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

Summary Tables and Figures

HIV/AIDS Epidemiology and Surveillance News

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Credits

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HEALTHY PEOPLE. HEALTHY COMMUNITIES.

Washington State Department of Health

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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, online 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 State 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 labs.

For further information about HIV/AIDS reporting requirements, please call your local health department or the Washington State Department of Health at 1 (888) 367 5555. In King County call (206) 296-4645.

Table 1: Surveillance of reported[1] HIV/AIDS cases, deaths, and people living with HIV/AIDS—reported as of 12/31/2006—King County, other Washington counties, all Washington State, and U.S.

		Adult/Adolescent		Pediatric[3]	
		HIV	AIDS[2]	HIV or AIDS	Total
King County	New cases reported in 2nd half 2006	127	103	0	230
	Cases reported year-to-date	257	217	4	478
	Cumulative Cases	2,801	7,439	33	10,273
	Cumulative Deaths	115	4,118	9	4,242
	Persons Living (prevalent cases)	2,686	3,321	24	**6,031**
Other Counties	New cases reported in 2nd half 2006	74	64	1	139
	Cases reported year-to-date	158	152	2	312
	Cumulative Cases	1,484	4,195	39	5,718
	Cumulative Deaths	83	2,165	12	2,260
	Persons Living (prevalent cases)	1,401	2,030	27	**3,458**
Washington State	New cases reported in 1st half 2006	201	167	1	369
	Cases reported year-to-date	415	369	6	790
	Cumulative Cases	4,285	11,634	72	15,991
	Cumulative Deaths	198	6,283	21	6,502
	Persons Living (prevalent cases)	4,087	5,351	51	**9,489**
United States[4]	Estimated Cases as of 12/31/2005				
	Cumulative Cases	244,868	979,287	14,171	1,238,326
	Cumulative Deaths	2,978	545,079	5,378	553,435
	Persons Living (prevalent cases)	241,890	434,208	8,793	**684,891**

1. An estimated 11,000 to 13,000 people live in Washington with HIV infection including AIDS. These include the 9,489 prevalent cases reported above. In King County, there are an estimated 7,200 to 8,400 people living with HIV infection including AIDS. These include the 6,031 prevalent cases reported above. The difference between the estimated cases and the reported prevalent cases include three groups:
   a. People diagnosed with AIDS but not yet reported (probably fewer than 5% of total AIDS reports).
   b. People diagnosed with HIV infection but not yet reported.
   c. People infected with HIV but not yet diagnosed or reported (perhaps 25% of total HIV estimate).
2. New AIDS counts include cases previously reported as HIV without AIDS.
3. Pediatric cases are under age 13 at the time of diagnosis with HIV or AIDS.
4. U.S. data for people with HIV infection not AIDS are based upon reports from states and areas with confidential, named-based HIV infection reporting. Washington is not included in those counts at this time.

Table 2: Cumulative HIV/AIDS case counts and deaths by resident county and AIDSNet region at diagnosis—reported as of 12/31/2006—Washington State

		Cumulative Cases	Deaths		Presumed Living			
			No.	(%)[1]	HIV	AIDS	Total	(Total %)[2]
	Adams	6	1	(17)	1	4	5	(0.1)
	Asotin	21	7	(33)	3	11	14	(0.1)
	Columbia	5	4	(80)	0	1	1	(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	34	9	(26)	8	17	25	(0.3)
	Pend Orielle	8	5	(63)	0	3	3	(0.0)
	Spokane	639	289	(45)	135	215	350	(3.7)
	Stevens	24	10	(42)	5	9	14	(0.1)
	Walla Walla	60	29	(48)	6	25	31	(0.3)
	Whitman	16	4	(25)	1	11	12	(0.1)
Region 1	**Subtotal**	**825**	**366**	**(44)**	**160**	**299**	**459**	**(4.8)**
	Benton	111	39	(35)	27	45	72	(0.8)
	Chelan	58	23	(40)	17	18	35	(0.4)
	Douglas	4	2	(50)	2	0	2	(0.0)
	Franklin	70	17	(24)	19	34	53	(0.6)
	Grant	42	20	(48)	8	14	22	(0.2)
	Kittitas	25	10	(40)	5	10	15	(0.2)
	Klickitat	15	6	(40)	6	3	9	(0.1)
	Yakima	217	80	(37)	47	90	137	(1.4)
Region 2	**Subtotal**	**542**	**197**	**(36)**	**131**	**214**	**345**	**(3.6)**
	Island	74	34	(46)	14	26	40	(0.4)
	San Juan	25	11	(44)	6	8	14	(0.1)
	Skagit	88	37	(42)	21	30	51	(0.5)
	Snohomish	897	333	(37)	222	342	564	(5.9)
	Whatcom	211	82	(39)	52	77	129	(1.4)
Region 3	**Subtotal**	**1,295**	**497**	**(38)**	**315**	**483**	**798**	**(8.4)**
Region 4	**King**	**10,273**	**4,242**	**(41)**	**2,705**	**3,326**	**6,031**	**(63.6)**
	Kitsap	289	117	(40)	74	98	172	(1.8)
	Pierce	1,430	589	(41)	390	451	841	(8.9)
Region 5	**Subtotal**	**1,719**	**706**	**(41)**	**464**	**549**	**1,013**	**(10.7)**
	Clallam	76	33	(43)	18	25	43	(0.5)
	Clark	592	215	(36)	168	209	377	(4.0)
	Cowlitz	131	52	(40)	40	39	79	(0.8)
	Grays Harbor	75	33	(44)	15	27	42	(0.4)
	Jefferson	34	17	(50)	9	8	17	(0.2)
	Lewis	52	26	(50)	9	17	26	(0.3)
	Mason	99	23	(23)	21	55	76	(0.8)
	Pacific	28	11	(39)	9	8	17	(0.2)
	Skamania	7	5	(71)	0	2	2	(0.0)
	Thurston	240	79	(33)	61	100	161	(1.7)
	Wahkiakum	3	0	(0)	1	2	3	(0.0)
Region 6	**Subtotal**	**1,337**	**494**	**(37)**	**351**	**492**	**843**	**(8.9)**
Total		**15,991**	**6,502**	**(41)**	**4,126**	**5,363**	**9,489**	**(100.0)**

1. Percent of county cases who have died (row %).
2. Percent of total presumed living cases in Washington State (column %).

Table 3: Demographic characteristics of people presumed living with HIV/AIDS—reported as of 12/31/2006—King County, other Washington counties, all Washington State, and U.S.

	King County		Other Counties		Washington State		Estimated U.S. AIDS[1]	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Sex								
Male	5,447	(90)	2,782	(80)	8,229	(87)	336,363	(77)
Female	584	(10)	676	(20)	1,260	(13)	101,619	(23)
Age Group at HIV diagnosis								
Under 13	26	(0)	31	(1)	57	(1)	3,774	(1)
13-19	115	(2)	98	(3)	213	(2)	not available	
20-29	1,749	(29)	1,044	(30)	2,793	(29)	not available	
30-39	2,621	(43)	1,269	(37)	3,890	(41)	not available	
40-49	1,197	(20)	746	(22)	1,943	(20)	not available	
50-59	280	(5)	217	(6)	497	(5)	not available	
60 and over	43	(1)	53	(2)	96	(1)	not available	
Current Age as of 12/31/2006								
Under 13	13	(0)	7	(0)	20	(0)	1,412	(0)
13-19	12	(0)	23	(1)	35	(0)	3,146	(1)
20-29	333	(6)	239	(7)	572	(6)	20,276	(4)
30-39	1,457	(24)	844	(24)	2,301	(24)	97,990	(25)
40-49	2,623	(43)	1,411	(41)	4,034	(43)	187,591	(43)
50-59	1,275	(21)	688	(20)	1,963	(21)	97,846	(21)
60 and over	318	(5)	246	(7)	564	(6)	29,721	(6)
Race/Ethnicity[2]								
White	4,202	(70)	2,493	(72)	6,695	(71)	154,944	(35)
Black	965	(16)	414	(12)	1,379	(15)	193,408	(44)
Hispanic	553	(9)	351	(10)	904	(10)	81,138	(19)
Asian & Pacific Islander	158	(3)	95	(4)	253	(3)	4,479	(1)
Asian	*148*	*(2)*	*51*	*(2)*	*199*	*(2)*	*not available*	
Native Hawaiian & Other PI	*10*	*(0)*	*13*	*(0)*	*23*	*(0)*	*not available*	
Native American or Alaskan Native	84	(1)	80	(2)	164	(2)	1,640	(0)
Multiple Race	43	(1)	4	(0)	47	(0)	N/A	
Unknown Race	26	(0)	21	(1)	47	(0)	2,373	(1)
HIV Exposure Category								
Male-male sex	4,194	(70)	1,684	(49)	5,878	(62)	198,837	(45)
Injection drug use (IDU)	357	(6)	491	(14)	848	(9)	98,750	(23)
IDU & male-male sex	523	(9)	290	(8)	813	(9)	26,903	(6)
Heterosexual contact	452	(7)	550	(16)	1,002	(11)	102,797	(23)
Blood product exposure	36	(1)	43	(1)	79	(1)	not available	
Perinatal exposure	19	(0)	27	(1)	46	(0)	3,742	(1)
Undetermined/other[3]	450	(7)	373	(11)	823	(9)	6,953	(2)
Total	**6,031**	**(100)**	**3,458**	**(100)**	**9,489**	**(100)**	**437,982**	**(100)**

1. U.S. AIDS data were reported as of 12/31/2005; detailed summaries of 246,909 living HIV cases reported from states and areas with confidential name-based HIV infection reporting were not readily available. CDC age at diagnosis data could not be readily recalculated to match Washington categories. Hemophilia and blood product numbers are included in the 'Undetermined / other' category.
2. All race categories are mutually exclusive and are non-Hispanic. A few Asian & Pacific Islander cases cannot be readily assigned into either Asian, or Native Hawaiian & Other Pacific Islander and are included only in the total.
3. Includes cases with incomplete information, and sexual exposures where the heterosexual partner is not known to be HIV+, IDU, or a bisexual male. One case was probably infected via occupational exposure.

Table 4: People presumed living with HIV/AIDS by gender, race or ethnicity, and HIV exposure category—reported as of 12/31/2006—King County

	White[1]		Black[1]		Hispanic		Asian & PI[1,2]		Native Am/AN[1,3]		Total[4]	
HIV Exposure Category	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Male												
Male-male sex	3,298	(78)	346	(36)	372	(67)	107	(68)	30	(36)	4,194	(70)
Injection drug use (IDU)	115	(3)	71	(7)	30	(5)	4	(3)	8	(10)	231	(4)
IDU & male-male sex	415	(10)	40	(4)	38	(7)	5	(3)	13	(15)	523	(9)
Heterosexual contact	47	(1)	102	(11)	21	(4)	6	(4)	2	(2)	179	(3)
Blood product exposure	16	(0)	2	(0)	2	(0)	1	(1)	0	(0)	21	(0)
Perinatal exposure	1	(0)	4	(0)	0	(0)	1	(1)	0	(0)	6	(0)
Undetermined/other	88	(2)	132	(14)	45	(8)	18	(11)	4	(5)	293	(5)
Male Subtotal	**3,980**	**(95)**	**697**	**(72)**	**508**	**(92)**	**142**	**(91)**	**57**	**(68)**	**5,447**	**(90)**
Female												
Injection drug use	63	(2)	39	(4)	5	(1)	0	(0)	17	(20)	126	(2)
Heterosexual contact	116	(3)	115	(12)	23	(4)	8	(5)	7	(8)	273	(5)
Blood product exposure	4	(0)	9	(1)	2	(0)	0	(0)	0	(0)	15	(0)
Perinatal exposure	3	(0)	7	(1)	2	(0)	1	(1)	0	(0)	13	(0)
Undetermined/other	36	(1)	98	(10)	13	(2)	7	(4)	3	(4)	157	(3)
Female Subtotal	**222**	**(5)**	**268**	**(28)**	**45**	**(8)**	**16**	**(9)**	**27**	**(32)**	**584**	**(10)**
Total	**4,202**	**(70)**	**965**	**(16)**	**553**	**(9)**	**158**	**(3)**	**84**	**(1)**	**6,031**	**(100)**

Table 5: People presumed living with HIV/AIDS by gender, race or ethnicity, and HIV exposure category—reported as of 12/31/2006—Washington State

	White[1]		Black[1]		Hispanic		Asian & PI[1,2]		Native Am/AN[1,3]		Total[4]	
HIV Exposure Category	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Male												
Male-male sex	4,650	(69)	465	(34)	509	(56)	145	(57)	53	(32)	5,878	(62)
Injection drug use (IDU)	356	(5)	115	(8)	63	(7)	7	(3)	16	(10)	561	(6)
IDU & male-male sex	651	(10)	61	(4)	57	(6)	7	(3)	22	(13)	813	(9)
Heterosexual contact	130	(2)	149	(11)	52	(6)	15	(6)	6	(4)	354	(4)
Blood product exposure	43	(1)	2	(0)	7	(1)	1	(0)	0	(0)	53	(1)
Perinatal exposure	7	(0)	9	(1)	2	(0)	2	(1)	1	(1)	21	(0)
Undetermined/other	252	(4)	168	(12)	88	(10)	26	(10)	6	(4)	549	(6)
Male Subtotal	**6,089**	**(91)**	**969**	**(70)**	**778**	**(86)**	**203**	**(81)**	**104**	**(64)**	**8,229**	**(87)**
Female												
Injection drug use (IDU)	169	(3)	67	(5)	15	(2)	3	(1)	30	(18)	287	(3)
Heterosexual contact	321	(5)	192	(14)	81	(9)	27	(11)	23	(14)	648	(7)
Blood product exposure	8	(0)	12	(1)	3	(0)	3	(1)	0	(0)	26	(0)
Perinatal exposure	9	(0)	10	(1)	4	(0)	2	(1)	0	(0)	25	(0)
Undetermined/other	99	(1)	129	(9)	23	(3)	15	(6)	7	(4)	274	(3)
Female Subtotal	**606**	**(9)**	**410**	**(30)**	**126**	**(14)**	**50**	**(19)**	**60**	**(37)**	**1,260**	**(13)**
Total	**6,695**	**(71)**	**1,379**	**(14)**	**904**	**(9)**	**253**	**(3)**	**164**	**(2)**	**9,489**	**(100)**

1. And not Hispanic. All race and ethnicity categories are mutually exclusive.
2. Due to small cell sizes, data have been combined for Asians, Native Hawaiians, and other Pacific Islanders.
3. Native American or Alaskan Native
4. Totals include 43 King County and 47 Washington State people classified in multiple race, and 26 King County and 47 Washington State people with missing race.

