%	8	23%	82	24%	0.85
Non-concordant, unprotected sex[3]	35	11%	5	9%	40	10%	0.70
Drug use	271	82%	48	84%	319	82%	0.70
Totals	330		57		387		

[1] Among 387 participants reporting a sex partner in previous 12 months.
[2] Among 218 participants reporting a new sex partner in the previous 12 months.
[3] Among 340 participants reporting vaginal or anal sex at last sexual contact.

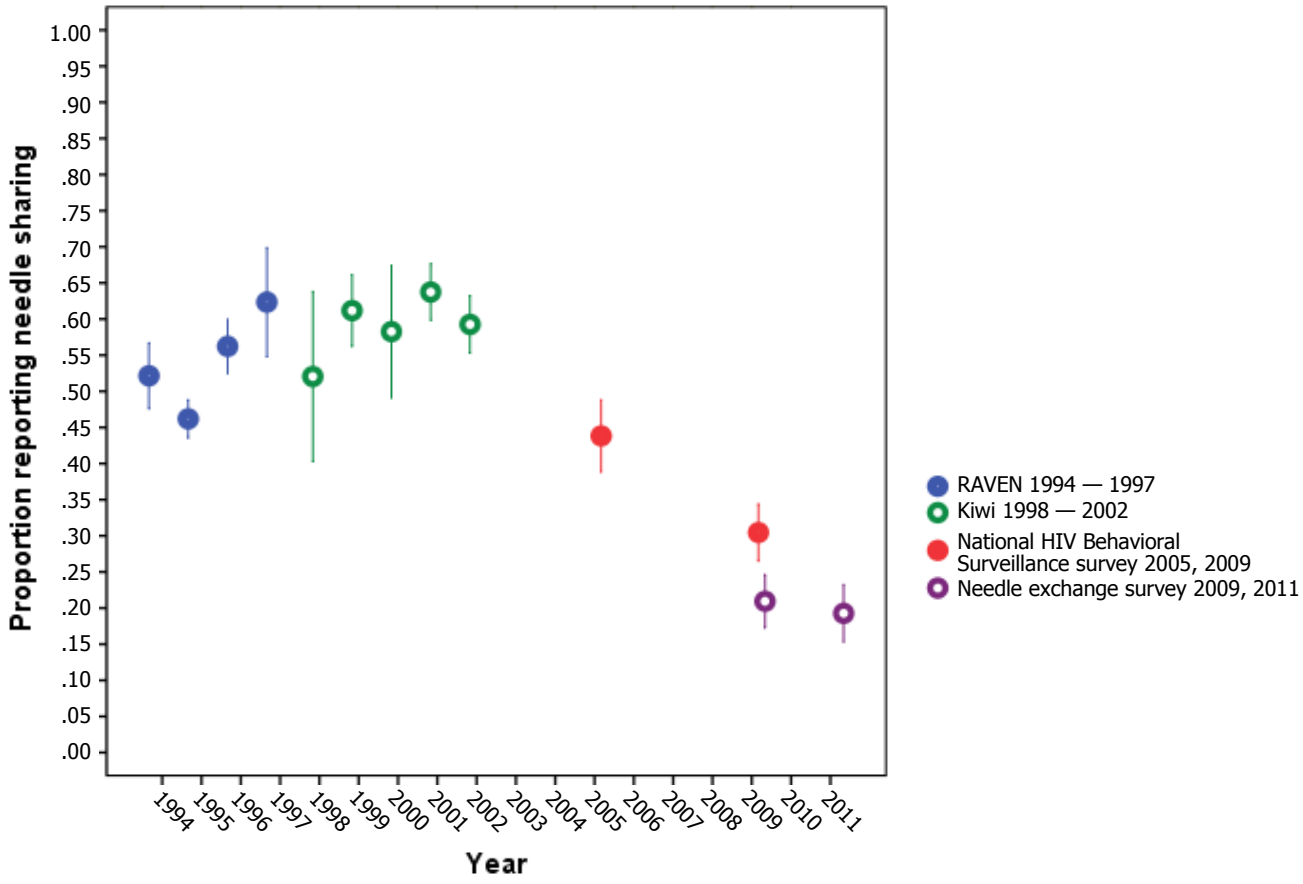
Table 8: Hepatitis-related variables; participants in the Seattle-area 2009 National HIV Behavioral Surveillance survey of injection drug users survey (NHBS-IDU2)

	IDU		MSM/IDU		Totals		p-value
	n/N	%	n/N	%	n/N	%	
HCV seropositive	183/240	76%	21/34	62%	204/274	75%	0.07
Unaware HCV positive	51/180	28%	7/21	33%	58/201	29%	0.63
Ever HCV test	383/438	87%	51/57	90%	434/495	88%	0.66
HBV positive, self-report	88/442	20%	11/58	19%	99/500	20%	0.87
HAV positive, self-report	62/442	14%	7/58	12%	69/500	14%	0.68
HBV vaccination	116/411	28%	34/56	61%	150/467	32%	<0.0001
HAV vaccination	111/411	27%	28/56	50%	139/467	30%	4×10^{-4} <0.001

Table 9: Associations of hepatitis C seropositivity in logistic regression analyses; among participants in the Seattle-area 2009 National HIV Behavioral Surveillance survey of injection drug users survey (NHBS-IDU2)

	HCV Seropositive	n/N	Adjusted Odds Ratio
Overall	75%	205/275	
Age			
18 - 29	28%	10/36	1.00
30 - 39	70%	48/69	3.69
40 - 49	85%	77/91	5.31
50 +	89%	70/79	2.71
			p = 0.01
Years injecting			
0 - 5	33%	14/43	1.00
6 - 15	58%	45/79	2.43
16 - 25	94%	59/63	21.60
> 25	97%	86/89	52.02
			<0.0001
Education			
< High school grad	88%	64/73	1.00
High school grad	69%	75/109	0.19
Post high school	71%	65/92	0.27
			p = 0.002

Figure 1: Time trends across different study populations in the proportion of participants reporting needle sharing among Seattle-area injection drug users 1994-2011



than others. It appears that MSM/IDU participants recognize their higher risk for HIV transmission and have taken some steps to reduce it. The higher levels of HBV and HAV vaccination reported by MSM/IDU suggest that efforts at risk reduction are not restricted to HIV.

In summary, MSM/IDU participants in the 2009 Seattle -area NHBS-IDU2 survey had exceptionally high and increasing levels of HIV prevalence, but also lower levels of risk for several measures of HIV transmission-associated behaviors than IDU participants who did not report male-to-male sex. There appears to be room for efforts to reduce sharing of injection equipment other than needles and to emphasize the importance of sexual transmission of HIV to achieve further reductions in behavioral risk. While such behavioral approaches have the potential to reduce levels of HIV transmission, given the observed high and rising HIV prevalence among MSM/IDU, behavioral measures likely can be regarded as no more than one component of an effective HIV prevention strategy.

