AETC AIDS Education & Training Center Program
Southeast Regional Conference 2022

Aging with Grace:

Approaches to meeting the needs of older adults with HIV

Jessica Castilho, MD, MPH
Assistant Professor of Medicine
Vanderbilt University Medical Center

Learning Objectives

- *Describe ongoing disparities in lifespan and healthspan among older PWH*
- *Name common components to successful models of comprehensive clinical care for older PWH*
- *List the 5 M's of geriatric medicine and identify examples for how incorporate these principles into routine HIV care*

Disclosures

- *None*

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- *"Funding for this presentation was made possible by cooperative agreement U1OHA30535 from the Health Resources and Services Administration HIV/AIDS Bureau. The views expressed do not necessarily reflect the official policies of the Department of Health and Human Services nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government. Any trade/brand names for products mentioned during this presentation are for training and identification purposes only."*

Disclaimer

"Older adult" (defined in HIV research):

Someone over the age of 50 years.

Mr. D (56 yo)

PMHx:

- **HIV** (dx 2000) – last CD4 794, VL UD
- **HTN** and **HLD**
- Acute HBV infection (cleared)
- **Diabetes** – last A1c 5.9%
- **Depression** & **PTSD**
- **Obesity** (BMI 34)
- **BPH**
- **Basal cell carcinoma s/p MOHS** (2022)
- **CAD s/p CABG** (2022)
  - Episode of unstable angina in spring 2022
  - CABG x3 a couple of weeks later
  - Complicated by paralyzed R hemidiaphragm, arrythmias
- **Osteoarthritis** of L hip – upcoming THA

SHx:

- Prior truck driver, stopped after CABG
- Lives with partner (HIV+), own a farm
- Quit smoking, no EtOH
- Grown children
- Multiple friends/family members died in past 2 years

Meds (18 total):

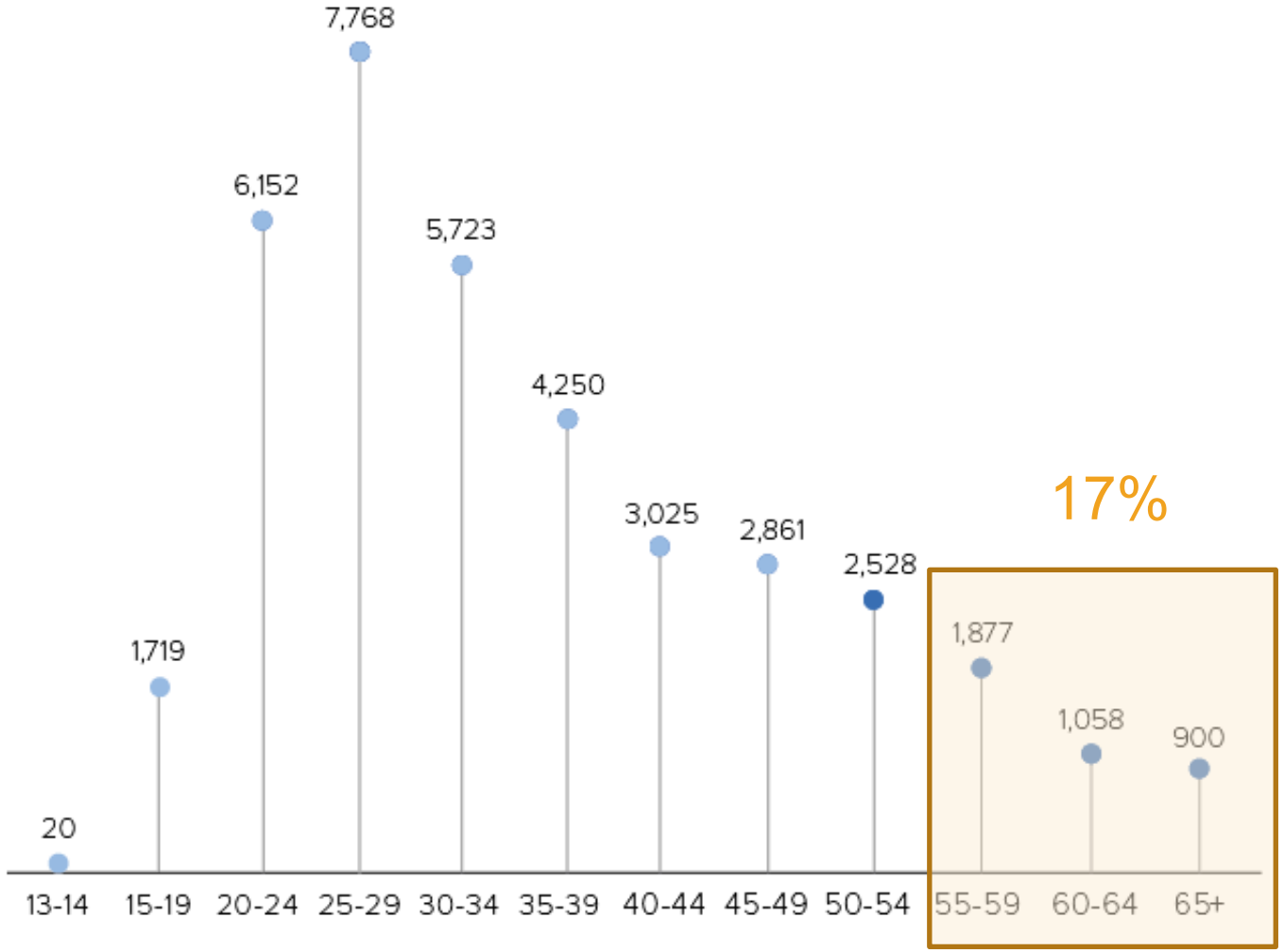
- BIC/TAF/FTC single pill
- Amiodarone
- ASA
- Atorvastatin
- Clopidogrel
- Vitamin B12
- Duloxetine
- Empagliflozin
- Famotidine
- Furosemide
- Gabapentin
- Metformin
- Metoprolol
- Lisinopril
- Terazosin

Outline

- To review the epidemiological trends of lifespan and healthspan in adults with HIV in the US
- To describe the current and growing burden of non-communicable diseases and multimorbidity in older adults with HIV
- To discuss two models of HIV & Aging specialty clinics in large US cities
- To introduce and explore geriatric medicine principles to improve our routine clinical care of older adults with HIV

New HIV Diagnoses Among Adults and Adolescents in the US and Dependent Areas by Age, 2018

