*Clinical Infectious Diseases*

EDITORIAL COMMENTARY

# Geriatric-HIV Medicine Is Born

**Giovanni Guaraldi[1] and Kenneth Rockwood[2]**

[1]University of Modena and Reggio Emilia, Italy and [2]Dalhousie University, Halifax, Nova Scotia, Canada

**(See the Review Article by Singh et al on pages 501–6.)**

**Keywords.** geriatric; HIV; aging; geriatric care.

Ten years ago, the first modeling studies showed that the life expectancy of people living with human immunodeficiency virus (HIV) who demonstrated good immunological recovery is close to that of the general population [1]. Now we know that aging with HIV is a fact of life. With this realization has come a move to understand healthy life expectancy in people living with HIV. In this effort, the remarkable progress in HIV/AIDS medicine can benefit from what has been learned in geriatric medicine. Over many decades, geriatrics has developed clinical principles and practices that, in their focus on function (and not just disease), aim to enhance the quality of life of elderly people.

In this issue of *Clinical Infectious Diseases*, a review by Singh and coauthors celebrates the birth of "geriatric-HIV medicine." They forecast how it can rapidly catch up with related medical specialties, such as "ortho-geriatrics" [2], "cardio-geriatrics" [3], or "onco-geriatrics" [4]. The prerequisite for geriatric medicine and HIV medicine to interact is that they share some basic geriatric nomenclature. This is not an option: by speaking the same language, we can share principles and tools.

Some concepts are key. First, as they point out, there is more to understanding the complexity of health in aging than assessing noninfectious comorbidities and multimorbidity. Another centerpiece of the argument is that as people with HIV infection live longer, many are developing conditions and syndromes that are common in older adults but are only loosely related to disease counts. Two people with the exact same comorbid conditions can have very different functional aging trajectories; in contrast, the degree of frailty provides a reliable prognostic guide, something seen in many settings, and across the life course [5–8]. This also appears to hold in HIV [9]. The transition from evaluating comorbidities in HIV to implementing comprehensive geriatric assessment requires both structural and cultural changes in patient evaluation. Such changes will gain by understanding frailty [10, 11]. As a measure of biological age, frailty, better than chronological age, can describe both a health state and a geriatric syndrome. Frailty, more than multimorbidity, allows us to grasp the complexity of age-related pathophysiologic changes and does so in ways that can alert us to effective clinical interventions [12].

## GERIATRICIANS IN HIV CLINICS?

Singh and colleagues examine several geriatric consultation models: referral to a geriatric clinic, assessment within a PLWH practice, and/or assessment in home. We do not yet know which is the most effective combination of resources, but whatever is available should be explored. We will need to learn how to screen for frailty, how to assess and treat common geriatric syndromes such as delirium, impaired mobility, falls, and polypharmacy. Some of this will require adaptation of what otherwise happens in aging. For example, will there be more specific pathways to delirium reflecting specific neurological consequences of HIV or of the medications used in its treatment? Likewise, tools that have worked well in geriatric assessment may need to be adapted to the assessment of HIV-infected persons. Vulnerabilities for disability and obstacles to care that are HIV-specific must also be taken into consideration, including social vulnerability and interaction between HIV and aging stigma. Each of these questions can help make up a rich and important research agenda, likely to advance disciplines in both care of older adults and persons living with HIV.

## OPPORTUNITIES FOR INNOVATION IN CARE OF PEOPLE WITH COMPLEX NEEDS

Given the shortage even now of geriatricians in many developed countries, although some centers may lead in developing a needed Geriatric-HIV Medicine academic core, most HIV clinics wishing to incorporate the lessons of geriatric medicine can expect to add to their current offerings what works well in the assessment of aging people in general. Such work should be undertaken in the spirit that it can inform more generally

Received 20 March 2017; editorial decision 25 March 2017; accepted 31 March 2017; published online April 6, 2017.

Correspondence: G. Guaraldi, Department of Medical and Surgical Sciences for Children & Adults, University of Modena and Reggio Emilia, Largo del Pozzo 71, 41124 Modena, Italy (giovanni.guaraldi@unimore.it).