National HIV surveillance data indicate that nationally MSM/IDU constitute a much smaller proportion of HIV cases than is the case in the Seattle-area. Seattle also differs from many other areas in the exceptionally high proportion of MSM among new HIV cases. It will be of interest and importance to assess the contributions of MSM/IDU to the HIV epidemic in the other US cities with highest HIV burden and to investigate the bases of the differential contribution of MSM/IDU to the local epidemics.

- *Contributed by: Richard Burt, Hanne Thiede and Nadine Snyder.*

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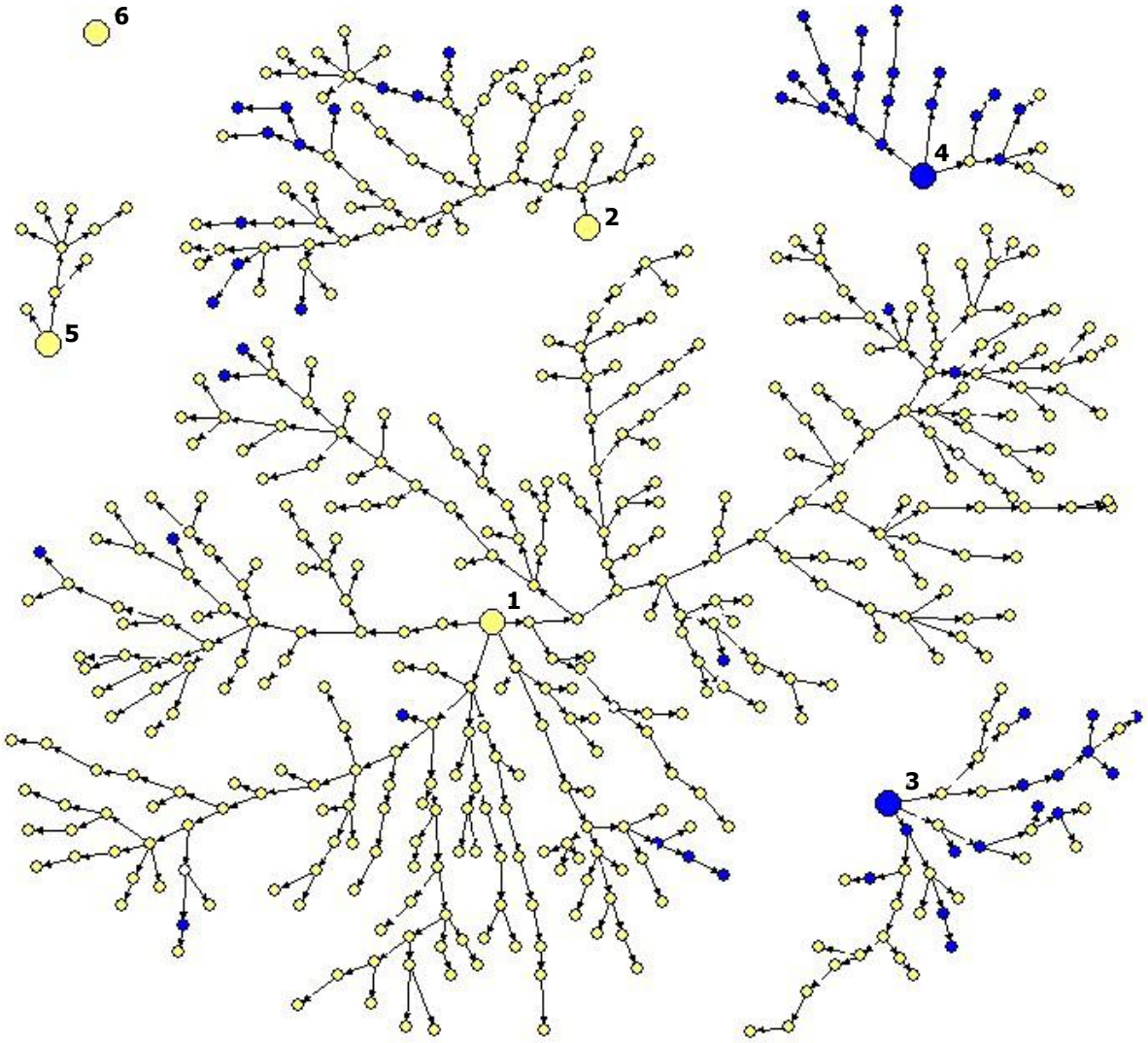
Figure 2: Recruitment chains in the Seattle-area 2009 National HIV Behavioral Surveillance survey of injection drug users survey (NHBS-IDU2), broken down by whether participants reported male-to-male sex as well as injection drug use in the previous 12 months (MSM/IDU). MSM/IDU in blue (darker color), non-MSM IDU in yellow (lighter color); seeds are enlarged circles, numbers refer to seed number.



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HIV Testing Patterns among Men Who Have Sex with Men: Findings from the Gay Pride Event in Seattle, WA June 2012

Background

Two primary goals of the 2010 White House National HIV/AIDS Strategy (NHAS) are to reduce new HIV infections and to increase the access to and quality of care of those who are infected with HIV[1]. Identifying individuals infected with HIV is a crucial step needed to reach these goals. People who do not know their HIV status are more likely to engage in risk behaviors that transmit HIV to others and may access care too late to receive the maximum benefit of treatment[2].

Among the 6,935 reported cases of people living with HIV in King County WA, as of December 2011, about 5,384 (78%) were men who have sex with men (MSM) including MSM who also reported injecting drugs, accounting for over three-quarters of all HIV diagnoses in the region. Local HIV prevalence estimates for MSM range from 13% to 16% for MSM overall. Between the three-year periods 2002-2004 through 2008-2010 there was a statistically significant increase in the proportion of MSM among cases newly diagnosed and reported with HIV[3].

In the National HIV Behavioral Surveillance (NHBS) MSM survey conducted in 2011, 360 King County MSM were identified through venue-based sampling and completed an interview. A total of 66 men (18%) were infected with HIV, 18% of whom (or 3% overall) were not previously aware of their HIV infection (communication with Dr. Richard Burt). Among MSM with undiagnosed HIV infection in the national NHBS sample, 45% had been tested within the previous 12 months, and 29% within the previous 6 months[4].

CDC's 2010 sexually transmitted disease treatment guidelines recommend more frequent HIV testing for MSM who have multiple or anonymous partners, who have sex in conjunction with illicit drug use (particularly methamphetamine use), or whose partners participate in these activities[5]. However, among MSM in the national NHBS survey who had been tested for HIV within the past 12 months, the prevalence of undiagnosed HIV among MSM who reported these high-risk behaviors (7%) was similar to that among those who did not report these behaviors (8%)[5].