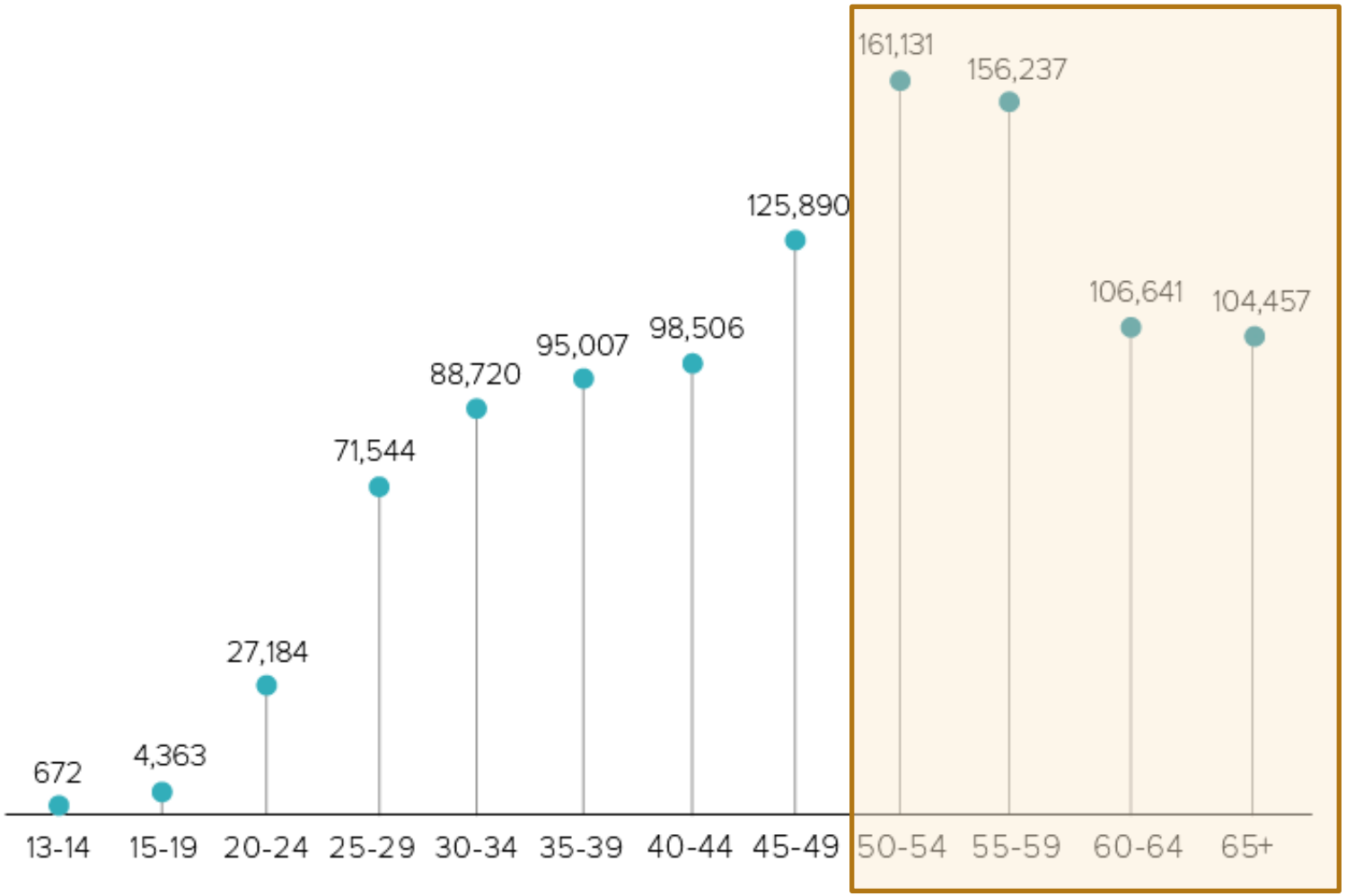
1 in 6 new HIV diagnoses were among people aged 50 and older.



Source: CDC. Diagnoses of HIV infection in the United States and dependent areas, 2018 (updated). *HIV Surveillance Report* 2020;31.

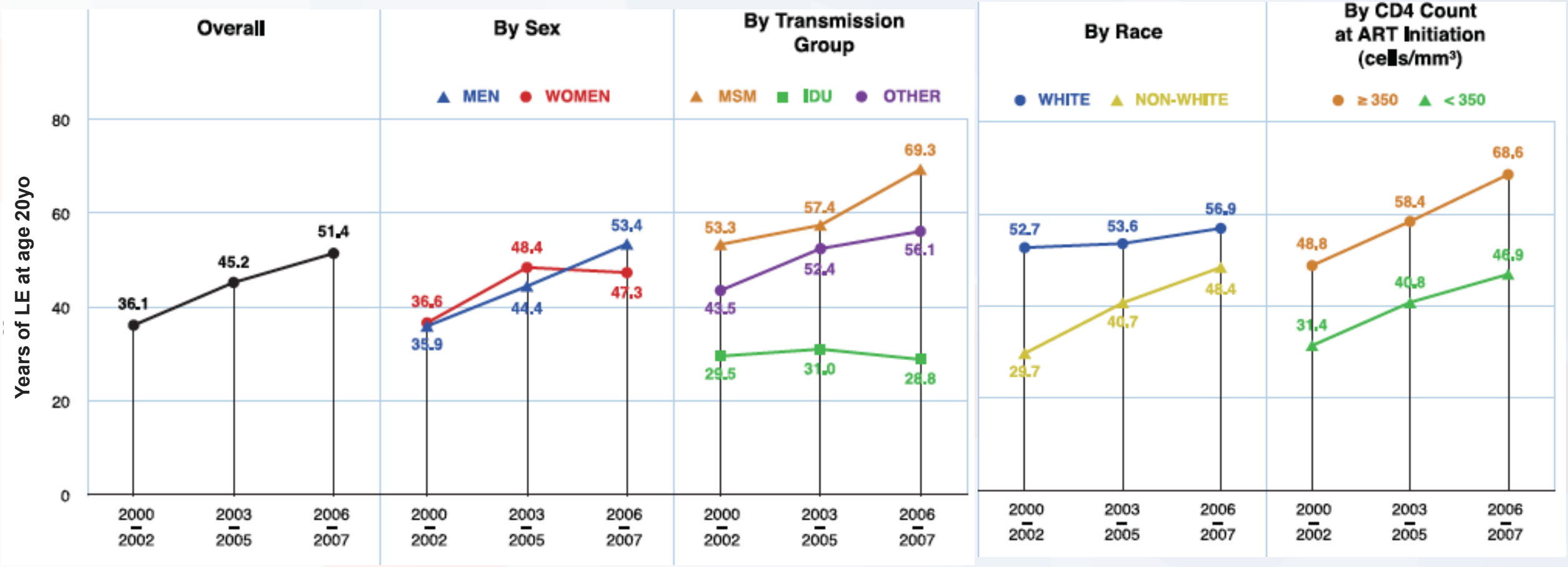
Adults and Adolescents with Diagnosed HIV in the US and Dependent Areas by Age, 2018

Over half of people with diagnosed HIV were aged 50 and older.



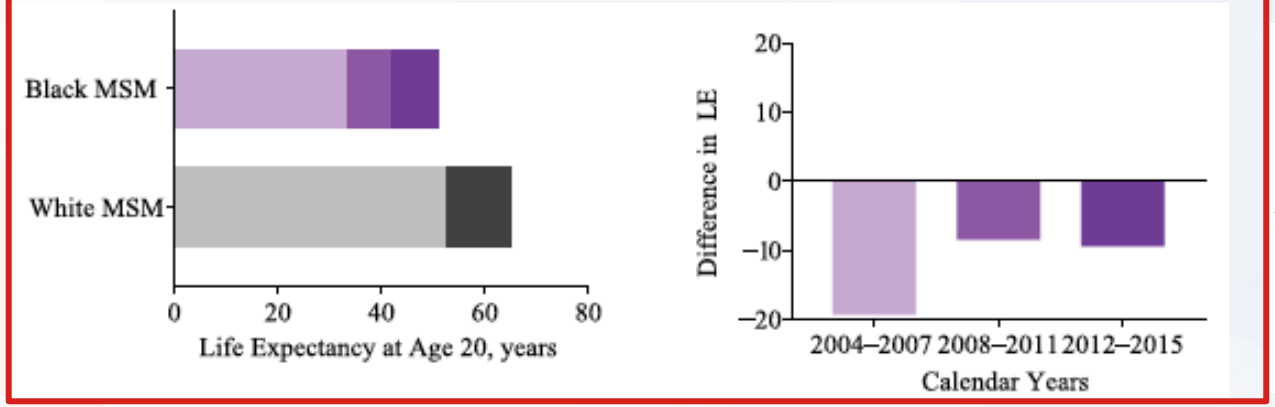
Source: CDC. Diagnoses of HIV infection in the United States and dependent areas, 2018 (updated). *HIV Surveillance Report* 2020;31.