Table 6: People presumed living with HIV/AIDS by gender and age at HIV diagnosis—reported as of 12/31/2006—King County and Washington State

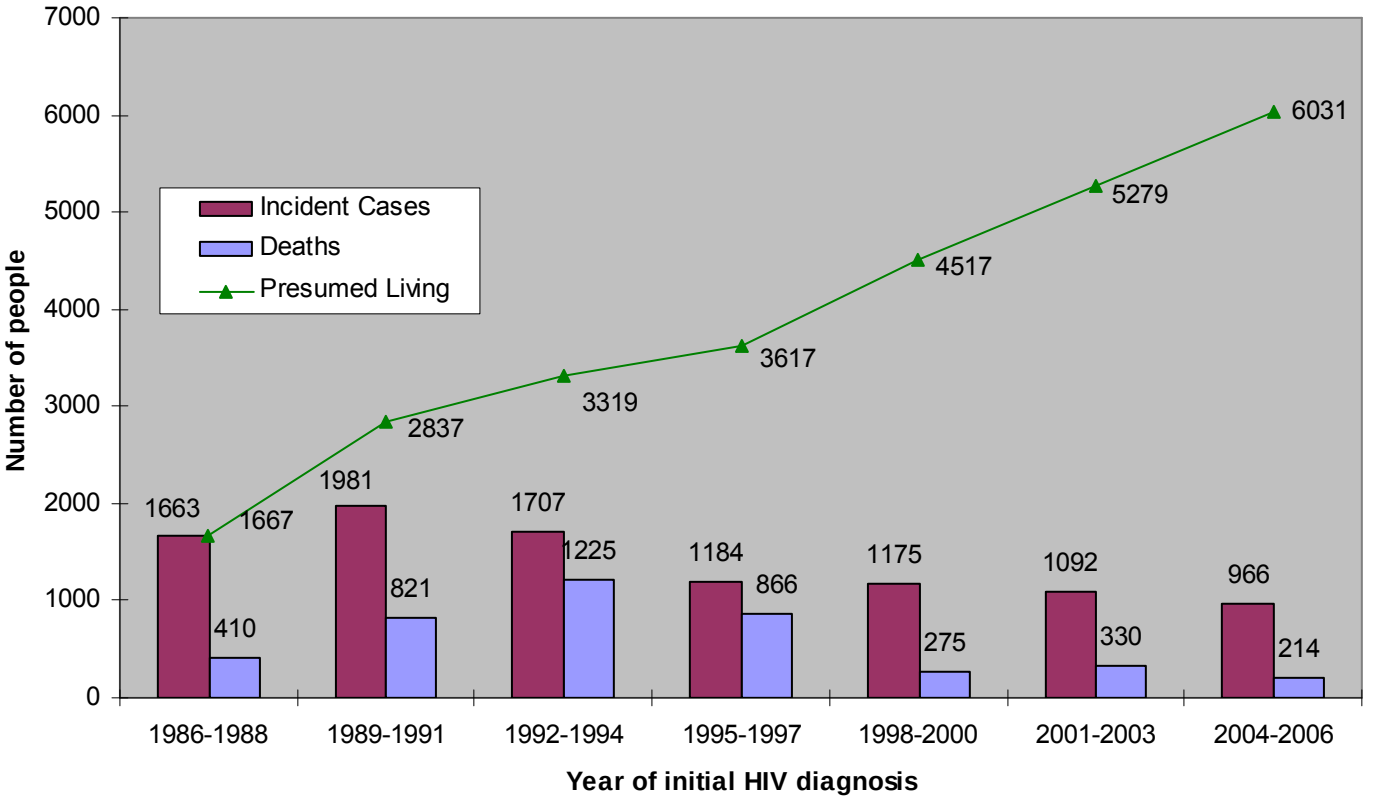
	King County				Washington State			
Age at HIV Diagnosis	Male		Female		Male		Female	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Under 13 years	11	(0)	15	(3)	27	(0)	30	(2)
13-19 years	83	(2)	32	(5)	146	(2)	67	(5)
20-29 years	1,547	(28)	202	(35)	2,361	(29)	432	(34)
30-39 years	2,420	(44)	201	(34)	3,480	(42)	410	(33)
40-49 years	1,111	(20)	86	(15)	1,722	(21)	221	(18)
50-59 years	237	(4)	43	(7)	412	(5)	85	(7)
60 years and over	38	(1)	5	(1)	81	(1)	15	(1)
Total	**5,447**	**(100)**	**584**	**(100)**	**8,229**	**(100)**	**1,260**	**(100)**

Table 7: People presumed living with HIV/AIDS by gender, race or ethnicity, and place of birth[1]—reported thru 12/31/2006—King County and Washington State

Race / Ethnicity	King County				Washington State			
	U.S.-born		Foreign-born		U.S.-born		Foreign-born	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
White, non-Hispanic	3,924	(98)	89	(2)	6,302	(98)	131	(2)
Black, non-Hispanic	627	(67)	305	(33)	958	(72)	379	(28)
Male Black, non-Hispanic	*503*	*(75)*	*167*	*(25)*	*739*	*(79)*	*197*	*(21)*
Female Black, non-Hispanic	*124*	*(47)*	*138*	*(53)*	*219*	*(55)*	*182*	*(45)*
Hispanic	215	(43)	289	(57)	332	(41)	485	(59)
Asian & PI, non-Hispanic	48	(34)	95	(66)	83	(36)	147	(64)
Native American, non-Hispanic	78	(95)	4	(5)	157	(97)	5	(3)
Multiple or unknown race, non-Hispanic	51	(88)	7	(12)	66	(86)	11	(14)
TOTAL	**4,943**	**(86)**	**789**	**(14)**	**7,898**	**(87)**	**1,158**	**(20)**

1. Table 7 does not include 299 King County and 433 Washington cases missing place of birth information.

Figure 1: Number of new HIV/AIDS diagnoses, deaths, and people living with HIV/AIDS at end of three year intervals—reported as of 12/31/2006—King County



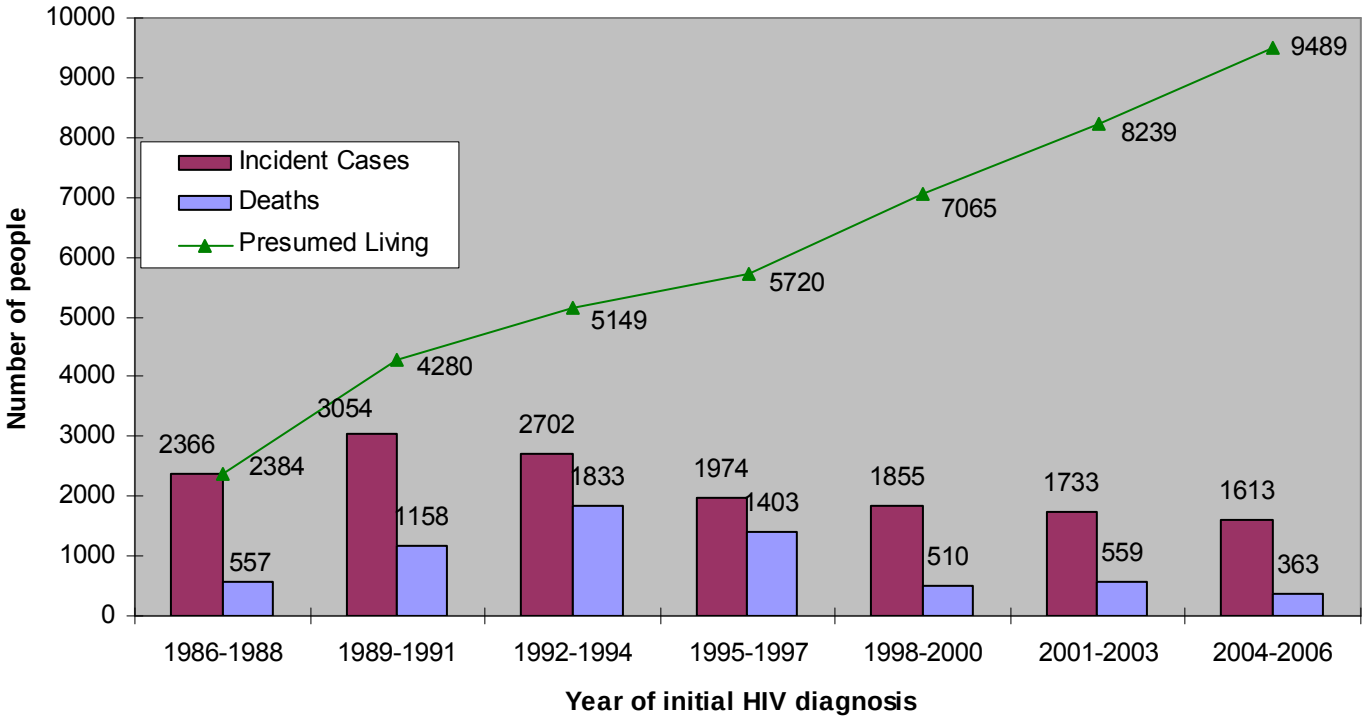


Table 8: Demographic characteristics of King County residents diagnosed 1981-2006 and reported through 12/31/2006, by date of HIV diagnosis

	1981-1997		1998-2000		2001-2003		2004-2006[1]		Trend[2]
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	1998-2006
TOTAL	**7,040**	**(100)**	**1,175**	**(100)**	**1,092**	**(100)**	**966**	**(100)**	
HIV Exposure Category									
Men who have sex with men (MSM)	5,324	(76)	786	(67)	709	(65)	594	(61)	down
Injection drug user (IDU)	391	(6)	79	(7)	69	(6)	58	(6)	
MSM-IDU	740	(11)	92	(8)	85	(8)	80	(8)	
Heterosexual contact	256	(4)	106	(9)	124	(11)	74	(8)	
Blood product exposure	91	(1)	6	(1)	5	(0)	4	(0)	
Perinatal exposure	22	(0)	5	(0)	0	(0)	0	(0)	
SUBTOTAL- known risk	*6,824*		*1,074*		*992*		*810*		
Undetermined/other[3]	216	(3)	101	(9)	100	(9)	156	(16)	up
Sex & Race/Ethnicity									
Male	*6,646*	*(94)*	*1,036*	*(88)*	*968*	*(89)*	*859*	*(89)*	
White Male[4]	5,463	(78)	709	(60)	648	(59)	528	(55)	down
Black Male[4]	605	(9)	163	(14)	150	(14)	150	(16)	
Hispanic Male	373	(5)	108	(9)	113	(10)	104	(11)	
Other Male[4]	205	(3)	56	(5)	57	(5)	77	(8)	up
Female	*394*	*(6)*	*139*	*(12)*	*124*	*(11)*	*107*	*(11)*	
White Female[4]	210	(3)	55	(5)	31	(3)	31	(3)	
Black Female[4]	125	(2)	64	(5)	70	(6)	59	(6)	
Hispanic Female	25	(0)	12	(1)	10	(1)	7	(1)	
Other Female[4]	34	(0)	8	(1)	13	(1)	10	(1)	
Race/Ethnicity									
White[4]	5,673	(81)	764	(65)	679	(62)	559	(58)	down
Black[4]	730	(10)	227	(19)	220	(20)	209	(22)	
Hispanic	398	(6)	120	(10)	123	(11)	111	(11)	
Asian & Pacific Islander[4]	111	(2)	35	(3)	34	(3)	45	(5)	
Native American or Alaskan Native[4]	98	(1)	17	(1)	20	(2)	10	(1)	
Multiple Race[4]	26	(0)	6	(1)	13	(1)	19	(2)	up
Unknown Race[4]	4	(0)	6	(1)	3	(0)	13	(1)	up
Place of Birth									
Born in U.S. or Territories	6,455	(92)	922	(78)	849	(78)	708	(73)	down
Born outside U.S.	429	(6)	178	(15)	221	(20)	194	(20)	up
Birthplace unknown	156	(2)	75	(6)	22	(2)	64	(7)	
Age at diagnosis of HIV									
0-19 years	129	(2)	24	(2)	14	(1)	7	(1)	down
20-24 years	556	(8)	82	(7)	91	(8)	87	(9)	
25-29 years	1,414	(20)	179	(15)	143	(13)	140	(14)	
30-34 years	1,684	(24)	263	(22)	250	(23)	170	(18)	down
35-39 years	1,440	(20)	262	(22)	269	(25)	200	(21)	
40-44 years	867	(12)	187	(16)	163	(15)	166	(17)	
45-49 years	496	(7)	95	(8)	78	(7)	106	(11)	up
50-54 years	231	(3)	52	(4)	51	(5)	43	(4)	
55-59 years	136	(2)	19	(2)	18	(2)	30	(3)	up
60-64 years	48	(1)	5	(0)	9	(1)	10	(1)	
65 + years	39	(1)	7	(1)	6	(1)	7	(1)	
Residence									
Seattle residence	6,101	(87)	985	(84)	862	(79)	729	(75)	down
King County outside Seattle	939	(13)	190	(16)	230	(21)	237	(25)	up

1. Data from recent years are incomplete.
2. The chi-square test for trend identifies statistical changes ($p < .05$) over the periods 1998-2000, 2001-03, and 2004-06.
3. Undetermined mode of exposure includes cases with incomplete information, and sexual exposures where the heterosexual partner is not known to be HIV+, IDU, or a bisexual male. One case was probably infected through occupational exposure.
4. And not Hispanic. The groups Asian and Native Hawaiian & Pacific Islanders are grouped because of small cell sizes.

