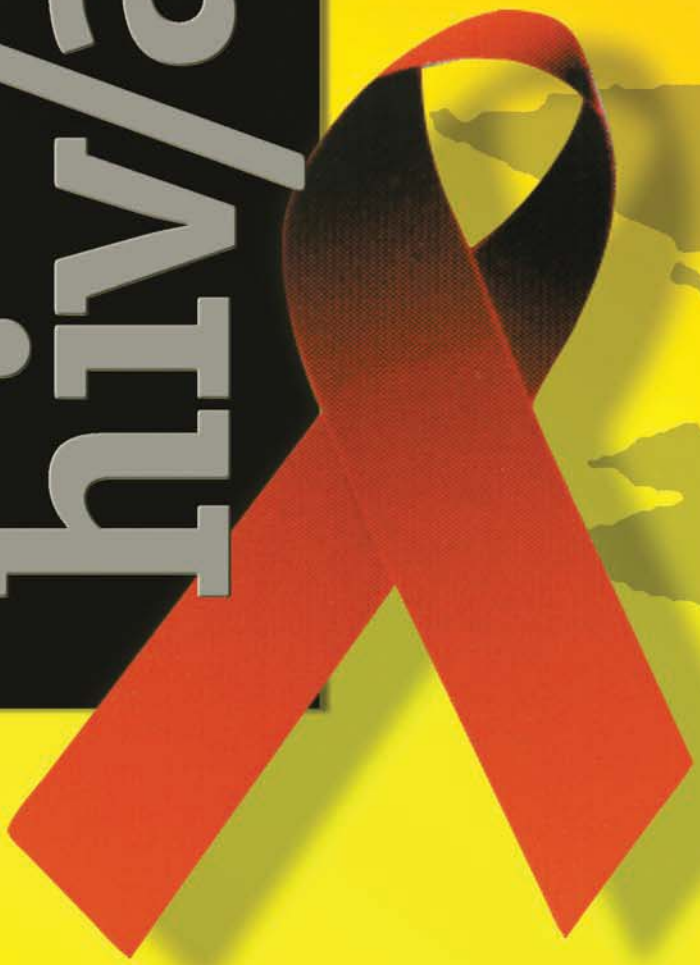
hiv/aids



2nd HALF `10 EPIDEMIOLOGY REPORT

WASHINGTON STATE • SEATTLE & KING COUNTY

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

Credits

This 77th edition of the HIV/AIDS Epidemiology Report includes data available through the end of December 2010. This report is produced jointly by Public Health – Seattle & King County and the Infectious Disease and Reproductive Health (IDRH) 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 Faythe Crosby and Christy Johnson (disease investigation), Sandy Hitchcock (data entry and quality assurance), Shirley Zhang and Leslie Pringle (data management), and Amy Bennett and Christina Thibault (epidemiologists).

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HIV/AIDS Reporting Requirements

Detailed requirements for reporting of communicable disease 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 206-296-4645.

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

Alternative formats provided upon request.
To be included on the mailing list or for address corrections,
please call 206-296-4645.

HIV/AIDS Epidemiology and Surveillance News

Summary of Tables and Figures

Executive Summary

New editor: Please welcome Tom Jaenicke as a new co-editor of the HIV/AIDS Epidemiology Report, co-published by the HIV/AIDS Epidemiology section of Public Health – Seattle & King County and the Infectious Disease and Reproductive Health (IDRH) section of the Washington State Department of Health. We have jointly published this report continuously since 1986.

HIV reporting: If you are a medical provider making HIV diagnoses, 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. Case report forms are available online or by calling 888-367-5555 (State) or 206-296-4645 (King County).

Report summary: The first section of this report is comprised of nine pages of tables and figures that summarize HIV reports through December 31, 2010. Highlights include:

- 6,749 documented people living with HIV or AIDS (PLWHA) were residents of King County (which has an estimated total 7,200–8,000 PLWHA, see Snapshot and Table 1)
- 10,842 documented PLWHA were residents of Washington state (which has an estimated 11,500–12,700 PLWHA, Snapshot and Table 1)
- After King County with 62% of PLWHA, the most highly-impacted areas in Washington are Pierce County with 9% of PLWHA, and Snohomish County with 6% of PLWHA (Table 2)
- In King County, males comprise 90% of PLWHA (Table 3), most of them men who have sex with men (MSM) (77%, Table 4)
- In Washington state, PLWHA were 86% male and male PLWHA were 70% MSM (Table 5)
- The most common decade of life for diagnosis of HIV was 30-39 for men and both 20-29 and 30-39 for women (Table 6)
- 16% of Washington and 17% of King County PLWHA were foreign-born (Table 7)
- Between 2002 and 2010, the percent of newly diagnosed PLWHA who were MSM increased and the percent of injection drug users decreased; the proportion of individuals under age 30 years who are Hispanic and who were born out of the U.S. all increased relative to others newly diagnosed with HIV (Tables 8 and 9)

Adapting HIV surveillance data and systems in Washington state (the end of AIDSNets): Since the start of the HIV epidemic in Washington in 1982, about 18,000 people have been diagnosed with HIV in Washington, and since 2000, about 550 new cases are diagnosed each year. From 1988 through March 2010, regional HIV prevention and other services were planned by six regional AIDSNets. Last year, the AIDSNets were disbanded and their administrative functions assumed by the Department of Health.

Syphilis and gonorrhea increases in men who have sex with men in King County: The numbers of new cases of gonorrhea and syphilis have recently increased strikingly among men who have sex with men (MSM). The gonorrhea increases are troublesome due to the diminished susceptibility to oral cephalosporins (cefixime and cefpodoxime) as well as other antibiotics. The syphilis increases are noteworthy due to the high proportion of HIV-infected MSM involved. Health department recommendations include more frequent sexually transmitted infection screening in MSM in general and broader syphilis testing and treatment among sexually active MSM—any rash or genital lesion should promote consideration of syphilis. Ceftriaxone is recommended for gonorrhea treatment, or cefixime combined with azithromycin.

Trends in utilization and costs of HIV-related hospitalizations, Washington state 2000-2009: In this comprehensive article on HIV-related hospitalizations, the costs, lengths of stay, primary reimbursement source and other aspects are examined. After adjusting hospital charges to reduce the impact of inflation, hospital charges increased significantly 2000–2009. Although health care costs typically rise above and beyond general inflation, the lengths of inpatient stays also increased significantly during this time period. The overall numbers of hospitalizations where HIV was the primary cause of illness declined, as did hospitalizations due to pneumocystis pneumonia, but hospitalizations with HIV as a secondary or contributing factor increased.

Resistance surveillance updates and discontinuation of health-department initiated genotyping tests: Since 2003 in King County, we have been conducting genotypic tests on leftover sera and collecting sequences from clinically conducted genotypic tests. We have more than 1,100 genotypic test results for antiretroviral naïve individuals. We've gradually increased our coverage, so that in 2010, nearly three quarters of all newly diagnosed individuals are covered by this surveillance system. About 14% of recent cases have high level drug resistance to one or more antiretroviral, mostly to non-nucleoside reverse transcriptase inhibitors (NNRTI). About 9% are non-B subtypes. Statewide, this project will no longer pay for genotypic testing after May 2011 due to the end of federal funding. We still will seek sequences for genotypic tests ordered by medical providers.

HIV-infected smokers: Characteristics of smokers and non-smokers were compared using 2009-2010 Medical Monitoring Project interview data. We found smoking associated with poorer antiretroviral adherence, injection drug use, low income, low education, and more frequent health care utilization among 274 HIV-infected individuals in care in King County. In the year prior to their interviews, over one-third of smokers had not been asked by their medical providers if they wanted to have help quitting.

HIV in teens: An HIV diagnosis in a teenager is a relatively rare event in Washington state. Only about 10 such diagnoses are made each year, on average. In 2007–2009, 14-18 teens were diagnosed each year – more than have been seen in any given year since before the highly active antiretroviral treatment (HAART) era. Most (67%) of the teens are in their upper teens—ages 18 and 19. Of those in known risk groups, 59% are males who had sex with other males. Teens should be encouraged to use condoms and get tested for HIV if they are sexually active and if they have multiple partners, have any sexually transmitted infections, or fall in to any known HIV risk categories.

HIV and inflammation: There has been an increased interest in the role inflammation plays in many illnesses, including HIV. Inflammation may be partly responsible for increased risk of some morbidity among people with HIV with immunologic control. Three markers of inflammation may be of particular interest: IL-6, CRP, and D-dimer. Statins may reduce inflammation and improve cardiovascular outcomes. The University of Washington AIDS Clinical Trials Unit (ACTU) is investigating atorvastatin use in people with suppressed viral load.

We hope you find this 77th edition of our Epidemiology Report informative and useful.

Snapshot of HIV and AIDS Numbers in King County and Washington

	King County	Washington
Estimated[a] number infected with HIV	7,200 to 8,000	11,500 to 12,700
Estimated new infections in 2010	320 to 340	500 to 600
Estimated deaths in 2010 among people with HIV or AIDS	80	130
Proportion of infected who know their HIV status	80% to 90%	80% to 90%
Reported[a] number of living cases diagnosed in area	6,749	10,842

Table 1: Surveillance of reported[a] HIV/AIDS cases, deaths, and people living with HIV/AIDS - King County, other Washington counties, Washington, and the United States (reported as of 12/31/2010)

		Adult/Adolescent HIV	Adult/Adolescent AIDS	Total
King County	New cases reported in 2nd half 2010	119	39	158
	Cases reported year-to-date	197	140	337
	Cumulative cases	3,125	8,231	11,356
	Cumulative deaths	173	4,434	4,607
	Persons living (prevalent cases)	2,952	3,797	**6,749**
Other counties in Washington	New cases reported in 2nd half 2010	74	55	129
	Cases reported year-to-date	164	91	255
	Cumulative cases	1,843	4,851	6,694
	Cumulative deaths	146	2,455	2,601
	Persons living (prevalent cases)	1,697	2,396	**4,093**
Washington	New cases reported in 2nd half 2010	193	94	287
	Cases reported year-to-date	361	231	592
	Cumulative cases	4,968	13,082	18,050
	Cumulative deaths	319	6,889	7,208
	Persons living (prevalent cases)	4,649	6,193	**10,842**
United States[b]	Estimated cases as of 12/31/2008			
	Cumulative cases	Unknown	1,131,971	Unknown
	Cumulative deaths	Unknown	617,025	Unknown
	Persons living (prevalent cases)	356,036	496,946	**852,982**

a. The difference between the estimated number (line 1) and the reported number (line 5) above include:
   i. A small number of persons diagnosed with AIDS but not yet reported (perhaps 5% of total AIDS reports).
   ii. An unknown number of persons diagnosed with HIV infection but not yet reported.
   iii. An unknown number of persons (10-20% of the total) infected with HIV but not yet diagnosed or reported.

b. U.S. data reporting includes HIV and AIDS data from 50 states plus 5 U.S. dependent areas.

Table 2: Cumulative HIV/AIDS case counts and deaths by resident county and AIDSNet region at diagnosis, Washington (reported as of 12/31/2010)

		Cumulative Cases	Deaths		Presumed Living			
			N	%[a]	HIV	AIDS	Total	Total %[b]
	Adams	7	1	14%	1	5	6	0.1%
	Asotin	24	8	33%	5	11	16	0.1%
	Columbia	7	3	43%	0	4	4	0.0%
	Ferry	7	6	86%	0	1	1	0.0%
	Garfield	1	0	0%	1	0	1	0.0%
	Lincoln	4	2	50%	0	2	2	0.0%
	Okanogan	38	11	29%	8	19	27	0.2%
	Pend Orielle	11	6	55%	1	4	5	0.0%
	Spokane	745	326	44%	165	254	419	3.9%
	Stevens	26	15	58%	6	5	11	0.1%
	Walla Walla	65	33	51%	8	24	32	0.3%
	Whitman	21	4	19%	4	13	17	0.2%
Region 1	**Subtotal**	**956**	**415**	**43%**	**199**	**342**	**541**	**5.0%**
	Benton	139	42	30%	30	67	97	0.9%
	Chelan	70	26	37%	22	22	44	0.4%
	Douglas	8	2	25%	3	3	6	0.1%
	Franklin	87	21	24%	27	39	66	0.6%
	Grant	55	22	40%	14	19	33	0.3%
	Kittitas	23	10	43%	3	10	13	0.1%
	Klickitat	16	7	44%	6	3	9	0.1%
	Yakima	273	100	37%	63	110	173	1.6%
Region 2	**Subtotal**	**671**	**230**	**34%**	**168**	**273**	**441**	**4.1%**
	Island	90	40	44%	21	29	50	0.5%
	San Juan	28	12	43%	6	10	16	0.1%
	Skagit	100	42	42%	19	39	58	0.5%
	Snohomish	1,070	387	36%	270	413	683	6.3%
	Whatcom	239	98	41%	60	81	141	1.3%
Region 3	**Subtotal**	**1,527**	**579**	**38%**	**376**	**572**	**948**	**8.7%**
Region 4	**King**	**11,356**	**4,607**	**41%**	**2,952**	**3,797**	**6,749**	**62.2%**
	Kitsap	321	130	40%	75	116	191	1.8%
	Pierce	1,648	669	41%	460	519	979	9.0%
Region 5	**Subtotal**	**1,969**	**799**	**41%**	**535**	**635**	**1,170**	**10.8%**
	Clallam	83	40	48%	19	24	43	0.4%
	Clark	694	246	35%	198	250	448	4.1%
	Cowlitz	151	61	40%	42	48	90	0.8%
	Grays Harbor	90	36	40%	21	33	54	0.5%
	Jefferson	40	18	45%	9	13	22	0.2%
	Lewis	57	28	49%	9	20	29	0.3%
	Mason	126	32	25%	36	58	94	0.9%
	Pacific	33	13	39%	12	8	20	0.2%
	Skamania	8	6	75%	1	1	2	0.0%
	Thurston	286	98	34%	71	117	188	1.7%
	Wahkiakum	3	0	0%	1	2	3	0.0%
Region 6	**Subtotal**	**1,571**	**578**	**37%**	**419**	**574**	**993**	**9.2%**
Total		**18,050**	**7,208**	**40%**	**4,649**	**6,193**	**10,842**	**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 12/31/2010)

