

## Strengths and Challenges of Various Models of Geriatric Consultation for Older Adults Living with

### HIV

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**Summary:** For persons living with HIV age 50 and over, there is an increasing need to address concerns associated with aging. Thus, three models of geriatric consultation are described: outpatient referral/consultation, combined HIV/geriatric multidisciplinary clinic, and dually-trained providers within one setting.

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## Abstract

As care of persons living with HIV (PWH) has transitioned from management of opportunistic infections to management of conditions associated with older age, new models of geriatric consultation are needed. The authors, who represent nine different clinics across North America and the United Kingdom, provided their insights on models of geriatric consultation for older individuals living with HIV. Three models of geriatric consultation are delineated: outpatient referral/consultation, combined HIV/geriatric multidisciplinary clinic, and dually-trained providers within one clinical setting. A patient-centered approach and the utilization of expertise across disciplines were universally identified as strengths. Logistical barriers and the reluctance of older PWH to see a geriatric care provider were identified as barriers to implementing these models. Although the optimal model of geriatric consultation depends on a region's resources, there is value in augmenting the training of infectious disease providers to include principles of geriatric care.

**Key Words:** HIV & aging care; geriatric consultation model; HIV care continuum; geriatric care; older adults with HIV

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## Background

Antiretroviral therapy (ART) regimens have led to improved rates of HIV-1 viral suppression and subsequent increases in life expectancy of people living with HIV (PWH). PWH aged 50 and older now comprise over 50% of adults living with HIV in the U.S. and Europe.<sup>1</sup> Worldwide, an estimated 6.7 million people aged 50 years and older are living with HIV, and rates are expected to increase over the next decade.<sup>2</sup>

For those aging with durable HIV viral suppression, comorbidities and syndromes associated with aging are more common than conditions related to AIDS, such as opportunistic infections. Many PWH have expressed concerns relating to cognition, access to community services, daily function and gait, management of complex comorbidities, and healthy aging.<sup>3</sup> Compounding the complex care of older adults living with HIV is a shortage of infectious disease providers, especially HIV specialists, and geriatricians.<sup>4</sup> National Resident Matching Program (NRMP) data from 2021 shows that only 52.0% positions were filled across all geriatric medicine fellowship programs in the United States.<sup>5</sup> In 2019, 20.7% of infectious disease positions were unfilled in the U.S.<sup>6</sup> With limited resources and a growing population of older adults living with HIV, new models of care may be needed.

Such models may include referrals to geriatricians outside of the HIV clinic, geriatricians embedded within HIV clinics, and referral to internists or family medicine providers for co-management, though many other care model types may exist, and this summary is not an exhaustive list of all existing clinics. Relatively little is known regarding patient and provider acceptability and outcomes with any of these models, and nor do we know how best to integrate care of older PWH across health systems.<sup>7</sup>

Based on the experiences and perspectives of nine diverse clinics across North America and the United Kingdom, this piece highlights lessons learned from three models of geriatric consultation: outpatient referral/consultation, combined HIV/Geriatric multidisciplinary clinics, and dually-trained providers. The co-authors are representatives of all three aforementioned models and have provided their insights regarding initial strengths and challenges of these three models, patient or provider feedback, and areas for improvement.

### **Model 1: Outpatient referral/consultation**

One institution, the University of Colorado, implemented an outpatient referral program to connect higher-risk patients with a geriatric medicine provider (Table 1). The geriatric care provider provided recommendations to enhance a patient's care plan to the HIV provider who remained the primary provider in most cases.