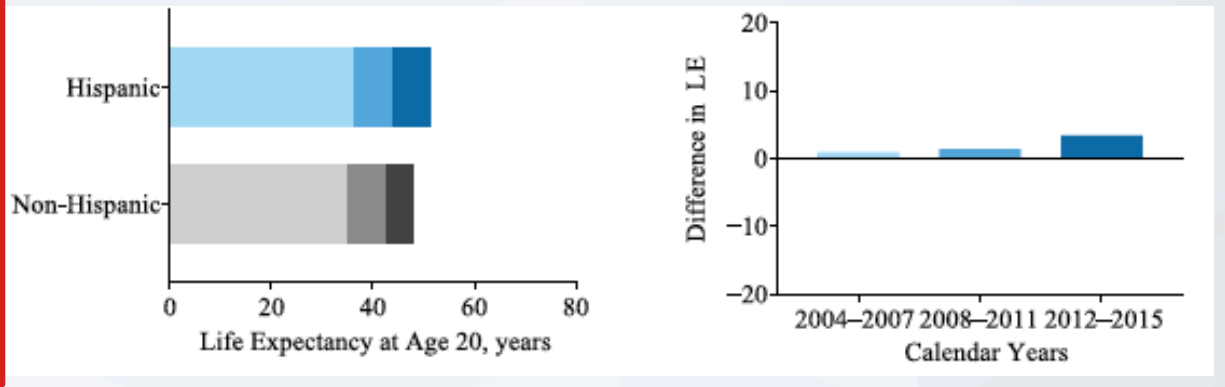
Improving life expectancy over time

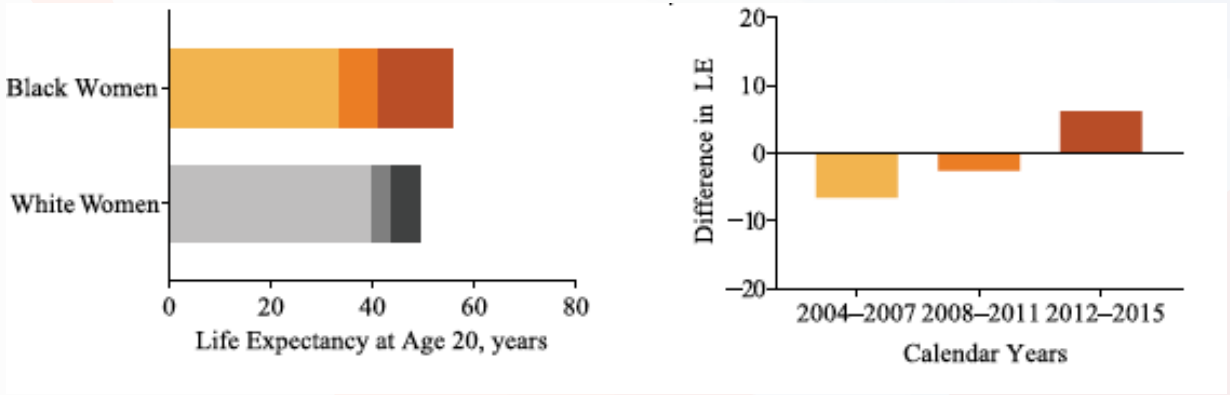


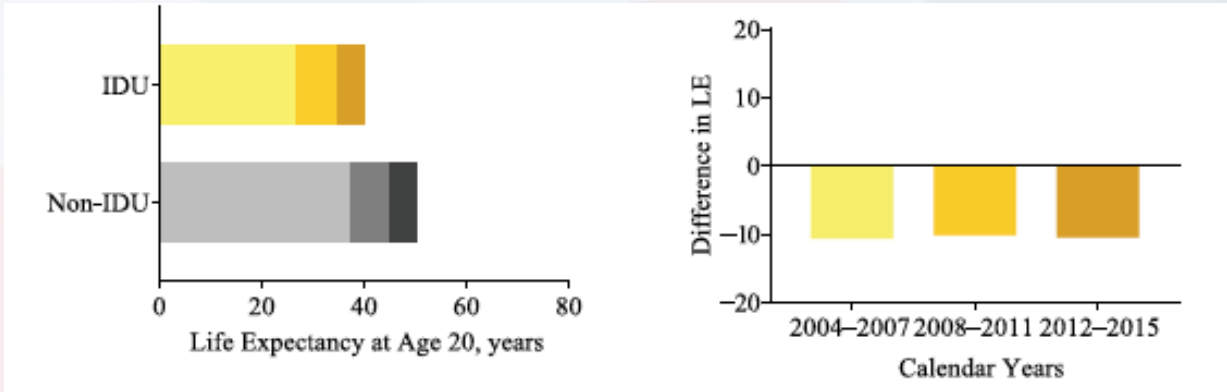
Samji et al. *PLoS One*. 2013

Important disparities remain





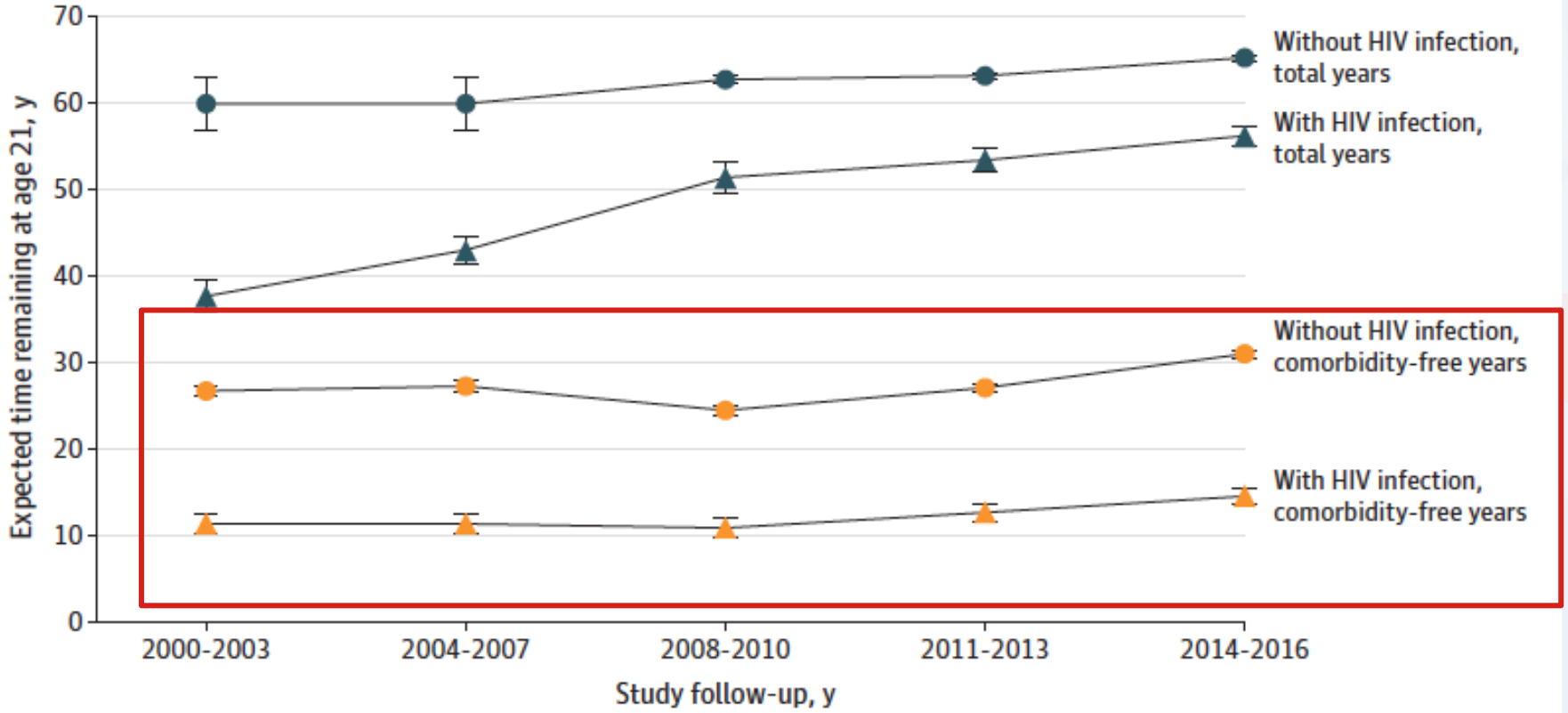




Althoff et al. *Am J Epidem.* 2019

But what about healthspan?

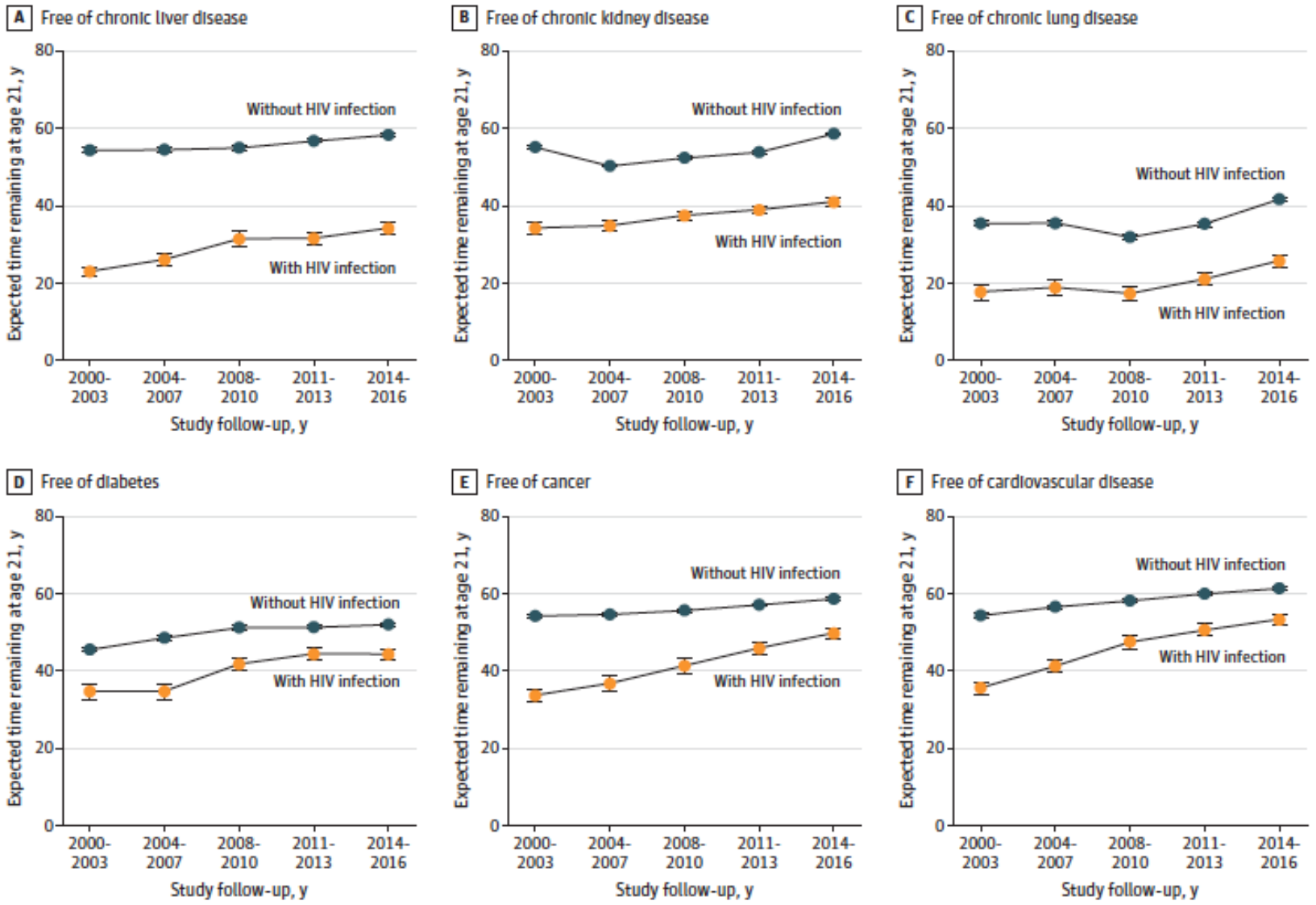
Figure 1. Overall and Comorbidity-Free Life Expectancy at Age 21 Years for Individuals With and Without HIV Infection, Kaiser Permanente, 2000-2016



Comorbidity-free years were those lived before incident diagnosis of any of 6 common comorbidities: chronic liver disease, chronic kidney disease, chronic lung disease, diabetes, cancer, or cardiovascular disease. Error bars indicate 95% CIs.