Table 9: Demographic characteristics of Washington State residents diagnosed 1981-2006 and reported through 12/31/2006, by date of HIV diagnosis

	1981-1997		1998-2000		2001-2003		2004-2006[1]		Trend[2]
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	1998-2006
TOTAL	**10,790**	**(100)**	**1,855**	**(100)**	**1,733**	**(100)**	**1,613**	**(100)**	
HIV Exposure Category									
Men who have sex with men (MSM)	7,371	(68)	1,108	(60)	1,006	(58)	891	(55)	down
Injection drug user (IDU)	947	(9)	203	(11)	156	(9)	133	(8)	down
MSM-IDU	1,131	(10)	136	(7)	126	(7)	122	(8)	
Heterosexual contact	626	(6)	208	(11)	248	(14)	190	(12)	
Blood product exposure	219	(2)	10	(1)	7	(0)	10	(1)	
Perinatal exposure	53	(0)	7	(0)	1	(0)	2	(0)	
SUBTOTAL- known risk	*10,347*		*1,672*		*1,544*		*1,348*		
Undetermined/other[3]	443	(4)	183	(10)	189	(11)	265	(16)	up
Sex & Race/Ethnicity									
Male	*9,867*	*(91)*	*1,586*	*(85)*	*1,475*	*(85)*	*1,371*	*(85)*	
White Male[4]	8,138	(75)	1,106	(60)	992	(57)	909	(56)	down
Black Male[4]	833	(8)	224	(12)	219	(13)	205	(13)	
Hispanic Male	584	(5)	170	(9)	173	(10)	155	(10)	
Other Male[4]	312	(3)	86	(5)	91	(5)	102	(6)	up
Female	*923*	*(9)*	*269*	*(15)*	*258*	*(15)*	*242*	*(15)*	
White Female[4]	557	(5)	127	(7)	101	(6)	93	(6)	
Black Female[4]	217	(2)	90	(5)	106	(6)	89	(6)	
Hispanic Female	75	(1)	28	(2)	24	(1)	32	(2)	
Other Female[4]	74	(1)	24	(1)	27	(2)	28	(2)	
Race/Ethnicity									
White[4]	8,695	(81)	1,233	(66)	1,093	(63)	1,002	(62)	down
Black[4]	1,050	(10)	314	(17)	325	(19)	294	(18)	
Hispanic	659	(6)	198	(11)	197	(11)	187	(12)	
Asian & Pacific Islander[4]	166	(2)	60	(3)	61	(4)	64	(4)	
Native American or Alaskan Native[4]	177	(2)	32	(2)	37	(2)	29	(2)	
Multiple Race[4]	29	(0)	6	(0)	13	(1)	22	(1)	up
Unknown Race[4]	14	(0)	12	(1)	7	(0)	15	(1)	
Place of Birth									
Born in U.S. or Territories	9,911	(92)	1,476	(80)	1,374	(79)	1,253	(78)	
Born outside U.S.	657	(6)	257	(14)	305	(18)	281	(17)	up
Birthplace unknown	222	(2)	122	(7)	54	(3)	79	(5)	down
Age at diagnosis of HIV									
0-19 years	259	(2)	38	(2)	28	(2)	21	(1)	
20-24 years	980	(9)	142	(8)	146	(8)	171	(11)	up
25-29 years	2,138	(20)	271	(15)	222	(13)	214	(13)	
30-34 years	2,516	(23)	392	(21)	364	(21)	261	(16)	down
35-39 years	2,092	(19)	395	(21)	396	(23)	287	(18)	
40-44 years	1,318	(12)	298	(16)	266	(15)	272	(17)	
45-49 years	736	(7)	155	(8)	148	(9)	196	(12)	up
50-54 years	350	(3)	94	(5)	79	(5)	97	(6)	
55-59 years	224	(2)	44	(2)	40	(2)	60	(4)	up
60-64 years	89	(1)	12	(1)	25	(1)	17	(1)	
65 + years	88	(1)	14	(1)	19	(1)	17	(1)	
Residence[5]									
Region 1- Spokane area	542	(5)	110	(6)	88	(5)	85	(5)	
Region 2- Yakima area	324	(3)	78	(4)	72	(4)	68	(4)	
Region 3- Everett area	865	(8)	138	(7)	137	(8)	155	(10)	up
Region 4- Seattle area	7,040	(65)	1,175	(63)	1,092	(63)	966	(60)	down
Region 5- Tacoma area	1,142	(11)	215	(12)	180	(10)	182	(11)	
Region 6- Olympia area	877	(8)	139	(7)	164	(9)	157	(10)	up

1. Data from recent years are incomplete.
2. The chi-square test for trend identifies statistical changes ($p < .05$) over the periods 1998-2000, 2001-03, and 2004-06.
3. Undetermined mode of exposure includes cases with incomplete information, and sexual exposures where the heterosexual partner is not known to be HIV+, IDU, or a bisexual male. One case was probably infected through occupational exposure.
4. And not Hispanic. The groups Asian and Native Hawaiian & Pacific Islanders are grouped because of small cell sizes.
5. 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- Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Skamania, Thurston, and Wahkiakum.

Status of name-based HIV and laboratory reporting of sentinel HIV-related laboratory results (CD4+ lymphocyte counts and plasma viral load) reporting in the United States

In this article we provide some historical perspective and national comparisons for the new HIV reporting requirements in Washington. Two revisions to the HIV reporting requirements of the Washington Administrative Code (WAC) were made in 2006. Public Health now collects and maintains patient names on all HIV and AIDS case reports. In addition, the WAC now requires reporting of all laboratory results that may be HIV-related, including:

- all CD4 results at any level;
- all HIV viral load results including undetectable;
- all positive antibody results; and
- all positive HIV detection tests

The Washington expanded reporting requirements for laboratories greatly enhance our understanding of the spectrum of disease among all individuals infected with HIV. These reports now permit population-based clinical follow-up of HIV-infected individuals in the form of CD4+ lymphocyte and plasma HIV-1 viral load test monitoring. CD4 count monitoring allows health care planners to determine the proportion of HIV infected individuals that are experiencing no, moderate, or severe immune suppression. Similarly, viral load monitoring offers a perspective of the proportion of individuals with plasma viral load levels indicating full, partial, or no viral suppression. In the era of highly active antiretroviral therapy (HAART), severe immune suppression among individuals receiving regular medical care should be relatively rare, except in the setting of a late HIV diagnosis, or extremely rapid disease progression.

AIDS case reporting

By 1983, all states had adopted requirements to report cases of AIDS using a standardized national definition and reporting form. Patient name was always included, just as it was included for reporting of any other nationally notifiable disease. Information from case reports (without patient name) was forwarded to the Centers for Disease Control and Prevention (CDC) to become part of the national data set. As understanding of AIDS grew, the national AIDS surveillance case definition was expanded (in 1985, 1987, and 1993) to incorporate a broader spectrum of associated outcomes of HIV infection. Each expansion also provided insight on people earlier in the course of disease.

Lab reporting of CD4s

The 1993 AIDS surveillance definition included as a case any HIV-infected person with a laboratory diagnosis of severe immune suppression (a CD4 level under 200 cells per microliter, or under 14% of total lymphoctyes). In 1996 the Council of State and Territorial Epidemiologists (CSTE) issued a position statement (1996-13) that all states should implement lab-based reporting of CD4 results. As a result of the case definition and the position statement, many states adopted a requirement for laboratories to report CD4 results that met the new AIDS definition. Washington State adopted such a requirement in 1993. Largely because of successes in preventing specific opportunistic illness, 73% of all Washington AIDS reports in 2004-06 were based solely on a low CD4 count.

HIV infection reporting including patient name

Nationally, the reporting of HIV infection and laboratory results evolved separately in each state. When laboratory tests for HIV infection first became licensed in 1985, two states (Minnesota and Colorado) required reporting of positive HIV results. During the next 25 years, a majority of states added a legislative or other requirement to report HIV infections. The specific requirements varied for each state, and there was no consistent standard.

By 1996 HAART was shown to delay HIV disease progression and became the clinical standard of care, subsequently altering the natural progression of HIV to AIDS. Therefore the demographic and trend analyses of reported AIDS cases no longer were representative of the entire HIV population.

The CDC first began publishing 'national' statistics on HIV infection in 1993. Twenty-six states with confidential name-based reporting of HIV were included in the initial report, but not the four states with the highest burden of disease (CA, NY, TX, FL) which likely included half of all infected persons nationally. Over time, several states adopted regulations to report HIV by a code system (a different code in each state). Other states, including Washington, implemented a name-to-code HIV reporting system. States using a code were never included in the national data tables.

Table 1: Status of HIV reporting and sentinel laboratory reporting requirements in the United States, January 2007

State or Reporting Area	HIV Reporting Requirement	CD4 Reporting Requirement	Viral Load Reporting Requirement
Alabama	Name	< 200 or < 14%	No requirement
Alaska	Name	< 200 or < 14%	Any result
Arizona	Name	Any result	Any result
Arkansas	Name	Any result	Any result
California	Name	No requirement	Any result
Colorado	Name	< 500	Any result
Connecticut	Name	< 200 or < 14%	Any result
Delaware	Name	< 200 or < 14%	Not specified
District of Columbia	Name	Any result	Any result
Florida	Name	Any result	Any result
Georgia	Name	Any result	Any result
Hawaii	Code	< 200 or < 14%	Detectable results
Idaho	Name	< 200 or < 14%	Detectable results
Illinois	Name	< 200 or < 14%	Not specified
Indiana	Name	Any result	Any result
Iowa	Name	Any result	Any result
Kansas	Name	< 500	Not specified
Kentucky	Name	Any result	Detectable results
Louisiana	Name	Any result	Any result
Maine	Name	< 200 or < 14%	Any result
Maryland	Code	< 200 or < 14%	Any result
Massachusetts	Name	< 200 or < 14%	No requirement
Michigan	Name	Any result	Any result
Minnesota	Name	< 200 or < 14%	Detectable results
Mississippi	Name	Any result	Any result
Missouri	Name	Any result	Any result
Montana	Name	No requirement	Detectable results
Nebraska	Name	< 800	Any result
Nevada	Name	< 500 or < 28%	Detectable results
New Hampshire	Name	Any result	Any result
New Jersey	Name	< 200 or < 14%	Any result
New Mexico	Name	< 200 or < 14%	Any result
New York	Name	Any result	Any result
North Carolina	Name	< 200 or < 14%	Detectable results
North Dakota	Name	Any result	Any result
Ohio	Name	< 200 or < 14%	Detectable results
Oklahoma	Name	< 500	Any result
Oregon	Name	Any result	Any result
Pennsylvania*	Name	< 200 or < 14%	Detectable results
Rhode Island	Name	Any result	Any result
South Carolina	Name	Any result	Any result
South Dakota	Name	< 200 or < 14%	No requirement
Tennessee	Name	< 200 or < 14%	Detectable results
Texas	Name	< 200 or < 14%	Detectable results
Utah	Name	Any result	Any result
Vermont	Code	< 200 or < 14%	Any result
Virginia	Name	No requirement	Detectable results
Washington	Name	Any result	Any result
West Virginia	Name	Any result	Any result
Wisconsin	Name	< 200 or < 14%	Any result
Wyoming	Name	Any result	Any result
American Samoa	Name	No requirement	No requirement
Puerto Rico	Name	< 200 or < 14%	No requirement
U.S. Virgin Islands	Name	< 200 or < 14%	No requirement

An evaluation of integrated HIV and AIDS reporting in 2001-04 demonstrated that while most states had reliable and complete HIV infection reporting, an accurate national tally of HIV data was hampered by the inability to reliably de-duplicate records across the states using a variety of coding systems. In July 2005, the CDC issued a recommendation that all states currently collecting HIV by code change to a name-based system. At the same time, the Heath Resource Services Administration (HRSA, which provides about $11.2 million for care in Washington), indicated that future formula funding would incorporate HIV data from states with reporting systems 'certified by CDC.'

