Making Longitudinal Progress in the HIV Care Continuum Within an Urban Veterans Affairs Clinic

Alicia M. Lagasca, MD, and Virginia L. Kan, MD

Dear Editor:

HIV SUPPRESSION GREATLY reduces HIV-related morbidity and mortality¹ and is achieved through a successful continuum of HIV diagnosis, linkage to and engagement in care, and efficacious antiretroviral therapy (ART).² Despite advances in HIV treatment, national data demonstrated failure to achieve optimal outcomes along this continuum,³ such that only 30% had HIV suppression.⁴ These initial descriptions of the HIV continuum were limited by estimates and incomplete data. Two prior cross-sectional studies reported that organized healthcare systems that allow universal health access achieved higher outcomes along this continuum despite having similar rates of unemployment, homelessness, depression, and substance use disorders as other urban clinics.^{5,6}

The District of Columbia (DC) continues to have one of the highest HIV prevalences within the US, affecting 2.5% of its population.⁷ Using a multidisciplinary model, the District of Columbia Veterans Affairs Medical Center (DC-VAMC) has cared for over 1000 HIV-infected patients annually since 2008. We describe the longitudinal continuum of HIV care for our patients during the study period 2008–2013 within the Infectious Diseases (ID) Clinic.

The Clinical Case Registry for HIV (HIV CCR) has demographic, clinical, laboratory, pharmacy, and medical utilization information on all HIV-infected persons in care within the Department of Veterans Affairs (VA) nationally and at each medical center. After approval by the DC-VAMC Institutional Review Board and the Research and Development Committee, we obtained summary data on age, gender, race, acquisition risk factors, persons engaged in care, and persons on antiretroviral therapy (ART) from our local HIV CCR for January 1, 2008 through December 31, 2013. Those engaged in care were defined as having ≥ 1 clinic visit and/or HIV RNA obtained in the calendar year. Those on ART were determined from pharmacy utilization for any ART in the calendar year. HIV suppression was defined as < 40 copies/mL (Abbott RealTime HIV-1, Abbott Molecular Inc., Des Plaines, IL) and based on the last value of the year for each patient. CD4 count and HIV RNA data were obtained from our ID Laboratory.

Mean age and CD4 counts were calculated from all values each year. Chi square analyses (Stata/MP 11, StataCorp LP, College Station, TX) were performed for trends over time for annual data over the 6-year period.

Table 1 summarizes our patients' characteristics, care continuum, and CD4 trends longitudinally over the 6-year study period. The majority of patients were African American men, reflecting our veteran population. Leading acquisition risk factors were sex with women, followed by sex with men, and injection drug use. From 2008 to 2013, there were statistically significant improvements across our HIV care continuum, with 16% rise among those engaged in care, 17% increase in ART use, and 27% increment among those with HIV suppression. Patients' mean CD4 count rose by 130 cells/ μ L during these 6 years.

During 2008–2013 at DC-VAMC, steady improvement along their care continuum was demonstrated for our HIV-infected veterans who were primarily African Americans in DC, an urban area with high HIV prevalence.⁷ Poor retention in care had been previously reported among minority populations.⁸ Local data from the DC-VAMC demonstrated our veterans had high rates of unemployment (34%), homelessness (2.1%), depression (22.5%), and substance abuse disorders (35.4%) [Benchmark Report January 2011–March 2014. The District of Columbia (DC) Cohort. National Institute of Allergy and Infectious Diseases at the National Institutes of Health U01 AI69503-03S2; unpublished data].

Engagement in HIV care was up to 91% at the DC-VAMC in 2013, which contrasted with previous national estimates of 50%.^{3,4} African American patients had been previously associated with poorer virologic responses when compared with European Americans,⁹ but our rates of viral suppression paralleled some of the highest reported in the literature.^{2,5,6} This difference may be explained by the VA integrated healthcare system offering co-located services of laboratory, pharmacy, prevention/education programs, mental health services, and rehabilitation therapy. No survival difference were found between US military and Atlanta VA Medical Center, despite differing socioeconomic and behavioral characteristics, emphasizing the importance of healthcare access in HIV outcomes.⁶ Patients within the VA healthcare system face fewer interruptions in care and maintain high quality, continuous care through a network-wide electronic medical record.

