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## Research Article

# “Undetectable, Now What?” HIV Provider Opinions on Barriers to Healthy Aging for Older People Living with HIV in North America

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### ABSTRACT

**Background:** People living with HIV (PLWH) experience age-associated health conditions earlier than their HIV-uninfected peers and have higher rates of co-occurring conditions that impact aging. Thus, HIV providers frequently confront issues related to HIV and aging.

**Objective:** The objective of this project was to understand provider opinions about the care of older PLWH better.

**Design:** This was accomplished using a quantitative survey.

**Participants:** This study involved 681 physicians treating PLWH in North America.

**MAIN MEASURES:** We collaborated with the Emerging Infections Network (EIN) to administer a nine-question survey covering practice characteristics, attitudes, and perceived barriers in caring for older PLWH. **Key Results:** Two hundred and ninety-four (43.2%) responses were collected. Providers estimate that 35% (IQR: 25-50) of their HIV-infected patients were >50 years. The majority (72%) agreed it is difficult to care for older PLWH but had confidence in their ability to do so (85%). Most list a lack of time (55.4%) and insufficient multidisciplinary support (58.5%) as limitations to the effective management of older PLWH. Multi-morbidity was overwhelmingly perceived as the most important barrier to healthy aging (62.2%) followed by tobacco/alcohol use (10%), low income/savings (8.2%), polypharmacy (4.8%) and mental illness (4.4%). Loneliness, frailty, and cognitive difficulties were judged to be less important. In conclusion, HIV providers recognized the complexity of caring for older PLWH, and yet were confident they could care for this population.

**Conclusion:** Multi-morbidity was identified as a major barrier to healthy aging, while syndromes such as frailty and cognitive difficulties were deemed less important despite a growing body of evidence that these geriatric syndromes are common in older PLWH.

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### Background

Highly effective and well-tolerated, antiretroviral therapy (ART) has transformed HIV into a chronic disease [1]. The effectiveness of ART has changed the demographics of people living with HIV (PLWH). By

2020, estimates suggest 70% of PLWH in the U.S. will be older than 50 years [1]. The importance of recognizing and planning for this aging population is apparent in part because it appears that PLWH may experience “age-associated” disorders such as frailty, osteopenia, functional deficits, and cognitive decline at chronologically younger

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ages than HIV-uninfected peers [2-5]. PLWH are also burdened with high rates of co-occurring psychosocial conditions (i.e., substance use, poverty, social isolation) that may negatively impact aging [2-5]. On the other hand, older age is associated with improved ART adherence and higher rates of virologic control [6-10]. Thus, as PLWH age, HIV care providers may need to shift from focusing primarily on HIV-linked issues such as optimizing ART regimens to a broader engagement that includes management of issues associated with aging [11].

Recent evidence suggests that, in the United States, as a group HIV specialists may provide suboptimal primary care screening practices compared to their colleagues caring for a general population and that this results in poorer clinical outcomes for conditions not directly linked to HIV infection [12]. For example, PLWH with hypertension cared for by HIV specialty care providers were 40% less likely to be prescribed anti-hypertensive medication compared to persons being seen by primary care providers (HR=1.4, 95% CI 1.016-1.942) [13]. In addition to these issues related to the delivery of competent primary care, the population of older PLWH have also been noted to have high frequencies of geriatric syndromes [14, 15].

In one study, at least two geriatric syndromes were identified in 53.6% of 179 PLWH older than 50 years, who underwent a comprehensive geriatric assessment. The most frequent syndromes were pre-frailty (56.1%), difficulty with one or more independent activities of daily living (46.5%), and cognitive impairment (46.5%) [14]. Results such as this have served as the impetus for some centers to integrate geriatric expertise into HIV care, creating what some have termed the birth of geriatric-HIV medicine [16-18]. Despite growing enthusiasm for the integration of geriatric expertise into HIV management, it is unclear if such expertise will improve outcomes in older PLWH. It is also not known if HIV specialists value geriatric expertise, a factor critical to the uptake of geriatric consultation and subsequent implementation of geriatric recommendations. In concert with the Emerging Infections Network (EIN), we performed a nationwide survey of HIV specialists that sought out opinions about caring for older PLWH, perceived barriers to care, and perceived value of geriatric expertise.

## Methods

### I Study Population and Study Design

From May to June 2017, physician members of the Infectious Diseases Society of America's EIN with an adult practice were invited to participate in an online survey titled "EIN Query: HIV and Aging" if they also 1) reported to the EIN an interest in the practice of HIV medicine, 2) had answered a previous EIN survey on HIV care, or 3) were HIV Medical Association members. The EIN collects the basic anonymized demographics of members that are included in survey results.