Subsequent to the CDC recommendation, a number of states have changed their regulations to focus on a name-based HIV reporting system. As of February 2007, 47 states and Washington D.C. have implemented a name-based HIV reporting system. The remaining states (VT, MD, HI) have indicated they expect to make that transition by 2008.

Laboratory reporting requirements

As noted above, many states adopted requirements for reporting of low CD4 levels after the 1993 AIDS case definition took effect. In 2001, the CSTE adopted a position statement (2001-ID-03) recommending that states collect data on all CD4 levels, and on all HIV nucleic acid (DNA and RNA) tests. As shown in the table, as of January 2007, 47 states require laboratories to report CD4 results. Twenty-two areas (including Washington State), require reporting of all CD4 counts, 26 states require reporting of CD4 counts below a certain level (21 states < 200, 4 under 500, 1 under 800). Three states do not require CD4 reporting (CA, MT, VA).

Most (33) areas, including Washington State require reporting of all HIV viral load results. Fifteen areas regulate reporting of some viral load results, including detectable results (12 states), or unspecified results (3 areas, these generally mean all detectable results must be reported but undetectable results are not clearly indicated). Three states do not require reporting of viral load results (AL, MA, SD).

Achieving a goal: Population descriptions of the spectrum of HIV

From 1981 – 1993, the CDC provided only national analyses of reported AIDS cases and deaths. While reporting of AIDS is fairly complete, these analyses describe only those most severely ill persons at 'the tip of the iceberg.' In 1993 the CDC began publishing national analyses of HIV cases, but, again, initially this included data from only 26 states. It is likely that by 2008 all states will be reporting HIV cases according to the national name-based standards, and all will eventually be included in the national analyses. However the current analyses only allow for describing people with AIDS, versus people with HIV not AIDS. We believe that routine reporting of all CD4 levels and viral load results will eventually provide an opportunity to present statewide and national data with a more complete picture of the spectrum of HIV disease, including:

- describing individuals by immune and virologic status; and
- describing the proportion of HIV-infected persons receiving recommended clinical assessment.

♦ *Submitted by Jim Kent, Susan Buskin, and Maria Courogen*

HIV drug resistance: An update from the Variant, Atypical, and Resistant HIV surveillance (VARHS) group with an emphasis on multiclass drug resistance (MDR)

Community-wide, HIV antiretroviral drug resistance surveillance of treatment-naïve, newly diagnosed patients is important in assessing the pervasiveness of resistant strains, identifying potential drug resistant strains with increased fitness, helping to inform treatment and prevention recommendations, and monitoring the spread of multiclass drug resistance in the community. Multiclass drug resistance (MDR) is defined as high level drug resistance in more than one antiretroviral drug class: protease inhibitors (PI), nucleoside reverse transcriptase inhibitors (NRTI) and/or non-nucleoside reverse transcriptase inhibitors (NNRTI). MDR does not necessarily

Table 1 Demographic characteristics of patients with genotype results, ARVDRT 2003-2006, Seattle, Washington, USA

	% of genotyped N=456	% of MDR N=16
Registration status		
Confidential	65	75
Anonymous	35	25
Gender		
Male	90	88
Female	9	12
Unknown	1	0
Age in years		
<25	13	6
25-44	70	63
45+	16	31
Unknown	1	0
HIV risk category		
MSM	61	81
IDU	3	6
MSM/IDU	7	6
Other, including no risk identified	28	6
Race/ethnicity		
White	58	63
Black	17	19
Latino/Hispanic	10	0
Asian/Pacific Islander	6	0
Other, including Native American/Mixed	10	19
County of origin		
US	74[1]	83[2]
Other	26[1]	17[2]
Viral load		
<20,000	39[3]	50[4]
>=20,000	61[3]	50[4]
Genotype results		
Any high level resistance	11	100
PI	33	56
NRTI	33	69
NNRTI	9	63
Multi-class resistance	3	100

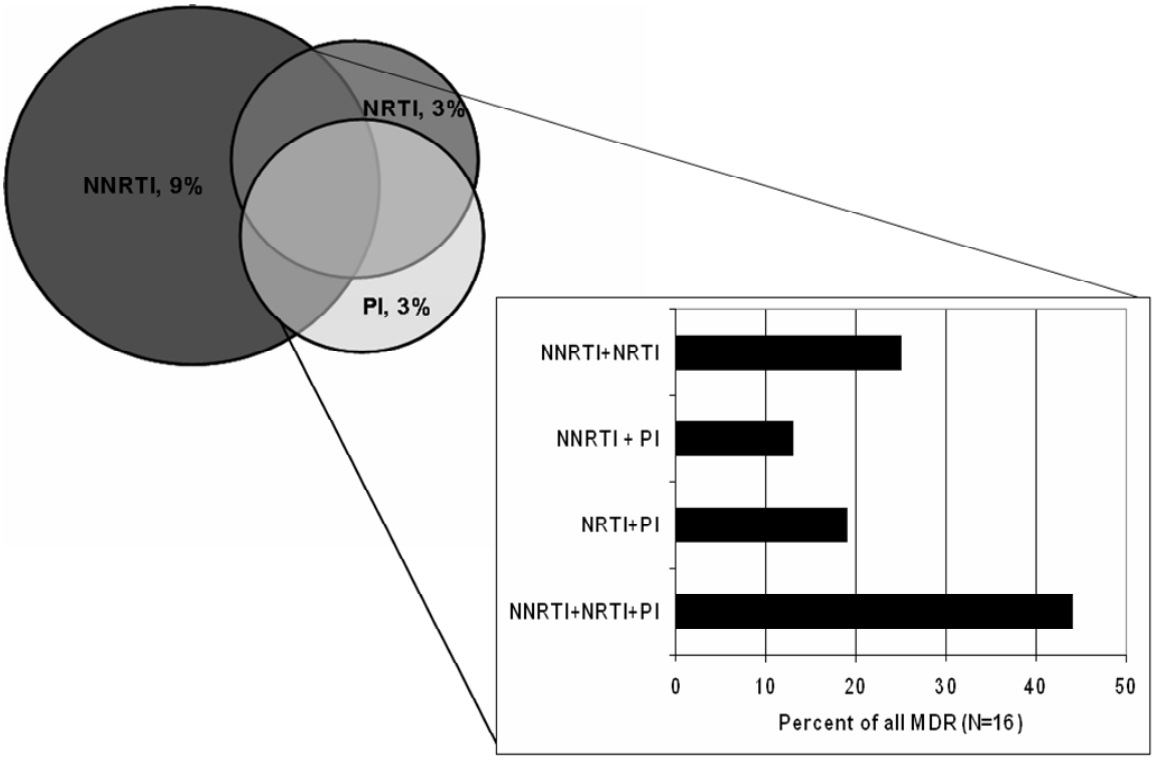
[1]Excluding 52% with missing data
[2]Excluding 63% with missing data
[3]Excluding 80% with missing data
[4]Excluding 25% with missing data

accelerate disease progression, but high level resistance to more than one drug class may lead to reduced treatment options that can be expensive and difficult to maintain. Because of potential for severely reduced treatment options among patients with drug resistant strains, it is important to identify and investigate transmission of drug resistant strains, especially MDR. Public Health- Seattle & King County (PHSKC) has conducted two projects to measure primary HIV drug resistance through HIV genetic sequencing: Viral Strain and Resistance through the Adult/Adolescent Spectrum of HIV Disease (VSR-ASD), 1998-2000 and Variant, Atypical and Resistant HIV (VARHS) formerly Antiretroviral Drug Resistance Testing (ARVDRT) surveillance, 2003-present.

VARHS is conducted at two large local laboratories that account for approximately half of all new HIV diagnoses. Patients who are newly diagnosed with HIV (no previous positive tests more than 90 days prior), who test confidentially and are eligible to be reported to the HIV case surveillance system, and who are antiretroviral-naïve are eligible for genotype testing through VARHS. The older ARVDRT protocol also allowed for inclusion of anonymous testers. Leftover sera from positive diagnostic HIV tests are sent to the genotype lab (currently Stanford University) for testing. Results are returned to the HIV testing site. When this is not the primary HIV care site, surveillance records are used to identify the primary care provider and results are also sent to this provider. Additional investigation may be conducted for cases of MDR, including phylogenetic tree analysis to identify similar strains, phenotypic testing, and enhanced PCRS (partner counseling and referral services). For people with MDR, HIV PCRS may be enhanced to make sure that all partners are offered HIV testing, and if HIV-infected, genotype testing through partner elicitation interviews. MDR-HIV PCRS activities may be repeated periodically rather than just occurring one time as is done for most people newly HIV diagnosed. Further PCRS data may be used for epidemiological investigations to determine potential epi-linked clusters.

Among 459 specimens that have been successfully genotyped, approximately 11% have any high level drug resistance. In trend data from VARHS, combined with VSR-ASD, we have found the proportion of treat-

Figure 1: Distribution of HIV drug resistance and multiclass drug resistance, VARHS 2003-2006, Seattle, Washington, USA



ment-naïve patients with high level drug resistance to be steady at around 11% from 1999-2006. NNRTI resistance remains the most common drug class resistance detected (9%) relative to 3% for both NRTI and PI resistance (Table 1). Multiple drug class resistance was detected in 16 (3%) patients, and 7 (1%) patients had high-level resistance in all three drug classes. Sixty-seven percent of patients with resistance to at least one PI also had resistance in another drug class; 73% of patients with NRTI resistance also had resistance in another drug class, and 23% of patients with NNRTI resistance had resistance in another drug class (Figure 1).

MDR

In 2006, we identified two cases of MDR with high level resistance to all PIs and NNRTIs and variable level resistance to four or more NRTIs. In early 2007 two additional cases were found by medical providers who alerted PHSKC. Additional testing, including phylogenetic tree analysis, found these four cases to be infected with very similar strains of HIV, more closely related than is typically seen in HIV-1 strains among different people. Follow-up investigation concluded these are four separate individuals, all diagnosed with HIV in 2005 and 2006. Three of the four had evidence of recent HIV infection at the time of their diagnosis and all were antiretroviral naïve. All four are men who have sex with men (MSM) with histories of methamphetamine use and sex with multiple, mostly anonymous sex partners. We are continuing to work with these patients and providers to locate and test sex partners for HIV. To date, all identified partners have been either not infected with HIV or have an HIV infection not related to this MDR strain.

PHSKC officials determined that the close similarity between theses four MDR cases warranted an official press release to alert the public of a potential growing MDR problem in the community, encourage more HIV testing and promote safer sex practices. Additional newsletters notified HIV care providers in the community about the MDR cluster and strongly encouraged HIV testing and baseline genotype testing. We have also requested that providers inform PHSKC of all MDR detected in treatment-naïve patients.

VARHS is currently conducted through two major laboratories in King County, but we want to expand to a more population-based surveillance system for HIV drug resistance. Under consideration is recommending revisions to the Washington administrative code to allow for true population-level surveillance for HIV drug resistance, including requiring laboratories to report all HIV genotype results, and either require leftover aliquots of sera to be submitted to a public health laboratory for resistance testing or to consider requiring confirmatory HIV testing to be conducted by a public health laboratory. We are also working with laboratories and providers to determine the feasibility of collecting resistance results for antiretroviral naïve patients in King County. HIV treatment guidelines from the U.S. Department of Health and Human Services recommend drug-resistance testing after a positive HIV test and have an even stronger recommendation that resistance testing be done prior to the initiation of antiretroviral treatment (guidelines available at http://aidsinfo.nih.gov/contentfiles/adultandadolescentgl.pdf). For HIV-infected individuals, testing for HIV drug resistance allows clinicians to determine a course of treatment to optimize viral response.

- *Contributed by Erin Kahle, Libby Charhon Page, and Susan Buskin*

Attitudes and knowledge about poppers among Seattle-area men who have sex with men

"Poppers" is the street term for amyl nitrite, a liquid compound with approved medical use for cardiac conditions. Poppers have been used recreationally for decades, particularly by gay and bisexual men to enhance sexual experience. When inhaled, poppers temporarily relax anal sphincter muscles which enables easier penetration and are said to prolong and intensify orgasm. Users also report experiencing a brief, euphoric "head rush".

The popular use of poppers by gay men in the 1970's and 1980's led many experts in the early HIV/AIDS epidemic to implicate them as causes of both Kaposi's sarcoma and AIDS itself. Those theories have long been disproved, but popular media still often links poppers to these diseases. The impact of poppers on immunosuppression is still a scientific debate that is perhaps overshadowed by the drug's popularity and perceived harmlessness. In addition, behavioral research has consistently identified poppers as a correlate to high risk sexual behavior, acquisition of HIV and other sexually transmitted infections, and often other substance use.

Although local studies suggest that some men who have sex with men (MSM), especially HIV-infected men, still commonly use poppers, less is known about local community attitudes towards poppers or the accuracy of men's knowledge about the risks of poppers.