In King County, it is recommended that HIV testing be performed every 3 months in MSM with any one or more of the following risks[6]:

1. Diagnosis of a bacterial STD in the prior year (gonorrhea, chlamydial infection or early syphilis)
2. Methamphetamine or popper use in the prior year
3. >10 sex partners (anal or oral) in the prior year
4. Unprotected anal intercourse with a partner of unknown or discordant HIV status in the prior year

The following report compares demographic characteristics and sexual risk behavior among MSM survey participants at a Gay Pride event in Seattle with recent and non-recent HIV testing histories. Identifying differences in testing patterns for MSM who have tested recently for HIV and those who have not may help public health officials identify unique prevention strategies for each of these groups.

Methods

In June 2012, attendees at the Gay Pride event were approached by staff from Public Health — Seattle & King County and asked to complete a brief survey. Men were eligible to complete the survey if they self-identified as a male and ever had sex with another man. Participants were given a $5 coffee card for completing the survey. The interviews consisted of yes/no and multiple choice questions and collected data on subject demographics, health insurance status, HIV testing history and status, sexual risk behavior, substance use, knowledge and interest in taking PrEP.

Results

A total of 308 MSM completed the face-to face interviews at the 2012 Seattle Gay Pride parade. The sample was mainly comprised of men who were white (80%), age 40 or younger (70%), had at least some college education (80%), and identified as gay (86%) (**Table 1**).

Table 1. Basic demographic characteristics of Seattle Gay Pride attendees- June 2012

	Total N=308	HIV negative Recent testers within past 2 years N=220	HIV negative Not tested in the last two years N=61	HIV+ N=27
Race*				
White	80%	81%	70%	93%
Hispanic	14%	13%	21%	7%
Black	7%	8%	8%	--
Asian	2%	4%	7%	4%
Native American	5%	5%	5%	4%
Other	8%	6%	15%	4%
Age				
≤40	70%	74%	62%	52%
>40	30%	26%	38%	48%
Education				
Some HS or less	6%	5%	12%	--
HS graduate	14%	14%	15%	15%
Some college/AA degree	34%	32%	38%	41%
College graduate-4 year	29%	32%	21%	19%
More than 4 year degree	18%	18%	15%	26%
Income				
≤ $15,000	23%	22%	29%	19%
$15,001-$30,000	21%	20%	26%	15%
$30,001-$50,000	25%	**27%****	**16%****	33%
$50,001-$100,000	22%	22%	21%	22%
≥$100,001	9%	10%	5%	11%
Refused	<1%			
Sexual Identity				
Gay	86%	84%	83%	93%
Straight	2%	1%	3%	--
Bisexual	10%	11%	8%	4%
Other	2%	3%	5%	3%
Health Insurance	74%	74%	67%**	89%**

*Totals add to more than 100% are due to categories that are not exclusive
****P<.05**

Overall, 281 (91%) of participants reported that they had ever tested for HIV. Among those who had tested, 254 participants (90%) self-reported that they were HIV negative. A majority (87%) of the HIV negative participants had tested for HIV at least one time in the last two years.

Comparing those who had not tested in the last two years with those who had tested one or more times in the last two years, there was no statistically significant difference in most of the demographic characteristics, however among those who had tested in the last two years, a higher proportion were white, 40 years or younger, had more than a high school education and had health insurance. There was a statistically significant difference for income more than $30,000 between those who had tested in two years and those who had not tested (**Table 1**).

Examining sexual behavior between the two groups, those who had not tested in the last two years were significantly more likely to report no anal sex partners in the last 12 months. This group also had a higher proportion who reported sex with women in the last 12 months, anal sex with only one sex partner in the last 12 months, unprotected anal sex with only one person in the last 12 months and a lower proportion of participants reporting anal sex with a HIV positive or unknown status partner, but these findings were not statistically significant. A higher proportion of participants who had not tested in the past two years also reported they never make decisions about condom use based on their partner's HIV status. Those who were not recent testers were also less likely to report using drugs, including one or more of the following, methamphetamine, cocaine, crack, heroin, poppers or injected drugs not prescribed by a provider (**Table 2**).

Participants were asked, "Based on your sexual practices and recent sexual history, how often do you think you should test for HIV?" Those who were recent testers were more likely to report they should test every three months or every six months. More non-recent testers than recent testers (25% versus 9%) marked the "other" response category. These other responses fell into three primary areas, testing was not relevant because they were in a committed monogamous relationship, you should test when you change partners, and you should test more than every 12 months.

Discussion

Overall there do not appear to be any significant socio-demographic differences among MSM who report testing in the last two years compared with those who never tested or did not test in the last two years. However, the men that are testing more frequently appear to be those with more sexual partners and those having unprotected sex with more than one partner in the last 12 months. Although this is not a representative sample, and the number of MSM at high risk of HIV based on self-reported behaviors was modest, it is encouraging that the men who are engaging in behavior that may lead to HIV acquisition are testing more frequently.

Attendees at a Gay Pride event may not be representative of all MSM in King County and additional data should be collected in other settings that may provide an opportunity to sample a more diverse group of MSM and conduct similar types of analyses.

This type of data may allow for improved decision making for testing strategies and prevention program planning in King County in order to reach one of the targets set forth by the NHAS: increase the percentage of people who are living with HIV who know their HIV status from 79% to 90% by 2015.

- *Contributed by Elizabeth Barash*

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Table 2. Sexual and drug use behaviors among Seattle Gay Pride attendees, June 2012

	Total* N=308	HIV negative Recent testers within past 2 years N=220	HIV negative Not tested in the last two years N=61
Sex with women last 12 months	2%	<1%	8%
No anal sex partners last 12 months	8%	**14%***	**30%***
1 anal sex partner last 12 months	42%	41%	57%
No unprotected anal sex last 12 months	33%	34%	31%
Unprotected anal sex with 1 partner last 12 months	42%	44%	53%
Anal sex with unknown status or discordant partner last 12 months	4%	12%	8%
Never make decisions about only oral sex based on partner's HIV status	45%	45%	42%
Never make decision about using condoms based on partner's HIV status	16%	13%	23%
Based on your sexual practices and recent sexual history-how often do you think you should test for HIV?			
Every 3 months	24%	25%	22%
Every 6 months	37%	40%	25%
Every 12 months	26%	26%	27%
Other	12%	9%	26%
Any drug use	25%	24%	18%

***P<.05**

Time since last negative HIV test among new HIV cases in King County

Background

HIV testing is an essential component of HIV prevention and treatment activities. New cases of HIV are averted when individuals are diagnosed with HIV and take steps to prevent forward transmissions.
Illness and death are prevented when HIV is diagnosed prior to immune depletion. For these reasons, public health advocates frequent testing among individuals at risk for HIV. People newly diagnosed with HIV obviously were at risk of HIV infection -- thus their HIV testing history may be representative of the most at-risk individuals. In this report, we examine characteristics of newly diagnosed cases with and without a recent negative HIV test.

Methods

King County residents age 13 and older who were diagnosed with HIV between 2006 and 2011 and reported to the PHSKC HIV surveillance program as of August 2012 were included in the analysis.