**Strengths:** Successes were rooted in the simplicity and ease of start-up, extended consultation time with patients, facilitation of specialty referrals, and collaboration between geriatric care providers, pharmacists, and HIV providers. An extended initial consultation encompassed components of a comprehensive geriatric assessment with a summary and key recommendations communicated to the HIV provider. Patient education reinforced topics not often covered in shorter HIV follow-up appointments. While referrals to geriatric medicine are often not deemed appropriate for middle-aged patients, this model encouraged referrals of PWH as young as 50.<sup>8</sup>

**Challenges:** Challenges included referral barriers and patient barriers. The program was dependent on the willingness of geriatricians to see younger patients given their geriatric clinic demands. Without the geriatric care provider physically present in the clinic, HIV providers seldom remembered to refer patients. Patients who were referred for a geriatric care consultation were often late or failed to attend the appointments, which was attributable to many factors, including confusion over the need for the referral, navigation of a new clinic, the need to build trust between patient and provider, over-consultation, or socioeconomic challenges. The frequent turnover of residents and fellows in the HIV and geriatric clinics presented barriers in maintaining continuity and consistency for patient care. Finally, both geriatric care providers and HIV providers noted significant financial barriers, which can vary depending on the institution. At this U.S. clinic, geriatric care provided outside of the geriatric clinic (i.e. in the HIV clinic) could not be included in the geriatrician's required weekly clinic hours; thus, service time was essentially volunteered. For those wishing to bill for geriatric consultation in the U.S., there are other barriers, including 1) challenges in receiving reimbursement by the Centers for Medicare and Medicaid Services if a patient has multiple visits on the same day for the same services in the same facility and 2) opportunity costs from geriatric consultation for PWH, particularly with high no-show<sup>9</sup> rates, in light of financial pressure placed on providers to see more patients. A shift towards time-based billing as of 2021<sup>10</sup> may reduce pressure on providers to increase patient load. The ability of Ryan White-funded programs to be reimbursed for geriatric consultation at Medicare rates may also mitigate some of these financial constraints.

In summary, this model might work best as an initial, simple solution, particularly in locations where policies will not permit a combined geriatric and HIV clinic. A geriatrician who is interested and willing can provide an initial, comprehensive assessment, but patients and providers alike would

benefit from integration of other aging services that can address the full spectrum of a patient's needs, particularly with regards to social determinants of health.

### **Model 2: Combined HIV/Geriatric Multidisciplinary Clinic**

Six authors represented institutions across North America and the United Kingdom that have implemented a combined HIV/Geriatrics multidisciplinary clinic (Table 1), although these clinics may not encompass all combined clinics. The specific structure of clinic visits varies slightly between each clinic.

The THRIVE Program utilizes a multidisciplinary team, including an infectious disease physician, nurse practitioner, gerontologist, two graduate students (gerontology and epidemiology), pharmacist, and social worker. Currently supported by external grant funding, patients complete a comprehensive set of assessments with a graduate student in one extended visit using validated instruments in mental health, cognition, physical functioning, and quality of life in addition to a socio-demographic questionnaire. A medical provider reviews the chart to assess comorbidities and age-based preventative health screenings, and a pharmacist evaluates for polypharmacy and drug safety. The multidisciplinary team compiles a summary of the information and final recommendations to share with the patient's primary HIV provider.

The McGill University Health Center (MUHC), a tertiary care academic center in Montreal, Canada, includes an internist-geriatrician with HIV expertise working concurrently within a long-standing, active, hospital-based, comprehensive HIV clinic and the tertiary hospital-based geriatric consultation service. Housed within an HIV clinic, the provider is able to draw on the resources and

invaluable experiences of HIV clinical social workers, clinic nurses, pharmacists, nutritionists, psychiatrists, and community services. The MUHC functions within the Canadian provincial-based single payer system, which minimizes limitations related to logistical considerations common to multi-payer systems, as remuneration is not specialty but service-determined with built-in flexibility of service cross-over.

The Chelsea and Westminster Hospital PLUS50 clinic<sup>11</sup> is run by a HIV consultant physician, a geriatric care consultant physician, and physicians-in-training with support from a HIV nurse specialist, HIV pharmacist, and physiotherapist. This program partners with a local HIV charity to offer peer support and phone support to decrease isolation and depression.

