Chronic Health Conditions among HIV-Infected Adults in Care in Washington State, 2009-2011

Background

With antiretroviral therapy (ART) almost universally available, the prognosis of persons living with HIV (PLWH) has improved dramatically. As the PLWH population ages, the burden of chronic disease is expected to grow. In this article, we describe the prevalence of chronic conditions among PLWH receiving care in Washington State, using weighted state-wide Medical Monitoring Project (MMP) data from 2009-2011. Specifically, we estimated the burden of cardiovascular disease risk factors, obesity, diabetes, mental illness, and alcohol, tobacco, and drug use.

Methods

The Medical Monitoring Project (MMP) is a national supplemental surveillance system that collects annual cross-sectional samples of clinical and behavioral data on HIV-infected adults who are in care. MMP uses a three stage sampling design to obtain representative samples of adults receiving HIV/AIDS care. During

face-to-face or telephone interviews, information on demographics, adherence to HIV medication regimens, and behavioral risk factors is collected. Medical record abstractions (MRA) are conducted to collect clinical data pertaining to diagnoses, medications, laboratory results, and health service utilization. A more detailed description of the MMP methodology is available elsewhere.

We analyzed MMP MRA (n=468) and combined MRA/Interview (n=382) data collected from August 2009 through April 2011 in Washington State. The response rates exceeded the CDC-defined threshold (>40%) required for creating a weighted representative database. For several conditions, we created a composite variable that indicated whether the condition was never documented within a patient's medical records, documented at least once since a patient's HIV diagnosis, or documented in the year prior to the patient's MMP interview. After comparing the MMP sample to 2012 Surveillance records, we estimated the crude prevalence of several chronic conditions based upon diagnoses documented in the MRA. We also compared substance use reported in the interview data to that documented in the MRA data to assess agreement.

Results

The 2009-2011 MMP sample appears fairly representative of the actual PLWH population in Washington State (**Table 1**). The majority of PLWH in Washington State are male, middle-aged, and White. The median time since diagnosis was about 11 years; roughly half of the sample had CD4 counts exceeding 500 cells per μL, and more than three-quarters of the sample had an undetectable viral load.

Cardiovascular disease risk factors appear prevalent in the Washington State PLWH in-care population (**Table 2**). Approximately 24% had documented hypertension, 16% hypercholesterolemia, and 7% hypertriglyceridemia. Six percent of MMP participants had Type II diabetes. The majority of participants were overweight (37%) or obese (28%).

Mental illness appears commonly diagnosed in PLWHA receiving care in Washington State (**Table 3**; "mental illness" refers to a diagnosis of depression, anxiety, psychosis, encephalopathy, or bipolar disorder). More than two-thirds of MMP participants (68%) had at least one mental illness diagnosis since their HIV diagnosis; 46.5% had a mental illness diagnosis in the year preceding their MMP interview. Depression and anxiety were the most commonly diagnosed mental illnesses.

Substance use was commonly documented in medical records and reported by MMP participants (**Table 4**). A large proportion of MMP participants (39%) reported that they currently use tobacco products at least weekly. Alcohol abuse since HIV diagnosis was recorded in 24% of MMP participants' medical charts; recent alcohol abuse (in the past year) was recorded in 7% of MMP participants' medical charts. Any drug use and injection drug use since HIV diagnosis were recorded in 34% and 17%, respectively, of MMP participants' medical charts; recent drug (any delivery mode) and injection drug use (in the past year) were recorded in 13% and 4%, respectively, of MMP participants' medical charts. There was evidence that chart reviews underestimated the true prevalence of drug use, as *reported* use of methamphetamines, marijuana, poppers, and crack were considerably higher than that documented in patients' medical charts.

Conclusions

This representative sample of PLWH receiving care in Washington State suggests that risk factors for cardiovascular disease, mental illness, and substance use are common health problems facing the PLWH community. As the PLWH population ages, management of non-AIDS-defining conditions, such as those mentioned above, will become a crucial component of long term HIV care. Implementing interventions that target modifiable behaviors related to chronic disease, such as smoking, should be considered.