	King County		Other Counties		Washington		Estimated U.S.[a]	
	N	%	N	%	N	%	N	%
Sex								
Male	6,047	90%	3,286	80%	9,333	86%	492,174	72%
Female	702	10%	807	20%	1,509	14%	180,206	26%
Age Group at Diagnosis of HIV								
Under 13 years	33	0%	51	1%	84	1%	10,284	1%
13-19 years	125	2%	107	3%	232	2%	*Not Known*	
20-29 years	1,929	29%	1,210	30%	3,139	29%	*Not Known*	
30-39 years	2,806	42%	1,452	35%	4,258	39%	*Not Known*	
40-49 years	1,408	21%	894	22%	2,302	21%	*Not Known*	
50-59 years	377	6%	290	7%	667	6%	*Not Known*	
60 years and over	71	1%	89	2%	160	1%	*Not Known*	
Current Age as of 12/31/2010								
Under 13 years	9	0%	19	0%	28	0%	3,079	0%
13-19 years	27	0%	23	1%	50	0%	8,103	1%
20-29 years	425	6%	342	8%	767	7%	62,280	9%
30-39 years	1,209	18%	792	19%	2,001	18%	142,949	21%
40-49 years	2,677	40%	1,486	36%	4,163	38%	257,310	38%
50-59 years	1,809	27%	1,030	25%	2,839	26%	156,769	23%
60 years and over	593	9%	401	10%	994	9%	52,178	8%
Race/Ethnicity[b]								
White	4,544	67%	2,821	69%	7,365	68%	215,806	32%
Black	1,121	17%	516	13%	1,637	15%	315,838	46%
Hispanic	691	10%	502	12%	1,193	11%	134,241	20%
Asian & Pacific Islander	227	3%	125	3%	352	3%	4,290	1%
Asian	*211*	*3%*	*103*	*3%*	*314*	*3%*	*305*	*0%*
Native Hawaiian & Other PI	*16*	*0%*	*22*	*1%*	*38*	*0%*	*2,387*	*0%*
Native American or Alaskan Native	80	1%	86	2%	166	2%	8,981	1%
Multiple Race	85	1%	29	1%	114	1%	820	0%
Unknown Race	1	0%	14	0%	15	0%	0	0%
HIV Exposure Category								
Male-male sex	4,668	69%	2,040	50%	6,708	62%	310,498	45%
Injection drug use (IDU)	328	5%	479	12%	807	7%	130,390	19%
IDU & male-male sex	562	8%	342	8%	904	8%	35,472	5%
Heterosexual contact[c]	676	10%	744	18%	1,420	13%	191,634	28%
Blood product exposure[d]	29	0%	34	1%	63	1%	N/A[a]	
Perinatal exposure	26	0%	44	1%	70	1%	9,038	1%
Other/Undetermined[d]	460	7%	410	10%	870	8%	5,636	1%
Total	**6,749**	**100%**	**4,093**	**100%**	**10,842**	**100%**	**682,668**	**100%**

[a] U.S. persons living with HIV/AIDS were estimated for 12/31/2007 from data reported through 12/31/2008 and include AIDS cases for 50 states and 5 dependent areas, and HIV cases for 37 states and 5 dependent areas with confidential name-based HIV infection reporting as of 2005. Detailed data were not available for the remaining states.

i. U.S. data for age at diagnosis were not available. The current age data were calculated as of 12/31/2007.

ii. In the U.S. data for HIV Exposure Category, most cases with unknown exposure are redistributed to other categories. 'Other/ Undetermined' includes blood product exposure cases, and a small number of undistributed cases with risk not reported.

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

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

Table 4: People presumed living with HIV/AIDS by gender, race or ethnicity, and HIV exposure category – King County (reported as of 12/31/2010)

HIV Exposure Category	White[a] N	White[a] %	Black[a] N	Black[a] %	Hispanic N	Hispanic %	Asian & PI[a,b] N	Asian & PI[a,b] %	Native Am/AN[a,c] N	Native Am/AN[a,c] %	Total[d] N	Total[d] %
Male												
Male-male sex	3,580	79%	387	35%	462	67%	152	67%	33	41%	4,668	69%
Injection drug use (IDU)	109	2%	60	5%	31	4%	5	2%	6	8%	214	3%
IDU & male-male sex	442	10%	40	4%	44	6%	6	3%	15	19%	562	8%
Heterosexual contact	44	1%	111	10%	26	4%	6	3%	0	0%	188	3%
Blood product exposure	14	0%	3	0%	0	0%	0	0%	0	0%	17	0%
Perinatal exposure	1	0%	5	0%	0	0%	1	0%	0	0%	8	0%
Undetermined/other	112	2%	166	15%	75	11%	32	14%	2	3%	390	6%
Male Subtotal	**4,302**	**95%**	**772**	**69%**	**638**	**92%**	**202**	**89%**	**56**	**70%**	**6,047**	**90%**
Female												
Injection drug use (IDU)	62	1%	35	3%	3	0%	0	0%	12	15%	114	2%
Heterosexual contact[e]	156	3%	255	23%	39	6%	20	9%	12	15%	488	7%
Blood product exposure	4	0%	8	1%	0	0%	0	0%	0	0%	12	0%
Perinatal exposure	3	0%	12	1%	2	0%	1	0%	0	0%	18	0%
Undetermined/other	17	0%	39	3%	9	1%	4	2%	0	0%	70	1%
Female Subtotal	**242**	**5%**	**349**	**31%**	**53**	**8%**	**25**	**11%**	**24**	**30**	**702**	**10%**
Total	**4,544**	**100%**	**1,121**	**100%**	**691**	**100%**	**227**	**100%**	**80**	**100%**	**6,749**	**100%**

Table 5: People presumed living with HIV/AIDS by gender, race or ethnicity, and HIV exposure category – Washington (reported as of 12/31/2010)

HIV Exposure Category	White[a] N	White[a] %	Black[a] N	Black[a] %	Hispanic N	Hispanic %	Asian & PI[a,b] N	Asian & PI[a,b] %	Native Am/AN[a,c] N	Native Am/AN[a,c] %	Total[d] N	Total[d] %
Male												
Male-male sex	5,161	70%	538	33%	665	56%	206	59%	61	37%	6,708	62%
Injection drug use (IDU)	336	5%	100	6%	64	5%	7	2%	13	8%	524	5%
IDU & male-male sex	715	10%	64	4%	72	6%	9	3%	22	13%	904	8%
Heterosexual contact	134	2%	169	10%	67	6%	14	4%	6	4%	393	4%
Blood product exposure	39	1%	3	0%	2	0%	0	0%	0	0%	44	0%
Perinatal exposure	7	0%	16	1%	2	0%	2	1%	1	1%	30	0%
Undetermined/other	286	4%	222	14%	165	14%	46	13%	6	4%	730	7%
Male Subtotal	**6,678**	**91%**	**1,112**	**68%**	**1,037**	**87%**	**284**	**81%**	**109**	**66%**	**9,333**	**86%**
Female												
Injection drug use (IDU)	179	2%	61	4%	14	1%	4	1%	23	14%	283	3%
Heterosexual contact[e]	441	6%	370	23%	120	10%	50	14%	33	20%	1,027	9%
Blood product exposure	6	0%	9	1%	1	0%	3	1%	0	0%	19	0%
Perinatal exposure	10	0%	22	1%	5	0%	3	1%	0	0%	40	0%
Undetermined/other	51	1%	63	4%	16	1%	8	2%	1	1%	140	1%
Female Subtotal	**687**	**9%**	**525**	**32%**	**156**	**13%**	**68**	**19%**	**57**	**34%**	**1,509**	**14%**
Total	**7,365**	**100%**	**1,637**	**100%**	**1,193**	**100%**	**352**	**100%**	**166**	**100%**	**10,842**	**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 85 King County and 114 Washington persons classified as multiple race, and 1 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 12/31/2010)

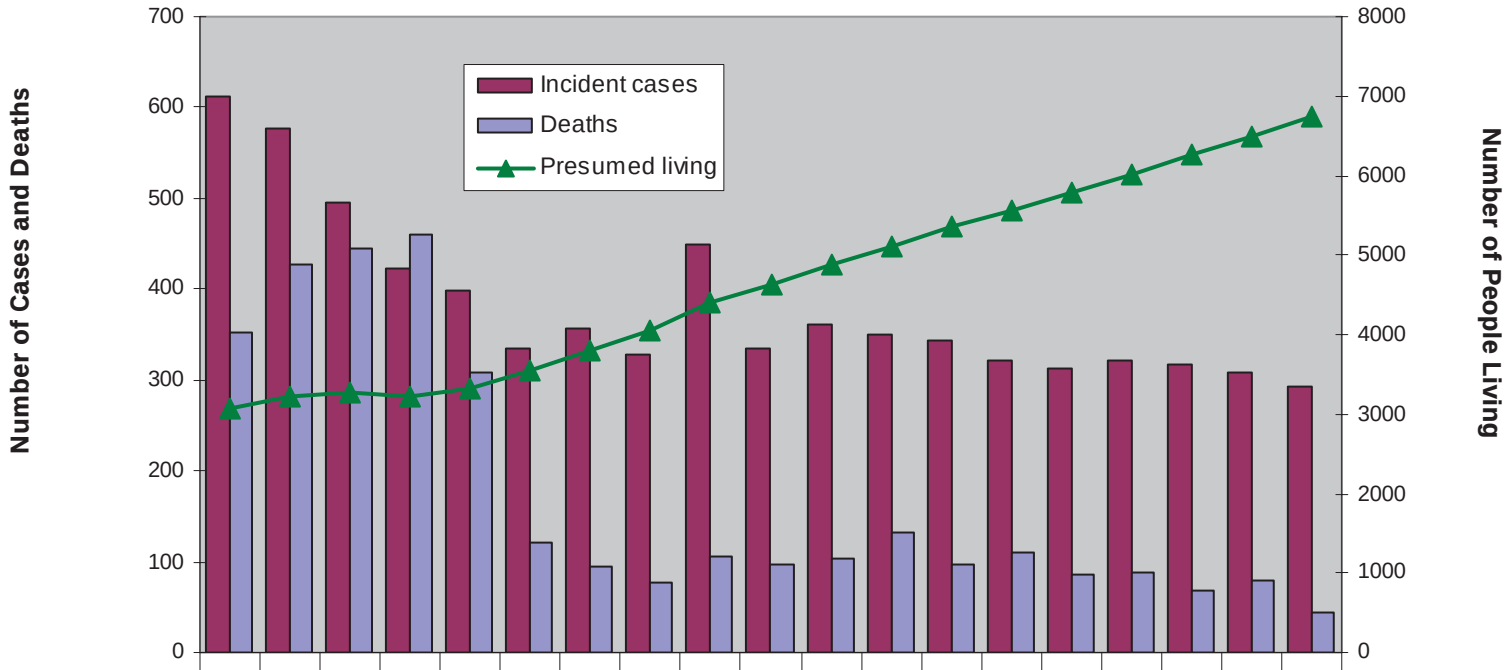
	King County				Washington			
Age at HIV Diagnosis	**Male**		**Female**		**Male**		**Female**	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Under 13 years	14	0%	19	3%	38	0%	46	3%
13-19 years	86	1%	39	6%	150	2%	82	5%
20-24 years	610	10%	94	13%	1,012	11%	225	15%
25-29 years	1,088	18%	137	20%	1,628	17%	274	18%
30-34 years	1,364	23%	129	18%	2,001	21%	259	17%
35-39 years	1,213	20%	100	14%	1,775	19%	223	15%
40-44 years	820	14%	72	10%	1,266	14%	172	11%
45-49 years	474	8%	42	6%	770	8%	94	6%
50-54 years	213	4%	36	5%	369	4%	65	4%
55-59 years	104	2%	24	3%	185	2%	48	3%
60 years and over	61	1%	10	1%	139	1%	21	1%
Total	**6,047**	**100%**	**702**	**100%**	**9,333**	**100%**	**1,509**	**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 12/31/2010)

	King County				Washington			
Race / Ethnicity	**U.S.-born**		**Foreign-born**		**U.S.-born**		**Foreign-born**	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**
White, non-Hispanic	4,231	97%	124	3%	6,873	98%	166	2%
Black, non-Hispanic	675	15%	418	10%	1,044	15%	546	8%
Male Black, non-Hispanic	*533*		*218*		*805*		*272*	
Female Black, non-Hispanic	*142*		*200*		*239*		*274*	
Hispanic	262	6%	370	8%	419	6%	652	9%
Asian & PI, non-Hispanic	63	1%	145	3%	99	1%	221	3%
Native American, non-Hispanic	72	2%	5	0%	157	2%	5	0%
Multiple or unknown race, non-Hispanic	72	2%	9	0%	107	2%	13	0%
TOTAL	**5,375**	**83%**	**1,071**	**17%**	**8,699**	**84%**	**1,603**	**16%**

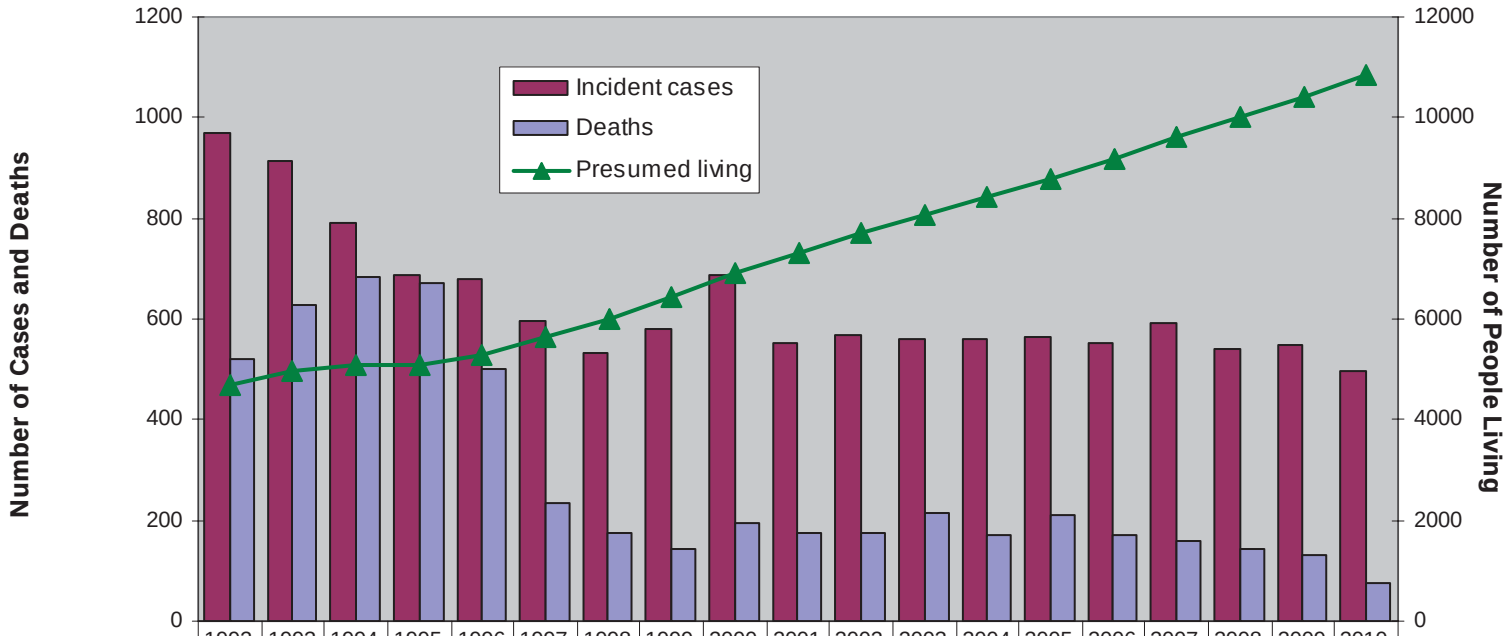
[a] Table 7 does not include 303 King County and 540 Washington cases missing place of birth information.