Methods

To learn more about poppers in the local MSM community, the HIV/AIDS Program of Public Health – Seattle & King County collaborated with a community workgroup on gay substance use to assess: 1) current patterns of use, 2) accuracy of knowledge about poppers and the risks of popper usage, 3) current attitudes about poppers, and 4) desire for better community information about poppers. An anonymous on-line survey was conducted in July, 2006 and was promoted on local gay websites and chat rooms.

Results

The demographic profile of the 276 MSM respondents reflected that of the general MSM population in the Seattle area, as in Table 1.

Table 1: Demographic characteristics of men who have sex with men responding to 2006 on-line survey on poppers, Public Health – Seattle & King County

Age	
19-25	12%
26-35	28%
36-45	36%
46-55	16%
56+	8%
Race/ethnicity	
White/Caucasian	82%
Latino	7%
Asian/Pacific Islander	6%
African-American	5%
Sexual Identity	
Gay	90%
Bi	7%
Heterosexual	3%
HIV Status	
HIV-	72%
HIV+	19%
Unknown	9%

Prevalence and patterns of use

Less than half of MSM surveyed (44%) reported current use of poppers, with most users using weekly, monthly, or semi-monthly. MSM ages 26-45 reported higher rates of use than other age groups as did HIV-infected MSM compared to HIV-negative MSM (48% versus 42% respectively). HIV-infected MSM were also twice as likely as HIV-negative MSM to have used poppers in the past. Most ex-users, regardless of HIV status, cited side effects and health problems as primary reasons for quitting.

Although MSM use poppers primarily for sexual enhancement, many men reported enjoying the "head rush" from poppers more so than any one specific sexual effect. This was especially true for men ages 19-25 (88% vs. 64% average for all other age groups). With regard to sex, more men said they used poppers to facilitate receptive sex ("being a bottom") rather than insertive sex, although reduced inhibitions and better orgasm were also frequently-cited sexual benefits.

The majority of men who used poppers did not use them regularly or even occasionally with other substances (See Table 2). Alcohol and erectile dysfunction drugs (e.g., Viagra and Cialis) were the substances most likely to be always or sometimes used with poppers; co-use of crystal meth, cocaine, or ecstasy was far less common. Use of other drugs (particularly erectile drugs) increased with age. HIV-infected men were twice as likely to be co-using erectile drugs and 2-3

times more likely to be co-using crystal meth than men without HIV infection.

Current attitudes

Very few men did *not* know what poppers are, and opinions about them were mixed. Nearly one-half (48%) felt favorably towards poppers; one-third (35%) felt negatively, and 17% felt neutral. Older men (40 years and older) felt the least neutral and the most favorably about poppers. This may be a function of higher lifetime use of poppers or a generational difference in social attitudes. HIV-infected men had slightly more favorable attitudes than HIV-negative men (55% vs. 46% respectively).

Attitudes were often discordant with actual use. Many men who expressed favorable attitudes had never used poppers or had stopped using poppers after going into

Table 2: Popper use among men who have sex with men including knowledge and attitudes and concurrent use of other drugs, Public Health – Seattle & King County

Use of poppers				
Frequency of use		**Reasons for quitting**		
Daily	2%	Side effects/health problems		42%
Weekly	13%	In recovery		21%
Monthly	11%	Tired of them		13%
Every few months	18%	Fear of consequences		11%
Never	40%	Only experimented		8%
Quit using	16%	Other		8%
Reasons for use		**Drugs used with poppers "always" or "sometimes"**		
Being a bottom	49%	Alcohol		42%
Topping	38%	Viagra/Cialis		21%
Oral sex	31%	Crystal meth		9%
Dancing	4%	Ecstasy		8%
Vaginal sex	2%	Cocaine		6%
Other	19%	GHB, ketamine, heroin		~1% ea
Knowledge about Poppers				
"Feel I know the facts"		**Possibility of sexual dependency**		
Yes	34%	Yes		41%
Some, but would like more	36%	Maybe		32%
Not sure	17%	No		15%
No	13%	Not sure		12%
Poppers are associated with (*=correct)	**Yes**	**No**	**Not sure**	
Kaposi's sarcoma	12%	36%*	48%	
↑ risky sex	70%*	14%	16%	
↑ risk of HIV	59%*	20%	21%	
Rectal tearing	34%*	29%	37%	
Erectile dysfunction/impotence	32%	27%*	41%	
Suppressed immune system	42%	20%	38%*	
Dangerous with erectile drugs	71%*	6%	22%	
Blindness	14%	42%*	44%	
Attitudes about poppers				
Personal opinion		**Most liked about poppers**		
Don't like them	35%	Head rush		64%
They're OK to use now and then	32%	Easier/less painful to be a bottom		46%
They're great	16%	Better orgasm		46%
Don't know, never used	8%	Less inhibited sex		40%
Don't care	8%	More connection with partner		22%
Other	1%	Better erection		17%
		Easier to use condoms		3%
		Other (e.g., get aroused, fisting)		17%
Need for Information				
Gay Men Need Better Information		**Most Likely Source of Information**		
Yes	72%	Internet		82%
Maybe	20%	Doctor		42%
No	5%	Gay or HIV organization		39%
Not sure	3%	Friends		25%
		Gay print media		15%
		Baths/sex clubs		11%

recovery from other substance abuse. Several men said they "hated" poppers but still used them (and felt frustrated that they did). Many men felt it was acceptable for *others* to use although they themselves chose not to.

Many men believed it is possible to become dependent on poppers for sex (41% yes, 32% maybe). Men who thought dependency is possible were 2-3 times *less likely* to be using poppers. Conversely, men who did *not* think dependency is possible were 4-5 times *more likely* to be using poppers.

Accuracy of knowledge

Self-reported confidence in personal knowledge about poppers and their risks was evenly distributed among three categories*: confident, somewhat confident,* and *not confident or uncertain.* Confidence appeared to increase with age and frequency of poppers use. Men ages 19-25 felt the least certain of the facts about poppers, whereas HIV-infected men and men ages 46-55 felt the most knowledgeable.

Accuracy of that knowledge also varied. When quizzed about risks associated with poppers, the majority of men correctly knew that poppers are associated with increased risky sex (70%) and HIV transmission (59%) and are dangerous to use with erectile drugs (71%). However, men were less accurate about risks such as Kaposi's sarcoma, impotence, and blindness (none of which are actual risks) as well as immunosuppression (still a debated risk).

Men who currently use poppers, HIV-infected men, and men ages 36-45 (also the sub-groups with greatest overlap) were least likely to agree with the known risks of poppers even though they felt the most confident about their own knowledge about risks.

Desire for better information

The majority of respondents (72%) thought gay men need better information about poppers and their risks. This opinion was consistent across all sub-groups, and men ages 19-25 agreed unanimously. To find that information, most men (82%) would search the Internet (most often on Google or Yahoo), although this rate may be inflated as this was an on-line survey. HIV-infected men, however, would also access medical or HIV-related websites. Healthcare providers and organizations working with gay or HIV issues were more important sources of information than gay print media and bathhouses.

Discussion

Because this was an Internet survey, the results may not be representative of the broader MSM community. Nonetheless, poppers use (alone or with other drugs) may not be as prevalent as popularly perceived. There also seems to be little stigma around the use of poppers. Although sexual enhancement was the primary reason for use, it is interesting that almost two-thirds (64%) of men rated the high or "head rush" as equally or even more enjoyable than sexual benefits. This may be a marker for thrill- or sensation-seeking personality traits among men who are more likely to experiment with drugs or feel less susceptible to their risks. In addition, three subgroups were consistently similar in their responses regarding use, knowledge, and attitudes: men who currently use poppers, men ages 36-45, and HIV-infected men. These factors overall may suggest a demographic profile of poppers users to whom to target interventions.

Because poppers are commonly used to facilitate receptive anal sex, there is higher risk for bottoms to acquire HIV or other sexually acquired infections, although this survey did not ask about condom use or sexual safety. HIV-infected men were common users of poppers, but it is unknown when these men initiated use and if that use played a role in risk behavior or seroconversion. Nonetheless, there is clear basis for concern about disease transmission in the sexual context of poppers use.

Consistency of research and media information appears to influence accuracy of men's knowledge. The more inconsistent the facts are about poppers, the less accurate men are about them. Unfortunately, the most popular source of information, the Internet, can also be unreliable. Healthcare providers and community-based organizations were also considered trusted sources, so it is important that they have accurate and credible information about poppers.

Most men felt strongly that the *community* needs more information about poppers even though they as *individuals* felt they already knew the facts. Therefore poppers may not be as important to men personally as other health issues such as sexually transmitted infections, other substance use, smoking, or anal health. Furthermore, information alone is likely not enough to influence behavior or risk reduction. For example, many men who said they *always* or *sometimes* used erectile drugs with poppers also knew it was dangerous to do so. This survey did not explore the type and design of intervention that would be most relevant and acceptable, so further assessment is needed to determine the potential efficacy of community education models or behavioral interventions.

- *Contributed by Susan Kingston*

HIV/AIDS-related knowledge, policy preferences and behaviors of the general public: Results from the 2006 Washington State Knowledge, Attitudes and Beliefs Survey

HIV-related information from general population surveys is important since it shows the effect the epidemic has on everyday Americans[1]. Public attitudes toward HIV/AIDS also have impact on policies and legislative agendas related to public health issues. HIV prevention efforts hinge on HIV testing, strategies for changing risk behaviors, and the provision of prevention information and materials[2]. The information on HIV risk taking and testing obtained from population based surveys has been of great value to prevention efforts[3]. Survey data indicate the level of risk in the population, identify changes in patterns of risk or protective behavior across different subgroups, confirm whether we are targeting appropriate groups in the population for prevention, and provide some indication that large-scale interventions, such as guidelines and policies, might be affecting behavior[1].

In order to assess the impact of previous prevention activities, and to direct future plans to provide education and inform public opinion, the Washington State Department of Health periodically surveys the Washington State adult population with the HIV/AIDS Knowledge, Attitudes, and Beliefs (KAB) survey. In addition to general knowledge, attitudes, and policy preference items, the KAB survey investigates support for injection drug use prevention programs, individual risky behavior practices, HIV/AIDS testing and counseling, and exposure to HIV prevention messages. This report presents selected findings from the 2006 HIV/AIDS KAB survey including some trend comparisons with prior KAB surveys conducted in 1995, 1998, 2000 and 2003.

Methods

The 2006 HIV/AIDS KAB was a population-based random-digit-dial telephone survey of 2,050 Washington residents ages 18 and older. Self-reported confidential HIV/AIDS-related information and demographics were collected from each respondent by trained interviewers using a standardized questionnaire (available in English and Spanish). KAB used a stratified sampling design taking equal samples from King County, Other Western Washington counties, and Eastern Washington counties. The sample was drawn proportionate to county population size within each of these groups. Regions were defined by area codes, counties, and the Cascade mountain range which forms the state's east-west boundary (see Figure 1).

After collection, the KAB data were adjusted to better represent the Washington State adult population. Given the regionally stratified equal quota sampling design, data from each region were weighted to reflect regional population projections. In addition, a post-stratification weighting component was added to adjust regional data to the gender and age distribution of each respective region. Findings reported from the KAB survey are weighted. A 95% confidence interval is included with most findings in order to show readers where the true value of each measure would fall, with 95% certainty, if all state residents had been surveyed.

Results

HIV/AIDS-related knowledge

About 41% (CI=39-44) of Washington State adult residents reported knowing a lot, 47% (CI=44-49) reported knowing some, and 12% (CI=10-13) indicated knowing little or nothing about HIV/AIDS. Residents under the age of 65 were less likely to report knowing little or nothing about HIV/AIDS, 9% (CI=8-11) compared to 25% (CI=20-29) of residents ages 65 and older. Younger residents were also more likely to have ever attended an education presentation on HIV/AIDS (see Figure 2). Approximately half (49%, CI=44-54) of 18-34 year olds have ever attended an HIV/AIDS presentation and 13% (CI=9-17) attended one in the past year. Fifty-four percent (CI=50-59) of King County residents, 49% (CI=45-53) of residents in other Western Washington counties, and 42% (CI=38-47) of Eastern Washington residents indicate personally knowing someone with HIV/AIDS.

Respondents were asked if there are drugs available to prevent pregnant mothers from passing HIV on to their infants. About half (49%, CI 46-51) correctly indicated "yes". Females were more likely to know about such HIV medications (56%, CI=52-60) than were males (41%, CI=36-46). Similar results to this question were found in 2000 and 2003.