Contributed by Teal Bell, Julia Hood, and Jennifer Reuer

1. McNaghten AD, Wolfe MI, Onorato I, et al. Improving the representativeness of behavioral and clinical surveillance for persons with HIV in the United States: the rationale for developing a population-based approach. PLoS One 2007; 2 (6): e550; accessible at http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0000550
2. "Any Drug Use" = documented use of amphetamines, cocaine, crack, ecstasy, GHB, hallucinogens, heroin, special k, marijuana, methadone, methamphetamines, painkillers, poppers, rohypnol, steroids/hormones, tranquilizers, viagra, levitra or Cialis

Table 1: Comparison of 2009-2011 Medical Monitoring Project Sample to 2012 HIV Surveillance Data, Washington State, 2009-2011

	WA MMP Sample, 2009-2011 n=382		WA Surveillance Data, 2012 n=11,381
	% (median)	95% CI	% (median)
Male	83.7	79.1-88.4	86.0
Median Age	(46.5)	45.4-47.6	(47.0)
Race/Ethnicity			
White, non-Hispanic	71.6	65.5-77.8	66.4
Black, non-Hispanic	14.1	9.9-18.4	15.3
Hispanic	9.4	6.5-12.4	11.7
Other	4.8	2.9-6.7	6.6
Median years since HIV diagnosis	11.9	9.9-13.9	11
CD4+ count ≥ 500 among those with result in last 12 months	50.1	44.4-55.7	45.9
% Undetectable viral load among those with VL result in last 12 months	76.9	72.4-81.4	84.0

Table 2: Prevalence of cardiovascular disease risk factors, Medical Monitoring Project, Washington State, 2009-2011

	N	Weighted % (95% CI)
Hypertension	110	23.6 (18.6-28.5)
Hypercholesterolemia	77	15.9 (10.9-20.9)
Hypertriglyceridemia	35	7.3 (5.3-9.3)
Diabetes		
Type I	4	--
Type II	25	5.9 (3.4-8.4)
Unspecified	11	2.6 (0.3-5.0)
Obesity		
Overweight (BMI: 25.0-29.9)	127	36.6 (32.4-40.8)
Obese (BMI ≥30.0)	91	27.7 (22.6-32.8)

NOTE: 26.9% of participants were missing height or weight

Table 3: Prevalence of mental illness, Medical Monitoring Project, Washington State, 2009-2011

	Documented since HIV Diagnosis Weighted % (95% CI)	Documented in the Prior 12 Months Weighted % (95% CI)
Any mental illness	**68.0 (63.5-72.5)**	**46.5 (40.3-52.7)**
Depression	61.6 (55.9-67.3)	40.0 (33.6-46.4)
Anxiety	36.0 (29.7-42.2)	21.4 (17.1-25.6)
Psychosis	6.2 (4.0-8.5)	4.0 (2.5-5.4)
HIV encephalopathy	3.7 (1.7-5.7)	--
Bipolar disorder	6.5 (4.1-8.9)	Not recorded

Table 4: Prevalence of Substance Use, Medical Monitoring Project, Washington State, 2009-2011

	Documented in MR since HIV Diagnosis Weighted % (95% CI)	Documented in MR in the Prior 12 Months Weighted % (95% CI)	Self-Reported Use in the Prior 12 Months Weighted % (95% CI)
Current Tobacco Use	N/A	N/A	39.0 (32.2-45.8)
Alcohol Abuse	24.0 (20.0-27.9)	6.9 (4.6-9.2)	N/A
Any Drug Use	34.0 (28.5-39.5)	13.1 (9.4-16.8)	40.5 (35.0-46.0)
Injection Drug Use	17.3 (13.4-21.2)	4.3 (2.1-6.6)	7.1 (4.7-9.4)

Any drug use = documented use of amphetamines, cocaine, crack, ecstasy, GHB, hallucinogens, heroin, special k, marijuana, methadone, methamphetamines, painkillers, poppers, rohypnol, steroids/hormones, tranquilizers, Viagra, Levitra or Cialis