Figure 1: Number of new HIV/AIDS diagnoses, deaths, and people living with HIV/AIDS – King County (reported as of 12/31/2010)



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Incident cases	613	576	496	423	399	334	356	329	449	335	362	350	343	322	313	322	316	308	293
Deaths	353	427	445	459	308	120	94	78	106	97	104	133	96	110	85	89	68	80	44
Presumed living	3066	3215	3266	3230	3321	3535	3797	4048	4391	4629	4887	5104	5351	5563	5791	6024	6272	6500	6749

Figure 2: Number of new HIV/AIDS diagnoses, deaths, and people living with HIV/AIDS – Washington (reported as of 12/31/2010)



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Incident cases	970	915	790	686	678	595	533	582	689	552	567	559	560	566	551	592	541	549	496
Deaths	521	629	683	671	499	236	173	144	195	175	174	214	171	209	171	158	143	133	76
Presumed living	4695	4981	5088	5103	5282	5641	6001	6439	6933	7310	7703	8048	8437	8794	9174	9608	10006	10422	10842

Table 8: Demographic characteristics of King County residents diagnosed 1982-2010, by date of HIV diagnosis (reported through 12/31/2010)

	1982-2001		2002-2004		2005-2007		2008-2010[a]		Trend[b]
	N	%	N	%	N	%	N	%	2002-2010
TOTAL	**8,427**	**100%**	**1,055**	**100%**	**957**	**100%**	**917**	**100%**	
HIV Exposure Category									
Men who have sex with men (MSM)	6,225	76%	679	70%	588	71%	597	76%	up
Injection drug user (IDU)	482	6%	67	7%	40	5%	32	4%	down
MSM-IDU	860	11%	87	9%	87	11%	53	7%	
Heterosexual contact[c]	473	6%	142	15%	107	13%	97	12%	
Blood product exposure	96	1%	1	0%	1	0%	1	0%	
Perinatal exposure	27	0%	0	0%	1	0%	6	1%	
SUBTOTAL- known risk	*8,163*	*100%*	*976*	*100%*	*824*	*100%*	*786*	*100%*	
Undetermined/other[d]	264	3%	79	7%	133	14%	131	14%	N/A
Sex & Race/Ethnicity[e]									
Male	*7,861*	*93%*	*935*	*89%*	*843*	*88%*	*797*	*87%*	
White male	6,250	74%	597	57%	520	54%	501	55%	
Black male	782	9%	160	15%	133	14%	97	11%	down
Hispanic male	527	6%	110	10%	119	12%	124	14%	up
Other male	302	4%	68	6%	71	7%	75	8%	up
Female	*566*	*7%*	*120*	*11%*	*114*	*12%*	*120*	*13%*	
White female	261	3%	31	3%	31	3%	34	4%	
Black female	211	3%	68	6%	63	7%	66	7%	
Hispanic female	40	0%	8	1%	6	1%	14	2%	
Other female	54	1%	13	1%	14	1%	6	1%	
Race/Ethnicity[e]									
White	6,511	77%	628	60%	551	58%	535	58%	
Black	993	12%	228	22%	196	20%	163	18%	down
Hispanic	567	7%	118	11%	125	13%	138	15%	up
Asian & Pacific Islander	153	2%	34	3%	56	6%	54	6%	up
Native American or Alaska Native	102	1%	21	2%	8	1%	5	1%	down
Multiple race	100	1%	26	2%	21	2%	22	2%	
SUBTOTAL- known race/ethnicity	*8,426*	*100%*	*1,055*	*100%*	*957*	*100%*	*917*	*100%*	
Unknown race	1	N/A	0	N/A	0	N/A	0	N/A	N/A
Place of Birth									
Born in U.S. or Territories	7,538	92%	818	79%	686	76%	648	74%	down
Born outside U.S.	672	8%	222	21%	215	24%	226	26%	up
SUBTOTAL- known birthplace	*8,208*	*100%*	*1,040*	*100%*	*901*	*100%*	*874*	*100%*	
Birthplace unknown	219	3%	15	1%	56	6%	43	5%	N/A
Age at Diagnosis of HIV									
0-19 years	144	2%	9	1%	11	1%	33	4%	up
20-29 years	2,203	26%	220	21%	242	25%	253	28%	up
30-39 years	3,785	45%	457	43%	348	36%	276	30%	down
40-49 years	1,730	21%	278	26%	247	26%	220	24%	
50-59 years	463	5%	76	7%	80	8%	112	12%	up
60+ years	102	1%	15	1%	29	3%	23	3%	
Residence									
Seattle residence	7,226	86%	801	76%	698	73%	639	70%	down
King County residence outside Seattle	1,201	14%	254	24%	259	27%	278	30%	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 2002-2004, 2005-2007, and 2008-2010.

[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 1982-2010, by date of HIV diagnosis (reported through 12/31/2010)

	1982-2001		2002-2004		2005-2007		2008-2010[a]		Trend[b]
	N	%	N	%	N	%	N	%	2002-2010
TOTAL	**13,069**	**100%**	**1,686**	**100%**	**1,709**	**100%**	**1,586**	**100%**	
HIV Exposure Category[d]									
Men who have sex with men (MSM)	8,715	70%	964	62%	956	65%	907	69%	up
Injection drug user (IDU)	1,184	9%	155	10%	118	8%	75	6%	down
MSM-IDU	1,319	11%	134	9%	142	10%	93	7%	
Heterosexual contact[c]	1,028	8%	284	18%	247	17%	224	17%	
Blood product exposure	216	2%	3	0%	3	0%	1	0%	
Perinatal exposure	60	0%	3	0%	4	0%	20	2%	
SUBTOTAL- known risk	*12,522*	*100%*	*1,543*	*100%*	*1,470*	*100%*	*1,320*	*100%*	
Undetermined/other[d]	547	4%	143	8%	239	14%	266	17%	N/A
Sex & Race/Ethnicity[e]									
Male	*11,808*	*90%*	*1,419*	*84%*	*1,448*	*85%*	*1,333*	*84%*	
White male	9,412	72%	950	56%	944	55%	801	51%	down
Black male	1,086	8%	213	13%	203	12%	172	11%	
Hispanic male	843	6%	161	10%	196	11%	237	15%	up
Other male	467	4%	95	6%	105	6%	123	8%	up
Female	*1,261*	*10%*	*267*	*16%*	*261*	*15%*	*253*	*16%*	
White female	693	5%	103	6%	107	6%	97	6%	
Black female	329	3%	109	6%	99	6%	97	6%	
Hispanic female	114	1%	23	1%	30	2%	36	2%	
Other female	125	1%	32	2%	25	1%	23	1%	
Race/Ethnicity[e]									
White	10,105	77%	1,053	62%	1,051	61%	898	57%	down
Black	1,415	11%	322	19%	302	18%	269	17%	
Hispanic	957	7%	184	11%	226	13%	273	17%	up
Asian & Pacific Islander	230	2%	56	3%	81	5%	81	5%	up
Native American or Alaska Native	190	1%	39	2%	20	1%	27	2%	
Multiple race	156	1%	32	2%	29	2%	38	2%	
SUBTOTAL- race/ethnicity	*13,053*	*100%*	*1,686*	*100%*	*1,709*	*100%*	*1,586*	*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 2002-2004, 2005-2007, and 2008-2010.
[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 whereh 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.
[f] The counties and regions are: Region 1-Adams, Asotin, Columbia, Ferry, Garfield, Lincoln, Okanogan, Pend Oreille, Spokane, Stevens, Walla Walla, and Whitman; Region 2-Benton, Chelan, Douglas, Franklin, Grant, Kittitas, Klickitat, and Yakima; Region 3-Island, San Juan, Skagit, Snohomish, and Whatcom; Region 4-King; Region 5-Kitsap and Pierce; Region 6-Clallum, Clark, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Skamania, Thurston, and Wahkiakum.

Table 9 (Continued): Demographic characteristics of Washington residents diagnosed 1982-2010, by date of HIV diagnosis (reported through 12/31/2010)

	1982-2001		2002-2004		2005-2007		2008-2010[a]		Trend[b]
	N	%	N	%	N	%	N	%	2002-2010
TOTAL	**13,069**	**100%**	**1,686**	**100%**	**1,709**	**100%**	**1,586**	**100%**	
Place of Birth									
Born in U.S. or Territories	11,724	90%	1,344	80%	1,264	74%	1,111	70%	down
Born outside U.S.	987	8%	309	18%	321	19%	361	23%	up
SUBTOTAL- known birthplace	*12,711*	*100%*	*1,653*	*100%*	*1,585*	*100%*	*1,472*	*100%*	
Birthplace unknown	358	3%	33	2%	124	7%	114	7%	N/A
Age at diagnosis of HIV									
0-19 years	286	2%	20	1%	41	2%	59	4%	up
20-29 years	3,512	27%	368	22%	419	25%	429	27%	up
30-39 years	5,640	43%	655	39%	551	32%	473	30%	down
40-49 years	2,661	20%	461	27%	462	27%	370	23%	down
50-59 years	751	6%	145	9%	183	11%	187	12%	up
60+ years	219	2%	37	2%	53	3%	68	4%	up
Residence[f]									
Region 1- Spokane area	684	5%	94	6%	99	6%	79	5%	
Region 2- Yakima area	427	3%	72	4%	85	5%	87	5%	
Region 3- Everett area	1,056	8%	141	8%	178	10%	152	10%	
Region 4- Seattle area	8,427	64%	1,055	63%	957	56%	917	58%	down
Region 5- Tacoma area	1,401	11%	166	10%	207	12%	195	12%	up
Region 6- Olympia area	1,074	8%	158	9%	183	11%	156	10%	

[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 2002-2004, 2005-2007, and 2008-2010.
[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.
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Adapting HIV Surveillance Data to Support New HIV Planning and HIV Service Delivery Systems in Washington

Background

The first case of Acquired Immune Deficiency Syndrome (AIDS) was diagnosed in Washington state in 1982. Since then, about 18,000 Washington residents have been diagnosed with HIV disease, including those who have progressed to AIDS. In 1988, the Washington State Legislature enacted the AIDS Omnibus Bill. This bill created a system to plan and deliver HIV services in Washington state. The Washington Department of Health (DOH) funded and supported services through this system. It was based on regional AIDS Service Networks, or AIDSNets. Within each of the state's six AIDSNets, one local health jurisdictions served as the lead agency, developing plans for HIV prevention and care services, contracting with local service providers. These services included HIV counseling, HIV testing and partner notification services, HIV prevention and education activities, behavioral interventions, and needle exchange programs.

Legislative Changes (House Bill 2360):

As a result of Engrossed House Bill (EHB) 2360, which was passed by the Washington Legislature in March 2010, the AIDSNets have now been eliminated. Instead, DOH is now directly responsible for awarding grants and monitoring contracts with local HIV service providers across the state. In order to successfully implement EHB 2360, DOH developed four guiding principles:

1. Maximize service delivery to constituents in an era of diminishing resources
2. Reframe the government public health response to HIV/AIDS to more effectively serve the state's populations
3. Reinvigorate efforts to reduce new HIV infections and to ensure persons living with HIV are provided with quality care and treatment services
4. Honor the successes of the past by leveraging effective practices and relationships

In addition, DOH will ensure that funding decisions are data-driven and follow epidemiologic trends. Communities with a greater concentration of HIV cases will be prioritized higher. Populations with the highest HIV risk will receive the most attention. The new system also stresses the value of innovation in the fight against HIV.

Projected Impact

It is difficult to anticipate exactly how these changes will affect the HIV surveillance system in Washington. Agency decision-makers and community planners will probably rely more heavily on surveillance data than in the past in order to prioritize community-level need for HIV services, select appropriate interventions, and measure program effectiveness. The emphasis on innovation will likely translate into a need to evaluate and analyze data in new ways. With diminishing resources, community-based agencies and local health jurisdictions may rely more heavily on DOH surveillance staff for technical assistance and epidemiologic support.

For example, the new delivery system uses an HIV prevention funding framework in which local health jurisdictions are categorized according to relative disease burden: high, moderate, or low. This approach requires accurate information about the number of new and existing HIV cases that are diagnosed in each jurisdiction. The prevention funding framework also contains a category labeled "Special Initiatives". This category is dedicated to unique HIV risk populations, such as inmates residing in the state's prison system, which are often harder to reach and which typically require a different service delivery strategy. Data will be needed to not only describe these special populations, but determine their HIV prevention needs.

The elimination of the AIDSNets also raises questions as to how best to describe the state's HIV epidemic geographically. With thirty-six different health jurisdictions in Washington, surveillance staff will need to work with partners to determine what kinds of maps and other geographically-linked data products are most useful. In some cases, it may be appropriate to combine HIV data from multiple local health jurisdictions. However, interest in sub-county data is also on the

rise. Training will likely be required to ensure that small area analyses are both meaningful and protect the confidentiality of individual patients.

As more programs are asked to demonstrate their own quality and effectiveness, interest in HIV laboratory data continues to grow. These data have just recently become available in our state, and are rapidly improving in terms of both completeness and quality. For example, CD4+ T-cell counts provide a good measure of disease progression, and help determine the frequency of HIV testing within a population. Community-level viral load indicates the degree to which HIV-positive patients in a given area are receiving HIV treatment. DOH is currently developing an improved and more comprehensive system to monitor HIV-related laboratory results. This system should be in place by June 2011. As we develop effective ways to present these types of data, we will begin to include them in our routine data products.

Where to Find Summary Statistics

In response to the many changes that are taking place, DOH is currently in the process of re-evaluating the ways in which we present HIV surveillance data. This process should be completed by summer 2011, and will culminate in the release of a newly revised version our of statewide quarterly HIV surveillance report. Past editions of that report, as well as HIV fact sheets, are available at http://www.doh.wa.gov/cfh/hiv/statistics/. Information specific to King County is available at http://www.kingcounty.gov/healthservices/health/communicable/hiv/epi.aspx. In the mean time, we hope that the accompanying table and figure (**Figure 1**, **Table 1**) will prove useful. A future edition of this semi-annual Epidemiology Report jointly produced by the state and King County will feature a more comprehensive description of the HIV epidemic in Washington.