At the Silver Clinic<sup>12</sup> in Brighton, a multidisciplinary team includes a consultant physician, nurse, specialist, HIV pharmacist, geriatric care consultant physician, and consultants in occupational therapy, physiotherapy, and community nurse services. This clinic operates monthly within an HIV outpatient clinic. Patients complete screening questionnaires focused on physical, functional, mood, and cognitive status before appointments. The multidisciplinary team discusses each patient's background, patient-reported outcome measures, current clinical problems, and anticipated needs. The appointment includes a dual consultation with both the geriatrician and HIV care provider with a comprehensive geriatric assessment.

Both clinics in NYC and San Francisco have geriatricians within the HIV clinics who conduct outpatient geriatric consultations.<sup>13-15</sup> In New York, two geriatricians provide initial and follow-up consultation at the Center for Special Studies (CSS) and offer inpatient geriatric consultation to hospitalized patients with HIV.<sup>13,15</sup> Following COVID, the CSS model has shifted to a Model 1



approach, and a provider instead sees HIV patients in the geriatric clinic, though long-standing relationships have facilitated more referrals to the geriatric clinic. A shared electronic health record, including real-time chat function, has enabled strong collaboration. At the Golden Compass Program in San Francisco, a geriatrician with HIV training conducts weekly geriatric consultations. Patients also meet with a pharmacist and social worker to address specific concerns (i.e. cognition or falls) and identify additional care needs.<sup>14</sup> An individualized plan created by the team is shared with the referring provider. The Golden Compass program also includes a cardiologist, classes on exercise and other topics, and linkage to community partners to address isolation and age-related issues.<sup>14</sup> Both clinics have external grant support.

**Strengths:** The strengths of this approach include a multidisciplinary focus, coordination of care, communication, and easy access for both patients and providers through co-location of services.<sup>16</sup> At the THRIVE Clinic, Silver Clinic, and Golden Compass Program, patients provided input in the initial design and ongoing care through these clinics in the form of listening sessions, voluntary surveys, and interviews. In part a result of this collaboration, patients report satisfaction with services of this model, as over 90% of patients reported satisfaction with the services they received in two studies performed at two separate institutions.<sup>12,16</sup> Providers also recognize the importance of these services.<sup>12</sup>

**Challenges:** The main challenges are financial support and long-term sustainability. Nearly all of these clinics required stakeholder involvement, both short and long-term grant funding, and additional institutional support. One clinic expressed concerns about navigating the uncertainty of funding availability when current funds are depleted. Some of these clinics have been particularly vulnerable to the COVID-19 pandemic, as resources and personnel have been reallocated. Additional

challenges include identification of patients who should be evaluated in the clinic, billing for certain aspects of the visit such as counseling and coordination of care, and the long-term sustainability of incentive programs. Even when providers are in the same clinic, clinical recommendations may not be followed; as noted in one study, the most common reason was that the recommendation was not feasible.<sup>13</sup> Access to other services such as social work, case management, physical and occupational therapists, and more focused geriatric services (e.g. complex cognitive assessment, incontinence evaluation, and day-hospital facilities) may be limited in some locations. Provider availability remains a universal concern. Providers felt that there was a lack of awareness among healthcare commissioners, policymakers, and other healthcare professionals that geriatric syndromes affect PWH earlier than the general population.

Overall, the combined HIV/geriatric multidisciplinary clinic model provides an opportunity to combine the expertise of both HIV providers and geriatrics providers. A comprehensive geriatric assessment can evaluate and address patient needs, often in a familiar setting. Additional research surrounding patient outcomes, health economics, and cost-effectiveness data of HIV/geriatric care models could provide these clinics with data to support ongoing funding for expanded services.