Residents were also asked about their familiarity with Washington State HIV reporting laws and anonymous HIV testing. Only 3% (CI=2-4) claimed being very familiar, 18% (CI=16-20) somewhat familiar, and 79% (CI=77-82) not familiar at all with HIV reporting laws. Respondents who knew a person with HIV/AIDS were more likely to report being very or somewhat familiar

Figure 1: KAB sampling areas

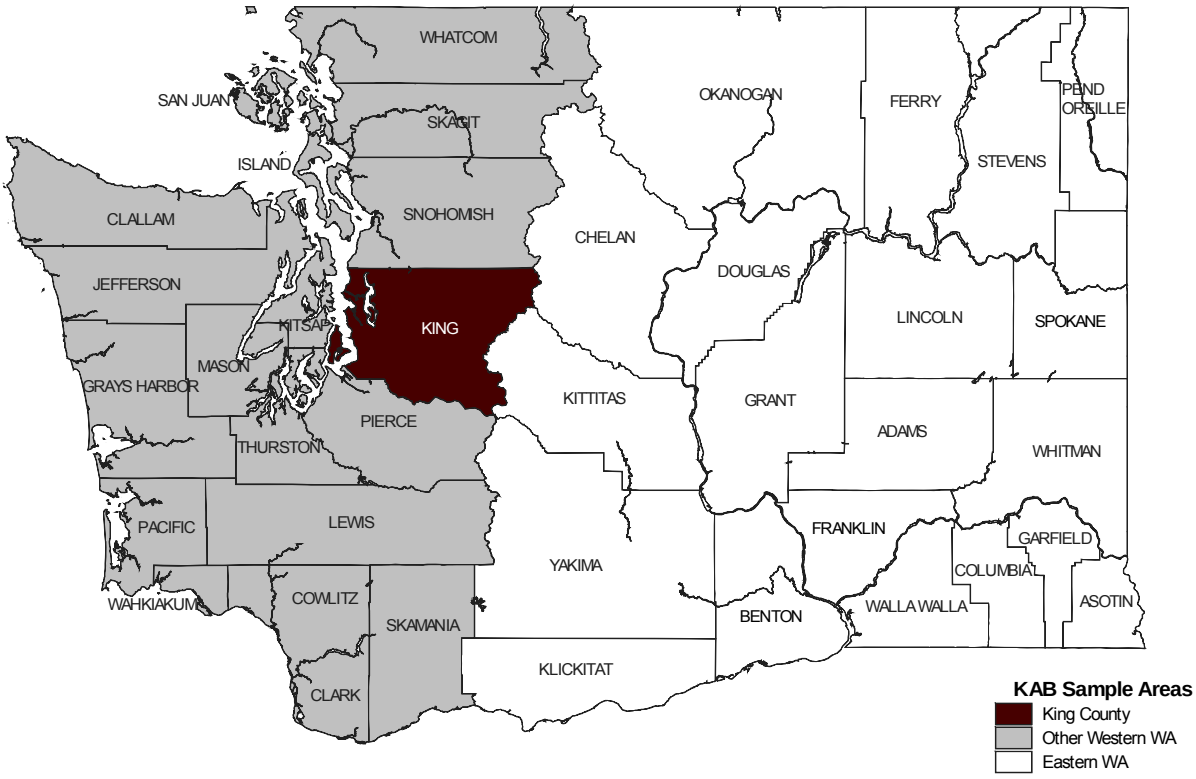
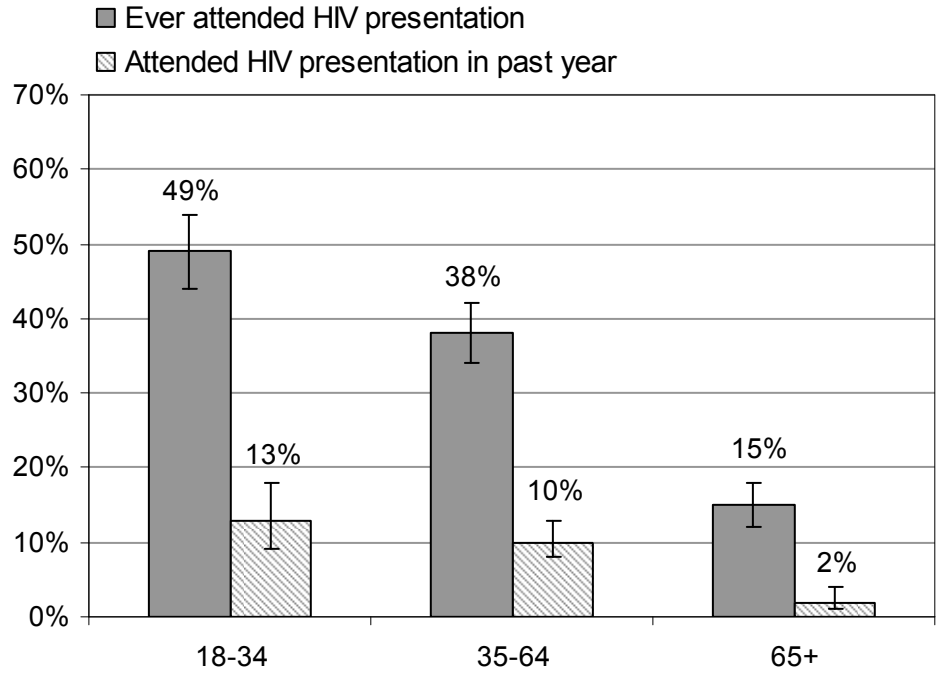


Figure 2: Residents ever attending and recently attending an HIV/AIDS education presentation, by age



with HIV reporting laws than were their counterparts (27%, CI=24-30 vs. 15%, CI=13-18 respectively). When asked about anonymous testing, 31% (CI=28-33) of all adult residents correctly indicated that it was available in Washington State, 7% (CI=5-8) said it was not available, and 63% (CI=61-65) did not know. A higher proportion of men reporting as homosexual or bisexual indicated that anonymous testing is available (53%, CI=33-72), compared to heterosexual males (28%, CI=24-31) or heterosexual females (32%, CI=29-35). However, due to small numbers (only 30 homosexual/ bisexual men in the sample), this is not a very robust finding.

Policy preferences regarding individuals with HIV/AIDS

A large majority of Washington State adult residents think that public funds should pay for drugs to prevent AIDS in HIV-infected people who cannot afford them (86%, CI=82-86). Support for this has increased since 2003 (77%, CI=75-80). Figure 3 illustrates support for several other policies relating to individuals with HIV/ AIDS, by age of respondent. Eighty-nine percent (CI=87-90) of residents support a policy that would require HIV-infected individuals to report sex and needle sharing partners to the Department of Health for partner notification. Support for this policy increased with age. Seventy-eight percent (CI=70-85) of those 18-25 years of age showed support compared to 91% (CI=88-92) of ages 40-64, and 95% (CI=93-97) of ages 65 and older.

Residents ages 65 and older generally showed more support for policies requiring HIV-infected individuals to divulge their status. Out of all residents, 71% (CI=68-73) indicated that health care workers with HIV/AIDS should be required to notify their patients about their status. Eighty-one percent (CI=77-85) of residents 65 years of age and older agreed with this policy compared to 69% (CI=66-71) of those under 65. Only 34% (CI=32-37) of adults agreed that HIV-infected individuals should be required to report their condition to their employers. Again, residents 65 years of age or older were most likely to indicate support (48%, CI=42-53), as were the youngest respondents, ages 18-25 (46%, CI=37-56). Residents of Eastern Washington were also most likely to support requiring HIV-infected individuals to divulge their status to employers (42%, CI=37-47) compared to 33% (CI=29-38) of Western Washington residents living outside King County, and 23% (CI=19-28) of King County residents. Regardless of age or area of residency, respondents indicating their education as high school or less were found to be more supportive of policies mandating HIV-infected individuals to divulge their status than were those with more education. Fifty-six percent (CI=51-62) of those with high school or less education support requiring HIV-infected people to divulge their status to employers, compared to 35% (CI=30-41) of those reporting some college, and 21% (CI=18-25) of college and post college graduates. Likewise, 84% (CI=80-87) of residents with high school or less education would require HIV-infected health care workers to divulge their status to patients, compared to 72% (CI=67-76) of those with some college, and 63% (CI=59-66) of college and post college graduates.

Respondents were also asked if HIV-infected people who knowingly infect others through unprotected sex or needle sharing should be arrested and imprisoned. Overall, 82% (CI=80-84) agreed they should be imprisoned. Those aged 18-25 years were less likely to agree (70%, CI=61-79) compared to 84% (CI=82-86) of those over 25. Those living in King County were also less likely to show support for this (70%, CI=61-79), compared to those living outside King County (85%, CI=82-87).

Support for injection drug user harm reduction programs

The KAB survey asks adult Washington residents about support for several injection drug user (IDU) harm reduction strategies, including methadone treatment and needle exchange programs, as well as teaching IDUs to clean needles with bleach, and making new needles and syringes legal to sell to IDUs. Figure 4 illustrates support for these measures by area of residency. Methadone treatment programs received the most overall support. Eighty-six percent (CI=84-88) of adult residents support increasing the availability of methadone treatment. Support for needle exchange programs (where IDUs can obtain a free sterile needle in exchange for a used one) was also high, 72% (CI=64-70). The proportion of adult residents supporting needle exchange has risen from 64% of those surveyed in 1995. Needle exchange support varied by area of residency, ethnicity and education. About 62% (CI=58-66) of Eastern Washington residents versus 76% (CI=71-79) of King County residents and 73% (CI=69-77) of other Western Washington residents support needle exchange. Only half of Hispanics (49%, CI=38-61) indicated support compared to 73% (CI=70-75) of non-Hispanics. In regards to education, 60% (CI=54-65) of those with high school or less education showed support for needle exchange programs compared to 71% (CI=67-76) of those with some college, and 79% (CI=76-82) of college and post college graduates.

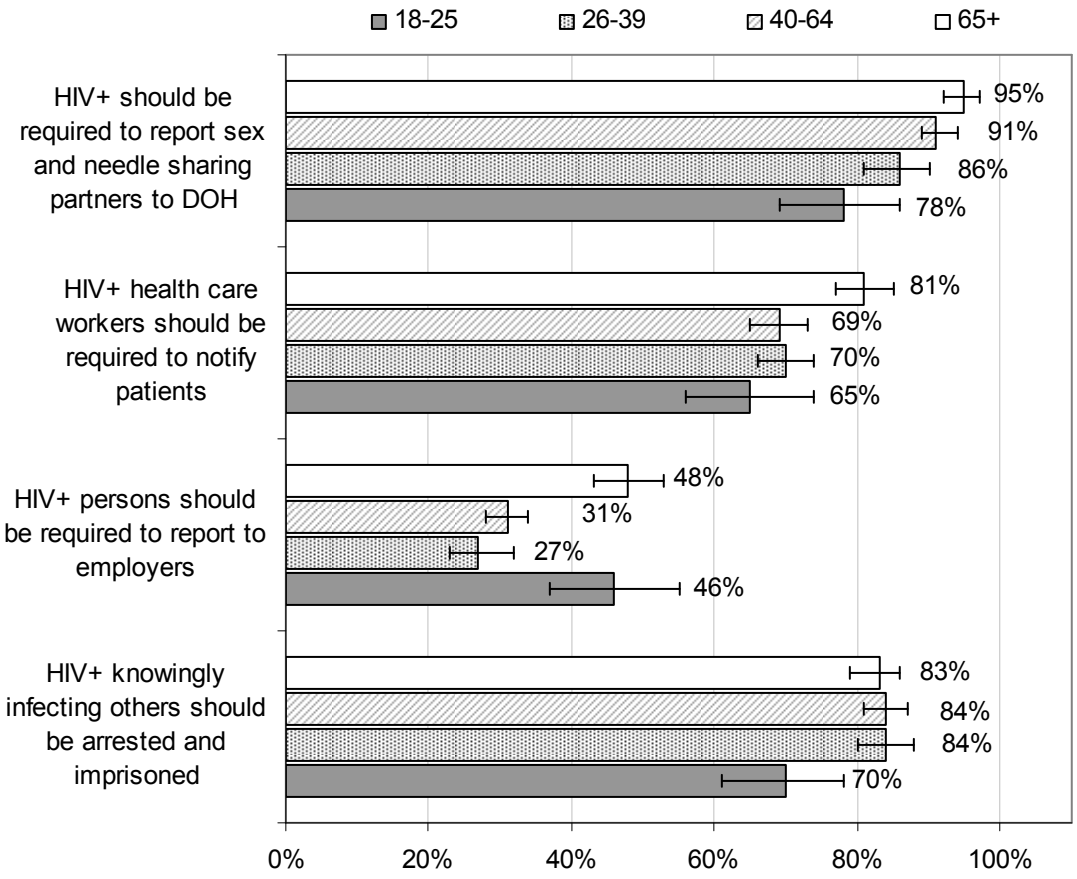
Sixty-nine percent (CI=66-71) of adult residents indi-

cated support for a program that would teach IDUs to clean their needles with bleach. Support for such a program has increased from 58% in 1995. Residents of Eastern Washington were less likely to be supportive of a needle cleaning program with 62% (CI=58-66) support, compared to 73% (CI=69-77) in King County and 69% (CI=66-71) in other Western Washington counties. When asked if they supported making needles and syringes legal to sell to IDUs in order to help prevent HIV transmission, 58% (CI=55-60) of all adult residents indicated "yes". The proportion of residents supporting this has increased from 43% in 1995. Half (50%, CI=46-55) of Eastern Washington residents support legalizing the sale of needles and syringes to IDUs, compared to 66% (CI=62-71) of King County residents, and 56% (CI=52-60) of other Western Washington residents.