A supplemental HIV test history was sought for all cases that were newly HIV diagnosed in King County. This history was collected at the time of diagnosis, and included date (month/year) of first positive HIV test and date (month/year) of last negative HIV test. Test history was collected through medical chart abstraction (dates were either documented labs or history self-reported from patient to provider) and during partner counseling and referral services (self-reported history, dates confirmed when possible). Additionally, each case's first lab-documented positive test date and last lab-documented negative test date were obtained from the Washington State HIV/AIDS Reporting System (HARS). If more than one first positive date was available for a person, the earliest was used in this analysis. If more than one last negative date was available, the latest was used in this analysis. A recent HIV test was defined as one within one year of an HIV diagnosis.

Demographic characteristics and CD4 results were collected from HARS. We included CD4 tests that were drawn within 6 months of HIV diagnosis. Intertest intervals were calculated as the number of months between a last negative test and a first positive HIV test.

Results

Among 1828 King County cases diagnosed between 2006 and 2011, 1610 (88%) had a first positive HIV date collected as part of the supplemental HIV test history. Of these, 11% had information about a first positive HIV test in a year earlier than the first positive test in the HIV surveillance registry. Cases that had a positive HIV test prior to 2006 were excluded from the remainder of the analysis, resulting in 1733 cases with a first positive HIV test between 2006 and 2011. Of these, a total of 1299 (75%) had information about a last negative test (a lab-documented test, a self-reported date, or report that they had never tested before).

Overall, 39% of cases had a negative test within one year of their HIV diagnosis, 18% had a negative HIV test between one and two years before their diagnosis, 29% had a negative test more than two years prior to HIV diagnosis, and 14% had never had an HIV test before diagnosis (Table 1). Age was strongly associated with having had a recent negative HIV test, with a strong linear association between decreasing age and increased probability of having had a prior negative HIV test within one year of testing positive. Only one in five individuals 55 years and greater had a recent negative test whereas over half (55%) of 13 to 24 year olds had a recent negative HIV test. Other groups more likely to have had a recent negative HIV test before being diagnosed were men who had sex with men (MSM), and people with an initial CD4+ lymphocyte tests > 350 cells/µL.

Correspondingly, median CD4 counts and interquartile ranges (Figure 1) indicate that individuals with a recent HIV testing history were more likely to be diagnosed with HIV at earlier stages (based on higher CD4 counts) than those with more distal or no testing history.

Trends in HIV test history do not show any consistent changes in the proportion of newly diagnosed individuals with a recent negative HIV test over the six years of observation. This was true overall (Figure 2) and for MSM, including injection-drug-using (IDU) MSM (Figure 3). People who have had a negative HIV test within one year of being diagnosed make up the largest proportion each year (31%-43% overall and 37%-

Table 1. Time since last negative HIV test among newly diagnosed HIV cases in King County, 2006-2011

	<1 year		1-2 years		>2 years		Never tested before	
	N	%	N	%	N	%	N	%
OVERALL	504	**39%**	229	**18%**	379	**29%**	187	**14%**
Sex								
Male	488	**41%**	207	**18%**	343	**29%**	144	**12%**
Female	16	**14%**	22	**19%**	36	**31%**	43	**37%**
Age at diagnosis								
13-24 yrs	113	**55%**	32	**16%**	26	**13%**	35	**17%**
25-34 yrs	198	**46%**	81	**19%**	108	**25%**	43	**10%**
35-44 yrs	117	**34%**	60	**18%**	127	**37%**	38	**11%**
45-54 yrs	56	**25%**	43	**20%**	80	**36%**	41	**19%**
55+ yrs	20	**20%**	13	**13%**	38	**38%**	30	**30%**
Risk								
MSM	433	**46%**	168	**18%**	261	**28%**	79	**8%**
IDU	6	**14%**	7	**16%**	19	**44%**	11	**26%**
MSM-IDU	44	**39%**	21	**18%**	36	**32%**	13	**11%**
Hetero/other	21	**10%**	33	**16%**	63	**31%**	84	**42%**
Race/Ethnicity*								
White	349	**43%**	142	**18%**	236	**29%**	83	**10%**
Black	45	**23%**	33	**17%**	63	**32%**	54	**28%**
Hispanic	69	**39%**	30	**17%**	56	**32%**	22	**12%**
Asian/Hawaiian/PI	20	**27%**	13	**18%**	17	**23%**	23	**32%**
Multi-racial	19	**8%**	11	**28%**	6	**15%**	4	**10%**
Birthplace								
US-born	426	**42%**	182	**18%**	295	**29%**	122	**12%**
Foreign-born	59	**25%**	44	**18%**	74	**31%**	61	**26%**
Homeless								
No	491	**39%**	218	**17%**	366	**29%**	172	**14%**
Yes	11	**22%**	11	**22%**	13	**27%**	14	**29%**
First CD4								
<350	120	**23%**	74	**14%**	215	**40%**	123	**23%**
≥350	369	**51%**	146	**20%**	156	**21%**	58	**8%**

Includes 1,299 cases for whom HIV test history is available
* White, Black, Asian/Hawaiian/PI, and Multi-racial are all non-Hispanic; Native American/Alaska natives and those with unknown race were excluded due to cells counts <5
Numbers may not add due to 100% due to missing data or cell counts that were not included due to values <5

Figure 1: First CD4 count within 6 months of diagnosis (median and interquartile range) by time since last negative HIV test, 2006-2011

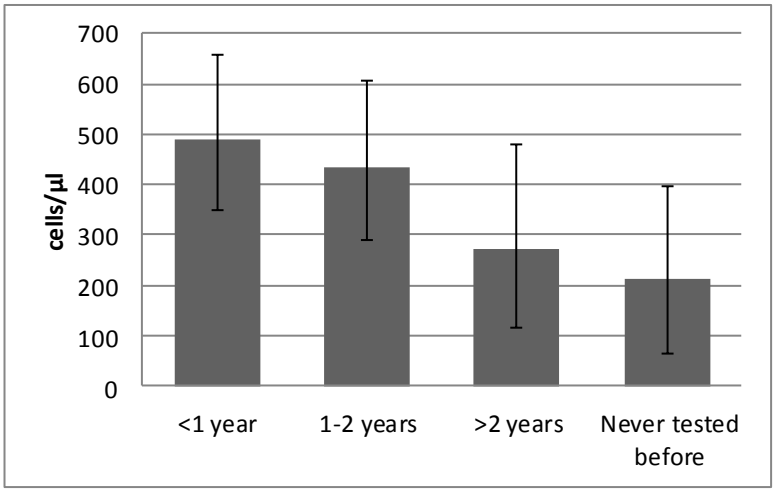
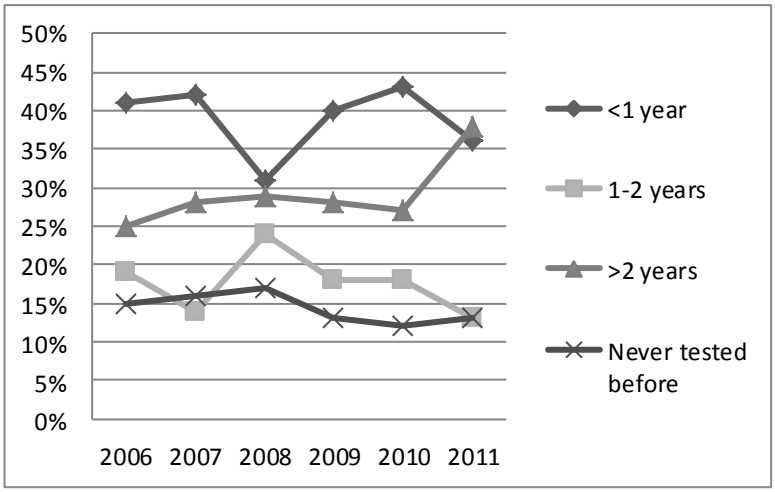