- *Contributed by Jason Carr and Susan Buskin*

Figure 1. New HIV diagnoses, inside and outside King County, Washington, 2001-2009

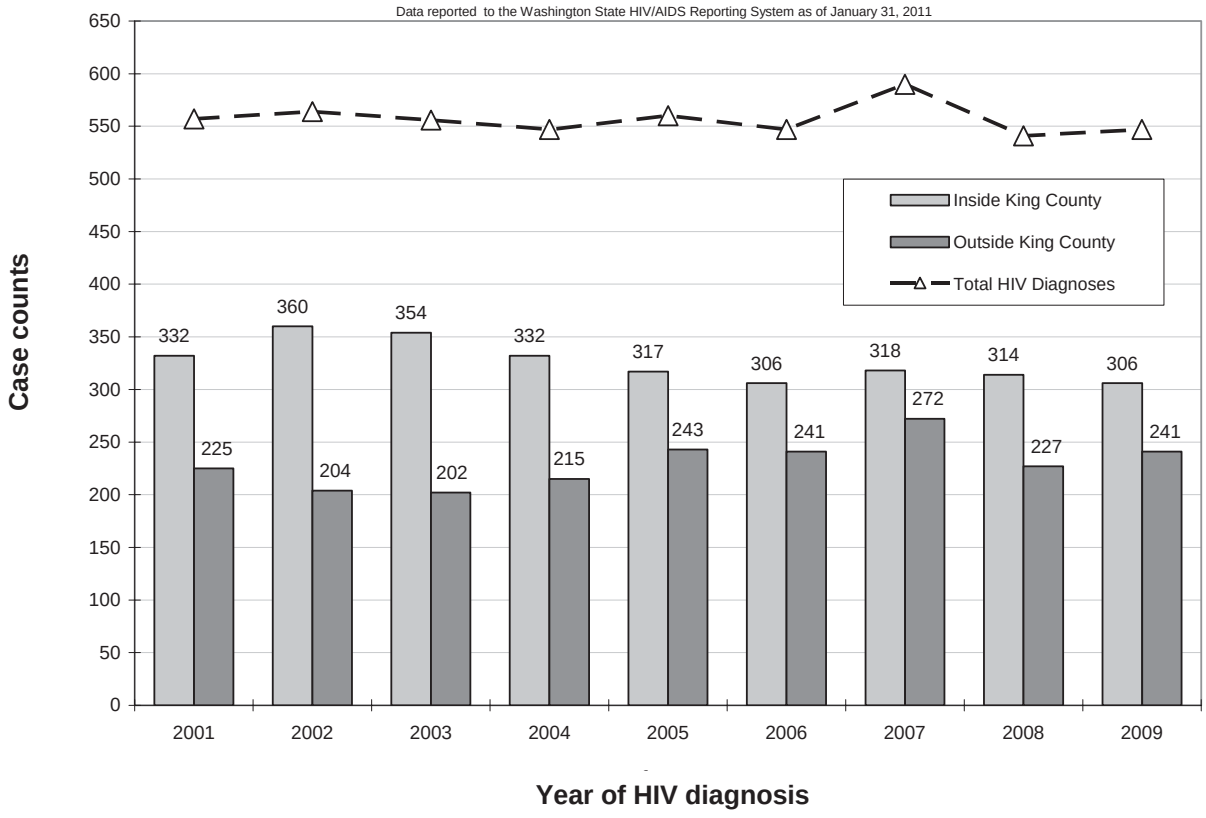


Table 1. Comparison of trends in the demographic and risk characteristics of newly diagnosed HIV cases residing inside vs. outside King County, Washington state[1]

Region:	Washington (excluding King County)						King County					
Year of HIV diagnosis:	**1998-2001**		**2002-2005**		**2006-2009**		**1998-2001**		**2002-2005**		**2006-2009**	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Sex by Race/Ethnicity												
Male	717	82%	675	78%	772	79%	1,297	88%	1,209	89%	1,088	87%
White	512	71%	480	71%	500	65%	885	68%	767	63%	671	62%
Black	80	11%	78	12%	95	12%	193	15%	207	17%	154	14%
Hispanic	84	12%	75	11%	121	16%	138	11%	145	12%	165	15%
Asian	12	2%	18	3%	23	3%	43	3%	42	3%	62	6%
Native Hawaiian/Pac Islander	6	1%	5	1%	5	1%	2	0%	2	0%	5	0%
American Indian/AK Native	10	1%	10	1%	16	2%	16	1%	15	1%	4	0%
Multi/Other/Unknown	13	2%	9	0%	12	2%	20	2%	31	3%	27	2%
Female	158	18%	189	22%	209	21%	175	12%	154	11%	156	13%
White	87	55%	93	49%	104	50%	61	35%	41	27%	42	27%
Black	31	20%	48	25%	50	24%	87	50%	85	55%	88	56%
Hispanic	19	12%	26	14%	34	16%	16	9%	12	8%	12	8%
Asian	7	4%	7	4%	9	4%	4	2%	2	1%	7	4%
Native Hawaiian/Pac Islander	2	1%	2	1%	1	0%	1	1%	1	1%	0	0%
American Indian/AK Native	10	6%	13	7%	8	4%	5	3%	10	6%	3	2%
Multi/Other/Unknown	2	0%	0	0%	3	0%	1	0%	3	2%	4	3%
Age at HIV Diagnosis												
12 and Under	2	0%	3	0%	13	1%	6	0%	3	0%	6	0%
13-19	17	2%	12	1%	29	3%	18	1%	7	1%	24	0%
20-29	179	20%	196	23%	255	26%	319	22%	289	21%	327	26%
30-39	344	39%	273	32%	268	27%	689	47%	572	42%	394	32%
40-49	225	26%	255	30%	248	25%	339	23%	371	27%	315	25%
50-59	81	9%	95	11%	119	12%	86	6%	101	7%	135	11%
60 and Over	27	3%	30	3%	49	5%	15	1%	20	1%	43	3%
Exposure Category												
MSM	429	49%	392	45%	477	49%	976	66%	862	63%	783	63%
IDU	145	17%	116	13%	76	8%	102	7%	80	6%	45	4%
MSM/IDU	59	7%	67	8%	69	7%	112	8%	119	9%	92	7%
Heterosexual Contact	133	15%	174	20%	145	15%	146	10%	133	10%	67	5%
Blood Product Exposure	3	0%	3	0%	1	0%	8	1%	2	0%	1	0%
Pediatric	2	0%	3	0%	10	1%	5	0%	0	0%	6	0%
NIR	104	12%	109	13%	203	21%	123	8%	167	12%	250	20%
Total in Region	875	100%	864	100%	981	100%	1,472	100%	1,363	100%	1,244	100%

[1] All data were reported to Washington state's HIV/AIDS Reporting System as of January 31, 2011.

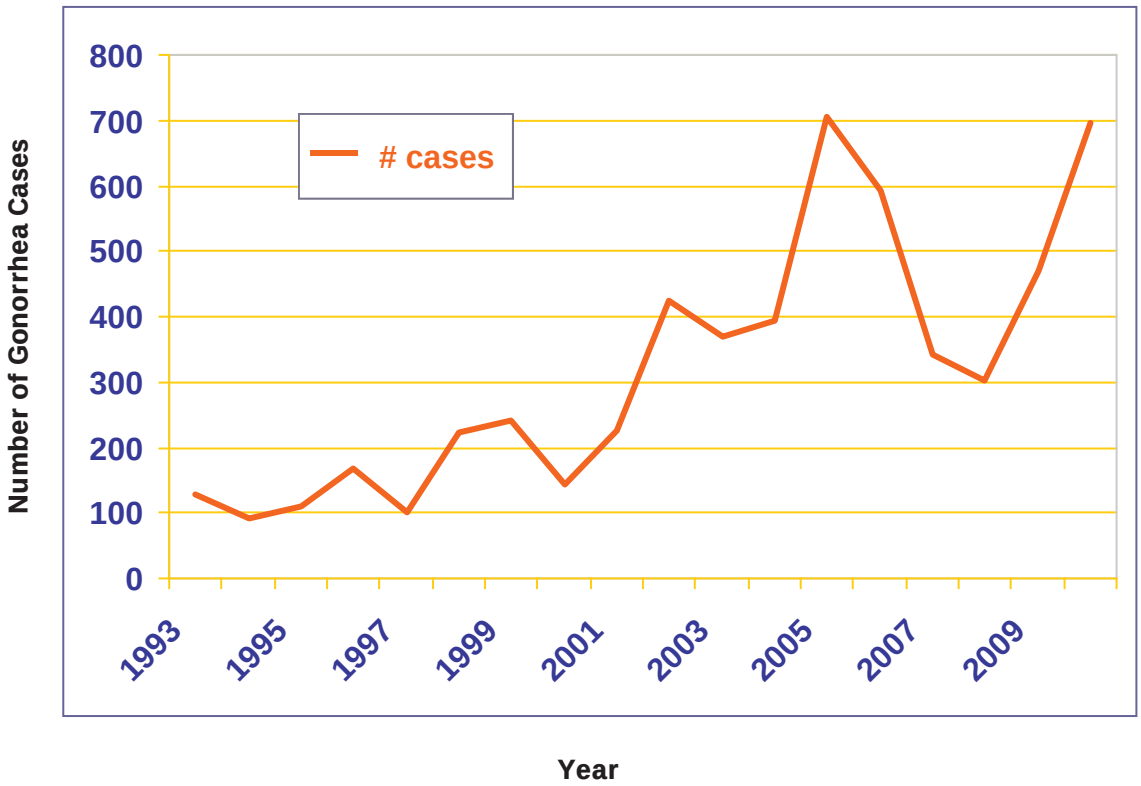
Syphilis and Gonorrhea Increases among Men Who Have Sex with Men in King County

We have recently observed large increases in gonorrhea and syphilis among men who have sex with men (MSM) and the emergence of *Neisseria gonorrhoeae* with decreased susceptibility to oral cephalosporins. In this article, we examine trends in the numbers of reported cases of these two sexually transmitted illnesses among MSM. Note that we started collecting gender of sex partners via case reports in 2004. Before that, the designation of MSM status was based on the site of infection, known MSM status from STD Clinic records, or information gathered through partner services interviews.

Gonorrhea

In the past two years, the number of gonorrhea cases reported in MSM more than doubled, from 301 in 2008 to 695 in 2010. The number of gonorrhea cases in MSM in 2010 was close to the previous 15 year high of 704 in 2005 (**Figure 1**).

Figure 1. Reported gonorrhea cases in men who have sex with men in King County, WA, 1993-2010



Syphilis

Rates of early syphilis among local MSM are likewise increasing. The number of syphilis cases in King County dropped dramatically in the late 1980s and early 1990s and, for approximately a decade, syphilis was a rare infection among MSM. However, concurrent with the advent of effective antiretroviral therapy in 1996, syphilis cases among MSM in King County, as well as throughout the U.S. and Europe, began to increase. In 2010, the number of syphilis cases occurring in King County MSM rose to a 30 year high of nearly 300 cases (**Figure 2**).

The rate of syphilis in HIV-infected MSM is about 15 times higher than the rate of syphilis among HIV negative (including HIV status unknown) MSM (**Figure 3**). At present, the causes for the observed increase in syphilis are uncertain. To date, there is no evidence that the number of new HIV diagnoses among MSM is increasing.

Figure 2. Early syphilis cases, King County, WA, 1992-2010

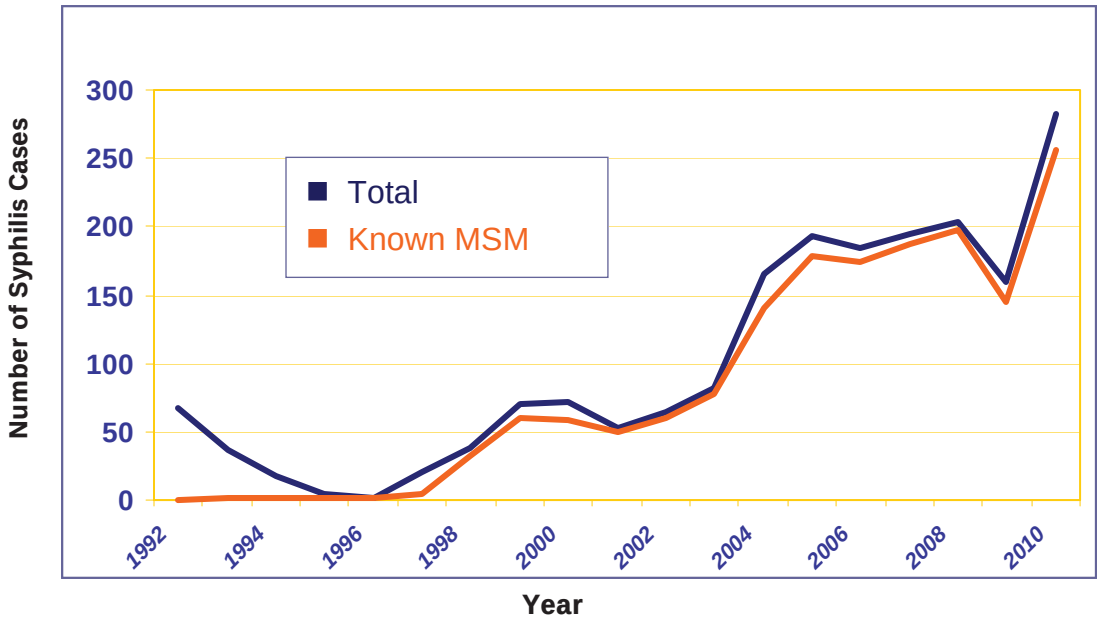
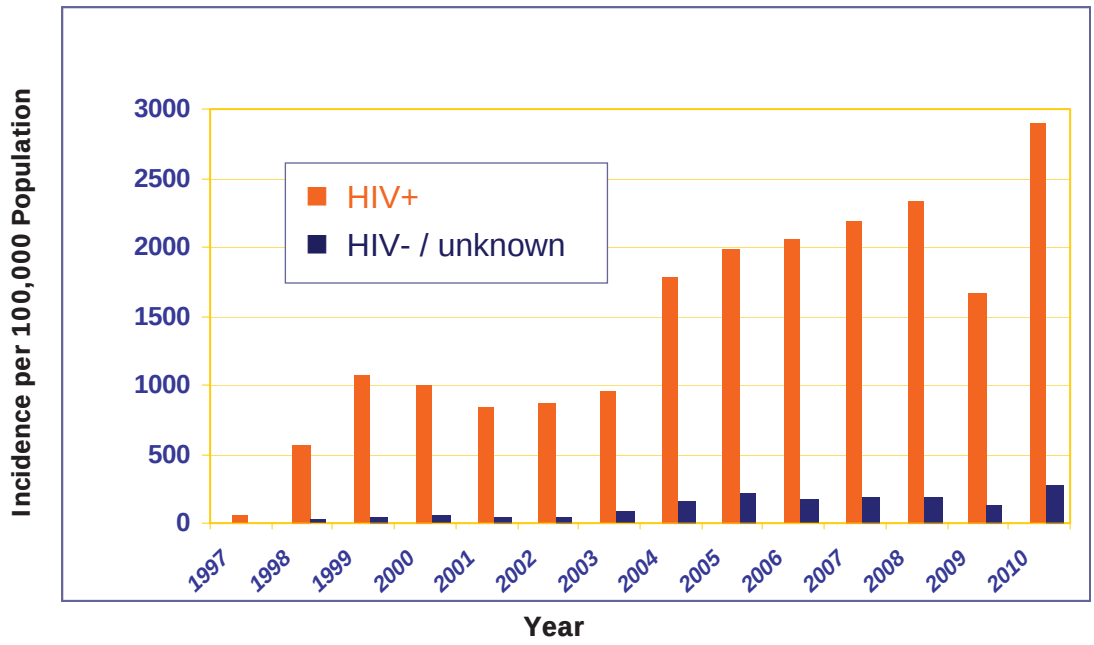


Figure 3. Estimated early syphilis incidence among MSM by HIV status, King County, WA, 1997-2010



Neisseria gonorrhoeae with Decreased Susceptibility to Oral Cephalosporins

Public Health – Seattle & King County (Public Health) identified a number of *N. gonorrhoeae* isolates with decreased susceptibility to oral third generation cephalosporins (i.e. cefixime and cefpodoxime). These drugs have previously been recommended by the CDC in the treatment of *N. gonorrhoeae* and were used to treat approximately 50% of all cases of gonorrhea in Washington state in 2009-2010. In the first three quarters of 2010, 8% of *N. gonorrhoeae* isolates collected in the Public Health STD clinic and tested through the University of Washington Neiserria reference laboratory had diminished susceptibility to cefixime and/or cefpodoxime. This problem appears to be more common among MSM, with over 10% of their gonococcal isolates showing diminished susceptibility to oral cephalosporins. Other cities on the West Coast of the U.S. are observing a similar trend. The clinical significance of this decreased susceptibility is not known. We do not know how often people infected with these organisms will fail treatment with oral cephalosporins, nor do we know whether the introduction of *N. gonorrhoeae* with diminished susceptibility to oral cephalosporins will now result in the sustained presence of these organisms in our community. Past experience suggests that treatment failure will be highest in persons with pharyngeal infections. Approximately 25-50% of MSM and women with genital tract infections with *N. gonorrhoeae* have concurrent pharyngeal infections. In Seattle, gonococci with decreased susceptibility to oral cephalosporins are resistant to penicillin, tetracycline, and quinolones, and have somewhat decreased susceptibility to azithromycin.

