

Growing Older with HIV

Abeer Moanna, MD

Professor, School of Medicine

Emory University

Acknowledgement

- ID team at the Atlanta VA
- Our patients

Learning Objectives

Why aging differs in HIV

Multimorbidity and organ-specific risk

ART optimization and polypharmacy

Psychosocial dimensions

Models of care

Mr. O's Case

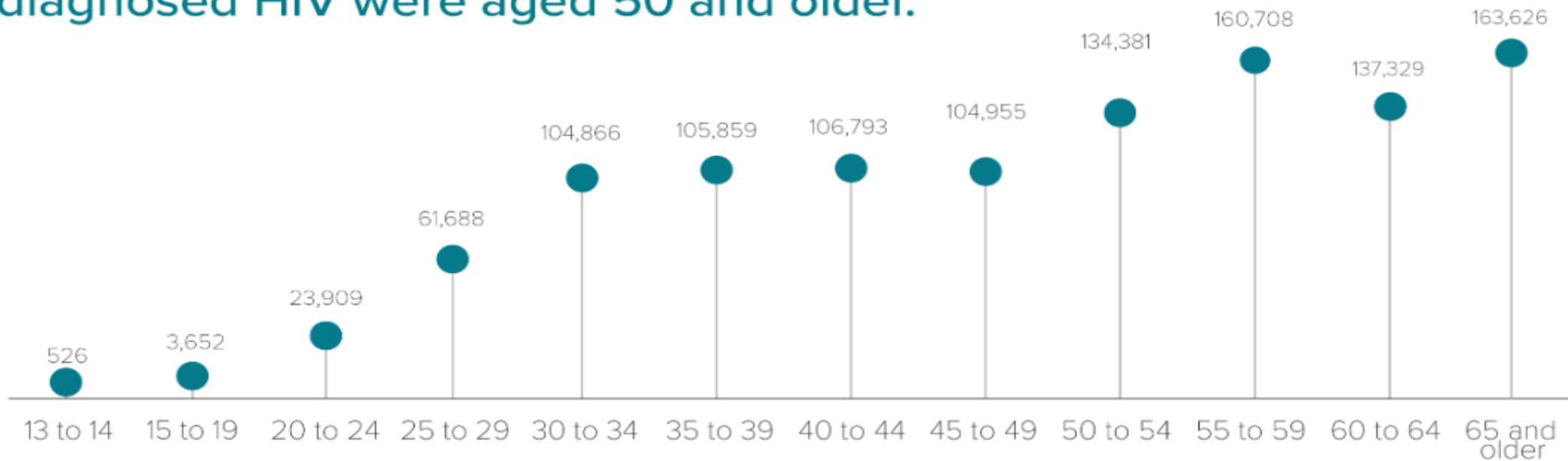
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- Mr. O, 68 years old man, diagnosed with HIV in 1996 at CD4 90/ μ L, prior exposure to d4T/ddI and later TDF-based ART
 - Currently on TDF/FTC/EFV, HIV-RNA <20 copies/mL for 10 years, CD4 610/ μ L
 - Comorbidities: hypertension, dyslipidemia, type 2 diabetes, eGFR 48 mL/min/1.73m², T-score -2.6 at the femoral neck
 - Takes 9 chronic medications plus zolpidem and diphenhydramine PRN
 - Lives alone; partner died in 1998
 - Reports two falls in the past 6 months and "slowing down"

Who is this patient?

Mr. O is now the typical patient, not the exception

People with diagnosed HIV in the US and 6 territories and freely associated states by age, 2022

People with diagnosed HIV are living longer, healthier lives because of effective HIV treatment. At the end of 2022, over half of people with diagnosed HIV were aged 50 and older.



Source: CDC. Diagnoses, deaths, and prevalence of HIV infection in the United States and 6 territories and freely associated states, 2022. *HIV Surveillance Report*, 2024;35.

Understanding the Epidemiological Landscape of HIV

- Life-expectancy gap has narrowed to ≤ 5 years for those achieving $\text{CD4} > 500/\mu\text{L}$, but the mortality difference widens with advancing age, and non-AIDS causes (ASCVD and non-AIDS malignancy)
- Medicare comparison (43,708 with HIV vs $\sim 1\text{M}$ without, ages ≥ 65): 3.6-fold higher hazard of mortality and higher odds of depression, CKD, COPD, osteoporosis, hypertension, ischemic heart disease, diabetes, chronic hepatitis, end-stage liver disease, lung and colorectal cancer

**Why does a 68-year-old with
HIV look 78?**

Aging and HIV: Multimorbidity Pattern

- Persistent immune activation and inflammation despite suppression, immunosenescence, shortened telomeres, accelerated epigenetic age, and clonal hematopoiesis (more frequent with low nadir CD4-relevant to Mr. O's nadir of 90)
- Multimorbidity develops roughly 10 years earlier than in people without HIV
- Contributors are both HIV-specific (inflammation, cumulative ART toxicity) and traditional (smoking, alcohol, substance use)

The Comorbidity Inventory

Should Mr. O be on a Statin?