### **Model 3: Dually-Trained Providers**

A third model incorporates a provider with training in both aging and HIV into a clinic that provides simultaneous HIV and geriatric care (Table 1). A provider could be board-certified in both geriatric medicine and infectious diseases (i.e. “Infectious Disease Geriatrician”) or have gerontology expertise (i.e. gerontologic nurse practitioner). Very few providers are dually-board certified in both specialties due to the intensive training time, added cost, and lack of combined training programs. However, enhanced training in geriatric care for HIV providers or HIV certification for geriatric

providers can minimize additional referrals for patients, provide geriatric care for older patients with HIV, and likely decrease cost. The Health Resources and Services Administration (HRSA) Geriatrics Workforce Enhancement Programs have begun partnering with HRSA Ryan White funded clinics to provide geriatrics training.<sup>17</sup>

An example of this model is the Age Positively Program at Massachusetts General, where an HIV provider with an invested interest and additional training in geriatric care utilized hour-long appointments to screen patients age 50 and over for depression, falls, cardiovascular disease, dental health, eye health, bone health, physical activity, and nutrition. The provider communicated recommendations to the patient's HIV provider. Extended appointment visits allowed more time for patient education and discussion of topics that do not receive adequate time or priority during normal clinic visits.

Another example is a provider at the University of Pennsylvania Medical Center who is dually-boarded in geriatrics and infectious diseases and manages all aspects of geriatric and HIV care for older HIV patients in her geriatric clinic. Ultimately, this provider has conceptualized a stand-alone program that provides simultaneous HIV and geriatric care; however, with logistical barriers, including funding, identification of a location and payor source, scheduling, and access to additional resources, this model has not yet been implemented.

**Strengths:** At the Age Positively Program, patients expressed that attending these long appointments was worthwhile for them. As geriatric care providers were unable to accommodate additional referrals at this facility, this model pursued an innovative way to provide an initial geriatric assessment. Patients seen by the dually-boarded provider received care without additional consultations.

**Challenges:** The provider at Massachusetts General volunteered time for the hour-long visits that focused upon geriatric medicine principles. Although geriatric conditions were addressed, resources for aging needs were not always available within the HIV clinic. Despite integration into an HIV clinic, providers often forgot to refer patients, high no-show rates remained an issue, and the long assessment visit added to patients' overall medical appointment burden.

While the dually-boarded model may seem ideal, implementation logistics have been challenging. It would require a health system that permits a dually-boarded provider to bill for care in both an HIV and geriatric clinic, as these positions are often split between two separate divisions. Such a structure may increase or split the clinical and administrative responsibilities of a provider, and the feasibility of financing from specialty-specific departments can vary by institution. Without grant funding or direct salary support for a provider's time, exchanging a geriatric clinic for an HIV clinic may not be considered financially favorable by a division. While provision of HIV care is often supported by additional funding (i.e. Ryan White programs), these services are not available in a separate geriatric clinic.

Overall, enhancing the geriatric training of HIV providers and the HIV training of geriatricians is an initial step to incorporating geriatric care principles into the care of PWH age 50 and over.

Notably, other models exist beyond those represented by the authors. Multi-disciplinary clinics focused on HIV and metabolic-related complications have been established to enhance management of dyslipidemia, diabetes, metabolic syndrome, and nonalcoholic fatty liver disease.<sup>18,19</sup> Other

models offer online support to individuals living with HIV.<sup>20</sup> One framework utilized a mobile application and wearable devices to monitor physiological and health data for patients and providers.<sup>20</sup>

## Discussion

In these three models of geriatric consultation for older PWH, there is a demonstrated commitment to enhance patient goals and outcomes by focusing on the geriatric 5Ms: what matters most to patients, mobility, mind, medications, and multicomplexity.<sup>21</sup> A patient-centered approach was a strength across all these models, as was the utilization of expertise across disciplines. Similar challenges arose, regardless of geographic location or institution type. They included: **1) Logistical barriers:** The ideal location for PWH to access geriatric care services (within or outside of the facility) is variable. **2) Referral criteria and role clarity of the geriatric specialist:** If a patient was younger than 65 years, some providers were prevented from referring patients to a geriatric care provider. PWH aged 50 and older were often reluctant to see a geriatric care provider, as they did not consider themselves “geriatric.” Providers must acknowledge the intersectional identities that may impact patient experiences and stigmatization, including older age.<sup>22</sup> **3) Financial barriers:** Providers noted the challenges of navigating billing processes, such as those within an embedded multidisciplinary clinic. These issues could be better mitigated within the single-payer system, as limitations related to licencing, remuneration, and other logistic considerations common to multi-payer systems are minimized. Obtaining sufficient and sustainable funding sources is a challenge for many clinics.