Marcus et al. *JAMA Open Network*. 2020

Fewer years free of NCDs

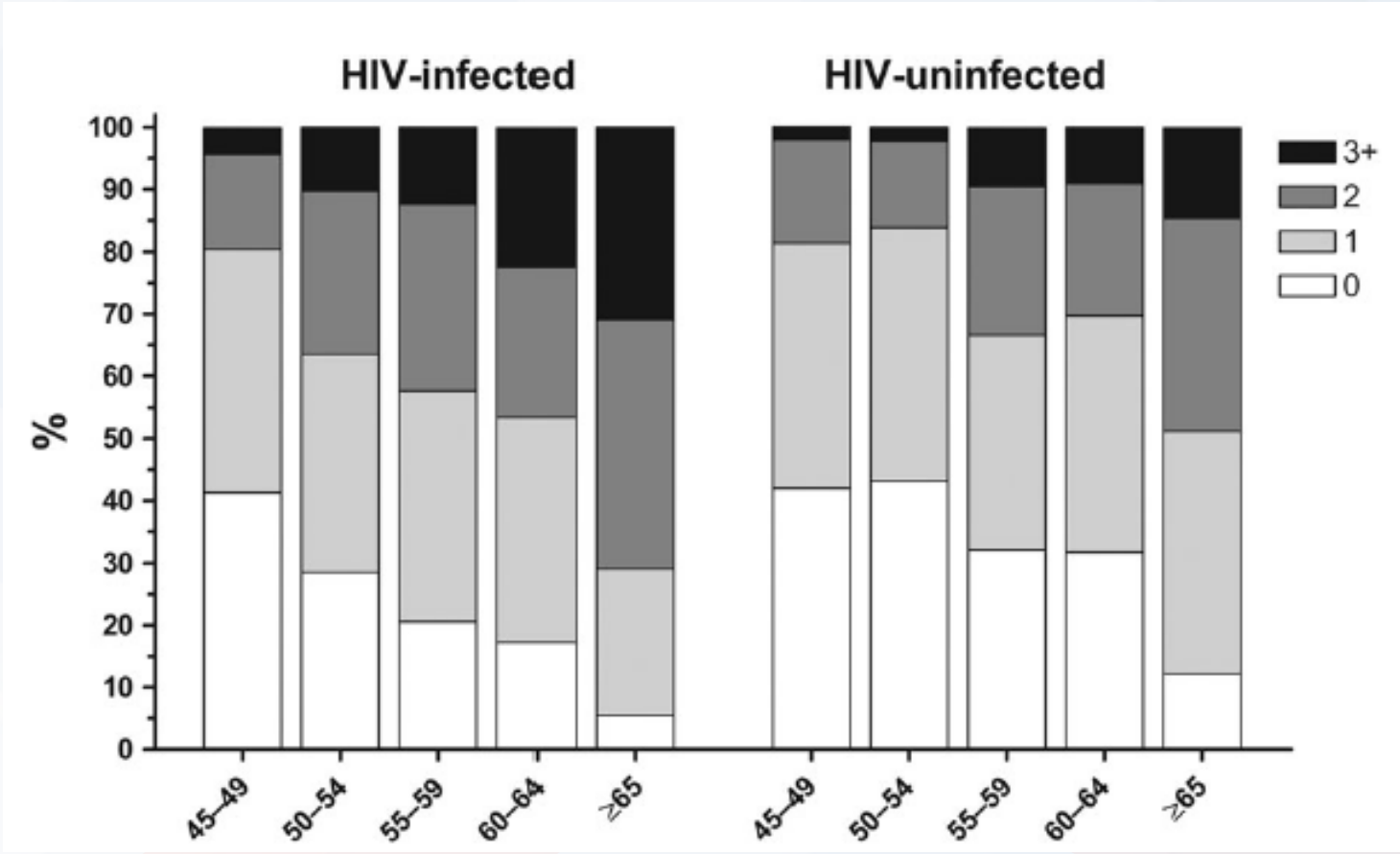


Marcus et al. *JAMA Open Network*. 2020

Multimorbidity

PWH are at ↑ risk of:

- CVD
- Cancers
- Metabolic disorders
- Osteoporosis
- Renal disease
- Liver disease



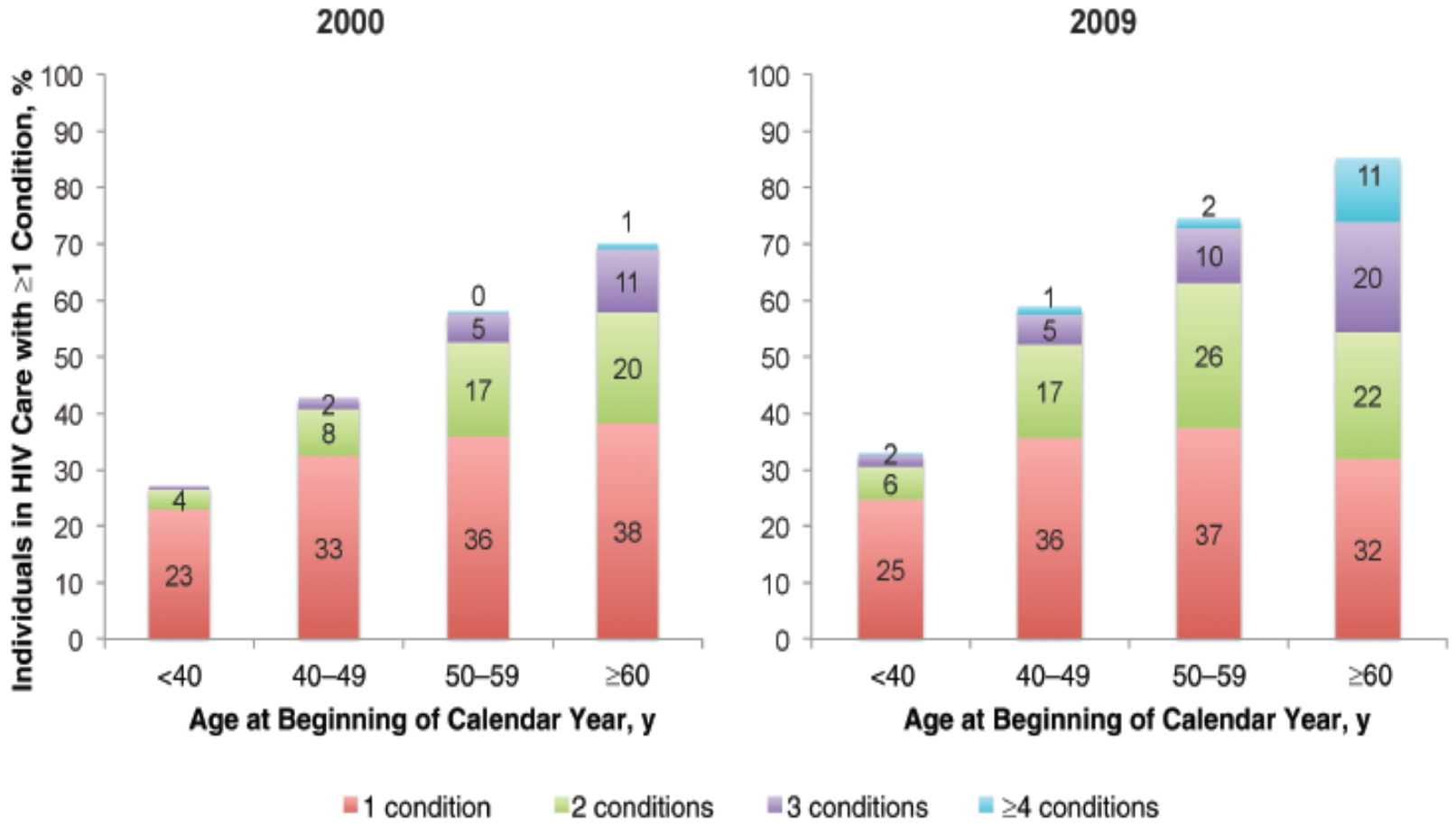
AGEhIV study: PWH 45+yrs (n=540) & matched, HIV-uninfected controls.

Shiels et al. *JNCI.* 2011;103:753-62.
Lucas et al. *AIDS.* 2007;21:2425-43.
Freiberg et al. *JAMA Int Med.* 2013;173:614-22.
And many more….
Schouten et al. *Clin Inf Dis.* 2014;59:1787-97.

