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A Glimpse of the Early Years of the Human Immunodeficiency Virus Epidemic: A Fellow's Experience in 2014

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Human immunodeficiency virus (HIV) is a manageable chronic disease in the United States, yet the first author's experience on a general infectious diseases (ID) consult service illustrates that certain areas of the United States still experience high rates of acquired immune deficiency syndrome-related complications.

Medical and lay communities alike are familiar with the story of the human immunodeficiency virus (HIV) epidemic in the United States—an epidemic that shocked the nation in the 1980's when previously healthy young men presented with rare pneumonias and skin cancers [1]. These patients were eventually labeled as having the acquired immune deficiency syndrome (AIDS) with the subsequent discovery of the culprit virus, HIV [2]. The public health response, research, and drug development surrounding this epidemic have been unparalleled in medicine. After 35 short years, rates of new infections have plateaued while AIDS-related deaths have fallen drastically [3].

The recent academy award winning film, *Dallas Buyers Club*, depicts the time when a diagnosis meant certain death and no therapeutic options were available. Fast forward to the present day and we practice medicine in a time where an extensive armamentarium of drugs exists to combat the virus and curb progression of the disease, in turn prolonging survival to that which parallels aged-matched individuals [4]. This progress has all culminated in the discussion and description of HIV as a manageable, chronic disease. Indeed, this story holds true for much of the nation, and for many of my own patients.

However, pockets remain where the faces depicted in *Dallas Buyers Club* are still the reality. As an Infectious Diseases (ID) fellow at Emory University School of Medicine, working at Grady Memorial Hospital (GMH) in Atlanta, Georgia, I stare in the face a still very real epidemic. The domestic HIV literature increasingly focuses on the issues individuals living with HIV as a chronic disease now encounter, such as rising rates of malignancies, metabolic complications, and cardiac disease. These present new and important challenges for the HIV clinician and researcher, deserving of considerable attention, yet we must guard against overshadowing the stories of patients

who are acutely ill with AIDS-related complications and opportunistic infections (OIs).

After finishing 2 weeks on the general ID consult service, I was astonished as I prepared my patient log for submission to the Program Director. One-third of our 62 consults were patients infected with HIV. We saw 21 patients infected with HIV (with active infectious processes) and another patient with acute HIV infection. Details of the individual patients can be found in Table 1. The median age of the patients infected with HIV was 40 years old, 77% were male, and of those, 76% were men who have sex with men. All of the patients were black (2 were African and the remaining were African American). Excluding a patient with acute infection, the mean CD4 T-cell count was 64 cells/ μ L and over half the patients had <50 cells/ μ L. The mean viral load was 4.2 log copies/mL. Six patients were newly diagnosed on the current hospital admission. Of the 16 patients whose diagnoses predated the current admission, 8 (50%) had prior antiretroviral therapy (ART) experience yet were not on ART at the time of the admission. Two (12.5%) patients were ART-naive despite having been diagnosed in 2009. Six (37.5%) patients

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Table 1. Cases of HIV-Infected Patients Seen on General Infectious Diseases Consult Service Over a 2-Week Time Period

	Case	Sex	Race	Age	HIV Risk Factor	New HIV Dx	Admitting Dx	ARV at Admission	CD4	Viral Load (log ₁₀ copies/mL)	Year of Dx	Substance Use
Admission related to HIV	1	M	Black	35	MSM	N	AIDS enteropathy	N	4	5.63	Unknown	None
	2	M	Black	30	MSM	Y	Cryptosporidiosis	N	11	5.41	2014	Marijuana
	3	F	Black	24	Heterosexual	N	VZV PORN; dMAC	N	12	5.64	2006	None
	4	F	Black	36	Heterosexual	N	HIV encephalopathy	N	22	>7.00	2009	Crack
	5	F	Black	41	Heterosexual	Y	PCP	N	27	5.48	2014	Alcohol
	6	M	Black	49	Heterosexual	Y	<i>Streptococcus pneumoniae</i>	N	27	Not available	2014	None
	7	M	Black	41	MSM	N	Failure to thrive	N	31	6.15	2009	None
	8	M	Black	39	Unknown	N	Pulmonary TB; cryptococcosis	N	50	6.35	2009	None
	9	M	Black	32	MSM	N	<i>S pneumoniae</i>	N	52	6.53	2009	None
	10	F	Black	50	Heterosexual	Y	CMV retinitis; KS	N	80	6.67	2014	None
	11	M	Black	46	Unknown	N	FUO w/ meningoencephalitis	N	101	5.36	2011	Crack
	12	M	Black	21	MSM	Y	Acute HIV infection	N	461	6.89	2014	None
	13	F	Black	49	Heterosexual	N	Pulmonary TB	Y	19	2.2	2013	None
	14	M	Black	35	MSM	N	PCP	Y	52	6.06	2013	Alcohol
	15	M	Black	46	MSM	N	Burkitt's lymphoma	Y	274	2.29	1996	None
Admission unrelated to HIV	16	M	Black	64	Heterosexual	N	Anterior cord syndrome	N	8	5.23	Unknown	None
	17	M	Black	46	MSM	N	MRSA tenosynovitis	N	13	4.68	2004	Crack
	18	M	Black	36	MSM	Y	Traumatic brain injury	N	182	4.51	2014	None
	19	M	Black	33	MSM	N	<i>Streptococcus pyogenes</i> bacteremia	N	224	5.92	2012	None
	20	M	Black	33	MSM	N	Sepsis (KS, CMV retinitis)	Y	20	0	2013	Crack
	21	M	Black	51	MSM	N	Bed bugs	Y	131	4.15	2000	Crack
	22	M	Black	51	MSM	N	MRSA sternal osteomyelitis	Y	291	0	2009	None