### II Provider Survey

A nine-question survey was developed with input from HIV clinicians, HIV clinical researchers with expertise in HIV and aging, and geriatricians with HIV expertise. The survey queried practice characteristics (In the last year, approximately how many HIV-

seropositive patients did you treat in the outpatient setting? Do you provide primary care to the majority of your HIV-seropositive patients? Is your clinic a Ryan White HIV/AIDS Program funded facility? Does your clinic offer multidisciplinary support for the care of your patients?), perceived proportions of PLWH aged 50 years and older in their practice, opinions about and perceived barriers in caring for older PLWH (Please rank the top five barriers to healthy aging in your population of HIV seropositive patients > 50 years of age. Please rate your agreement with the following statements: It is difficult and complicated to care for aging persons living with HIV. As an HIV care provider, I am confident in my ability to manage the issues that exist in aging persons living with HIV. I have adequate time to manage the issues that exist in aging persons living with HIV. I have adequate multidisciplinary support to manage the issues that exist in aging persons living with HIV.), and the utility of specific resources in caring for older PLWH (Please rank the top 3 resources that would assist you in the care of aging persons living with HIV).

As is customary for EIN queries, to minimize innate questionnaire bias, this survey was vetted by volunteer infectious disease physicians unrelated to the study that provided feedback on sentence structure and format of ranking questions. Provider opinions on caring for older PLWH were evaluated on a Likert-type scale with four response choices: strongly disagree, somewhat disagree, somewhat agree, strongly agree. Respondents were asked to rank the five most important barriers to healthy aging of 12 proposed. Respondents were also asked to rank the three most valuable resources to assist in the care of older PLWH of six proposed. Respondents could provide additional written comments on barriers to care and available resources for an aging population (Supplementary Table 1).

### III Statistical Analyses

Chi-square and Fisher's exact tests were used for univariate analyses comparing demographics between non-respondents and respondents. Data were analyzed using SAS software version 9.3 (SAS Institute, Cary, NC). This study was not designed for formal qualitative analyses. However, respondents did provide comments, and these are provided in an online appendix.

## Results

### I Characteristics of Respondents Compared to Non-Responders

A total of 345 of 681 eligible physicians (51%) responses were collected across North America (Table 1). This response rate and the difference in demographics are typical of EIN surveys [19-22]. All regions of North America were well represented, ranging from 46-59% of members in each regional area (divided into New England, Mid Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, Pacific, and Canada). A full range of employers and hospital types were represented, and this did not differ from non-responders. However, non-responders were significantly more likely than respondents to have < 25 years of Infectious Diseases experience ( $p < 0.001$ ).

**Table 1:** Responders as percent of overall members (N=345).

Region	New England	24 (9.7%)
	Mid Atlantic	45 (13%)
	East North Central	50 (14.5%)
	West North Central	32 (9.3%)
	South Atlantic	73 (21.2%)
	East South Central	19 (5.5%)
	West South Central	23 (6.7%)
	Mountain	13 (3.8%)
	Pacific	64 (18.6%)
	Canada	2 (0.6%)
Years' experience since ID fellowship	< 5 years	*64 (18.6%)
	5-14	*110 (31.9%)
	15-24	*63 (18.3%)
	≥25 years	108 (31.3%)
Employment	Hospital/clinic	113 (32.8%)
	Private/group practice	96 (27.8%)
	University/medical school	110 (31.9%)
	VA and military	25 (7.2%)
	State government	1 (0.3%)
Primary hospital type	Community	97 (28.1%)
	Non-university teaching	84 (24.3%)
	University	119 (34.5%)
	VA hospital or DOD	29 (8.4%)
	City/country	16 (4.6%)

\*Non-respondents were significantly more likely than respondents to have < 25 years of infectious diseases experience (P=0.0004).  
DOD- department of defense.

**Table 2**

Question	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree
It is difficult and complicated to care for aging persons living with HIV	14 (5%)	66 (23%)	158 (54%)	53 (18%)
I am confident in my ability to manage the issues that exist in aging persons living with HIV	4(1%)	39 (13%)	195 (67%)	54 (18%)
I have adequate time to manage the issues that exist in aging persons living with HIV	42 (14%)	121 (41%)	110 (37%)	21 (7%)
I have adequate multidisciplinary support to manage the issues that exist in aging persons living with HIV	55 (19%)	117 (40%)	94 (32%)	27 (9%)

**II HIV Provider Characteristics and Opinions about Caring for PLWH**

Of those who responded, 294 (43.1%) treated PLWH in the outpatient setting and proceeded to answer the remainder of the survey. Roughly half (153, 52%) provided primary care to PLWH. Slightly less (138, 47%) provided care in a Ryan White HIV/AIDS Program funded facility, and 168 (57%) practiced in a clinic that provided multidisciplinary (mental health, case management, etc.) support. Providers estimated that 35% (IQR 25-50%) of their population were > 50 years old. Most providers agreed that it is difficult to care for aging persons living with HIV (72.5% somewhat or strongly agreed) yet were confident in their ability to do so (85.3% somewhat or strongly agreed). Less than half reported adequate time to manage the issues that exist in aging persons

living with HIV (44.5% somewhat or strongly agreed) and adequate multidisciplinary support (41.3% somewhat or strongly agreed) (Table 2).