Self-reported sex behavior

Results from the 2006 KAB indicate that 73% (CI=71-75) of all adults had sex in the previous 12 months. Two percent (CI=1-4) of married respondents, and 16% (CI=13-20) of singles had two or more partners in the past 12 months. Among those who were single and sexually active, 39% (CI=32-46) had two or more partners in the past 12 months. Single men were more likely than single women to report having two or more sex partners (47%, CI=37-57 compared to 26%, CI=18-36). The proportions of sexually active single people with multiple sex partners decreased with increasing age such that 51% (CI=38-65) of those ages 18 – 29 reported two or more sex partners in the past 12 months compared to 38% (CI=28-50) of those ages 30 – 49 and 24% (CI=15-35) of those ages 50 and older. Of singles with one partner the past 12 months, 32% (CI=24-41) indicated using a condom at last intercourse compared to 56% (CI=43-67) of singles with more than one partner. Sexually active single men were more likely than their female counterparts to indicate that they had used a condom at last sex (48%, CI=38-58 compared to 30%, CI=22-40). Among single sexually active adults, condom use decreased with increasing age: 52% (CI=38-66) of 18 – 29-year-olds indicated using a condom at last sex, compared to 43% (CI=32-55) of 30 – 49-year-olds and 22% (CI=14-33) of those 50 and older. Thirty percent (CI=20-43) of

Figure 3: Policy preferences regarding people with HIV/AIDS, by age



singles with more than one partner reported using a condom every time when having sex the past 12 months, 52% (CI=39-64) used a condom sometimes, and 18% (CI=10-29) never used a condom.

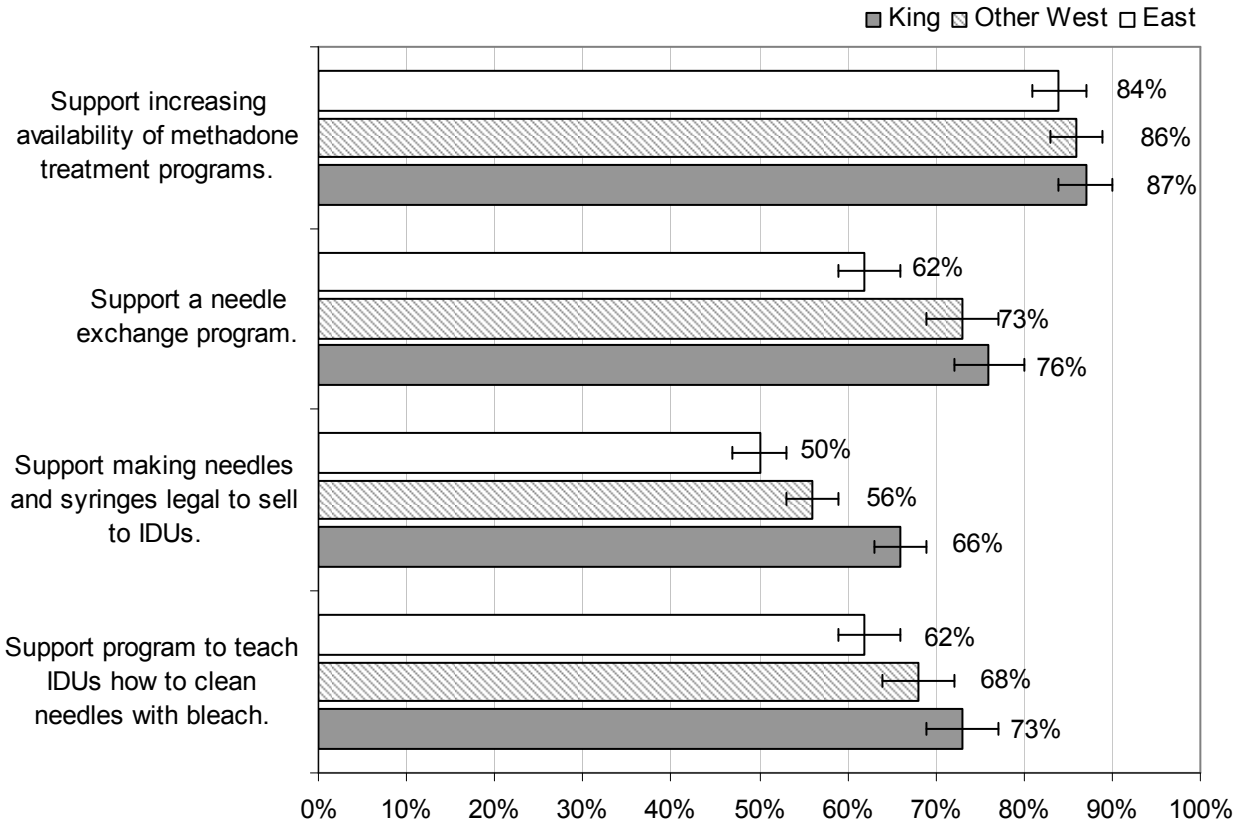
A question about sexual orientation was added to the 2006 KAB in order to get population estimates of individuals identifying as homosexual or bisexual. There were 30 men and 36 women reporting as homosexual or bisexual, giving Washington state population estimates of 4% (CI=3-6) of males and 4% (CI=3-5) of females. Similar results were found in the 2005 Behavioral Risk Factor Surveillance System (BRFSS). On that survey, 2% (CI=1-3) of men and 3% (CI=2-4) of women indicated that they were homosexual or bisexual. These percents are also similar to those seen nationally. On the 2002 National Survey of Family Growth 4% of both men and women indicated they were homosexual or bisexual.

HIV testing

Figure 3 illustrates HIV testing in the general population by age for residents under the age of 65. About 41% (CI=31-51) of people aged 18-24 years have ever been tested; 27% (CI=18-37) tested in 2005 or 2006. People aged 25-34 years (61%, CI=54-67) and 35-44 years (59%, CI=54-65) were more likely to have ever been tested, but a smaller proportion tested in 2005 or 2006 (23% CI=18-29 and 13% CI=9-17 respectively). It was also found that out of respondents with more than one sex partner over the past 12 months and indicating that they never or only sometimes used condoms, 42% (CI=30-56) were tested in 2005 or 2006.

The 2006 KAB also included a series of HIV testing questions for women who have had pregnancies in the last six years. There were 161 women indicating that they had been pregnant since 2000. When asked about their most recent pregnancy, 98% indicated they received prenatal care; 73% of those that received prenatal care indicated that their health care provider offered them an HIV test; of those offered an HIV test, 79% were tested. Overall, 56% of these women were HIV tested during their last pregnancy. This proportion has increased from 36% tested that were surveyed in the 1995 KAB (pregnant 1989-1995), and 44% tested in the

Figure 4: Support for injection drug user harm reduction programs, by area of residency



1998 KAB (pregnant 1992-1998). The overall proportion tested has not changed since the 2000 KAB where 55% of women pregnant 1994-2000 were tested.

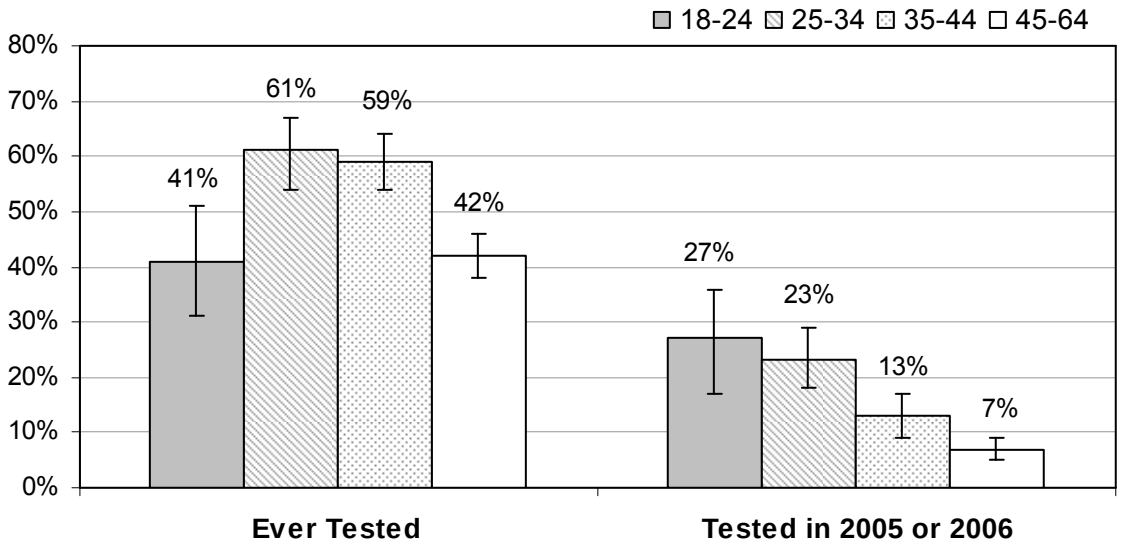
Respondents who have been HIV tested were asked details about their last test. The following information is from those indicating that their last test was in 2005 or 2006. When asked why they had their last test, the most common reason (26%, CI=19-34) was because they just wanted to know where they stood. The next most common reason was for a hospitalization, surgical procedure or medical checkup (24%, CI=17-32); followed by for pregnancy (12%, CI=8-19); for employment (10%, CI=6-16); for military induction (9%, CI=5-15); and for applying for insurance (6%, CI=3-10). When asked where they had their last HIV test, 47% (CI=39-55) indicated a private doctor or HMO; 20% (CI=14-27) said a health department or other public health clinic; 12% (CI=7-18) at a hospital or emergency room; 11% (CI=6-17) at a military clinic; and 11% (CI=7-17) at some other setting. Thirteen percent (CI=8-19) of those recently tested indicated that their test was done anonymously. Nine percent (CI=5-15) indicated that they did not receive the results of their last test. Out of those who did receive their results, 98% (CI=94-99) felt the confidentiality of the test was handled properly, and 30% (CI=22-38) received some kind of HIV prevention counseling with their results.

A rapid HIV test where patients can receive results within a couple hours or less was approved by the Food and Drug Administration in November, 2002. In 2003, the CDC introduced the Advancing HIV Prevention Initiative which has made rapid HIV tests available to health departments and community-based organizations for use in local HIV prevention. This was done to help ensure that people tested receive the results of their HIV tests so that they are aware of their HIV status, and that infected people could obtain appropriate medical care and prevention services[4]. It was found in the 2006 KAB that 10% (CI=5-16) of those tested in 2005 or 2006 indicated their last test was a rapid test. All of those indicating rapid testing received the results of their last test , compared to 90% percent (CI=84-94) of those tested by traditional methods.

Conclusions

Results from the 2006 HIV/AIDS KAB survey indicate that a high proportion of Washington residents claim knowing a lot or some about HIV/AIDS (88%). However, only half correctly indicated that there are drugs available for mothers so they do not pass HIV to their newborns. Furthermore, only 21% of residents indicated that they are very or somewhat familiar with HIV reporting laws, and only 31% knew that anonymous testing is available in Washington State. In 2006, about half of residents indicated knowing a person with HIV/AIDS. Respondents knowing someone with HIV/AIDS indicated knowing more about HIV and expressed greater familiarity with HIV reporting laws. The percentage of the adult population having ever attended an

Figure 5: HIV testing in the Washington State adult population, by age



HIV/AIDS education presentation has not changed since 1995, and has peaked at just over 40%. Residents ages 18-24 were most likely to have recently attended an HIV/AIDS presentation. More education outreach should be made available for those of all ages, but especially for residents over the age of 25 who may not have as many opportunities to get relevant updated HIV/AIDS education in school.

Overall, Washington residents have positive attitudes toward those with HIV/AIDS. When asked if they would see a friend as often if they discovered they had HIV/AIDS, 95% of residents said they would. Furthermore, 86% think public funds should pay for antiretroviral drugs for HIV-infected individuals who cannot afford them. A majority of residents think that HIV-infected individuals should be required to report sex and needle sharing partners to the health department, and most also think that HIV-infected health care workers should be required to notify their patients of their status. However, a majority did not agree that HIV-infected people should have to report their status to employers. Residents ages 65 and older, and those living in Eastern Washington were more likely to support measures requiring HIV-infected people to divulge their status. Most Washington residents also feel that HIV infected individuals who knowingly infect others should be arrested and imprisoned; those ages 18-25 and residents of King County were less likely to agree. Government officials should also be aware of continued increasing support for harm reduction programs for injection drug users. Regardless of area of residence, a strong majority support increasing the availability of methadone treatment programs for heroin users. Just over 70% of residents also support needle exchange programs, although there is less support from those living in Eastern Washington, those identifying as Hispanic and those with high school or less education.

It was found that about 44% of singles reporting two or more sex partners in the last year did not use a condom at last intercourse, and only 30% indicated using a condom every time when having sex the last 12 months. It was additionally found that only 42% of respondents with more than one sex partner the last 12 months, and who never or sometimes use condoms, were HIV tested in 2005 or 2006. The promotion of HIV prevention through condom use and testing needs to continue, especially for these higher risk groups. KAB results indicate that the proportion of women HIV tested during pregnancy has increased over the years of the survey, but has reached a plateau of about 56%. According to the CDC, HIV screening should be included in the routine panel of prenatal screening tests for all pregnant women[5]. New guidelines were approved by the Washington State Board of Health and adopted in July, 2002 designed to reduce barriers to routine HIV testing of pregnant women. Future KAB surveys in addition to other representative data sources such as the Pregnancy Risk Assessment Monitoring System (PRAMS), will be used to assess if these new guidelines are increasing the proportion of pregnant women tested.

Findings from residents indicating that they have been HIV tested in 2005 or 2006 indicate that most are tested because they want to know where they stand or for a hospitalization or medical checkup. Most residents were tested by a private doctor or at a public health clinic. Over 90% received the results of their last test and nearly all of them were satisfied with how the confidentiality of the test was handled. Rapid HIV tests, where the patient receives the results soon after testing, are not yet very common in Washington State, accounting for about 10% of tests done in 2005 and 2006. Increasing the availability of rapid testing is recommended in order to increase the likelihood that individuals at risk for infection receive the results of their tests.