Abbreviations: AIDS, acquired immune deficiency syndrome; ARV, antiretroviral; CMV, cytomegalovirus; dMAC, disseminated *Mycobacterial avium complex*; Dx, diagnosis; FUO, fever of unknown origin; HIV, human immunodeficiency virus; KS, Kaposi's sarcoma; MRSA, methicillin-resistant *Staphylococcus aureus*; MSM, men who have sex with men; PCP, *Pneumocystis pneumonia*; TB, tuberculosis; VZV PORN, varicella-zoster virus progressive outer retinal necrosis.

were on ART at the time of admission, with only 2 (12.5%) of the 16 patients with known HIV infection being virologically suppressed at the time of admission. Half of the patients were admitted with OIs or AIDS-defining illnesses, whereas many of the others suffered from processes directly related to living with a suboptimal immune system.

In addition to the consults we saw, the Special Immunology Service (the inpatient ward service dedicated exclusively to HIV/AIDS patients) census ranged from 17 to 21 patients during the same 2-week period. All of these patients were admitted with an OI or AIDS-related malignancy as well. A walk through these wards can transport any seasoned ID physician back to the late 1980s. Some would argue this perspective is a misrepresentation of the epidemic nationwide, and indeed they may be correct; notwithstanding, this is the reality where we work and live.

Despite national progress in the treatment of HIV/AIDS, safety-net hospitals such as Parkland Memorial Hospital in Dallas, Cook County Hospital in Chicago, LA County Hospital in Los Angeles, and Jackson Memorial Hospital in Miami continue to see large volumes of patients with opportunistic infections and AIDS-defining illnesses. Infectious Diseases consult services at those institutions may have very similar experiences to the one conveyed in this piece. In the context of an HIV/AIDS epidemic that is exploding in Southeastern United States metropolitan areas, the experience at GMH is particularly striking when one realizes that within the same city of Atlanta, the reality of the epidemic is drastically different based on one's geographic area of practice. In contrast to my experience at GMH, the average number of HIV

patients I saw during each 2-week consult block at Emory University Hospital was only 2.75 patients. The hospitals are located approximately 5 miles apart, but the realities of HIV disease within these 2 hospital systems are starkly different.

The tragedy is obvious. We know each opportunistic infection and death is completely preventable with the following: early diagnosis, linkage to care, retention in care, and adherence to ART regimens resulting in sustained virologic suppression, ultimately preserving life. The end result of difficulties at 1 of more of these steps within the HIV care continuum is a consult service full of patients with HIV-related complications, as illustrated in Table 1. The president signed an executive order in July 2013 for the HIV Care Continuum initiative as an impetus to improve HIV prevention and care in the United States. This recognizes that the biomedical aspect of treating HIV has brought us to an age where living with HIV as a chronic disease should be the reality.

However, we know that poverty, lack of healthcare access/insurance, race, substance use, incarceration, and homelessness are among some of the factors associated with poorer outcomes for patients with HIV. These socio-behavioral, systems-based, and bureaucratic barriers to engaging in the care continuum and achieving viral suppression abound, while solutions continue to elude us. Case management for assistance with linking patients to HIV care was demonstrated by the ARTAS group to improve linkage to care in 2005 [5]. Yet, 35 years into the epidemic, this is the only evidenced-based approach we have to improving outcomes along the care continuum, and we are still lacking evidenced-based methods to retain patients in long-term care. We remain

optimistic that this will change with renewed attention to the process of HIV care in the United States and increasing efforts to improve outcomes along the HIV care continuum.

It is our hope that the reality of our consult service illustrates the importance of guarding ourselves from the complacency that can be induced by the trajectory of the nationwide epidemic. We must remain cognizant of the local situations that demand renewed attention. We must be advocates for our patients and for new programs targeted at the most vulnerable populations to achieve a goal of "no patient left behind". We, as ID physicians, must be the champions for these patients.

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