N/A="Not Available"

Highlights from the 2012 Seattle Area National Behavioral Surveillance Survey of Injection Drug Users

Injection drug use remains a significant risk factor for HIV infection in the U.S. despite recent decreases in the number of reported HIV cases associated with injection drug use. In 2011, cases attributed to injection drug use comprised 7.4 % of the estimated 49,273 newly diagnosed HIV cases and 10.3% when cases attributed to combined injection drug use and male-male sex were included.[1] In King County, injection drug use accounted for 5% and the combination of injection drug use and male-male sex for 9% (total 14%) of HIV cases diagnosed from 2010 to 2012.[2] The CDC sponsors the National HIV Behavioral Surveillance system (NHBS) in 20 large U.S. urban areas including the Seattle Division of the Seattle Metropolitan Statistical Area (King and Snohomish counties). The purpose of NHBS is to monitor prevalence in and trends of HIV and HIV-related risk behaviors and HIV testing among populations most affected by HIV, including men who have sex with men (MSM), injection drug users (IDU) and heterosexuals at increased risk. One of these populations is surveyed every year using a common CDC protocol and questionnaire at all sites. NHBS is the only national system that surveys HIV-negative persons at risk of HIV, persons with undiagnosed HIV infection, as well as persons with diagnosed HIV infection outside a health care setting. At the national level, NHBS data are used to inform progress towards the goals of the National HIV/AIDS Strategy. We have reported results in the HIV/AIDS Epidemiology Report from the 6 previous Seattle area NHBS surveys, including the 2005 and 2009 surveys of injection drug users (IDU).[3,4] This report describes highlights from the 2012 NHBS-IDU3 survey.

Methods

The CDC NHBS IDU surveys are conducted using respondent-driven sampling (RDS). RDS is a form of snowball sampling where participants are paid a small incentive to recruit a limited number of their network members to the study. Recruitment starts with a small number of participants ("seeds") chosen to have diverse sociodemographic characteristics who are asked to recruit 3 – 5 of their peers for the study. These referrals are screened for eligibility and those who complete the study are asked to recruit a new "wave" of participants. This process continues until the sample size has been reached. RDS is based on the theory that if peer recruitment proceeds through a

sufficiently large number of waves, the composition of the sample will overcome any bias that may have been introduced by the non-random selection of seeds.[5,6] RDS data can be adjusted during analysis to reduce biases associated with preferential recruitment and differential network sizes. We present unadjusted data for this report.

All data collection activities were conducted at our main field office in Pioneer Square and in a motorhome parked at a fixed location in South King County. Potential participants (including seeds) were screened for eligibility (resided in King or Snohomish County, age 18 years or older, injected drugs in the past 12 months, and were able to complete the survey in English). Those who were eligible and provided informed consent completed an interviewer-administered survey about their sociodemographic characteristics, sexual and drug-use practices, and health history. All participants, including those who reported previously testing positive, were offered rapid HIV and rapid hepatitis C (HCV) testing (OraSure Technologies). Those with reactive rapid HIV results had confirmatory Western Blot tests done on whole blood specimens. We did not provide confirmatory HCV RNA testing, but recommended that participants with reactive rapid HCV test results, who had not previously had a confirmatory test, see a healthcare provider for testing and medical follow-up. Participants provided separate consent for the survey, HIV and HCV testing. They received a monetary incentive, condoms, and information about local HIV prevention, health and social services. No personal identifiers were collected. The study was approved by the Washington State Institutional Review Board.

Results

Recruitment: The survey took place from 7/9/2012 to 11/29/2012. We recruited nine seeds of different demographic characteristics from different areas of King County. Of these, eight seeds referred other participants, ultimately resulting in a sample of 686 eligible participants over 15 recruitment waves. Seventy-nine percent of the non-seed participants derived from three seeds. Of the 686 participants, 684 consented to HIV and 678 to HCV testing. HIV and HCV prevalence are presented in **Tables 1-4**, and are each discussed in a separate section below.

Demographic characteristics: The vast majority of