Public Health and Community Response to STD and Drug Resistance Increases

In response to new developments related to syphilis and gonorrhea, Public Health has ceased to use cefixime as a first line agent for gonorrhea in our STD clinic. We have begun investigating all cases of gonorrhea that we identify as having diminished susceptibility to oral cephalosporins; we continue to investigate all cases of early syphilis; and we have initiated an epidemiologic investigation designed to identify factors that may be driving the observed increase in STD among MSM. Public Health is also funding a trial expansion of sexually transmitted infection testing at the Gay City Wellness Center, and is collaborating with community medical providers to try to increase STD testing, particularly among MSM.

Recommendations

We recommend that community medical providers take the following steps:

Syphilis:

1. Adopt a low threshold for testing and treating patients for syphilis. Genital lesions and rashes associated with syphilis are notoriously variable and often perplex experienced clinicians. All MSM with a rash or genital lesion should be tested for syphilis. Clinicians should have a very low threshold for treating patients with any clinical evidence of possible syphilis and should not await the results of serological testing before instituting curative treatment.

2. All patients who report any sexual contact with a person with syphilis should be treated. Clinicians should not await the results of serological testing before treating persons exposed to syphilis. Serological testing is insensitive in persons with incubating syphilis. In the pre-antiobiotic era, approximately 30% of persons exposed to syphilis who tested negative for the infection subsequently developed clinical evidence of infection.

3. Clinicians should ask all patients with syphilis about changes in their vision, hearing loss, tinnitus (ringing in the ears) and other neurological symptoms. Persons with any of these symptoms should be referred for further evaluation.

Gonorrhea:

1. Whenever possible, treat persons diagnosed with gonorrhea with 250 mg of intramuscular ceftriaxone. This regimen remains highly active against *N. gonorrhoeae*. None of the gonococcal isolates in King County tested to date have been resistant to this treatment.

2. If you do use cefixime to treat gonorrhea, be sure to also treat the patient with 1g azithromycin, regardless of Chlamydia test results. Some evidence suggests that treating gonorrhea with two drugs is superior to using only one.

3. Public Health does not recommend using cefpodoxime to treat gonorrhea.

STD Screening:

1. Increase the frequency with which you screen MSM patients for STDs. Public Health recommends that providers screen all sexually active MSM for gonorrhea, Chlamydia, syphilis, and HIV (if the patient is not previously HIV diagnosed) at least annually. Men with any of the following risk factors should be tested every three months:

    - History of bacterial STD in the last year
    - Methamphetamine or popper use in the last year
    - >10 sex partners (oral or anal) in the last year
    - Unprotected anal sex with partners of unknown or different HIV status

2. Screen MSM patients at all exposed anatomical sites. Many local laboratories will now accept pharyngeal and rectal specimens for testing using nucleic acid amplification tests.

3. If possible, when seeing an untreated patient with a positive non-culture screening test for N. gonorrhoeae, please obtain a culture before treating the patient. Symptomatic patients (i.e. those with urethritis, proctitis, cervicitis) and persons who are known to have had sexual contact with an infected partner should be treated at the time of their initial evaluation, before test results are available.

Thanks, as always, to the medical providers and other community members who work hard on treating and preventing HIV and other STDs in our community.

- *Contributed by Matt Golden, Roxanne Kerani, Michael Hanrahan, and Susan Buskin*

Trends in Utilization and Cost of HIV-related Hospitalizations, Washington State, 2000-2009

Background

Increased access to highly active antiretroviral therapy (HAART) has been associated with significant reductions in HIV morbidity and mortality.[1] Since HAART's inception, the portion of overall HIV costs attributable to antiretroviral drugs has risen from 10 percent to more than 40%.[2] In 1995, 1,244 persons in Washington state died from AIDS-related complications; this has since decreased to an average of 93 deaths per year between 2004 and 2008.[3] Less is known about the longer term impact of HAART on HIV hospitalizations.[4] There were 10,539 persons living with HIV in Washington (as of December 31, 2009) and this number increases at a rate of about 5% each year,[3] in large measure because of better health outcomes and decreasing mortality rates due to HAART. About one third of HIV-infected persons obtain much of their acute care in hospital settings.[5] Monitoring the cost of HIV-related care and the sources of payment for inpatient treatment are increasingly important given current and potentially future times of economic instability. While rates of HIV-related hospitalizations have declined nationwide in recent years, associated costs have continued to increase.[4, 6] Previous analyses of Washington HIV-related hospitalizations found that the number of persons admitted to in-patient care decreased significantly between 2000 and 2004.[7] For that same time period the mean inflation-adjusted charge for HIV-related admissions significantly increased and primary payers shifted away from private insurance coverage toward federally funded Medicare and Medicaid coverage. The present study continues exploration of trends in Washington HIV-related hospitalizations.

Methods

Data were obtained from the Washington State Comprehensive Hospital Abstract Reporting System (CHARS), which contains hospital admissions data from non-military facilities in Washington. CHARS data are collected and maintained by the Washington State Department of Health (DOH), Office of Hospital & Patient Data Systems. All individual CHARS discharge records from 2000 through 2009 were obtained. ICD-9 code diagnostic classifications from the Healthcare Cost and Utilization Project (HCUP) were used to select hospitalizations specifically related to HIV infection.[8] Hospitalizations were chosen if they had an HIV related ICD-9 code as the principal or first secondary diagnosis. Visits with principal diagnoses classified as injuries, burns, and clinical trials were excluded from all analyses. The selection of hospital records for previous reports of Washington state HIV hospitalizations were based on DRG codes and are not directly comparable to the current analysis which uses HCUP standards to facilitate local comparisons with national data.

Medical charge data from 2000 to 2008 were adjusted for inflation to 2009 dollars. Reported charges are five percent trimmed means, i.e., calculated excluding the top and bottom 5% of charges. This limits the effect of exceedingly high and low charges. Analysis of charges also excludes admissions resulting in the death of the patient. Previous studies have shown that cost of care sharply increases prior to death due, in part, to resuscitation procedures.[9] Excluding decedents provides a more realistic indication of the ongoing cost of HIV care. The Mantel-Haenszel chi-squared test for trend was used to determine statistical significance of trends

[1] Palella FJ et al. Declining Morbidity and Mortality Among Patients with Advanced Human Immunodeficiency Virus Infection. *The New England Journal of Medicine* 1998;338:853-60.
[2] Bozzette S et al. Expenditures for the Care of HIV-Infected Patients in the Era of Highly Active Antiretroviral Therapy. *The New England Journal of Medicine* 2001;344:817-23.
[3] Washington State Department of Health, Infectious Disease & Reproductive Health, Assessment Unit, WA State HIV Surveillance Report 1st Quarter 2010, http://www.doh.wa.gov/cfh/hiv/statistics/docs/qtr1-2010.pdf (accessed 8/2010).
[4] Yafu Zhao et al . Statistical Brief #41. Healthcare Cost and Utilization Project (HCUP). November 2007. Agency for Healthcare Research and Quality, Rockville, MD.
[5] Metsch et al. Hospitalized HIV-Infected Patients in the Era of Highly Active Antiretroviral Therapy. *Am J Public Health*.2009; 99: 1045-1049.
[6] Baligh R. et al. Inpatient health services utilization among HIV –infected adult patients in care 2002-2007. Journal *of Acquired Immune Deficiency Syndrome*. 53. 397-404, March 1, 2010.
[7] Rime TE, Stenger M. Trends in Utilization and Cost of HIV-Related Hospitalizations, Washington State, 1995-2004. *HIV/AIDS Semi-Annual Epidemiology Report* 2nd Half 2005, 29-33, http://www.kingcounty.gov/healthservices/health/communicable/hiv/epi/~/media/health/publichealth/documents/hiv/2nd_half_2005.ashx (accessed 8/2010).
[8] Fleishman JA et al. Longitudinal Patterns of Medical Service Use and Costs among People with AIDS. *Health Services Research* 1995; 30:3.

in categorical data such as type of admission and primary payers. Linear regression was used to assess the significance of trends in charges. Differences between findings are considered statistically significant at or below the 0.05 significance level.

Results

In 2000 there were approximately the same number of Washington state hospitalizations with HIV as a primary diagnosis as with HIV as a secondary diagnosis (507 and 495 respectively, see **Figure 1**). Since then, the number of hospital visits with a primary HIV diagnosis decreased by 19% to 409 in 2009. During the same time period the number of visits with a secondary HIV diagnosis increased by 72% (851 in 2009).

In 2009, 79% of hospitalizations with HIV primary or secondary diagnosis were among males and 60% were patients residing in King County. The proportion of patients hospitalized by gender and region has not changed significantly since 2000. The ages of HIV positive persons receiving care in hospitals have steadily increased over the past decade (see **Figure 2**). In 2000, 24% were visits from patients ages 34 and under, 47% ages 35-44 and 29% ages 45 and older. This changed significantly to 16% ages 34 and under, 31% ages 35-44, and 53% ages 45 and older in 2009.

Figure 1. Washington state HIV hospitalizations by diagnosis type, 2000-2009

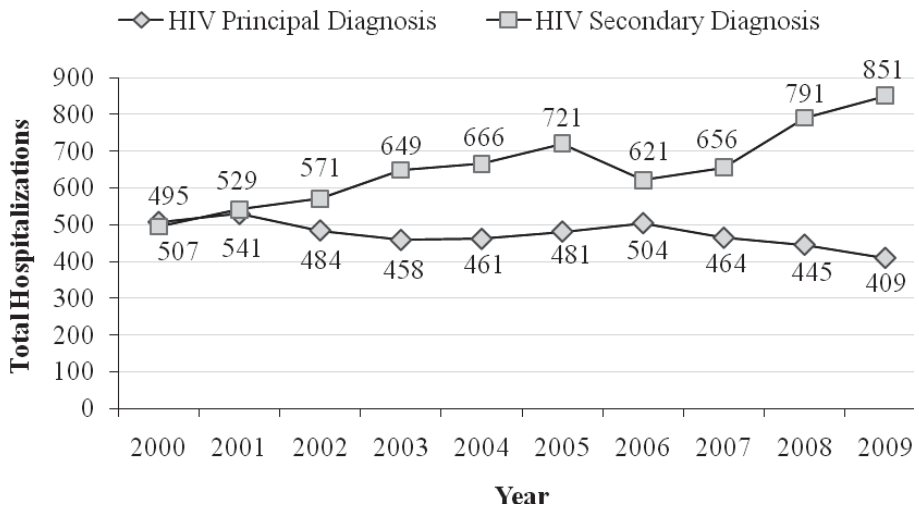
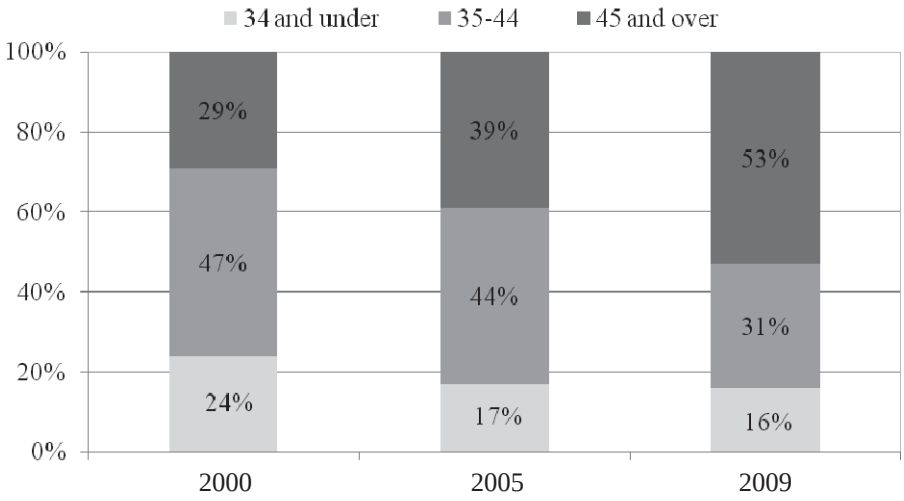


Figure 2. Washington state HIV hospitalizations by patient age, 2000, 2005, and 2009



Inpatient service utilization data for the years 2000 through 2009 are presented in **Table 1**. The average length of hospitalization per admission significantly increased from 7.3 days (median=5) in 2000 to 9.3 days (median=6) in 2009 for visits with HIV as a principal diagnosis. Hospitalizations with HIV as secondary diagnosis had a lower average length of stay (about 5 days, median=3) and have not changed significantly since 2000. There was a significant increase in the proportion of HIV-related hospitalizations admitted through the emergency room (ER); from 56% in 2000 to 63% in 2008; the percent then dropped significantly back to 56% in 2009. The proportion of admissions due to *Pneumocystis* pneumonia (PCP) significantly decreased from 13% in 2000 to 4% in 2009. In 2009, approximately 3% of both male and female HIV related hospitalizations ended in death. Among males, the death rate significantly decreased from 5% in 2000 to 3% in 2009.

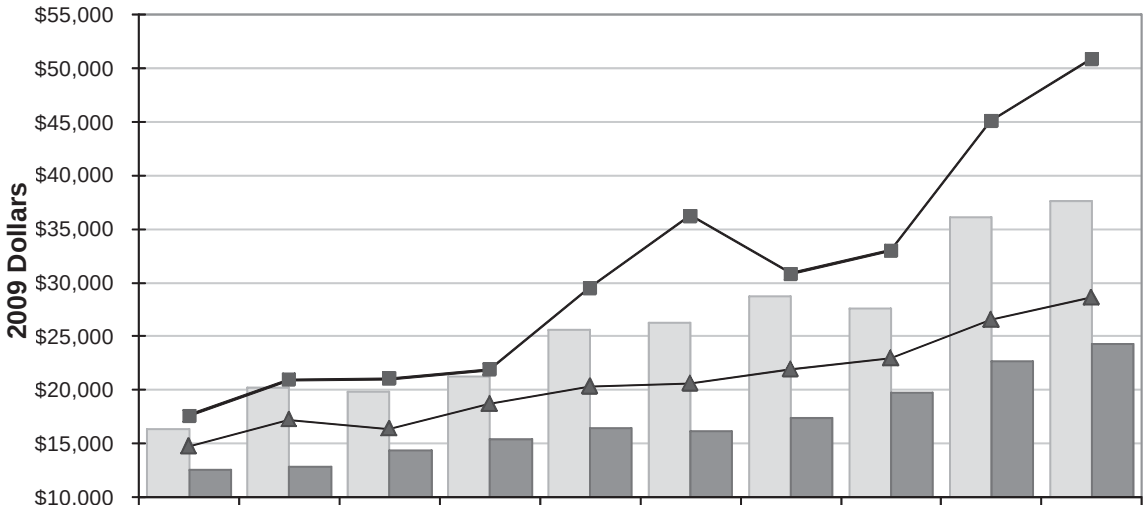
Figure 3 illustrates the change in inflation-adjusted charges for inpatient care for HIV infected persons from 2000 through 2009 (means are 5% trimmed and admissions resulting in death are excluded). The mean charge per admission for hospitalizations with HIV principal diagnosis significantly increased from $16,367 in 2000 to $37,634 in 2009. The costs for visits with HIV as secondary diagnosis have been consistently lower, but also increased significantly from $12,546 per admission in 2000 to $24,305 in 2009. The increasing trends in charges for both HIV primary and secondary diagnoses were significant for the 2000-2009 and 2005-2009 time periods. The mean charges per ER and PCP admission have increased in similar fashion. The mean charge per ER admission was $14,723 in 2000 and rose to $28,645 by 2009. The increase was also significant in both the 2000-2009 and 2005-2009 time periods. The mean charge per PCP admission was $17,610 in 2000 and increased greatly to $50,840 in 2009. The increase in PCP hospitalization charges was significant from 2000-2009. However, the increase from 2005-2009 was not statistically significant due to decreasing numbers of admissions of patients with PCP and a fall in mean charges between 2005 and 2006.