The COVID-19 pandemic’s economic impact cannot be understated, as it has resulted in reallocation of personnel and significant loss in revenue due to a decline in outpatient visits over several months.<sup>23</sup> This ongoing decline resulted in a reconfiguration of HIV practices and geriatric consultation models. The loss of support and attention by governmental agencies as personnel have been reassigned to COVID-related matters has tabled government resources and grant

opportunities. Many of these geriatric consultation programs incorporated socialization activities for participants, but without maintenance of these programs during the pandemic, there has been an exacerbation of isolation and other mental health concerns. With these considerations in mind, video and phone visits have been proposed as a temporizing solution.<sup>24</sup> However, it must be noted that telehealth visits may not engender the same level of trust or understanding that in-person visits can provide, and patients have expressed concerns that telehealth will replace in-person visits when in-person visits may be preferred.

## **Conclusion**

This summary of models of geriatric consultation for individuals aging with HIV is not exhaustive, and it is important to acknowledge the variation in resources that a clinic within a given healthcare system can utilize in pursuit of the most effective and efficient model. Geriatricians have been recruited in the models outlined due to their expertise in aging syndromes, management of complex multi-morbidities, and much more, but some regions may have limited number of geriatricians. Over the short term, it may be beneficial for HIV providers seeking geriatric consultation to utilize telehealth. Over the long term, given the shortage of geriatricians and infectious disease providers, in addition to more aggressive recruitment of providers into these specialties, there may be some benefit in enhancing and modifying both the geriatrics and HIV competencies included in family medicine and internal medicine residency programs across the United States. It may also be beneficial to integrate principles of geriatric medicine into training requirements for infectious disease physicians. Patient involvement is essential to ensure that these models of care reflect what PWH seek in their care. Evaluation of these models with regards to patient outcomes (e.g. quality of life, mortality outcomes, healthcare utilization, and frailty outcomes), improvement in geriatric syndromes, and cost-effectiveness compared to standard of care is essential in informing the development of new programs and creating sustainable funding from policymakers.

## NOTES

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### Conflicts of interest

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Table 1. Overview of Three HIV and Geriatric Care Models

Model Type	Overall Description	Institution Name	Location
Model 1: Outpatient referral/consultation	Referral to a geriatrician for recommendations to enhance a patient's care plan; HIV provider remains as primary provider	Positive Aging Consultation at University of Colorado	Aurora, Colorado, USA
Model 2: Combined HIV/Geriatric Multidisciplinary Clinic	A multidisciplinary team is incorporated into existing HIV/Infectious Disease clinics to provide a comprehensive assessment and evaluation of each patient. Primary care providers are provided with full evaluation and recommendations from the multidisciplinary team	The THRIVE Program	Baltimore, Maryland, USA
		Comprehensive HIV and Aging Initiative of the Chronic Viral Illness Service at the McGill University Hospital Center	Montreal, Quebec, Canada
		Chelsea and Westminster Hospital <sup>11</sup>	London, United Kingdom
		Silver Clinic <sup>12</sup>	Brighton, United Kingdom
		Golden Compass Program at University of California, San Francisco/Zuckerberg San Francisco General Hospital <sup>14,16</sup>	San Francisco, California, USA
		Center for Special Studies at New York Presbyterian/Weill Cornell Medical Center <sup>13,15</sup>	New York City, New York, USA
Model 3: Dually-Trained Providers	An HIV provider with an invested interest in geriatric care performs assessments and provides recommendations	Age Positively Program at Massachusetts General Hospital	Boston, Massachusetts, USA

	Dually-Boarded Provider: A single provider with both geriatric and HIV expertise in one clinical home	Penn Community Practice and Penn Geriatrics at the University of Pennsylvania Medical Center	Philadelphia, PA, USA
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