Figure 2: Time since last negative HIV test among newly diagnosed cases, by year of HIV diagnosis, King County, 2006-2011



50% among MSM). The proportion of individuals who never had a previous negative test has remained low over time (12%-17% overall and 6%-10% among MSM).

Because MSM are a group of particular interest in this jurisdiction given that they make up approximately two -thirds of new diagnoses in King County, we looked at intertest interval among MSM who had a prior negative test. Median intertest intervals for MSM between 2006 and 2011 ranged from 9 to 17.5 months (Figure 4); the median was 12 months for the overall time period. Median intertest interval was highest and interquartile range was widest in year 2011.

Conclusion

HIV Incidence Surveillance, Partner Services, and core HIV surveillance all are monitoring HIV testing history in King County. We found that, overall, 39% of people diagnosed with HIV between 2006 and 2011 had a negative HIV test within a year of their diagnosis. Despite promotion of HIV testing – at least once for all adults and adolescents[1] more frequently among those at higher risk, including MSM[2], recent HIV testing among individuals at highest risk did not increase between 2006 and 2011.

These data expand on and update a recent publication examining HIV testing patterns in MSM in King

Figure 3: Time since last negative HIV test among newly diagnosed MSM and MSM IDU cases, by year of HIV diagnosis, King County, 2006-2011

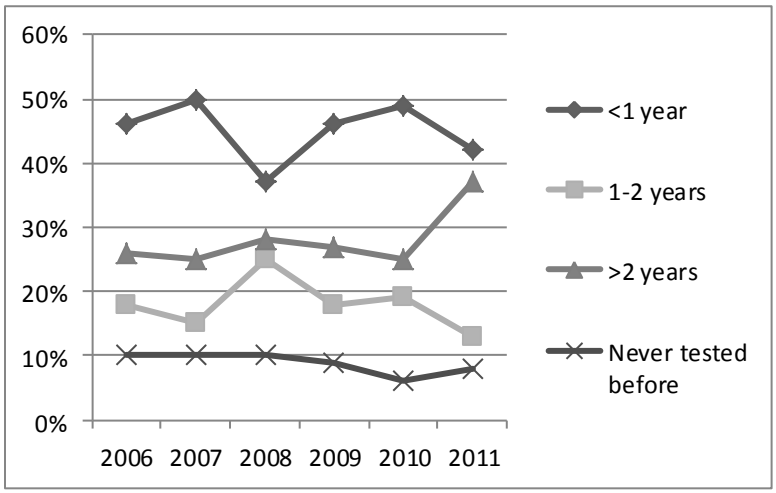
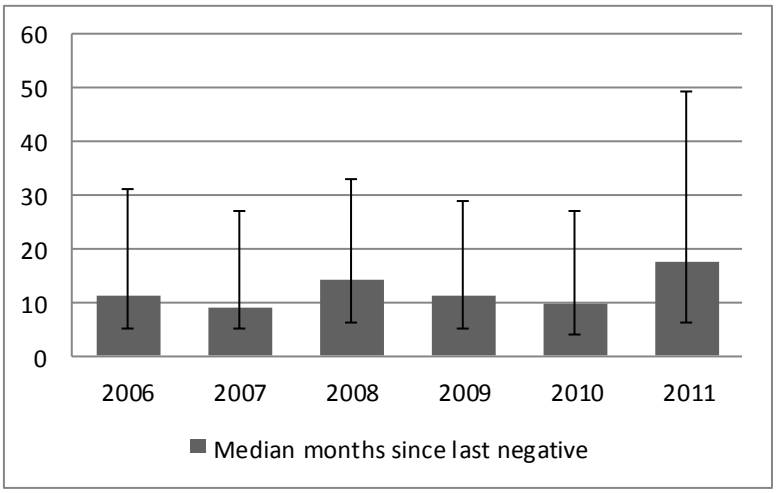


Figure 4: Time (months & interquartile range) since last negative HIV test among MSM & MSM-IDU newly diagnosed with HIV, King County 2006-2011



County[3]. Katz, et al, found the median intertest interval among MSM testing for HIV (both HIV-positive and -negative) at two Seattle clinics between 2003 and 2010 to be <9 months. We found intertest interval to be 12 months for all newly positive MSM in King County in a more recent time period.

Interestingly, the largest median intertest interval (17.5 months) among MSM occurred in the most recent year included in our analysis, 2011. In this year, 37% of newly diagnosed MSM had a last negative HIV test more than two years before diagnosis, compared with 25%-28% in the five previous years. This may be due to changes in risk behavior or changes in testing behavior. We will, of course, continue to monitor testing history among MSM. The 2012 "Find your Frequency" campaign[4] promoting HIV testing among MSM in King, Pierce, and Snohomish counties will hopefully result in shorter intertest intervals among newly diagnosed MSM in the near future.

- *Submitted by Christina Thibault & Susan Buskin*

[1]CDC. Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. MMWR 2006;55(No. RR-14).
[2]CDC. Sexually transmitted disease treatment guidelines, 2010. MMWR 2010;59(No. RR-12).
[3]Katz D et al. HIV intertest interval among MSM in King County, Washington. 2012. Sex Transm Infect 2012 May 5. [Epub ahead of print]
[4]Find Your Frequency. Retrieved September 12, 2012, from http://www.findyourfrequency.com/.