Clinical Infectious Diseases

MAJOR ARTICLE

Multimorbidity Among Persons Living with Human Immunodeficiency Virus in the United States



North American AIDS Cohort Collaboration on Research and Design

Risk Factors for Multimorbidity:

- White race (compared to Black race aPR=0.87 [95%CI: 0.77-0.99])
- Heterosexual HIV acquisition risk factor (compared to MSM, aPR=1.16 [95%CI: 1.01-1.34])
- Higher BMI at ART initiation
- Female sex not statistically associated (aPR=0.99 [95%CI: 0.85-1.15])

Other multimorbidity Risk factors

Immunologic Risk Factors:

- Nadir CD4 cell count <200 cells/μL
- Low CD4/CD8 ratio
- T cell activation and senescence

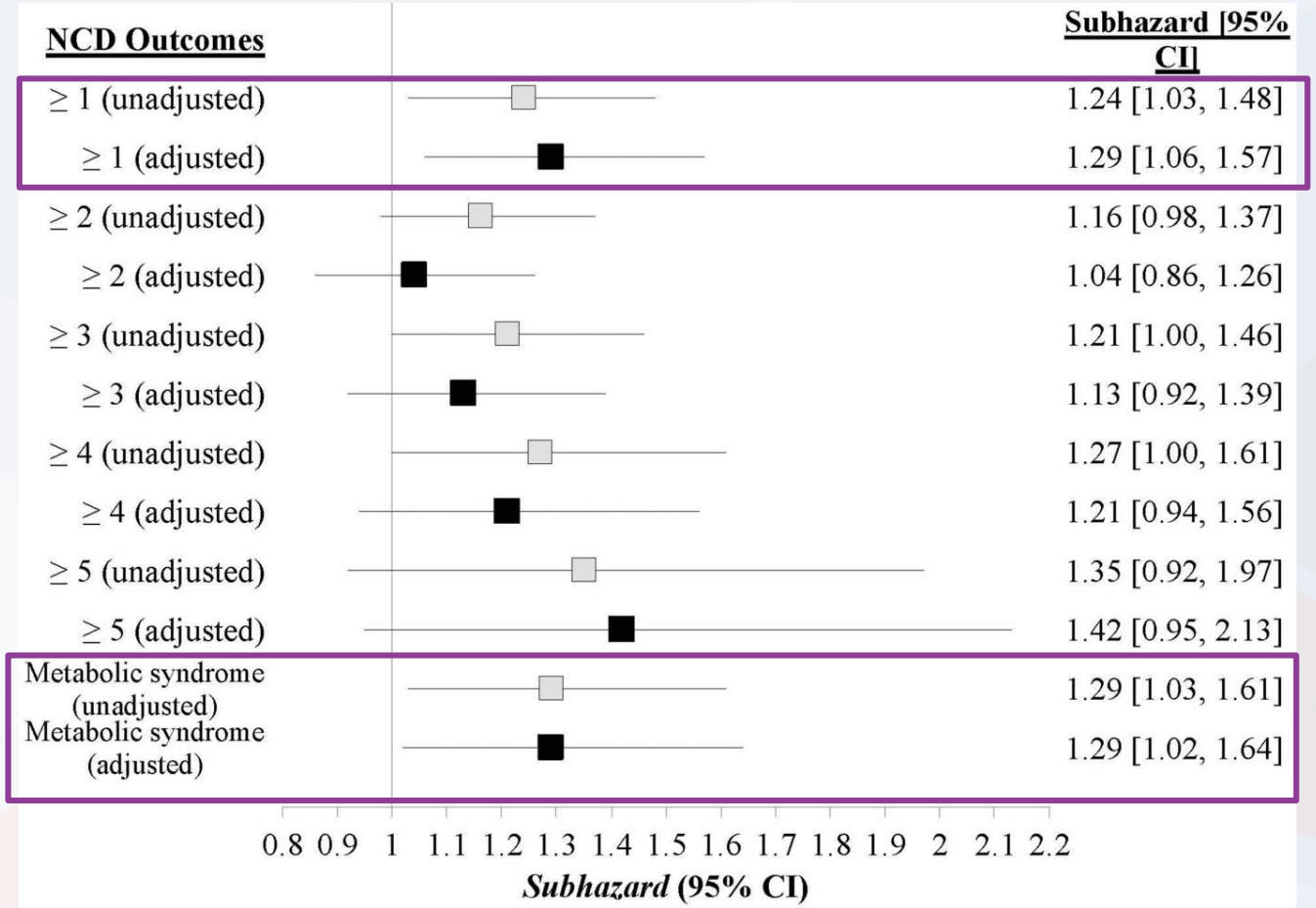
Virologic Risk Factors:

- Viremia / HIV RNA

Other factors:

- Female sex
- *Depression*

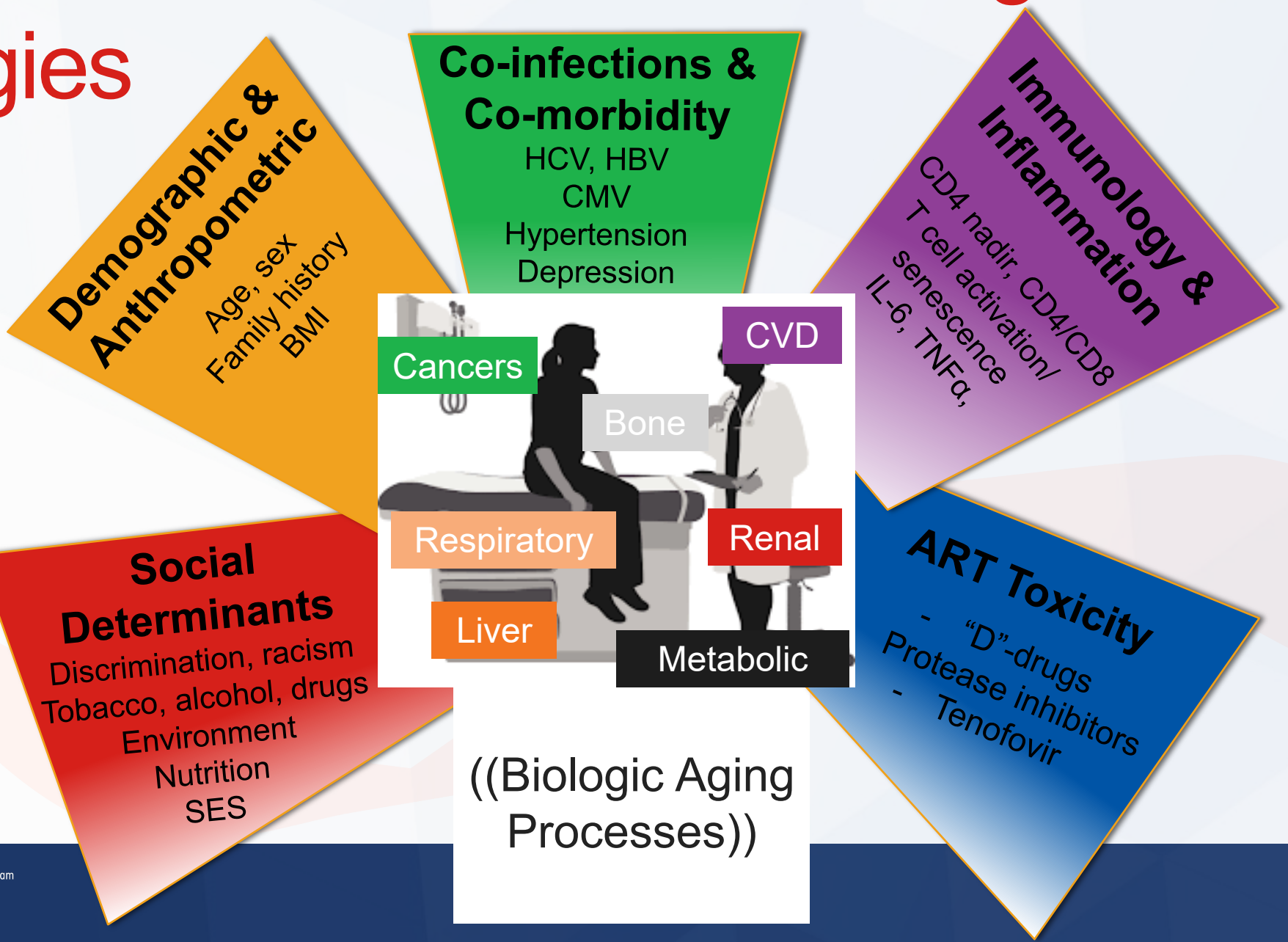
Prevalent Mood Disorder and NCD risk



Covariates: sex, race, substance use, alcohol use, tobacco use, year of clinic entry, HCV, and time-varying CD4, CD4/CD8, and HIV RNA

Demontes et al. *Clin Inf Dis.* 2020 Dec 31;71(11):2880-2888.
Guaraldi et al. *AIDS Res Ther.* 2017 Feb 16;14(1):8.
Duffau et al. *AIDS.* 2018 Jul 31;32(12):1651-1660.
Salter et al. *Clin Inf Dis.* 2011 Dec;53(12):1256-64.
Castilho et al. *JAIDS.* 2020.

HIV & Co-morbidities: interacting etiologies

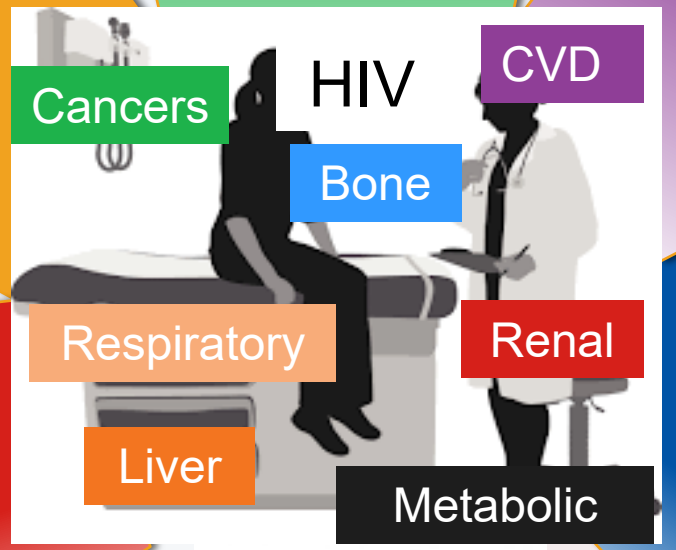


What we face in the clinic…

Screening & Prevention
Earlier screening for some diseases
Smoking
Nutrition, Exercise

Treatment of NCDs
Adherence to general guidelines

Healthcare Utilization
Multiple appts & specialists
Coordination of care



QOL & Function
Falls, Frailty
Depression
Disability
Environment
Social Support
SES

Poly-pharmacy
Drug-drug interactions
Sedating meds

How can we develop a comprehensive approach to caring for older adults with HIV?

Models of Care for Older PWH

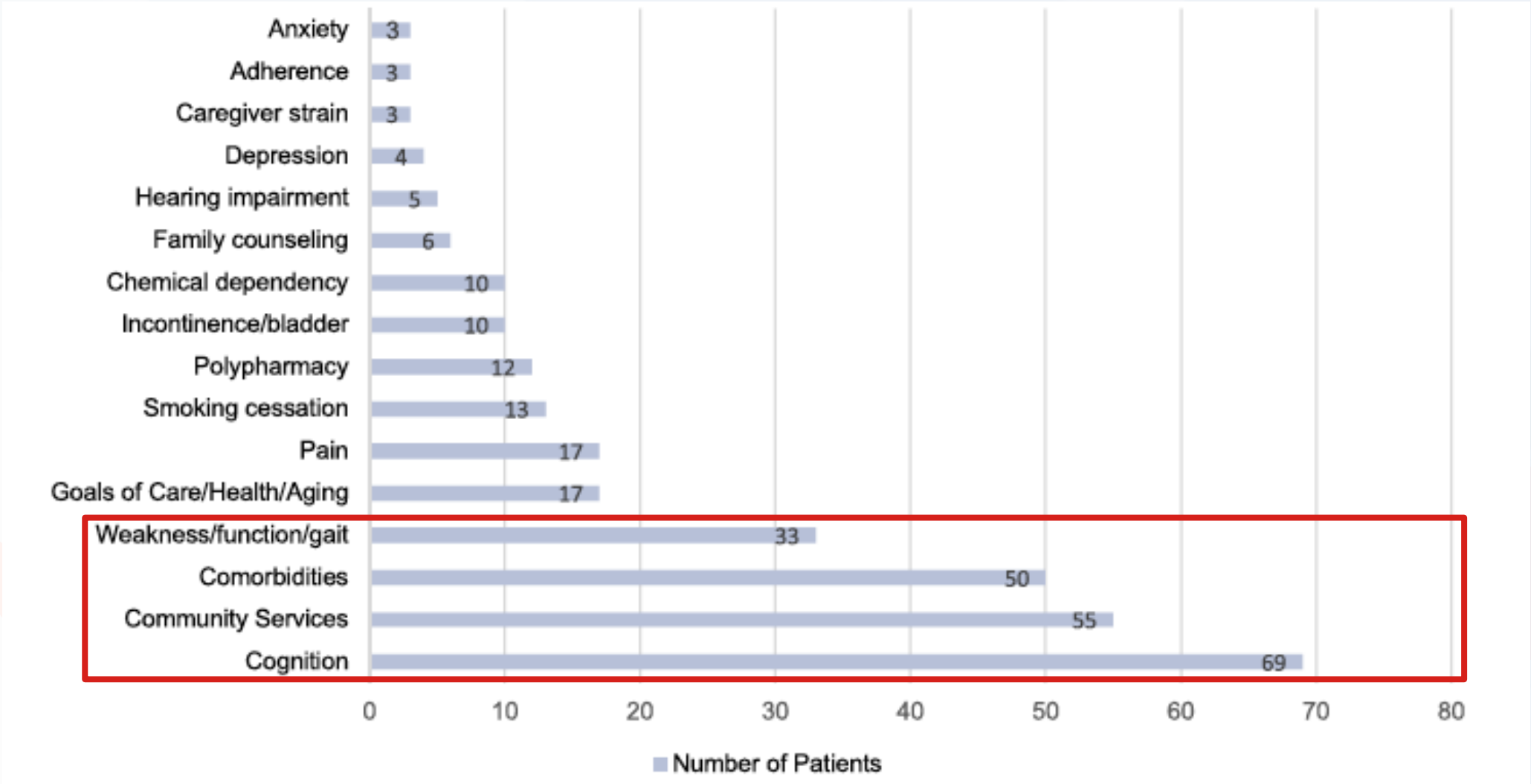
HIV & Aging Program (Weill Cornell, NYC)