Because it was conducted by telephone, the KAB survey has limitations that may result in selection and information bias. Although the Census Bureau estimates that nearly 98% of all U.S. households have telephones, segments of the population such as the homeless, incarcerated, institutionalized, and military personnel are not well represented. The degree of bias associated with household-based sampling may also be somewhat greater for the measurement of some HIV risk behaviors, such as sexual activity[3]. The information collected by the KAB is self-reported and subject to recall and exaggeration biases. Some respondents may also provide inaccurate answers that are more socially or politically acceptable. The extent of these biases is unknown.

♦ *Contributed by Todd E. Rime*

References

1. Holtzman D et al. HIV-Related Behaviors and Perceptions Among Adults in 25 States: 1997 Behavioral Risk Factor Surveillance System. American Journal of Public Health 2001: November, 91(11); 1882-1888.
2. Sanchez T et al. HIV Risk, Prevention, and Testing Behaviors--- United States, National HIV Behavioral Surveillance System: Men Who Have Sex with Men. MMWR 2006: July 7, 55 (SS06); 1-16.
3. Anderson JE et al. HIV Testing Among the General US Population and Persons at Increased Risk: Information From National Surveys, 1987-1996. The American Journal of Public Health 2000: July, 90 (7); 1089-1095.
4. Janssen RS et al. Advancing HIV Prevention: New Strategies for a Changing Epidemic --- United States, 2003. MMWR 2003: April 18, 52 (15); 329-332.
5. Branson BM et al. Revised Recommendations for HIV Testing of Adults, Adolescents, and Pregnant Women in Health-Care Settings. MMWR 2006: September 22, 55 (RR14); 1-17.

Research update from the University of Washington Adult AIDS Clinical Trials Unit

This research update from the University of Washington's AIDS Clinical Trials Unit will focus on a couple of new studies as well as report on some recent results from AIDS Clinical Trials Group (ACTG) studies.

A new study for people with HIV-related dementia: A5235

Highly active antiretroviral therapy (HAART) has dramatically improved morbidity and mortality in individuals infected with HIV; however, cognitive impairment (or HIV-related dementia) continues to be significant complication of HIV infection. Anti-HIV medications are currently the only standard treatment for HIV-related dementia, and not all patients respond or continue to respond to this therapy. Studies suggest that factors other than direct infection by HIV play a role in the degenerative process. Inflammation and programmed cell death (or apoptosis) have been linked to HIV-related neurological problems. Medications that prevent or decrease the inflammation and apoptosis may prevent further mental decline and possibly improve current cognitive ability in patients experiencing HIV-related dementia.

Minocycline, an antibiotic, has both anti-inflammatory effects and a direct anti-HIV effect. Minocycline given to monkeys reduced the amount of SIV (a virus similar to HIV found in monkeys) in the brain and decreased brain damage. Minocycline has also been shown to protect against other neurological diseases, such as Huntington's disease, in animal models. Thus, minocycline may prove beneficial for HIV infected individuals with cognitive impairment. A5235 is a study to determine if minocycline is effective for the treatment of HIV-associated cognitive impairment. Participants will be randomized to minocycline or a placebo for 24 weeks. Participants who are able to remain on study treatment through week 24 will be given the option to enter Step 2 and receive minocycline for an additional 24 weeks.

An innovative approach to increasing CD4 cell production: A5212

People infected with HIV have better outcomes with higher CD4+ lymphocyte counts (or T-cell counts). Some patients on antiretrovirals, however, continue to have low CD4 counts despite suppression of HIV. These patients have an increased risk of opportunistic infections and even death compared with patients with high CD4 counts. To increase the production of CD4 cells, studies have looked at the thymus (a gland in the chest) where new lymphocytes are produced. With active HIV infection, the thymus reduces production of cells. During treatment with antiretrovirals, the production of new cells produced by the thymus increases as does the size of the thymus. The degree to which these cells and size of the thymus increases with ART is associated with the recovery of CD4 cell counts. Thus, the thymus appears to play a significant role in the recovery of the immune system with HIV treatment.

Keratinocyte growth factor (KGF) is a protein that promotes the growth of the skin and the surface layer of the mouth, stomach, and colon. It also stimulates the thymus, and studies in animal have shown that KGF increases the activity of the thymus. Palifermin is a synthetic version of KGF that has been approved for the treatment of mouth and gastrointestinal irritation (mucositis) in cancer patients receiving chemotherapy.

A5212 will randomize participants with low CD4 cells to placebo versus one of three doses of palifermin to determine if CD4 counts improve and evaluate the safety of this drug.

Recent results reported from ACTG studies

Weakened bones in people with HIV improve with alendronate

A5163 investigated the use of the osteoporosis medication alendronate (Fosamax®) in HIV-infected people with decreased bone mineral density, or osteopenia, which is the precursor to osteoporosis. All subjects received vitamin D and calcium supplementation and either alendronate or a placebo as well. After 48 weeks there was a 2.9% increase in bone density in the group receiving the alendronate in addition to the vitamin D and calcium.

A new entry inhibitor Vicriviroc shows promise for people with drug-resistant HIV

Vicriviroc blocks the CCR5 receptor on the surface of the CD4+ T cells. HIV needs to bind to this receptor before it can enter the T cell. A5211 was a study that evaluated the safety and efficacy of this drug in 118 people with drug-resistant HIV. Study participants were randomized to receive three different doses of vicriviroc (5, 10, or 15 milligrams orally, once a day) or placebo for 14 days, which was co-administered with their current antiretroviral therapy (ART) background regimen. After 14 days, all participants were allowed to change their ART regimen to the best available drugs and continue on one of the 3 doses of vicriviroc or placebo. All partici-

pants were monitored for 48 weeks. The 5 mg dose was discontinued early following recommendation from the Study Monitoring Committee and the study was unblinded following reports of 5 malignancies.

Results after 48 weeks revealed a greater decrease in HIV-1 RNA levels in the groups who received active vicriviroc at the 5, 10 and 15 mg dose; no change in viral load was noted in the placebo group. The 5 mg dose had an intermediate rate of failure and was stopped by the study monitoring committee. Adverse effects to vicriviroc compared to the placebo group showed no significant differences. However, five study participants taking vicriviroc developed (non-skin) cancers. Two of these participants had a history of lymphoma, none-theless this is an issue of some concern and is being monitored closely in follow up of these participants. Overall, A5211 showed that as an anti-HIV agent, vicriviroc given at the 10 or 15 mg dose resulted in significantly greater viral suppression and increases in CD4 T-Cell counts in HIV-treatment-experienced participants during a 48-week period compared to the placebo or 5 mg dose. These findings indicate that vicriviroc offers treatment benefits to HIV+ treatment-experienced individuals and support the need for further studies which are in development.

Treatment simplification may still be possible

A5201 was a pilot study to evaluate treatment simplification in people with suppressed HIV viral load and taking a protease-based regimen. Subjects dropped the nucleoside drugs and continued on atazanavir (Reyataz®) and ritonavir (Norvir®). The idea behind this approach is to limit the number of classes of drugs a person needs to suppress HIV to limit cost, pill burden and potentially toxicity. Of the 30 participants, 26 maintained viral suppression for 48 weeks on the protease-only regimen. Of the 4 participants who experienced viral rebound, all re-suppressed with re-initiation of their nucleoside drugs. This approach may warrant further investigation.

For more information about these or other ACTU studies, call 206-731-3184, and ask for Eric for an appointment or additional information, or visit our website: http://www.uwactu.org

- *Contributed by Jeffrey Schouten and Sheila Dunaway*

Research Helps – Help Research

Visit our new website at www.uwactu.org and find out about our latest studies, meet our staff, and find out about our outreach and ***Positivamente Latino*** programs. You can send your questions, comments, and suggestions to us via email at actu@u.washington.edu. For information in Spanish call us at 206.731.3497

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The following is a list of studies open for enrollment as of January 2007. 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 206.731.3184 and ask for Eric Helgeson for appointments or additional information.**

Antiretroviral Studies		
Eligibility	**Study Purpose**	**Study Drug or Treatment**
• Treatment naïve (<7 days of ARV treatment) • HIV RNA >1000 • No evidence of any major resistance (only if already have genotype results – genotype not required)	**(Study # 5202)** This study is being done to compare the effectiveness and safety of drug combinations in the initial treatment of HIV infection.	Will be randomized to one of the following groups: **Group A:** EFV plus FTC/TDF plus ABC/3TC placebo. **Group B:** EFV plus ABC/3TC plus FTC/TDF placebo. **Group C:** ATV with RTV plus FTC/TDF plus ABC/3TC placebo. **Group D:**ATV with RTV plus ABC/3TC plus FTC/TDF placebo.

Complications of HIV and Other Conditions		
Lipotraphy		
Eligibility	**Study Purpose**	**Study Drug or Treatment**
• Treatment with antiretroviral therapy (ART) for at least 12 weeks prior to study entry that contains AZT or d4T. Must have received at least 24 weeks of AZT or d4T in the past. • Lipoatrophy (fat wasting) of at least 2 of the following: face, arms, legs, and buttocks • HIV viral load ≤5000 copies/mL	**(Study #5229)** To see if NucleomaxX (a nutritional supplement with high amounts of uridine) can reverse the loss of fat in the face, arms, legs, or buttocks in people who are HIV infected and are taking stavudine (d4T or Zerit) or zidovudine (AZT or Retrovir).	NucleomaxX orally three times per day, every other day, or placebo.
Other Studies		
Eligibility	**Study Purpose**	**Study Drug or Treatment**
• No active or chronic heart or lung disease • No cigarette smoking in last 90 days • Not pregnant • No use of inhaled nasal or lung medication • No respiratory infection or bronchitis within 3 weeks	**(Study # 080)** To see if alveolar macrophages are a reservoir for HIV	No study drug or treatment The macrophage cells will be collected by a bronchoalveolar lavage procedure (BAL) in the pulmonary lab

Studies for HIV 'negative' participants		
Eligibility	**Study Purpose**	**Study Drug or Treatment**
• HIV negative • Age 18-65 years • No active heart or lung disease • No hypertension • Not pregnant • No blood draws or donations within 6 weeks of screening	**(Study 084)** To study factors that control HIV infection in the test tube in a type of white blood cells called macrophages. This study may also help us learn more about how HIV infects cells.	• Up to 5 study visits • Screening • 3 on-study visits at ACTU for 100cc blood draw • Two thirds of participants will undergo a leukapheresis procedure at the Clinical Research Center at UWMC
Eligibility	**Study Purpose**	**Study Drug or Treatment**
• HIV negative • Male or non-pregnant female, age 18-40 • No history of heart, liver, or kidney disease • No history of cardiac disease, abnormal EKG, or bradycardia • No smoking for at least one month before and throughout the study • No history of diabetes or a family history of type 2 diabetes and a fasting glucose >110 mg/dl.	**(Study # 165)** To determine if cytochrome P450 (CYP) enzymes and the multidrug resistant transporter (P-gp), are significantly induced after chronic administration of ritonavir and nelfinavir	**Part One** (First 14 subjects): *Visit Set One:* Day 1: Mini-cocktail (digoxin & midazolam); Day 2: 4-drug cocktail (caffeine, tolbutamide, dextromorphan, & midazolam); Day 3-17: Randomized to nelfinavir or rifampin *Visit Set Two:* Day 17: Mini-cocktail (digoxin & midazolam); Day 18: 4-drug cocktail (caffeine, tolbutamide, dextromorphan, & midazolam); Day 19-44: No drugs administered; Day 45-59: If randomized to nelfinavir on day 3, will receive rifampin. If randomized to rifampin on day 3, will receive nelfinavir. *Visit Set Three*: Day 59: Mini-cocktail (digoxin & midazolam); Day 60: 4-drug cocktail (caffeine, tolbutamide, dextromorphan, & midazolam) **Part Two** (Next 14 subjects): Same as above, except ritonavir will be used in place of nelfinavir) ALL ON-STUDY VISITS WILL BE AT THE CLINICAL RESEARCH CENTER AT UWMC

Key to Terms:

3TC:	lamivudine (Epivir)	HBV:	hepatitis B
ABC:	abacavir (Ziagen)	HCV:	hepatitis C
APV:	amprenavir (Agenerase)	IDV:	indinavir (Crixivan)
ARV:	antiretroviral	LPV/r:	lopinavir/ritonavir (Kaletra)
AZT:	zidovudine (Retrovir)	NFV:	nelfinavir (Viracept)
CBV:	combivir (lamivudine/zidovudine)	NNRTI:	non-nucleoside reverse transcriptase inhibitor
ddI:	didanosine (Videx)	NRTI:	nucleoside reverse transcriptase inhibitor
d4T:	stavudine (Zerit)	NVP:	nevirapine (Viramune)
ddc:	zalcitabine (Hivid)	PI:	protease inhibitor
EFV:	efavirenz (Sustiva)	RBV:	ribavirin
HARRT:	highly active antiretroviral therapy	RTV:	ritonavir (Norvir)
		TDF:	tenofovir

> : greater than **<** : less than ≥ : greater than or equal to **+** : positive