Cardiovascular: roughly twofold ASCVD risk with events about a decade earlier

- **For people with HIV aged 40–75 years, the ACC/AHA/Multisociety Dyslipidemia Management Guideline recommends statin therapy for primary prevention of ASCVD.**
- **For people with HIV aged <40 years, the ACC/AHA/Multisociety Dyslipidemia Management Guideline does not issue a recommendation specific to people with HIV, and data are insufficient for the Panel to recommend for or against statin therapy as primary prevention of ASCVD.**
 - Decisions to initiate statin therapy in these patients should be based on the ACC/AHA/Multisociety Dyslipidemia Management Guideline and involve shared decision-making that considers the presence or absence of HIV-related risk factors^a and ACC/AHA risk enhancers^b that increase the risk of ASCVD events.

What About Other Comorbidities?

- Renal and bone: Mr. O's eGFR is 48 and his T-score of -2.6 both point to the same decision → TDF use should be assessed
- Bone density monitoring is recommended in men ≥ 50 and postmenopausal women
- Assess antiretrovirals, renal function, vitamin D, and monitor carefully

HIV and Comorbidity

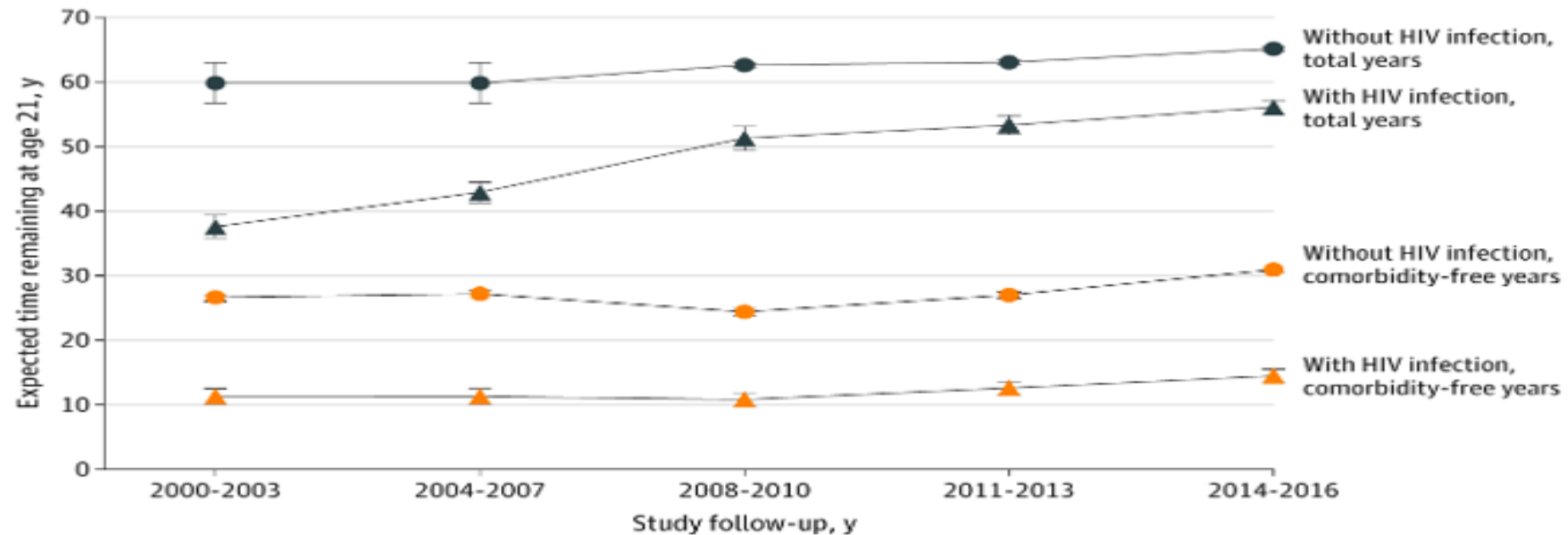
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In a 10-year dedicated aging-HIV clinic cohort (n=744, mean age 56):

- Dyslipidemia 50.1%
- Hypertension 21.5%
- Depression/anxiety 15.7%
- Osteoporosis 12.2%
- CKD 7.5%
- Diabetes 5.8%
- Multimorbidity 69.3%
- Polypharmacy 46.6%

Does Virologic Control Equal Healthy Aging?