**Clinical Infectious Diseases® 2017;65(3):507–9**



DOI: 10.1093/cid/cix316

the care of people with complex needs, especially as they age [13, 14]. Further, we need not repeat their more painful lessons to learning from geriatricians. For example, confusion arises from the variable meanings of the term "comprehensive geriatric assessment." In the United Kingdom in particular, it is understood to also incorporate management and not just evaluation. In contrast, in many North American context geriatric assessment can be synonymous with mere risk stratification—reflecting an assumption (of people unaware of the active and evolving evidence base for its effectiveness) [15–17] that there is little to be done for frail patients other than to "place" them appropriately (eg, by assigning them to the correct level of long-term care). Similarly, as with other cognitive (as opposed to procedure-based) specialities, physician costs historically have been inadequately captured in the fee-for-service environment. Singh et al. note the increase in subspecialty consultation (eg, citing cardiology, nephrology, oncology) for people living with HIV. In frail patients, this has proved to be a mixed blessing: left to their own devices, subspecialists constitutionally have a narrow focus, typically merging their own interventions with what is desirable. This is not restricted to physicians: a painful lesson, oft learned, is that multidisciplinary teams do not always make for effective interprofessional collaborative practice. One useful remedy, somewhat worked out in the care of older people and sometimes used in HIV care [18], is patient-centred language and individualized outcome measurement [19].

The HIV community also offers opportunities particularly for evaluating innovative communication strategies. Younger groups of people aging with HIV represent the first "digital generation," who are likely to benefit from information and communication technologies designed to address health needs both in wealthy and resource-limited countries [20].

Particular opportunities arise in relation to polypharmacy. With the adoption of combination antiretroviral therapy (ART), most HIV-infected individuals in care are on 5 or more medications. In a geriatric medicine context, this puts them at risk of harms such as decreased medication adherence, organ system injury, hospitalization, geriatric syndromes (falls, fractures, and cognitive decline), and mortality. What can be considered as polypharmacy in HIV/AIDS? Which medications put aging people at risk? Will broad principles of de-prescribing in polypharmacy hold or require adaptationI? ID physicians have learned little by little to deal with an increasing number of comorbidities and apparently have progressively added drugs for comorbidity treatment and prevention above ARV. We still complain underprescribing of drugs like statins in HIV, but in fact overprescription of drugs is already present in HIV care [21]. Geriatric consultation often results in de-prescribing drugs rather than adding more and geriatric medicine. Even so, emerging evidence that polypharmacy per se might be less important than frailty in understanding risk in relation to medication use [22, 23].

Research tools in HIV-geriatric medicine are much needed. Current clinical trials are unlikely to inform or enhance the treatment of older HIV-positive patients. The choice of appropriate investigative clinical endpoints is important to assess the benefit of interventions, including ART therapy. The standard HIV research endpoints of virologic suppression and CD4 improvements may not be the most important tools with which to evaluate the risk/benefit ratio, even in ART clinical trials involving older HIV-positive persons. Competing non-HIV risks for death and morbidity, and greater risk for acute and chronic ARV-related toxicity, must also be considered.

The European Medical Agency recently suggested combining physical performance and patients reported in formal clinical trials (eg, using a combined outcome of walking faster than 0.8 m/s AND reporting short physical performance battery improvements) in assessing investigational drugs for treatment of sarcopenia in frail patients [24]. This seems like a useful precedent to apply to investigational antiretroviral agents for elderly people, as might also be differences in the degree of frailty between treatment groups. Geriatric assessment has been incorporated into many clinical trials, involving cancer treatment. Even so, challenges remain in using such assessments as criteria for interventional stratification or randomization, in part because of the lack of standardization of definitions of frailty and disability, and due to lack of studies about their measurement properties in clinical trials, although recently this appears to be changing. What is needed, however, is a better understanding of their responsiveness/sensitivity to change.

Every advance in medicine brings new questions and new opportunities. It is an exciting and welcome challenge now to have to address how best to care for people living with HIV as they enter old age.