Seattle and King County Quarterly STD Report

STD Case Counts

Table 1: King County STD morbidity

	2011		2012	
	2011Q2	YTD	2012Q2	YTD
Gonorrhea (GC)	364	730	333	674
GC: MSM*	171	337	180	374
Urethral GC	44	90	32	63
Rectal GC	81	151	67	155
Pharyngeal GC	62	104	79	182
GC: Women^	113	219	83	160
GC: MSW^†	54	114	52	92
Chlamydia (CT)	1641	3209	1649	3295
CT: MSM	205	369	246	464
Urethral CT	13	23	8	21
Rectal CT	109	193	147	284
CT: Women^	1037	2038	983	1994
CT: MSW^	314	624	312	621
Syphilis‡	136	275	119	240
Primary and secondary	68	145	61	121
Early latent	28	64	37	69
Late + unk duration	40	66	20	48
Early syphilis: MSM	85	190	85	169
Early syphilis: Women	1	3	3	3
E syphilis: MSW	6	10	5	9
Congenital syphilis	0	0	1	2

* Men who have sex with men
† Men who have sex with women
^ Genital tract infection
‡ Total cases (all stages)

Table 2: King County newly diagnosed HIV cases*

	2011		2012	
	2011Q1	YTD	2012Q1	YTD
Total^	72	72	75	75
MSM	48	48	43	43
Women	10	10	10	10
MSW	6	6	13	13

* Data shown for prior quarter due to reporting delay
^ Column may not equal total due to missing sexual preference data

Trends in STD Morbidity

Figure 1: Quarterly King County STD morbidity, women and MSW

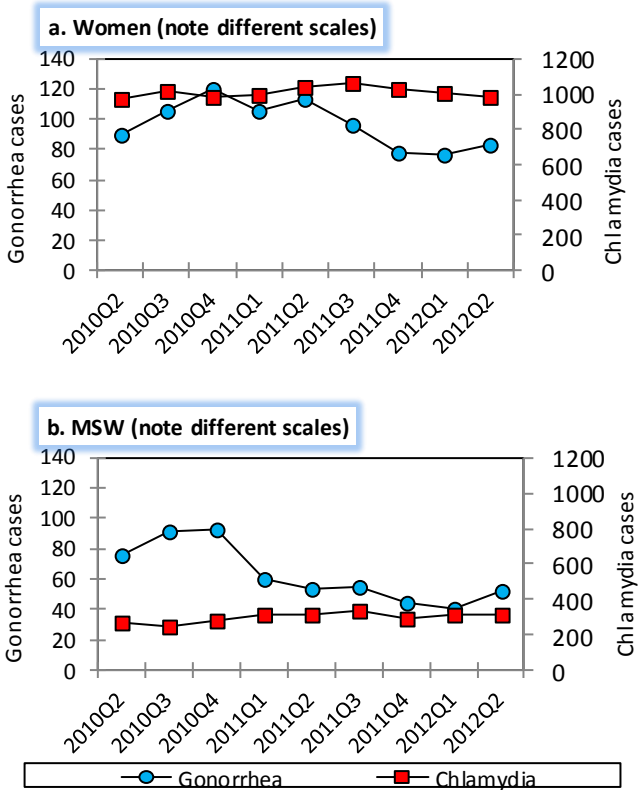


Figure 2: Quarterly King County STD morbidity among MSM

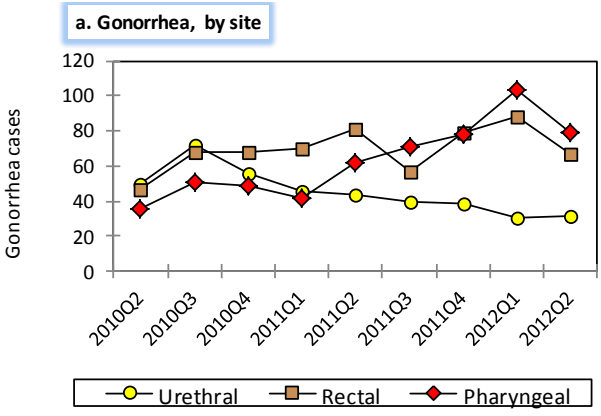
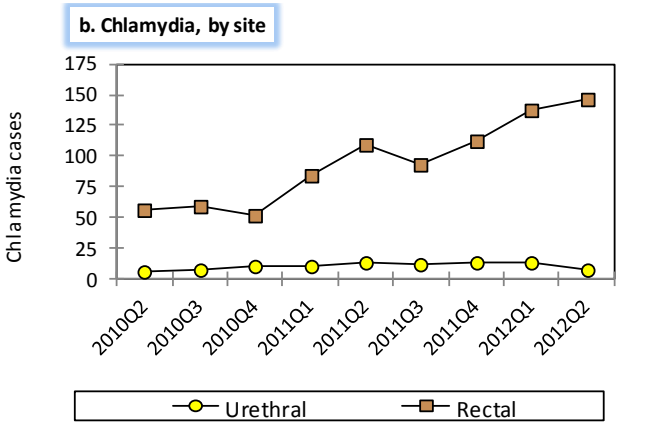
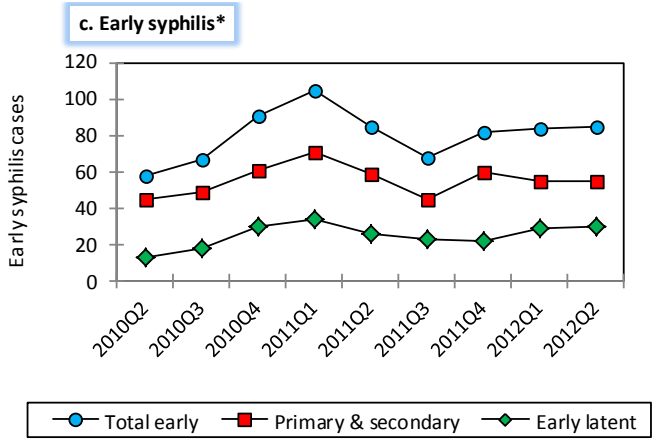


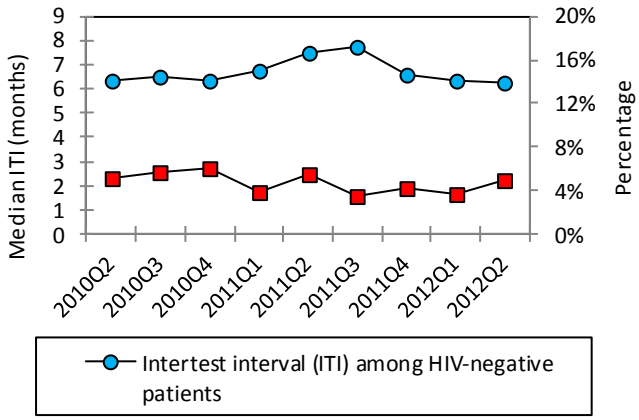
Figure 2: (Continued) Quarterly King County STD morbidity among MSM





* Includes primary, secondary, and early latent syphilis cases

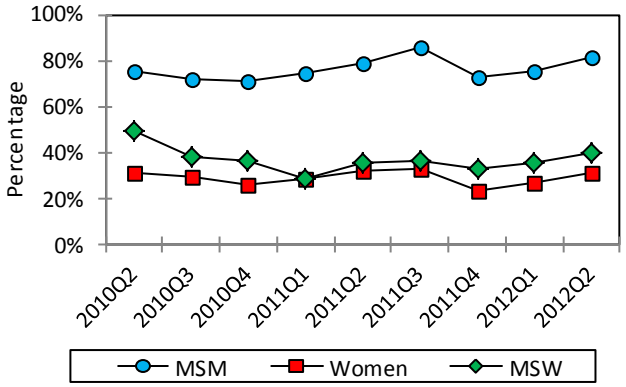
Figure 3: HIV testing among PHSKC STD Clinic patients, MSM (note different scales)