Comparison of Overall and Comorbidity-Free life Expectancy Between Insured Adults With and Without HIV Infection, 2000-2016



Frailty and Neurocognitive Impairment

- In a multidomain screening program of 317 adults ≥ 50 with 96.2% viral suppression and median CD4 660: 78.4% had at least one abnormal screening domain
 - Cognitive impairment in ~48% (39.8% mild, 8.7% moderate)
 - Vision impairment 36.5%
 - Polypharmacy 33.2%
 - Frailty: ~11% frail and ~47% prefrail

Frailty and Neurocognitive Impairment

- Frailty independently predicts mortality and incident comorbidity. Annual screening should be considered in people with HIV aged >50
- Effective interventions are exercise and nutritional optimization plus treatment of depression; no pharmacologic agent is recommended for frailty in HIV
- Frailty plus neurocognitive impairment together conferred a 2.65-fold risk of falls, IADL decline, or death versus 1.73 for neurocognitive impairment alone

Neurocognitive Impairment

- Multiple potential etiologies
 - Age-Associated Dementias
 - Alzheimer's Dementia
 - Vascular Dementia
 - HIV-Associated Neurocognitive Decline
 - Other co-morbidities
 - Medications
 - Substance use
- Formally assess cognition (Mini-Cog, SLUMS, MOCA)
- Look for reversible causes of decline
- For HIV-Associated Neurocognitive Decline
 - Viral suppression is key
 - The CNS Penetration Effectiveness (CPE) score exists, but studies so far have not shown strong clinical benefit from switching to ART with higher CPE
 - Standard practice is not to switch ART for neurocognitive impairment unless there are issues with virologic failure, toxicity, or poor adherence

What about the Meds?

- Mr's O is on a 9 meds including TDF in addition to zolpidem and diphenhydramine PRN
- Which one(s) do you want to stop?

What about the Meds?

CHANGE-Rx: Frailty, Falls, Polypharmacy, and Inappropriate Medication Use in a Canadian Cohort of People Aged 65 and Older Living With HIV

*Julian Hopwood-Raja^{1,2}, Alice Tseng^{1,3}, Nancy Sheehan^{2,4}, Sharon Walmsley^{1,5}, Julian Falutz^{2,6}, Alice Zhabokritsky^{1,5}

¹University Health Network, Immunodeficiency Clinic, Toronto, Canada, ²McGill University Health Centre Chronic Viral Illness Service, Montréal, Canada, ³University of Toronto, Leslie Dan Faculty of Pharmacy and Pharmaceutical Sciences, Toronto, Canada, ⁴Université de Montréal, Faculté de pharmacie, Montréal, Canada, ⁵University of Toronto, Medicine, Division of Infectious Diseases, Toronto, Canada, ⁶McGill University, Medicine, Division of Geriatric Medicine, Montréal, Canada

*Contact: Julian.hopwood-raja@uhn.ca

CHANGE-Rx (n=440, median age 69):

- 53.8% polypharmacy, 14.6% severe polypharmacy, 49.3% with ≥ 1 potentially inappropriate medication, 55.7% high sedative burden
- Odds of frailty 3.3 with high anticholinergic burden, 2.6 with high sedative burden, 2.9 with severe polypharmacy
- Odds of falls 1.9 with high sedative burden and 1.8 with ≥ 1 PIM

What about the Meds?

- ART decision for Mr. O: switch off TDF given CKD and osteoporosis; INSTI-based options with TAF/FTC or DTG/3TC, chosen with attention to comorbidity and drug–drug interactions
- Age-based dose adjustment of ART itself is not currently warranted- the issue is comedication, not ARV dosing
- Antiretroviral stewardship programs reduce medication errors, dose for renal and hepatic dysfunction, manage interactions, and create an opportunity to deprescribe