Table 1. HIV-related hospital utilization, Washington state, 2000-2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
TOTAL HOSPITALIZATIONS*	**1,002**	**1,070**	**1,055**	**1,107**	**1,127**	**1,202**	**1,125**	**1,120**	**1,236**	**1,260**
Mean length of stay per HIV principal diagnosis visit, in days†‡ (median)	7.3 (5)	7.6 (5)	7.6 (5)	7.3 (5)	7.7 (5)	7.5 (5)	8.0 (5)	7.9 (4)	9.1 (5)	9.3 (6)
Mean length of stay per HIV secondary diagnosis visit, in days (median)	5.4 (3)	4.8 (3)	5.1 (3)	5.0 (3)	4.9 (3)	4.9 (3)	4.7 (3)	5.4 (3)	4.7 (3)	5.2 (3)
Admitted from emergency room (ER)*†‡	56.0%	58.7%	57.3%	56.5	58.7	63.4	62.2	63.8	63.1	55.6
Admitted with *Pneumocystis* pneumonia (PCP)*†‡	12.9%	10.4%	9.3%	7.7%	5.9%	7.2%	7.2%	7.9%	5.0%	3.9%
Female visit death rate*	2.3%	4.9%	3.9%	2.2%	4.1%	2.1%	4.1%	4.0%	3.3%	2.7%
Male visit death rate*†	4.9%	4.5%	4.8%	6.6%	2.8%	3.8%	3.2%	3.7%	2.0%	3.0%

*HIV primary or secondary diagnosis
†2000-2009 trend significant, $p<0.05$
‡2005-2009 trend significant, $p<0.05$

Figure 3. Charges for hospitalizations among persons with HIV infection, Washington, 2000-2009



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mean Charge Per Admission HIV Principal Diagnosis†‡	$16,367	$20,191	$19,860	$21,291	$25,639	$26,228	$28,773	$27,588	$36,061	$37,634
Mean Charge Per Admission HIV Secondary Diagnosis †‡	$12,546	$12,888	$14,366	$15,419	$16,449	$16,157	$17,417	$19,747	$22,657	$24,305
Mean Charge Per ER Admission†‡	$14,723	$17,213	$16,352	$18,677	$20,320	$20,618	$21,953	$22,948	$26,579	$28,645
Mean Charge Per PCP Admission†	$17,610	$20,946	$21,057	$21,876	$29,521	$36,201	$30,834	$32,994	$45,060	$50,840

Admissions resulting in death are excluded from all charge analyses. Means are 5% trimmed.
† 2000-2009 trend significant, p<0.05
‡ 2005-2009 trend significant, p<0.05

Table 2. Primary payment source for hospitalizations among persons with HIV infection, Washington, 2000-2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
TOTAL HOSPITALIZATIONS*	**1,002**	**1,070**	**1,055**	**1,107**	**1,127**	**1,202**	**1,125**	**1,120**	**1,236**	**1,260**
Medicare†‡	34.8%	31.6%	33.6%	32.5%	32.6%	32.6%	31.1%	30.3%	27.4%	27.9%
Medicaid†‡	33.4	36.5	36.5	34.8	36.9	35.4	35.3	34.6	35.5	41.0
Health maintenance organization†	5.4	5.1	3.6	3.6	2.4	3.5	4.4	4.0	3.9	3.2
Commercial insurance†	13.7	12.3	13.0	12.9	11.9	11.3	13.3	13.8	14.6	11.6
Self pay‡	3.4	6.9	5.4	6.4	9.1	8.6	6.8	7.0	4.5	3.9
Health care services contractor‡	8.2	6.5	7.1	9.2	5.8	6.3	5.8	8.0	10.8	9.4
Other†	1.1	1.1	0.8	0.6	1.3	2.3	3.3	2.3	3.3	3.0

* HIV primary or secondary diagnosis
† 2000-2009 trend significant, p<0.05
‡ 2005-2009 trend significant, p<0.05

Table 2 shows the proportion of HIV admissions for each designated primary payer in the ten-year period. It should be noted that the primary payer is established during the hospitalization and is subject to change. A significant increase in reliance on Medicaid for payment of inpatient charges related to HIV infection occurred from 2000 (33%) to 2009 (41%). During the same time the proportion of visits covered by Medicare decreased from 35% in 2000 to 28% in 2009. These trends were gradual and statistically significant for both the 2000-2009 and 2005-2009 time periods. There was also a concurrent significant decrease in the percent of visits paid for by commercial insurance (14% to 12%) and health maintenance organizations (HMOs) (5% to 3%) from 2000 to 2009. Reliance on self pay increased from 3% in 2000 to 9% in 2005, then decreased significantly back to 4% by 2009. The percent of hospitalizations paid for by health care service contractors (HCSCs) decreased from 8% in 2000 to 6% in 2005, then increased significantly to 9% in 2009.

Discussion

As people living with HIV (PLWH) continue to experience significantly better health outcomes with accompanying improvements in their quality of life, it is important to analyze data on cost and utilization of HIV-related care to detect potential adverse trends such as treatment failure or the emergence of widespread viral resistance. Moreover, hospitalization rates and inpatient treatment costs may provide indicators of success or challenge as health care reform restructures the way health insurance coverage is delivered both locally and nationally. This is particularly important to monitor for medically fragile populations such as PLWH.

HIV-related hospital utilization in Washington state was similar to what was found nationally in 2005. According to Zhao et al., 68% of HIV-related hospitalizations nationally were among males, and there was a significant trend toward an older patient population between years 1998 and 2005, reflecting overall trends in HIV prevalence.[4] These authors also reported similar trends to those we found for declines in hospitalizations with HIV as a primary diagnosis and increases in hospitalizations with secondary HIV diagnoses: principal HIV diagnoses decreased from 93,870 in 1998 to 73,590 in 2005; while those with secondary HIV diagnoses increased from 175,378 in 1998 to 182,948 in 2005.

Hospital visit outcomes in Washington were also similar to national estimates. In 2005, the estimated mean length of stay was 6.9 days nationally, compared to 7.5 in Washington.[4] In 2005, the estimated national female and male HIV hospitalization death rate was 3.3% and 4.0% respectively. [4] The rate in 2005 in Washington was 2.1% for females and 3.8% for males. Charges for HIV-related hospitalizations have increased both nationally and in Washington. However, in 2005, Washington charges per HIV-related admission (HIV principal or secondary diagnosis) were over one-and-a-half times that of national estimates ($21,018 and $13,290 respectively).

The estimated proportion of 2005 HIV hospitalizations paid for by Medicare nationally was 28%; 43% were covered by Medicaid.[4] In that same year, a higher proportion of Washington HIV visits were paid for by Medicare (33%) and a lower proportion by Medicaid (35%). Zhao et al., found an increasing trend from 1998-2005 in the proportion of national HIV-related visits covered by Medicare and a decreasing proportion paid for by Medicaid.[4] The opposite has been found in Washington where an increasing proportion of inpatient costs are being paid for by Medicaid and a decreasing proportion by Medicare. Ryan White CARE Act funds are provided to states with the intention of reducing the burden of unreimbursed costs on local hospital infrastructures. Recent decreases to visits paid for by patients may be due in part to successful efforts by Washington State's HIV Client Services program and their community partners to assure comprehensive medical and drug assistance coverage for PLWH.

- *Contributed by Todd E. Rime and Mark Stenger*

Resistance Surveillance: No More Health Department Supplied Genotype Tests after May 31, 2011

Since 2003, Public Health – Seattle & King County has conducted surveillance for primary resistance to antiretrovirals (ARVs) among ARV-naïve people newly diagnosed with HIV. Resistance surveillance, or VARHS (Variant, Atypical, and Resistant HIV Surveillance) monitors antiretroviral resistance to specific ARV and ARV classes and also follows HIV sub-types, generally classified as B (the most common sub-type in North America) and other. Washington state is one of 10 areas participating in VARHS around the U.S. The project currently has two methods of acquiring genotypic data: (1) testing conducted on leftover diagnostic sera from participating laboratories and (2) genotypic sequence reporting from clinical laboratories. When leftover sera is used for a genotype test, the results are always returned to the HIV testing facility, and if that facility does not provide ongoing primary HIV care, results are also returned to an HIV care provider when one is identified. To be included in VARHS, a genotype must be conducted within three months of HIV diagnosis, and prior to starting antiretrovirals. These analyses were conducted with data through January 31, 2011, thus data for recent years, especially 2010, are likely incomplete.

Coverage of VARHS has increased since 2003 (**Figure 1**). In recent years, about 70% of newly diagnosed HIV cases in King County have had a VARHS-eligible genotype. Currently, over 60% of the genotypic data we collect is from clinical laboratories. The relative contribution of each participating laboratory is shown in **Figure 2**.

Figure 1: Proportion of cases with genotype obtained within 3 months of HIV diagnosis included in VARHS, King County, 2003-2010

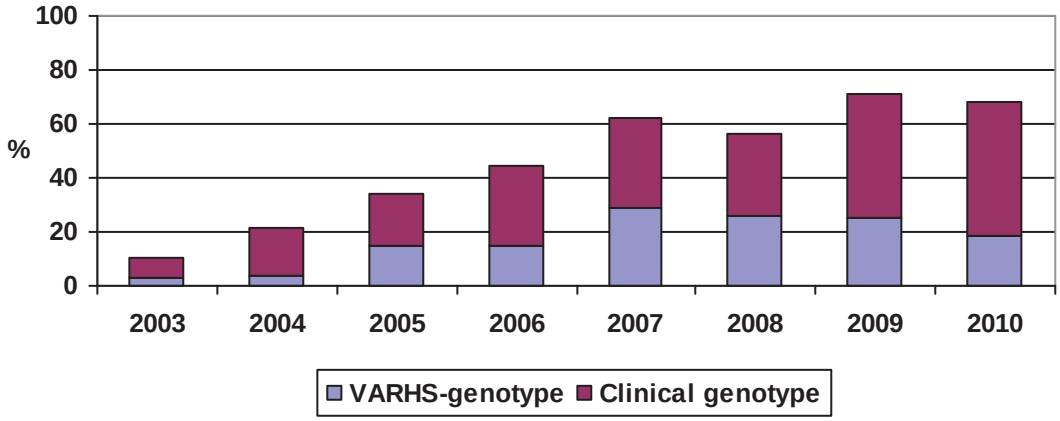
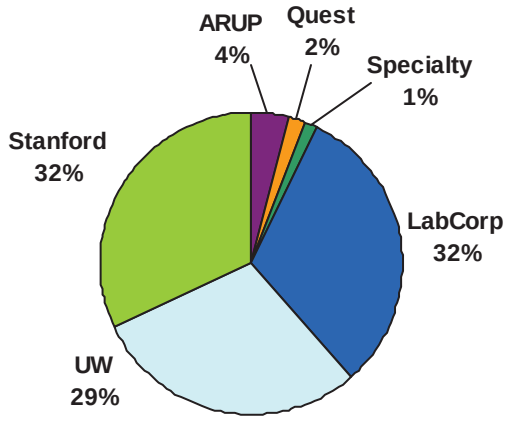


Figure 2: Proportion of VARHS-eligible genotypes by participating laboratory, King County, 2003-2010



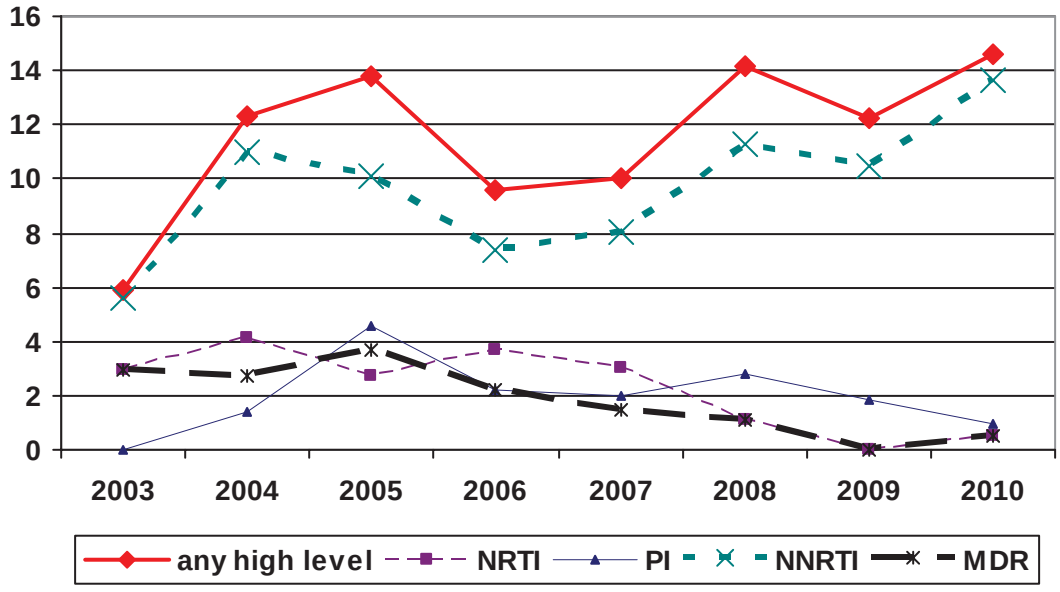
Notice

As of the end of May, 2011, the Centers for Disease Control and Prevention-funded resistance surveillance project will no longer fund genotypic testing of remnant sera. Although current HIV care guidelines strongly recommend a genotypic HIV drug resistance test at the time individuals establish care,[1] and these HIV sequences are reportable in King County, only about half of newly diagnosed individuals have genotypic testing soon after (within 3 months of) diagnosis. Thus, all medical providers are strongly encouraged to conduct genotypic testing on all new HIV patients since baseline drug resistance information originating from VARHS will no longer be available. Further, our ability to follow trends in drug resistance and other forms of atypical HIV will now depend on the widespread conduct of early baseline genotypes in clinical settings.