**III Perceived Barriers to Healthy Aging in PLWH**

Multi-morbidity was most commonly ranked among the top five of twelve barriers to healthy aging, followed by low income/savings, tobacco/alcohol use, mental illness, polypharmacy, isolation/loneliness, cognitive difficulties, frailty/low physical activity, illicit substance use, homelessness, high risk sexual behaviors and end of life planning (Figure 1). Of the listed barriers, multi-morbidity was most commonly ranked number one (n=181, 62%) followed by tobacco/alcohol use (n=30, 10%), low income/savings (n=23, 8%), polypharmacy (n=14,

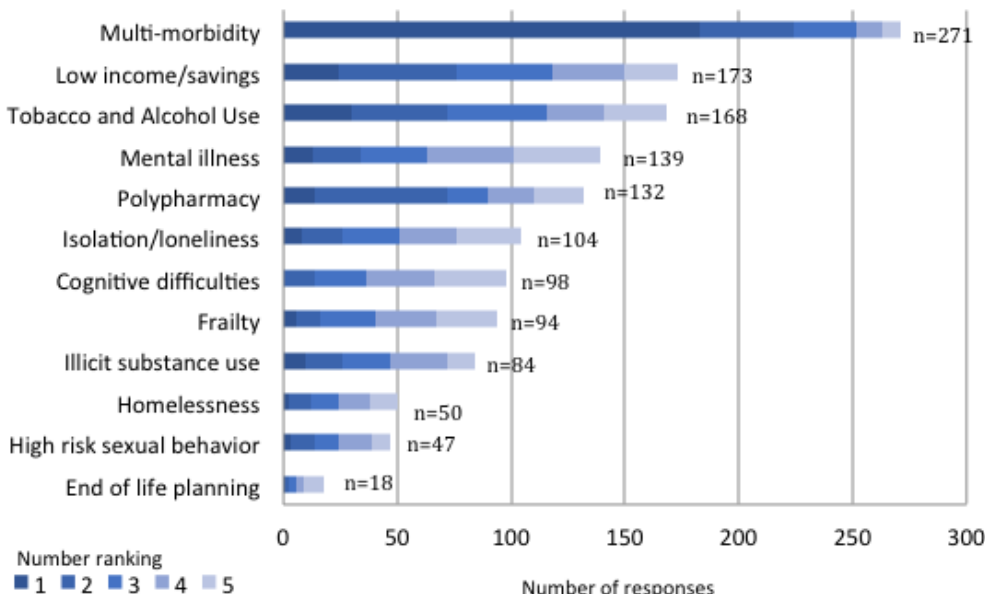
5%), mental illness (n=13, 4%), and substance use (n=10, 3%). Very few ranked isolation/loneliness (n=8, 3%), frailty/low physical activity (n=6, 2%), high-risk sexual behaviors (n=3, 1%), homelessness (n=2, 1%), end of life planning (n=1, 0%) as a primary barrier to healthy aging. No respondents ranked cognitive difficulties as a primary barrier.

**IV Useful Resources in the Care of Older PLWH**

Lastly, respondents were asked to rank the top three of six resources they believed could best assist in the care of older PLWH. Of all potential

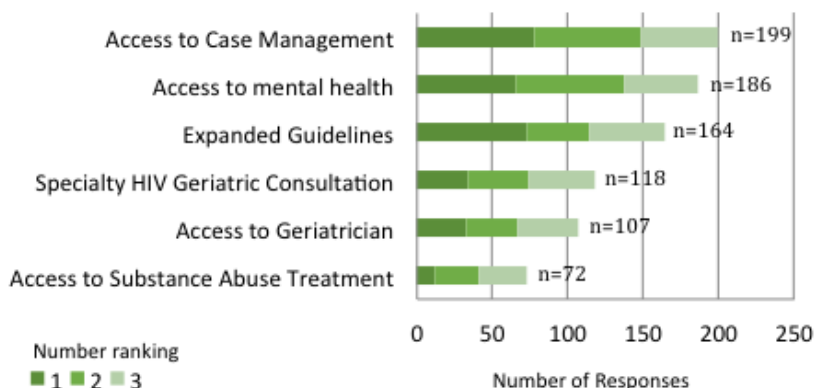
resources, case management was ranked by the most, followed by access to mental health providers, expanded guidelines, specialty geriatric consultation clinics, access to geriatricians, and access to substance abuse treatment centers (Figure 2). Seventy-eight of 294 (26.5%) viewed access to case management as the most valuable resource in the care of aging PLWH, followed by guidelines 73 (24.8%) and access to mental health services 65 (22.1%). Access to a specialty HIV geriatrics clinic 34 (11.6%) and geriatricians 32 (10.9%) were perceived as less important.