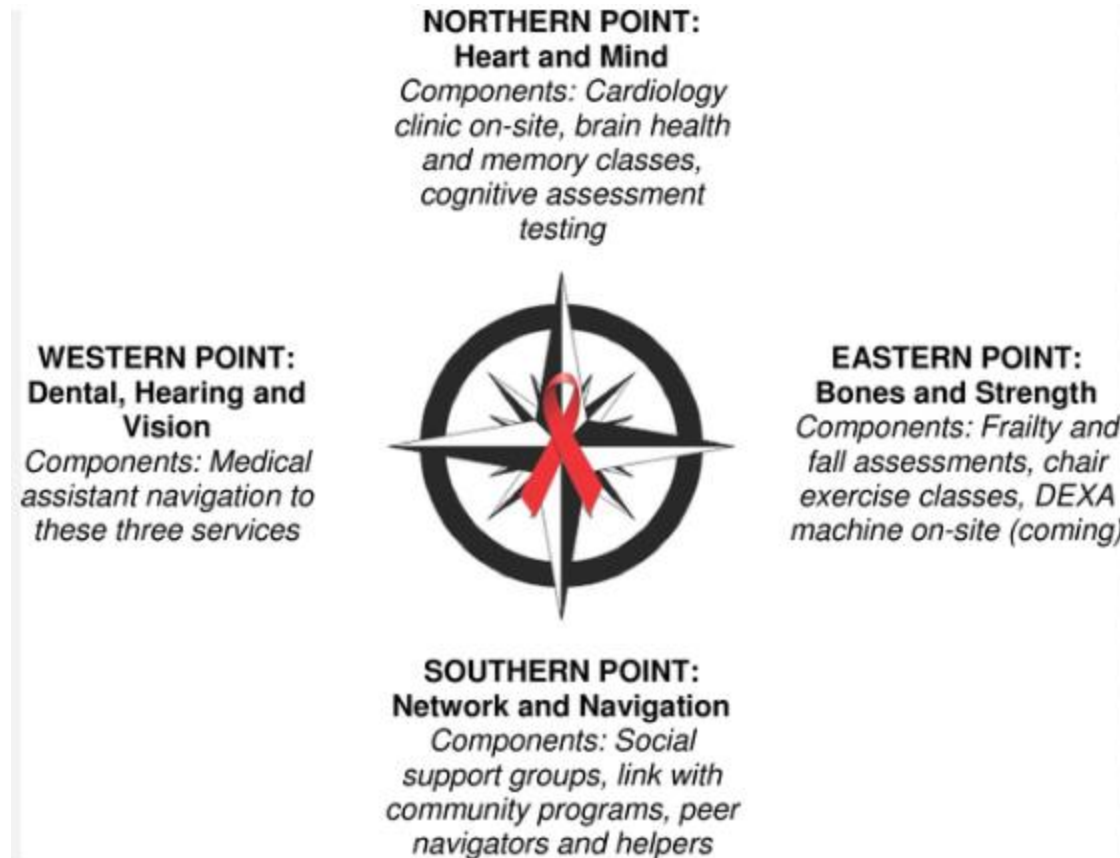
Seeing the Patient Behind the Problem List

- Loneliness and isolation in this cohort stem from loss, from intersecting HIV-and-aging stigma, and from functional limitation and contribute to low uptake of advance care planning and hospice
 - Mr. O lost his partner and most of his social network in the early epidemic
- Cognitive impairment predicts reduced retention in care, poorer adherence, and increased mortality

Seeing the Patient Behind the Problem List

- Address the intersectionality of HIV, aging, race, poverty, and other social determinants, in addition to:
 - Sexual health: sexual dysfunction and ongoing STI risk, sexual history using the 5 P's framework (Partners, Practices, Protection from STIs, and Pregnancy intention)
 - PrEP for HIV-negative partners
 - U=U should be part of routine clinic messaging to mitigate stigma and reinforce adherence (VL <200 copies/ml to reduce sexual transmission)

Rethinking the Clinical Encounter: Mr. O Needs Multidisciplinary Teams



Rethinking the Clinical Encounter: Atlanta VA ID Clinic (Dr. Hagen)

- The Age-Friendly 4Ms (Mentation, Medication, Mobility, What Matters Most) operationalized with:
 - Formal cognitive evaluation (i.e. MoCA, SLUMS)
 - PHQ-2/GAD-2 → PHQ09
 - Mobility assessment (e.g., gait speed, Get up and GO)

Mr. O: One Year Later

- Switched to an INSTI-based, TDF-sparing regimen: DTG/3TC
- Statin initiated
- Zolpidem and diphenhydramine deprescribed
- Referred to physical therapy and endocrine clinic
- Enrolled in a group exercise class; social work engaged for isolation; advance care planning conversation begun

Take-home message: the target has moved from undetectable viral load to preserved function, independence, and what matters most to the patient

Closing Remarks

- A virologically suppressed patient can still be functionally impaired
- Frailty interventions in HIV rest on exercise, nutrition, and treatment of identifiable comorbidities and contributing factors such as depression
- No brief cognitive screening test has been shown to be sensitive or specific in HIV- the MoCA may be more sensitive, but it is not specific, and a threshold lower than 26 likely improved accuracy
- Proceedings and highlights from the International Workshop on Aging and HIV identify frailty and cognitive screening, deprescribing, scalable Geriatric-HIV care models, and Geroscience-informed trials as the field's stated priorities

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