Genotype sequences are analyzed for high-level resistance to three classes of antiretrovirals: nucleoside reverse transcriptase inhibitors (NRTIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs), and protease inhibitors (PIs). Among King County residents diagnosed with HIV during the past three years (2008-2010), 12%-15% were infected with strains that were highly resistant to at least one of these three drug classes (**Figure 3**). Resistance to one or more drugs in the NNRTI class was most common (10%-14% in the past 3 years), followed by resistance to PIs (1-3%), and NRTIs (0-1%). In recent years, less than 1% of sequences showed multi-class drug resistance, that is, high-level resistance to ARVs in two or more drug classes. Both multi-class resistance (p=.003) and high level NRTI resistance (p=.001) had statistically significant decreases since 2003 by Chi-square tests for trend. There was no statistically significant increase in the overall proportion of individuals with any high level drug resistance. The increase in NNRTI resistance was not statistically significant (p=.099).

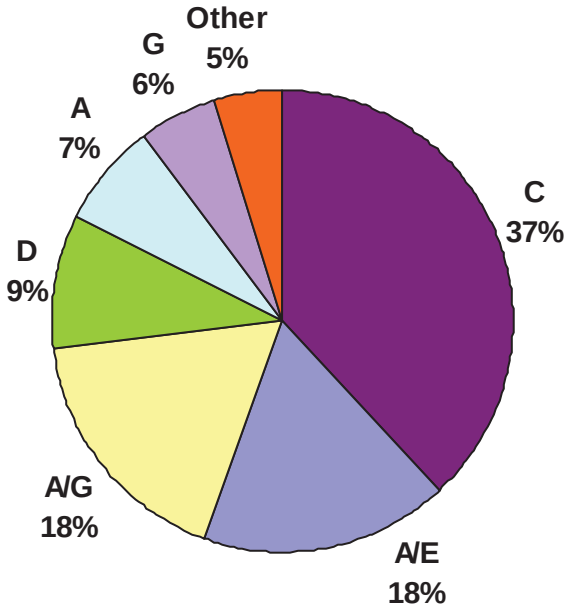
Genotype sequences are also examined for HIV-1 subtype. Overall, about 91% of King County sequences are consistent with the predominant North American subtype, B. Of the remaining 9%, subtypes C and two circulating recombinant forms (AE and AG) are the most common (**Figure 4**).

Figure 3: Trends in high-level antiretroviral resistance by drug class among HIV cases included in VARHS, King County, 2003-2010



[1] Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents. Department of Health and Human Services. January 10, 2011; 1–166. Available at **http://www.aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf**. Accessed 2/11/2011.

Figure 4: HIV-1 subtypes among 108 (9.4%) Non-B HIV cases included in VARHS, King County, 2003-2010



Summary

VARHS is a population-based project with a goal of obtaining a genotype for all HIV-infected people at or near the time of their HIV diagnosis. Coverage of VARHS in King County is currently good (70%) and although we will no longer conduct genotyping as part of the project, we hope completeness will increase as more providers conduct this test as part of an initial HIV care assessment and additional labs submit genotype sequences. We have found that high-level transmitted ARV resistance affects about one in eight people newly diagnosed with HIV in King County, and transmitted multi-class drug resistance remains low, currently in fewer than 100 people newly diagnosed with HIV.

- *Contributed by Susan Buskin, Shirley Zhang, and Christina Thibault*

Characteristics of Smokers Compared with Non-smokers in a Sample of HIV-positive Adults: Data from the Medical Monitoring Project Seattle, WA, 2009-2010

As individuals with HIV live longer, other health conditions and behaviors are affecting their morbidity and mortality. HIV positive individuals are known to have a higher smoking prevalence than the general population. In the U.S., over half of persons infected with HIV are smokers compared with 20% of the general population. Smoking rates among the general population in Washington state are slightly lower, with 15% of Washington residents reporting being current smokers in 2009.[1] For this analysis, data from the Medical Monitoring Project (MMP) were used to describe the prevalence of smoking among individuals living with HIV in King County and to compare characteristics of smokers compared with non-smokers.

MMP is a supplemental HIV surveillance project funded by the Centers for Disease Control and Prevention (CDC) and is conducted in twenty-three project areas throughout the country. MMP collects a wide breadth of information from people living with HIV through in-person interviews and medical record abstractions. Patients are randomly selected for participation from a sample of facilities providing HIV care in each project area. In the current cycle (2010/2011), 12 health care facilities throughout King County are participating in the project. Interview data from King County collected in 2009 and 2010 were used for this analysis (complete medical record data is not yet available for this time period). Participants were asked about smoking status as part of the standard CDC questionnaire and additional smoking questions are asked locally.

Out of 274 King County participants interviewed in 2009 and 2010, 108 (39%) reported being a current smoker and 82% of current smokers reported smoking daily. One-third of the current smokers reported smoking 20 or more cigarettes a day. Over half (57%) of current smokers reported smoking for twenty years or more. Sixty-six participants (24%) reported being ex-smokers, and 100 (36%) reported having never smoked.

Current smokers were significantly more likely to be 50 years or older, be less educated (high school graduates or less), be born in the U.S., report an annual income of less than $10,000, and report being homeless (including staying with friends or family) in the last year. Those who self-reported their sexual orientation as homosexual or gay were significantly less likely to report being current smokers relative to heterosexuals.

There were no significant differences among race, ethnicity or gender comparing smokers, ex-smokers and non-smokers. Current smokers did not report engaging in risky behaviors such as injection drug use or unprotected sex with an unknown or discordant partner more often than non-smokers, and were neither more nor less adherent to their HIV medication.

Sixty-one percent of current smokers reported that in the last 12 months their provider offered to help them quit smoking. All of the current smokers had a regular HIV health care provider and had at least one visit to their provider in a set four month period. Smokers were not more likely to have frequent visits to their health care provider, more ER or urgent care visits, and were not more likely to report that they had been hospitalized in the last 12 months.

Current cigarette smoking was common among persons living with HIV in this sample. Current smokers were more likely to be 50 year or older, less educated, born in the U.S., low income and have a recent history of homelessness. Every participant who reported being a current smoker had been seen by a provider at least once in a four month period, but over one-third of current smokers had not been asked by their provider if they wanted help quitting smoking. Successful smoking cessation programs that target persons living with HIV need to be developed and barriers to smoking cessation need to be identified and cessation assistance widely offered to people living with HIV.

- *Contributed by Elizabeth Barash*

[1] http://apps.nccd.cdc.gov/brfss/display.asp?cat=TU&yr=2009&qkey=4396&state=WA

Table 1: Medical Monitoring Project, King County, WA, 2009-1010 (N=274)

	Current Smoker N=108		Ex-Smoker N=66		Never Smoker N=100		P Value (current vs. ex/ never)
Age	**N**	**%**	**N**	**%**	**N**	**%**	
<39	33	31%	7	11%	25	25%	
40-49	49	45%	20	30%	47	47%	
50-59	20	19%	26	39%	16	16%	P<.05
60+	6	6%	13	20%	12	12%	
Gender							
Male	93	86%	60	91%	81	81%	NS
Female	14	13%	6	9%	19	19%	
Transgender	1	1%					
Education							
High school graduate or less	49	45%	15	23%	30	30%	P<.05
Some college	43	40%	30	45%	31	31%	
Bachelors degree or higher	16	15%	21	32%	39	39%	
Race							
White	64	59%	44	67%	58	58%	NS
Black	22	20%	8	12%	13	13%	
Latino	11	10%	9	14%	15	15%	
Other	11	10%	5	8%	14	14%	
Born in the United States	103	95%	57	86%	73	73%	P<.05
Homeless in the last 12 months	25	23%	2	3%	4	4%	P<.05
Income							
$0-$9,999	47	44%	9	14%	29	29%	P<.05
$10,000-$29,999	29	27%	28	42%	37	37%	
$30,000-$75,000+	30	28%	29	44%	33	33%	
Sexual orientation							
Homosexual, gay, or lesbian	65	60%	50	76%	72	72%	P<.05
Heterosexual or straight	25	23%	10	15%	19	19%	
Bisexual	11	10%	4	6%	8	8%	
Other	7	6%	6	9%		0	
Do you have a regular provider	108	100%	66	100%	99	99%	NS
Visits to main provider in 4 month period							
1	39	36%	31	47%	48	48%	NS
2-3	34	31%	21	32%	30	30%	
4+	26	24%	8	12%	22	22%	
Injection drug use last 12 months	14	13%	5	8%	6	6%	NS
ER or urgent care visit last 12 months	18	17%	6	9%	15	15%	NS
Hospitalization last 12 months	10	9%	6	9%	8	8%	NS

Table 1 (continued): Medical Monitoring Project, King County, WA, 2009-1010 (N=274)

	Current Smoker N=108		Ex-Smoker N=66		Never Smoker N=100		P Value (current vs. ex/ never)
Provider offer help to help you quit smoking in the last 12 months							
Yes	66	61%	2	3%	NA	NA	
No	42	39%	5	8%	NA	NA	
Not smoking in the last 12 months	0	0	59	89%	NA	NA	
Unprotected discordant sex							
Yes	19/79	24%	11/51	22%	60/80	23%	NS
No	60/79	76%	40/51	78%	20/80	67%	
Currently taking ART							
Yes	92	85%	61	92%	87	87%	NS
No	6	6%	2	3%	4	4%	
Don't know/refused	10	9%	3	5%	9	9%	
Missed ART last two weeks							
0	49/92	53%	31/61	51%	60/87	69%	NS
1	14/92	15%	12/61	20%	12/87	14%	
≥2	11/92	12%	9/61	15%	7/87	8%	
Don't know/missing	18/92	20%	9/61	15%	8/87	9%	
Last time missed ART							
Past week	9/92	10%	6/61	10%	3/87	3%	NS
1-2 weeks ago	14/92	15%	14/61	23%	8/87	9%	
3-4 weeks ago	8/92	9%	5/61	8%	8/87	9%	
1-3 months	16/92	18%	6/61	10%	16/87	18%	
More than 3 months	11/92	12%	10/61	16%	11/87	13%	
Never	23/92	25%	18/61	29%	32/87	37%	

Teens with HIV in Washington State

Since 1983 there has been an average of 10 teenagers diagnosed with HIV in Washington state per year. The 282 total teens diagnosed with HIV in the past 28 years comprise less than 2% of the cumulative HIV/AIDS cases. Half of the teens were King County residents, and half resided in other Washington counties at the time of diagnosis; 65% are male and 35% female. The number of teen HIV diagnoses plotted by year of diagnosis show a bi-modal distribution with peaks in 1988 and in 2007 (**Figure 1**). After excluding teens with no identified HIV risk (13%), most of the teenagers have been males who had sex with males (59%, including 14% who also were injection drug users (**Figure 2**). Most (67%) of the teenagers were 18 or 19 years old (24% and 43% respectively; **Figure 3**). Similarly, most of the teenagers (82%) were born in the U.S..

Figure 1: Year of diagnosis of teenagers with HIV in Washington

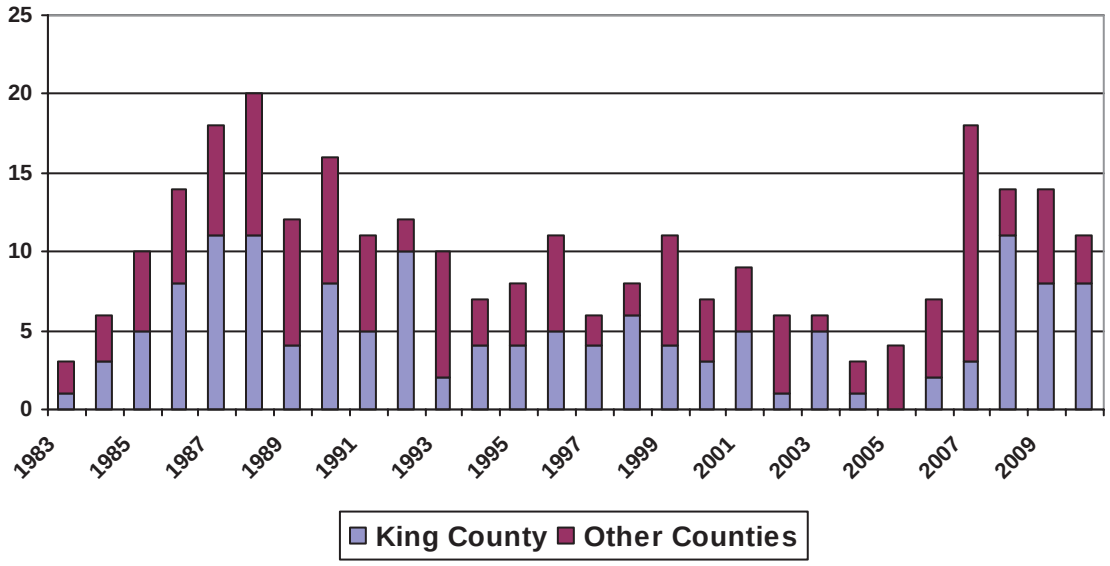


Figure 2: Transmission category of teenagers diagnosed with HIV in Washington

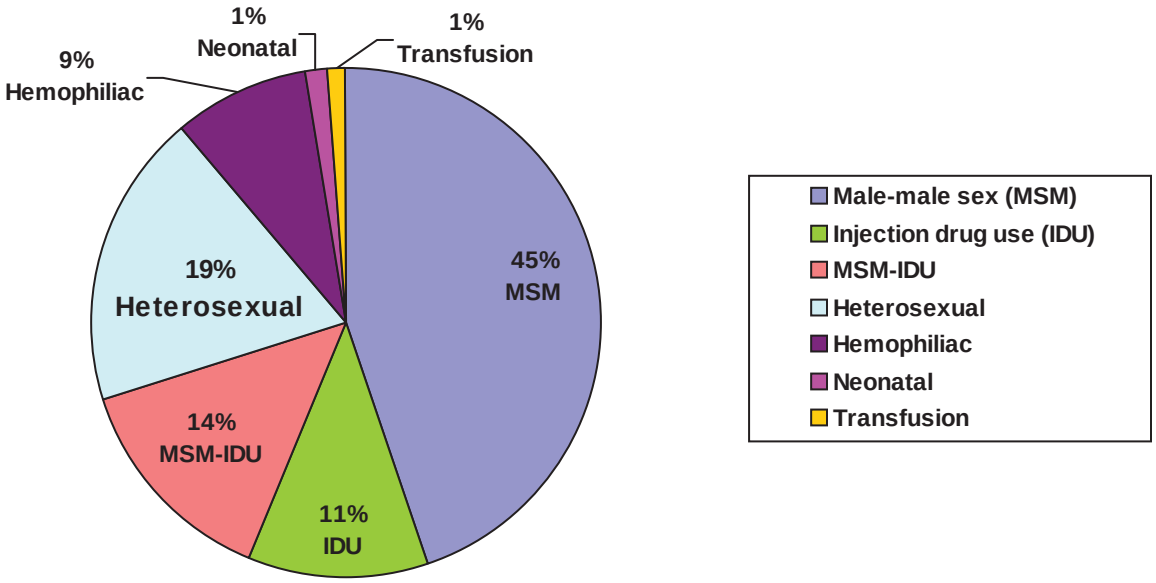
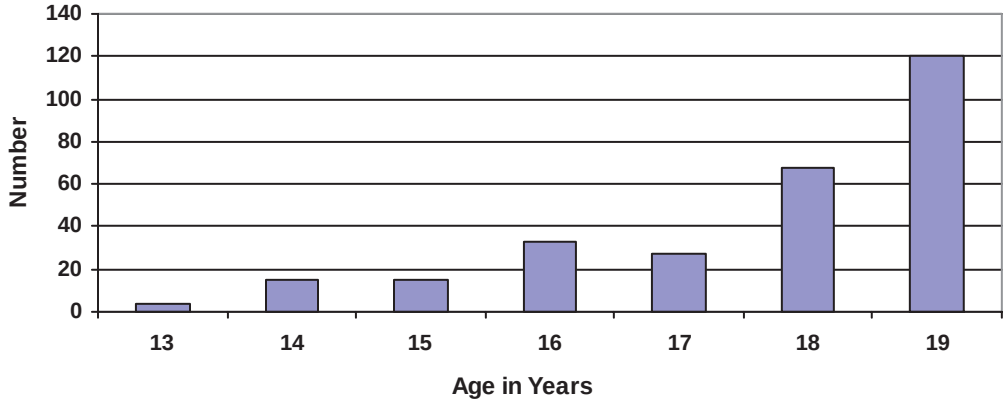


Figure 3: Age of teenagers with HIV infection in Washington state, 1983-2010



Between 2008 and 2010, a cluster of five teenagers living in King and Pierce Counties was identified due to epidemiologic linkages and/or subtype patterns. The cluster is currently under investigation.