* Includes patients who reported never testing or negative/unknown results

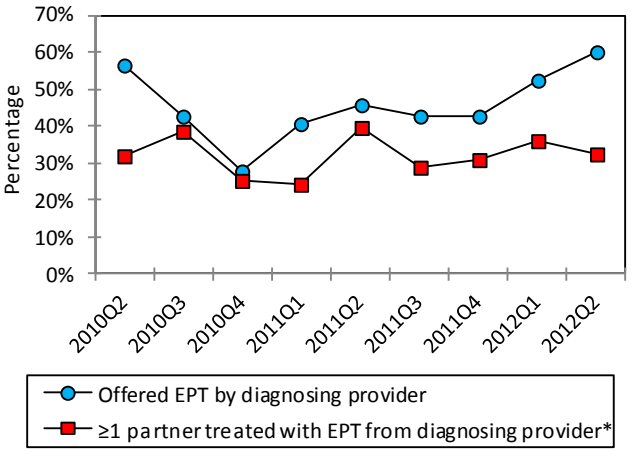
HIV testing should be performed annually on low-risk MSM and quarterly on high-risk MSM[a].

Figure 4: Percentage of King County residents with a bacterial STD tested for HIV (excludes HIV+ residents)



Anyone diagnosed with a bacterial STD should be tested for HIV.

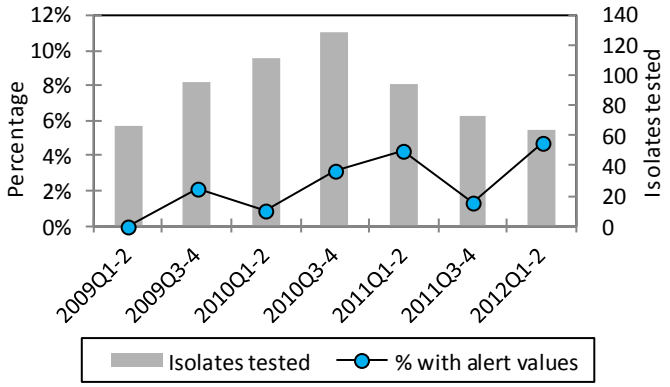
Figure 5: Expedited Partner Therapy (EPT) among King County women and MSW diagnosed with GC or CT



* Median number of patients surveyed per quarter = 42 (Range 13-78)

All women and MSW diagnosed with gonorrhea or chlamydia should be offered EPT by their diagnosing provider.

Figure 6: Percentage of male GISP[b] urethral isolates with alert values for cephalosporins or azithromycin (note scales)



Alert value = Minimum Inhibitory Concentration (MIC, lowest antibiotic concentration needed to halt bacterial growth) is higher than preset thresholdsc. Alert value MICs represent decreased susceptibility to an antibotic but may not represent resistance.

Table 3: Male GISP urethral isolates with alert values for cephalosporins or azithromycin[d]

	2011		2012	
	2011Q1-2	YTD	2012Q1-2	YTD
Total isolates tested*	94	94	64	64
MSM	73	73	50	50
MSW	21	21	11	11
Total alert isolates*	4	4	3	3
MSM	3	3	2	2
MSW	1	1	1	1

* Column may not equal total due to missing sexual preference data

- *Submitted by Roxanne Kerani and Eli Kern*

[a] High-risk = MSM with any one of the following in the prior year: diagnosis of a bacterial STD, methamphetamine or popper use, ≥10 sex partners (anal or oral), or unprotected anal sex with a partner of unknown or discordant HIV status Low-risk = sexually active MSM who do not meet high-risk criteria

[b] Gonococcal Isolate Surveillance Project (GISP), source of antibiotic susceptibility data, is supported by the Centers for Disease Control and Prevention

[c] Alert values:
Ceftriaxone MIC ≥ 0.125 µg/ml
Cefixime MIC ≥ 0.25 µg/ml
Azithromycin MIC ≥ 2.0 µg/ml

[d] Abnormal amount of missing sexual preference data in 2012Q1 due to technical issues with data collection instrument

News from the UW ACTU

Hepatitis C virus (HCV) infection has gained national attention recently for several reasons, including increased recognition of its prevalence and FDA-approval in 2011 of two drugs which markedly increase treatment success rates for one type of HCV infection. In the US, the estimated prevalence of HCV infection is more than double that of HIV infection and a new national campaign is underway to increase testing for HCV infection and the CDC recommendation of one time testing for all people born between 1945 and 1965 in the U.S. Two new oral anti-HCV drugs have been FDA-approved for treatment of genotype 1 HCV mono-infection (no concurrent HIV). These drugs are direct-acting antiviral agents that inhibit the HCV NS3/4A serine protease. These HCV protease inhibitors, boceprevir and telaprevir, offer greater potential for curing chronic HCV genotype 1 infection when each is used in combination with the traditional HCV therapies of interferon-alpha and ribavirin. Historically, in the US, HCV genotype 1 infection is more common and more difficult to treat than other genotypes, with average sustained virologic response rates (SVR, which is considered to be reflective of cure) of only 14-30%. In persons with HCV infection who do not have concurrent HIV infection (HCV monoinfection), these new triple drug regimens have achieved SVR rates of 45-77%.

Advances have also occurred in the management of HCV in persons co-infected with HCV and HIV. Since available data suggests that HCV infection may progress faster in persons with concurrent HIV and HCV than in persons with HCV mono-infection, optimal management of both infections in co-infected persons is paramount. Preliminary results of small phase two studies of triple therapy (a HCV protease inhibitor plus interferon-alpha plus ribavirin) suggest that the response rates for co-infected persons with genotype 1 may increase by 66-100%. However, treating both HCV genotype 1 and HIV is complex because of drug-drug interactions between the HCV protease inhibitors and antiretroviral agents, especially ritonavir-boosted HIV protease inhibitors. Certain drug interactions have the potential to decrease drug levels of both the HCV and HIV protease inhibitors and thus potentially impact the effectiveness of these treatments. In addition, the triple drug HCV regimens also have toxicities that can make management challenging. Nonetheless, it is important to determine how to safely and effectively treat HCV in persons with concurrent HIV.

Because of the marked improvement in HCV treatment outcomes when the HCV protease inhibitor boceprevir is added to interferon-alpha and ribavirin in HCV mono-infected persons, the AIDS Clinical Trials Group (ACTG) decided that it would be inappropriate to conduct a phase three, randomized, controlled study of this triple therapy in HIV-HCV co-infected persons. Instead, this group is conducting an open-label study of this triple therapy for treatment of HCV genotype 1 in HIV-HCV co-infected persons. This study will compare the outcomes with this triple therapy to those in similar co-infected persons treated with interferon-alpha and ribavirin in a prior ACTG study. In addition, this ongoing study is designed to collect pharmacokinetic information to increase our knowledge about how to safely treat persons with concurrent anti-HCV and antiretroviral therapy. Initially, persons taking antiretroviral therapy have to be taking either efavirenz or raltegravir-based regimens in order to enter this study. However, we anticipate an upcoming study modification that will carefully study persons taking regimens based upon selected other antiretroviral agents. Additional details of this and other ongoing studies at the UW ACTU seeking additional participants are provided below.