## Note

***Potential conflicts of interest.*** K. R. receives career support from the Dalhousie Medical Research Foundation as the Kathryn Allen Weldon Professor of Alzheimer Research. Both authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

## References

1. Lloyd-Smith E, Brodkin E, Wood E, et al. Impact of HAART and injection drug use on life expectancy of two HIV-positive cohorts in British Columbia. AIDS **2006**; 20:445–50.
2. Ramason R, Chong MS, Chan W, Rajamoney GN. Innovations in hip fracture care: a comparison of geriatric fracture centers. J Am Med Dir Assoc **2014**; 15:232–3.
3. Dodson JA, Matlock DD, Forman DE. Geriatric cardiology: an emerging discipline. Can J Cardiol **2016**; 32:1056–64.
4. Rougé-Bugat ME, Gérard S, Balardy L, et al. Impact of an oncogeriatric consulting team on therapeutic decision-making. J Nutr Health Aging **2013**; 17:473–8.
5. Clegg A, Bates C, Young J, et al. Development and validation of an electronic frailty index using routine primary care electronic health record data. Age Ageing **2016**; 45:353–60.
6. Mitnitski A, Rockwood K. The rate of aging: the rate of deficit accumulation does not change over the adult life span. Biogerontology **2016**; 17:199–204.
7. Rockwood K, Blodgett JM, Theou O, et al. A frailty index based on deficit accumulation quantifies

mortality risk in humans and in mice. Sci Rep **2017**; 7:43068.
8. Kim S, Myers L, Wyckoff J, Cherry KE, Jazwinski SM. The frailty index outperforms DNA methylation age and its derivatives as an indicator of biological age. Geroscience **2017**; 39:83–92.
9. Guaraldi G, Brothers TD, Zona S, et al. A frailty index predicts survival and incident multimorbidity independent of markers of HIV disease severity. AIDS **2015**; 29:1633–41.
10. Clegg A, Young J, Iliffe S, Rikkert MO, Rockwood K. Frailty in elderly people. Lancet **2013**; 381:752–62.
11. Morley JE, Vellas B, Abellan van Kan G, et al. Frailty consensus: a call to action. J Am Med Dir Assoc **2013**;14:392–7.
12. Cesari M, Pérez-Zepeda MU, Marzetti E. Frailty and multimorbidity: different ways of thinking about geriatrics. J Am Med Dir Assoc **2017**; 18:361–4.
13. Schoufour JD, Echteld MA, Evenhuis HM. Comparing two frailty concepts among older people with intellectual disabilities. Eur J Ageing **2017**; 14:63–79.
14. Castro-Rodríguez M, Carnicero JA, Garcia-Garcia FJ, et al. Frailty as a major factor in the increased risk of death and disability in older people with diabetes. J Am Med Dir Assoc **2016**; 17:949–55.
15. Gladman JR, Conroy SP, Ranhoff AH, Gordon AL. New horizons in the implementation and research of comprehensive geriatric assessment: knowing, doing and the 'know-do' gap. Age Ageing **2016**; 45:194–200.
16. Conroy SP, Turpin S. New horizons: urgent care for older people with frailty. Age Ageing **2016**; 45:577–84.
17. Jay S, Whittaker P, Mcintosh J, Hadden N. Can consultant geriatrician led comprehensive geriatric assessment in the emergency department reduce hospital admission rates? a systematic review. Age Ageing **2016**:1–7.
18. Drouin H, Walker J, McNeil H, Elliott J, Stolee P. Measured outcomes of chronic care programs for older adults: a systematic review. BMC Geriatr **2015**; 15:139.
19. The American Geriatrics Society Expert Panel on Person-Centered Care. Person-centered care: a definition and essential elements. J Am Geriatr Soc **2015**; 64:15–18.
20. Blaya JA, Fraser HS, Holt B. E-health technologies show promise in developing countries. Health Aff **2010**; 29:244–51.
21. Guaraldi G, Menozzi M, Zona S, et al. Impact of polypharmacy on antiretroviral prescription in people living with HIV. J Antimicrob Chemother **2016**; 72:511–4.
22. Poudel A, Peel NM, Nissen LM, Mitchell CA, Gray LC, Hubbard RE. Adverse outcomes in relation to polypharmacy in robust and frail older hospital patients. J Am Med Dir Assoc **2016**; 17:767.e9–767.e13.
23. Saum KU, Schöttker B, Meid AD, et al. Is polypharmacy associated with frailty in older people? Results from the ESTHER Cohort study. J Am Geriatr Soc **2017**; 65:e27–32.
24. Points to consider on frailty: Evaluation instruments for baseline characterisation of clinical trial populations. **2016**:1–18. Available at: http://www.ema.europa.eu/docs/en_GB/document_library/Scientific_guideline/2015/12/WC500199243.pdf. Accessed 23 April 2017.