**Figure 1: Perceived Barriers to Healthy Aging (N=294)**



**Figure 1:** Respondents ranked twelve perceived barriers to healthy aging from one (most important) to five (least important). N = total ranked responses.

**Figure 2. Ranked Resources to Assist in the Care of Aging PLWH (N=294)**



**Figure 2:** Respondents ranked the top three of six resources to improve the care of aging PLWH with one being the most needed resource. N = total ranked responses.

**Discussion**

In this survey of HIV specialist opinions and perceptions of caring for older PLWH, respondents stated that 35% of their practices are older than 50 years of age. A majority of HIV providers recognized that caring for older PLWH is complex (72% somewhat or strongly agreed) yet

remained confident in their ability to care for this population (85% somewhat or strongly agreed). This perception contrasts with other studies of HIV specialists that report lower levels of comfort in caring for non-HIV associated chronic conditions such as hypertension and diabetes [23, 24]. This discrepancy may be due to differences in confidence related to the general care of PLWH versus care for specific non-HIV conditions as our study did not specifically ask about

confidence in non-HIV care abilities. Earlier studies have shown that HIV specialists provide the majority of primary care for PLWH and patients cared for by HIV specialists have experienced better HIV associated outcomes than cared for by primary care providers [25, 26].

However, HIV specialists may be less effective in managing non-HIV co-morbidities, conditions that have a greater potential to negatively affect the health of most older PLWH than does HIV itself. One study evaluating age-appropriate cancer screening and diabetes management in PLWH found that while PLWH received most HIV-specific health maintenance interventions (such as pneumococcal vaccination and cervical cancer screening), they had low rates of recommended diabetes care (foot examinations, ophthalmologic examinations and microalbuminuria screening) [27]. In our study, respondents noted that lack of time, lack of multidisciplinary support, and insurance barriers all negatively affect the care of older PLWH.

We also found that HIV specialists perceived multi-morbidity as the single major barrier to healthy aging in PLWH, followed by low income/savings and tobacco/alcohol use. Geriatric syndromes like frailty and cognitive difficulties were viewed as less important. When asked what resources would be valuable for caring for aging PLWH, respondents valued case management, specific care guidelines, and mental health providers over geriatric expertise and support. This is not surprising, as most HIV providers in North America are trained in Internal Medicine or Family Medicine, and as such, are familiar with multi-morbidity, but not with geriatric syndromes [11]. Thus, there may be value in the future development of novel approaches to care that introduce geriatric syndrome diagnosis and management into HIV care. Lastly, it should be noted that surveys and focus groups of older PLWH suggest their primary concerns as they age are quite different than what the providers in this survey prioritize. These include their fragile social networks, mental health, and perceptions of cognitive decline [28-30].

The increasing medical and psychosocial complexity of older PLWH and projections that there will be an insufficient number of HIV providers to care for PLWH supports the urgency of exploring new approaches to HIV management. Our data suggest that HIV provider “buy-in” is key to implementing and disseminating new care models, such as the integration of geriatric assessments. These findings are supported by a recently published paper detailing the development of the “Golden Compass HIV and aging care program” that was designed with patient and clinic staff perspectives [31]. The successful implementation of geriatric concepts into HIV care on a wider scale will likely require a) ongoing education of HIV providers on the changing needs of older PLWH and the potential value of geriatric expertise, b) data from randomized clinical trials demonstrating the effectiveness of geriatric care models, and c).

This study is limited by biases inherent in questionnaire-based work [32]. This study is also likely limited by response bias as most respondents had been in practice for greater than 25 years, and thus, the responses may over-represent views of specialists who trained in a different era of HIV care. Lastly, this survey only included input from physicians, and the opinions and perceptions cannot be extended to allied professionals who also care for older PLWH.

## Conclusion

In conclusion, HIV providers recognize the complexity of caring for older PLWH, are confident in their ability to care for this population and tend not to perceive the impact of geriatric conditions on older PLWH nor to value geriatricians. Research designed to evaluate outcomes of co-morbidities (including geriatric syndromes) in older PLWH are needed to answer the question “Undetectable, Now what?”.

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## Conflicts of Interest

MYK receives funding to the institution from Gilead Sciences and ViiV Healthcare and has served on advisory boards for Gilead Sciences.

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