- *Contributed by Ann Collier*

University of Washington AIDS Clinical Trials Unit
325 9th Avenue, 2-West Clinic; Box 359929
Seattle, WA 98104
206-744-3184 (voice); 206-744-3483 (fax); www.uwactu.org

The following is a list of studies open for enrollment. Screening, lab tests and clinical monitoring that are part of a study are provided free of charge for participants. Enrollment in a study at the ACTU does not replace the role of a primary care provider. The ACTU coordinates efforts with each participant's primary care provider.
Providers and potential enrollees can call the ACTU at (206) 744-3184 and ask for Eric Helgeson for appointments or additional information.

2012

The Boceprevir Study		
Study 5294 for HIV+ people coinfected with HCV		
Eligibility	Study Purpose	Study Drug or Treatment
• Men or women ≥ 18 years of age with HIV and hepatitis C • Have hepatitis C genotype 1 • Have a hepatitis C viral load greater than 10,000 • Have had liver biopsy 104 weeks prior to entry • If on HIV anti-retrovirals, must be taking either raltegravir OR efavirenz AND have undetectable viral load • If not on antiretroviral meds, have HIV viral load less than 50,000 • Have a T-cell count greater than 200 • Not pregnant or breast feeding or planning pregnancy or if you are a male, do not have a partner who is pregnant • Cannot be taking a HIV protease inhibitor	To assess if the addition of boceprevir (BOC) to the current standard-of-care regimen (pegylated-interferon alfa 2b [PEG-IFN] + weight-based ribavirin [RBV]) will improve outcomes of hepatitis C virus (HCV) treatment in HCV genotype 1-infected subjects with HCV/HIV coinfection.	**Medications while on study:** Boceprevir, Pegylated-interferon alpha 2b, and Ribavirin (all provided by study) **Length of Study:** 72 weeks **Schedule of Study visits:** Screening, entry, and weeks 2, 4, 6, 8, 10, 12, 16, 20, 24 then every 4-8 weeks until week 72. **Reimbursement:** 20 per visit starting at entry. Participants will receive $120 for each 12 hour sub-study visit, and another $30 if they have to come back the next day. Clinical exams, study medications, and lab tests are provided at no cost.

The R5 Tropic Study		
Study 5303 for HIV+ people with the R5 type of virus who have never taken HIV meds		
Eligibility	Study Purpose	Study Drug or Treatment
• Are an HIV positive man or woman, age 18 or older • Have never taken HIV medications • Have an HIV viral load greater than 1,000 • Have a certain type of HIV called "R5" - based on trofile testing • Do not have resistance to medications used in the study • Agree to neuropsychological testing • Do not have an active Hepatitis B infection • Are not pregnant, breast feeding, or planning pregnancy • Have not started any hormonal therapies in the last 6 months • Have not started oral contraceptives within 3 months • Weigh less than 300 pounds • Have not broken a bone because your bones are weak	To determine if an HIV treatment regimen containing darunavir, ritonavir, emtricitabine, and maraviroc results in less bone density loss compared to a regimen of darunavir, ritonavir, emtricitabine, and tenofovir.	**Medications while on study:** All study medications will be provided at no cost **Length of Study:** About 48 weeks **Schedule of Study visits:** Screening, Pre-Entry, Entry, and Weeks 4, 16, 24, 36 and 48. Dual-energy X-ray absorptiometry (DXA) scans will be performed at entry and weeks 48. **Reimbursement:** Clinical exams, lab tests, and DXAs are provided at no cost. Participants will receive $20 per visit starting at entry, $25 for each DXA, and $10 for each neuropsychological test.

THE TB PREVENTION Study		
Study 5279 fornHIV+ people with Latnet Tuburcular		
Eligibility	Study Purpose	Study Drug or Treatment
• HIV positive man or woman, age 18 or older • Have a positive Tuberculin skin test ≥ 5mm or a positive interferon gamma release assay(IGRA) at any time prior to study entry • No history of treatment for Tuberculosis in last two years • No history of multi–drug-resistant or extensively drug resistant (XDR) TB • Not on Protease Inhibitor or Raltegravir based anti-retroviral regimen or planning to start one of these regimens within 4 weeks of entry • Not pregnant, breast feeding or planning pregnancy (if a woman) • Do not have acute hepatitis B or C or cirrhosis or recent acute hepatitis	To compare two treatments to prevent active TB in persons with HIV and latent TB.	**Medications while on study:** Rifapentine, Isoniazid and vitamin B6(pyridoxine) will be provided while on study. Subjects will take Rifapentine/Isoniazid plus B6 for 4 weeks or Isoniazid plus vitamin B6 for 9 months **Length of Study**: About 4 years (208 weeks) **Schedule of Study visits:** Screening, entry, 2, 4, 8, 12, 16, 20, 24, 36, 48, and every 12 weeks starting at week 48 **Reimbursement:** Clinical Exams, the Rifapentine, Isoniazid, Vitamin B6 and lab tests are provided at no cost. Participants receive $20 per visit starting at entry.

The CHOLESTEROL Study		
Study A5293 for HIV+ people with abnormal lipids		
Eligibility	Study Purpose	Study Drug or Treatment
• HIV positive man or woman, age 18 or older • Taking anti-HIV medications for more than 2 years • CD4 (T-cell) count ≥ 100 with an undetectable HIV viral load • Fasting HDL ("good") cholesterol ≤ 40mg/dL for men and ≤ 50 mg/dL for women • Fasting triglycerides between 200 150 and 800 mg/dL • Fasting LDL ("bad") cholesterol below 160 mg/dL • Do not have diabetes or heart disease • Are not being treated for or starting treatment for Hepatitis C • Are not pregnant, breastfeeding or planning pregnancy • Are not taking certain medications to lower cholesterol	To see if high-density lipoprotein (HDL or "good") cholesterol is increased in HIV-infected people treated with extended-release niacin or fenofibrate, and to see if the reaction of an artery in the arm improves with these medications.	**Medications while on study:** Extended-release niacin and aspirin or fenofibrate will be provided at no cost **Length of Study:** About 24 weeks (6 months) **Schedule of Study visits:** Screening, entry and at weeks 4, 8, 12, 16 and 24 **Reimbursement:** Clinical exams and lab tests are provided at no cost. Participants will receive $20 per visit starting at entry and $15 for each ultrasound test of the artery in their arm.

Visit our new website at www.uwactu.org and find out about our latest studies, meet our staff, and find out about our outreach programs.

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