Prevention Messages

The upturn in teen diagnoses between 2007 and 2010 highlights the importance of promoting safe sex among teenagers. Locally, we emphasize testing sexually active teenagers for sexually transmitted infections, especially Chlamydia and gonorrhea. An HIV test is also recommended for teenagers with these or other sexually transmitted infections, with multiple partners, or with other HIV risk factors. The CDC recommends global screening of HIV infection for individuals starting at 13 years of age.[1] Although we support the CDC guidelines in general, for U.S.-born teens who are not sexually active nor using injection drugs, we endorse provider discretion for the optimal time to conduct HIV screening. When teens are diagnosed with HIV, they should, as should all persons newly diagnosed, receive an HIV genotype test to help guide future treatment decisions. These genotype tests are also useful for tracking non-subtype B infections and non-group M or HIV-2 infections (only the latter two have known treatment implications.

- *Contributed by Jason Carr, Joanne Stekler, and Susan Buskin*

[1]Centers for Disease Control and Prevention. Revised Recommendations for HIV Testing of Adults, Adolescents, and Pregnant Women in Health-Care Settings. MMWR 2006;55(No. RR-14):1-16

HIV and Inflammation

Inflammation is gaining more interest since it has been shown that there is a link between ongoing inflammation and increased morbidity and mortality in numerous conditions. HIV disease is no exception. People with HIV experience "advanced aging" which includes a decline of the immune system, increased risk of cardiovascular disease, and an increased rate of non-AIDS-defining cancers compared to the general population. The common factor with these ailments is the link to chronic inflammation.

In HIV infection, there is a decrease in the number and suboptimal functioning of T-lymphocytes. There is also an increase in B-lymphocyte activation which results in a dysfunctional humoral immune response and overproduction of B-cell stimulatory cytokines. One of these cytokines is interleukin 6 (IL-6) which is secreted from stimulated macrophages, T-cells and B-lymphocytes. IL-6 influences antigen-specific immune responses and inflammatory reactions. It is one of the major mediators of the acute phase proteins, which include C-reactive protein (CRP). CRP is used clinically to measure the inflammatory state and is predictive of the development of cardiovascular disease. Another marker of inflammation and cardiovascular disease is D-dimer. It is a fibrin degradation product and indicates activation of the coagulation cascade.

These three biomarkers, IL-6, CRP, and D-dimer are associated with increased risk of CVD in HIV-infected patients. These markers are also associated with an increased mortality and a higher incidence of opportunistic disease, and this is seen at all CD4 counts. Several studies have investigated the impact of inflammation in HIV-infected people. The Strategies for Management of Anti-Retroviral Therapy (SMART) study was one of the first to indicate an increase risk of death and cardiovascular events in people who underwent HIV treatment interruption. Further investigations revealed that IL-6 levels increased by 30% in patients who stopped antiretrovirals (ARVs) and that there was a significant increase in the levels of IL-6 and D-dimer in people who died. This study and others have influenced the management of HIV infected patients and resulted in beginning medications earlier in the course of the disease. However, antiretroviral therapy does not correct the inflammatory markers, and co-infection with hepatitis B or C results in further increases in the inflammation. This can hasten the progression of liver damage, cirrhosis, and even hepatocellular carcinoma.

Malignancies are also more frequent in HIV-infected patients, and this increased incidence has been linked to increased inflammation as well. With the widespread use of highly active antiretroviral therapy (HAART), the numbers of AIDS-associated malignancies have fallen, but not to the level seen in HIV-uninfected individuals. Also, the incidence of non-AIDS associated malignancies continues to rise despite control of HIV viral replication. Ongoing inflammation appears to be one of the factors associated with this. Higher levels of markers of inflammation have been reported in HIV-infected patients who subsequently developed cancers. IL-6 causes increased cell turnover, hyperactivation, and anti-apoptosis in B-lymphocytes which results in increased genetic mutation and may lead to B-cell lymphoma. IL-6 also up regulates expression of vascular endothelial cell growth factor which is necessary for solid tumors to increase blood supply and metastasize. IL-6 produced during the replication of human herpesvirus type 8 (HHV-8) drives systemic inflammation and cellular proliferation seen in Kaposi's sarcoma. Elevated IL-6 has even been directly associated with several types of malignancies. So, therapy to combat this inflammatory milieu should decrease the risk of multiple non-AIDS complications.

One class of drugs that appears to have anti-inflammatory activity is the statins. Statins, or HMG-CoA reductase inhibitors, competitively inhibit HMG-CoA reductase blocking the pathway synthesizing cholesterol. These medications have become standard therapy in cardiovascular disease. However, their effect extends beyond the ability to lower cholesterol; they stabilize plaques, reduce inflammation and thrombogenicity, and reverse endothelial dysfunction. One study found that people with high levels of CRP treated with statins had 44% fewer cardiovascular events despite having normal LDL cholesterol levels. Another trial was stopped early because of significant reduction in cardiac disease and blood clots in volunteers with normal LDL cholesterol treated with statins. Their immunomodulatory effect was first noted when a lower incidence of rejection in heart and kidney transplant patients taking statins was reported. There is also a lower mortality in patients hospitalized with influenza, sepsis, or pneumonia who were taking statins even when other co-morbidities are considered.

The mechanism is not clearly elucidated, but lower levels of IL-6 have been documented in patients with bacterial pneumonia treated with statins. IL-6 and the expression of CRP in hepatocytes are directly inhibited by statins. A reduction in IL-6 and CRP in congestive heart failure patients and COPD patients treated with statins is associated with improved morbidity and mortality. Markers of T-cell activation are reduced with statins, but the clinical effect of this is not known. Therefore, a study to investigate the impact of statin use on inflammation in HIV is critical to understand the complicated interactions and to potentially devise a therapeutic intervention to improve outcomes in patients with long-standing HIV infection.

In summary, chronic inflammation is a key component of non-AIDS complications, and these events are even seen in patients successfully treated with ARVs. Non-AIDS conditions are now more common than AIDS events in persons receiving ARVs; thus reducing inflammation should become one of the goals in the long-term care of patients infected with HIV. Despite studies linking inflammatory markers to illnesses, the cause of chronic inflammation in HIV-infected patients is not completely understood. Studies of treatment strategies designed to directly address chronic inflammation are necessary to improve life-expectancy and reduce co-morbidities in HIV-infected persons.

Thus, the University of Washington AIDS Clinical Trials Unit (ACTU) is currently conducting a study investigating the use of atorvastatin on markers of inflammation in HIV-infected individuals with suppressed viral loads. We are also actively recruiting both HIV-infected and HIV-negative volunteers for other studies. Interested individuals or their providers may call for further information or to schedule a screening visit. Please call (206) 744-3184 and ask to speak to our screening nurse, Eric Helgeson.

- *Contributed by Shelia Dunaway*

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Seattle, WA 98104
206-731-3184 (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, RN for appointments or additional information.

January 2011

Antiretroviral Studies

Study 5257

Eligibility	Study Purpose	Study Drug or Treatment
• HIV-positive men and women 18 years or older • Viral load more than 1000 copies/ml • No major HIV resistance mutations • Have not taken ARVs (for more than 9 days) • Lab tests within certain limits • Negative pregnancy test for women and use of contraception • Certain medications are not allowed	To compare three different antiretroviral (ARV) regimens in people who have not taken ARVs before. **Metabolic Substudy:** Includes tests to investigate how the study drugs affect fat deposits in blood vessels and the abdomen. These tests include: computer tomography (CT) scans, ultrasounds of the carotid arteries (CIMT), tests of an artery in the arm (FMD), and dual x-ray absorptiometry (DEXA).	**Medications While on Study:** Randomly assigned to one of three treatment groups. The treatment groups are: **Group 1**: Atazanavir 300 mg once daily (QD) + ritonavir (RTV) 100 mg QD + emtricitabine/tenofovir (FTC/TDF) 200/300 mg QD **Group 2**: Raltegravir 400 mg twice daily (BID) + FTC/TDF 200/300 mg QD **Group 3**: Darunavir (DRV) 800 mg QD + RTV 100 mg QD + FTC/TDF 200/300 All study drugs will be provided except ritonavir. **Length of Study**: 96 weeks from the last enrollment (estimated 192 weeks maximum). **Schedule of Study Visits**: Screening, pre-entry, entry and at weeks 2, 4, 8, 16, 24, 36, 48, then every 16 weeks until the study ends. Visits include physical exams and blood draws.

Rescue Studies		
Study 5241		
Eligibility	Study Purpose	Study Drug or Treatment
• HIV-infected people at least 16 years of age • HIV viral load (HIV level) currently 1000 copies/µl or higher • Currently on an HIV drug regimen that includes a protease inhibitor (PI) • Have resistance to multiple types of HIV medications • Had exposure to multiple types of HIV medications	To determine if adding nucleoside analogue reverse transcriptase inhibitors (NRTIs) to a novel antiretroviral regimen for volunteers who are triple-class antiretroviral-experienced or resistant is beneficial. Two strategies will be evaluated: 1) including or not including NRTIs in a new regimen, and 2) the use of continuous phenotype susceptibility (cPSS) score to help choose study regimens. The treatment response will then be observed. The study will make available several drugs, including raltegravir, darunavir, tipranavir, etravirine, enfuvirtide and, if a subject has R5-tropic HIV, maraviroc.	<u>Part 1 – Continue current medications</u> • Genotype/phenotype/tropism assays performed – these tests determine what HIV medications would be effective • A regimen is identified with a sum of at least 2 active mediations • Study clinician, primary health care provider, and volunteer select study regimen and NRTIs from among options identified <u>Part 2 - New Study Regimen</u> • Randomization if cPSS >2.0 (greater than 2 active HIV medications) **Arm A**: Study Regimen plus NRTIs for 48 weeks **Arm B**: Study Regimen **without** NRTIs for 48 weeks • Registration if cPSS ≤2.0 (Observational Arm) **Arm C**: Study Regimen plus NRTIs for 48 weeks Up to 100 subjects may be enrolled **Schedule of Study Visits:** Screening, Part 2 pre-entry, Part 2 entry and then at weeks 1, 4, 8, 12, 16, 24, then every 12 weeks until 96 weeks. Visits include physical exams and blood draws. **Reimbursement:** Exams, most medications, and lab tests are provided at no cost. $20 per visit starting at entry.
Complications of HIV and Other Conditions		
Study 5247		
Eligibility	Study Purpose	Study Drug or Treatment
• HIV-positive people 18 years of age or older • CD4count ≥ 200 and undetectable viral load • On a combination of antiretrovirals and not planning on changing them • History of chickenpox or herpes zoster (Shingles) more than one year prior to the study or positive for varicella zoster virus (VZV) • No prior vaccination with varicella (chickenpox) or zoster vaccine • Not pregnant or planning pregnancy, and willing to use birth control if needed • Not breast feeding • Lowest ever (nadir) CD4≥100 cells/µl	To see if the Zostavax® vaccine is safe and effective at making the body produce a reaction (antibody) to the vaccine in HIV-positive individuals. Zostavax® is used to vaccinate people over age 60 against varicella zoster virus (herpes zoster) which is the virus that causes shingles and post-shingles pain.	**Medications while on study:** 2 doses of vaccine or placebo. For every 3 people who receive the vaccine, 1 will receive the placebo. The ZOSTER/Placebo vaccine will be provided to you by the study. **Length of Study:** 12-24 weeks **Schedule of Study Visits:** Screening, entry, and visits at 2, 6, 8, and 12 weeks. There will be safety telephone calls after each vaccination and at 24 weeks. **Reimbursement:** Exams, the vaccine, and lab tests are provided at no cost. $20 per visit starting at entry.

Study 5275		
Eligibility	Study Purpose	Study Drug or Treatment
• HIV positive people age 18 or older • Currently on protease inhibitor as part of your anti-retroviral therapy for at least 6 months and no plans to change medications. • Undetectable HIV viral load • Not on any cholesterol lowering medication • LDL greater than 70 and less than 130 mg/dl • Women should not be pregnant, breast-feeding, or planning pregnancy • No active hepatitis B or C	To see if treatment with atorvastatin (Lipitor®) is effective at reducing markers of inflammation in the blood that may contribute to heart disease and cancer in HIV infected people. .	**Medications While On Study:** Atorvastatin and placebo will be provided while on study. Subjects will take each drug for 20 weeks and no drugs for 4 weeks in between. **Length of Study:** 48 weeks **Schedule of Study Visits:** Screening, pre-entry, entry 2, 4, 8, 12, 20, 21, 24, 26, 28, 32, 36, 44, 45 and 48 weeks. **Reimbursement:** Clinical exams, atorvastatin/placebo, and lab tests are provided at no cost. $20 per visit starting at entry.
HIV & Women's Studies		
Study 5240		
Eligibility	Study Purpose	Study Drug or Treatment
• HIV positive women, ages 13-45 • Any CD4 count and any viral load • On stable HIV medications, or not on any HIV medications, for at least 12 weeks before joining the study. • No history of cervical cancer, very abnormal Pap smear, or genital warts within 6 months • Have never received an HPV vaccine • Not pregnant or planning pregnancy and willing to use birth control if needed. • Not breast feeding.	To see if the Human Papillomavirus (HPV) vaccine is safe and effective in HIV-positive women and girls and to check if the HPV vaccine can help develop immunity to help fight off HPV infection.	**Medications while on study:** The HPV vaccine (Gardasil) will be provided. **Length of Study:** 72 weeks. **Schedule of Study visits:** Screening, entry, and visits at 4, 8, 12, 24, 52, and 72 weeks**.** **Reimbursement:** Exams, the HPV vaccine, and lab tests are provided at no cost. You will receive $20-50 per visit.

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