A comprehensive HIV care coordination program that included outreach, case management, multidisciplinary care team communication, and patient navigation described improvements in HIV care engagement and outcomes among patients despite evident barriers.¹⁰ The International

TABLE 1. PATIENT DEMOGRAPHIC INFORMATION, ACQUISITION RISK, CARE CONTINUUM, CD4 COUNT, AND HIV SUPPRESSION FOR EACH YEAR DURING 2008–2013^a

Parameter	2008	2009	2010	2011	2012	2013	p ^b
Total HIV-infected patients in DCVAMC	1000	1049	1057	1036	1026	1040	
Male	97%	97%	97%	97%	97%	96%	0.9981
Mean age (years)	51	51	52	52	53	53	
African American	80%	78%	79%	79%	77%	77%	0.9944
Acquisition risk factors							
Sex with men	27%	28%	30%	31%	32%	30%	0.9750
Sex with women	37%	37%	38%	37%	37%	37%	1.000
Injection drug use	20%	18%	18%	18%	17%	17%	0.9951
Unknown	16%	17%	14%	14%	14%	16%	0.9837
Continuum of care							
Persons engaged in care	75%	77%	71%	82%	87%	91%	0.0003
Persons with antiretroviral use	67%	67%	72%	77%	80%	84%	0.0241
Persons with HIV suppression	45%	54%	54%	59%	67%	72%	0.0014
Mean CD4 (cells/ μ L)	354	362	390	421	457	484	
HIV suppression among persons on ART ^c	67%	81%	76%	77%	84%	86%	0.0167

^aPercent of total HIV-infected patients are given in each category except for mean age and CD4 count.

^bTrends over time were performed by chi square.

^cFor each year, percent of persons with viral suppression is based on HIV-infected persons on antiretroviral therapy.

Association of Physicians in AIDS Care developed evidence-based recommendations to optimize HIV outcomes, emphasizing the importance of monitoring of successful entry and retention in HIV care, case management for newly diagnosed individuals, adherence monitoring, once daily regimens for naïve patients, multidisciplinary education and counseling approaches, offering peer support, case management services and resources to address food insecurity, housing, and transportation needs, support for mental illness(es), and pillboxes to encourage adherence.¹¹

The degree of improvement at each stage of the HIV continuum was striking over our 6-year longitudinal study due to several important factors. The DC-VAMC ID Clinic uses a multidisciplinary team in a medical home model comprised of front-line staff, nurse practitioners, clinical social workers, and subspecialty clinicians. Our knowledgeable front-end staff provided reminders via telephone calls prior to clinic visits. Dedicated nurse practitioners assigned to specific physician clinic panels, developed strong rapport with patients through regular clinic visits and telephone calls. Our clinical social workers mitigated psychosocial challenges and assisted in community resource referrals. All providers have had broad expertise in HIV management and positive attitudes to enhance our patients' retention in care.¹²

Our electronic medical record allowed pharmacy refill data to be used to track adherence to ART and other medications. Pillboxes were given to patients at risk of poor adherence. We have had a pharmacist in our clinic to assist patients with prescriptions, drug information, and drug–drug interactions. Since 2012, our ID Clinic had a co-located psychologist for patients' mental health and behavioral needs. Hepatology and gastroenterology subspecialists delivered care for concomitant liver diseases and anal dysplasia, respectively.

On-site laboratory¹³ including HIV RNA and ART resistance testing provided timely results critical for our patients' care. The availability of three single-pill combination ART regimens likely increased medication adherence leading to improved rates of viral suppression. With increased attention

to the HIV/AIDS epidemic in DC, the citywide “Come Together DC—Get Screened for HIV” campaign,¹⁴ helped newly diagnosed persons receive care and treatment services.

Our study had several limitations. We chose to define our study based on patients with known HIV infection rather than projected estimates as had been used in national reports.^{3,4} Definitions to categorize different stages of the HIV continuum varied greatly, making comparisons for each stage of the continuum difficult across studies. Linkage to care was not evaluated separately from engagement, as all persons with HIV diagnosis at DC-VAMC are referred to ID Clinic for their HIV care. Local HIV CCR summary data for care engagement and ART use were obtained without individual chart review. Annual HIV RNA used patients' last values of any given year and not all values for the year.

Steady improvement was achieved at each stage along our longitudinal HIV care continuum due to the multidisciplinary clinic team, positive staff attitude, co-located pharmacy and laboratory services, the availability of single pill ART regimens, and local DC initiatives. Our data exemplify that a comprehensive, open-access, multidisciplinary system can achieve successful outcomes along the HIV continuum, leading to high rates of HIV suppression.

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Address correspondence to:

Virginia L. Kan, MD
Veterans Affairs Medical Center (151B)
50 Irving St., NW
Washington, DC 20422

E-mail: virginia.kan@va.gov