- Geriatricians, psychiatrists, gynecologist, social workers, nurses, dietician
- Comprehensive Geriatric Assessment:
  - PHQ-4 (depression/anxiety)
  - Questions about pain, health, hearing, vision, falls
  - Frailty screen
  - Assessment of ADLs/IADLs
  - Grip strength
  - FRAX
  - VACS index
  - Montreal Cognitive Assessment

PWH ages 50-84 yrs (n=105)	N (%)
Described health as fair or poor	42 (41)
Any difficulty with hearing	34 (33)
Any difficulty with vision	48 (47)
Moderate-severe pain	52 (51)
Complaints of fatigue	57 (55)
Poor memory	68 (66)
Living alone	65 (63)
Prefrail	41 (40)
Frail	21 (20)
Needing any help with ADLs	20 (19)
Needing any help with IADLs	53 (52)

Siegler et al. *HIV AIDS (Auckl)*. 2021

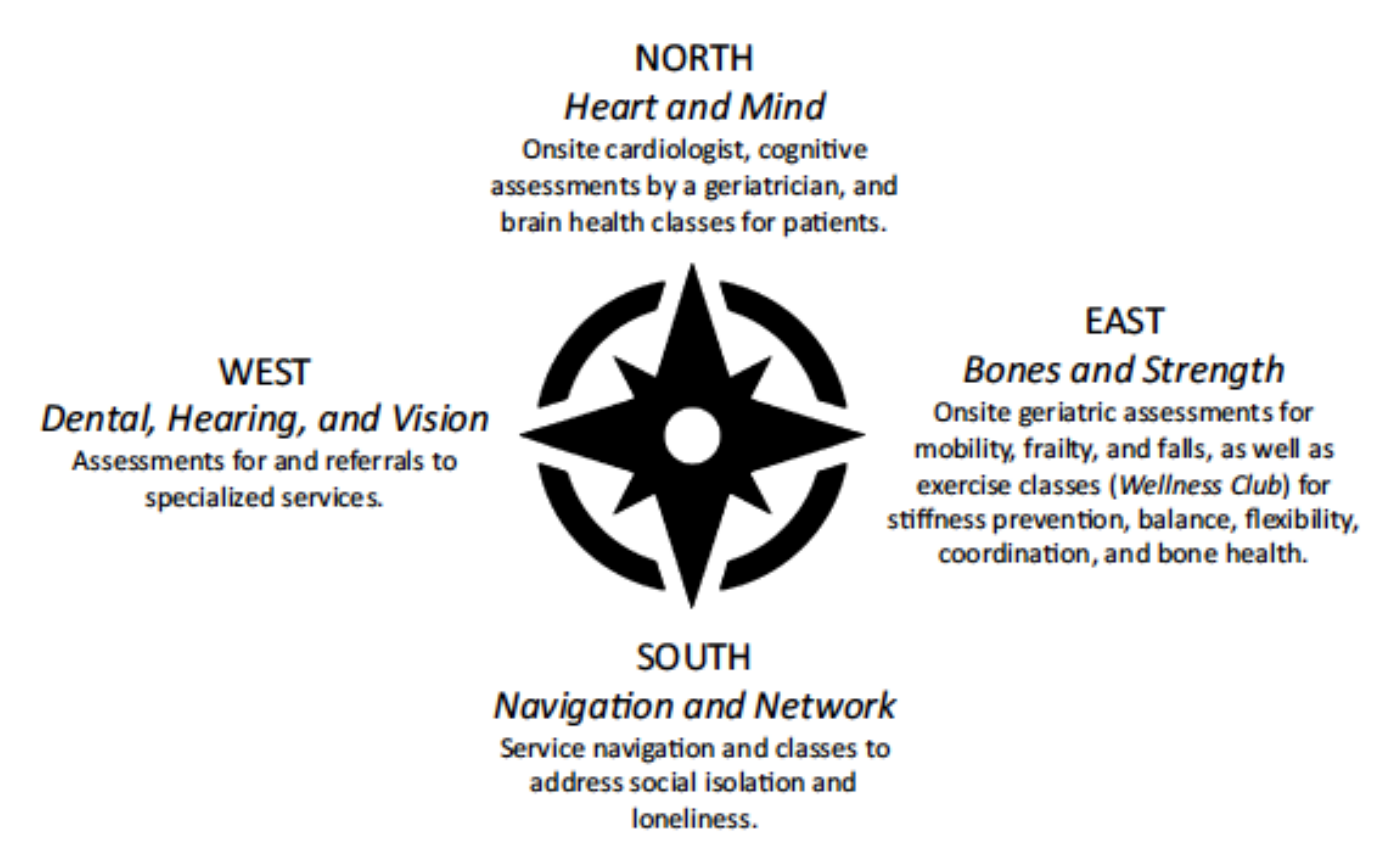
Topics Addressed during CGA at HIV & Aging Clinic in NYC (n=105 PWH ≥50yo)



Siegler et al. *HIV AIDS (Auckl)*. 2021

Models of Care for Older PWH

Ward 86 Golden Compass Program (UCSF)



GOLDEN COMPASS PROGRAM
Ward 86

"Dr. [HIV geriatrician], the Golden Compass… addresses more than my HIV. [The geriatrician] breaks it down with different doctors that you have to see. My [HIV] doctor does not address the cardiology and with the bone density and there is more than HIV with my health going on. So [the HIV geriatrician] addresses all the other problems I have going on, so it's more broad, more wider point of view."

"When Dr. [HIV geriatrician] asked the urination questions – nobody had ever done that before. She made sure that I understood that I had to train my bowels and train my urination… And everything she said worked. So now not only can I walk further, faster, I don't have to use the restroom every hour."

Tan et al. *AIDS & Behavior.* 2022

Keys to Successful HIV & Aging Programs

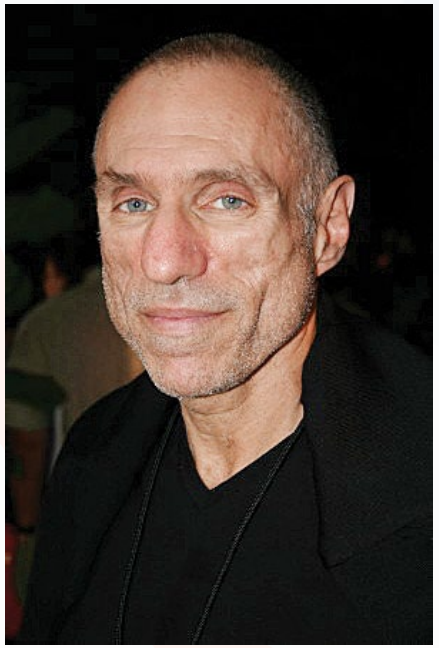
- Built on principles of gerontology
  - Physical and social function
  - Cognition
  - Risk assessments
- Multidisciplinary teams
- Co-located in HIV clinic space

Implementing geriatric medicine into HIV clinical care – ***The 5 Ms***

- **Matters most** – goals of ~~care~~ successful aging
- **Mind** – depression, dementia
- **Mobility**- falls prevention, physical function, safety
- **Medications** – polypharmacy, dose-adjustment for age, drug-drug interactions
- **Multi-complexity** – multimorbidity, psychosocial situations (social isolation, food insecurity), frailty & vulnerability

Adapted from presentation by Dr. Alison Moore. *9th International Workshop on HIV & Aging.* 2018

#1 - Matters Most



Jules Levin
NYC

Marc Thompson
London

Venita Ray
Houston

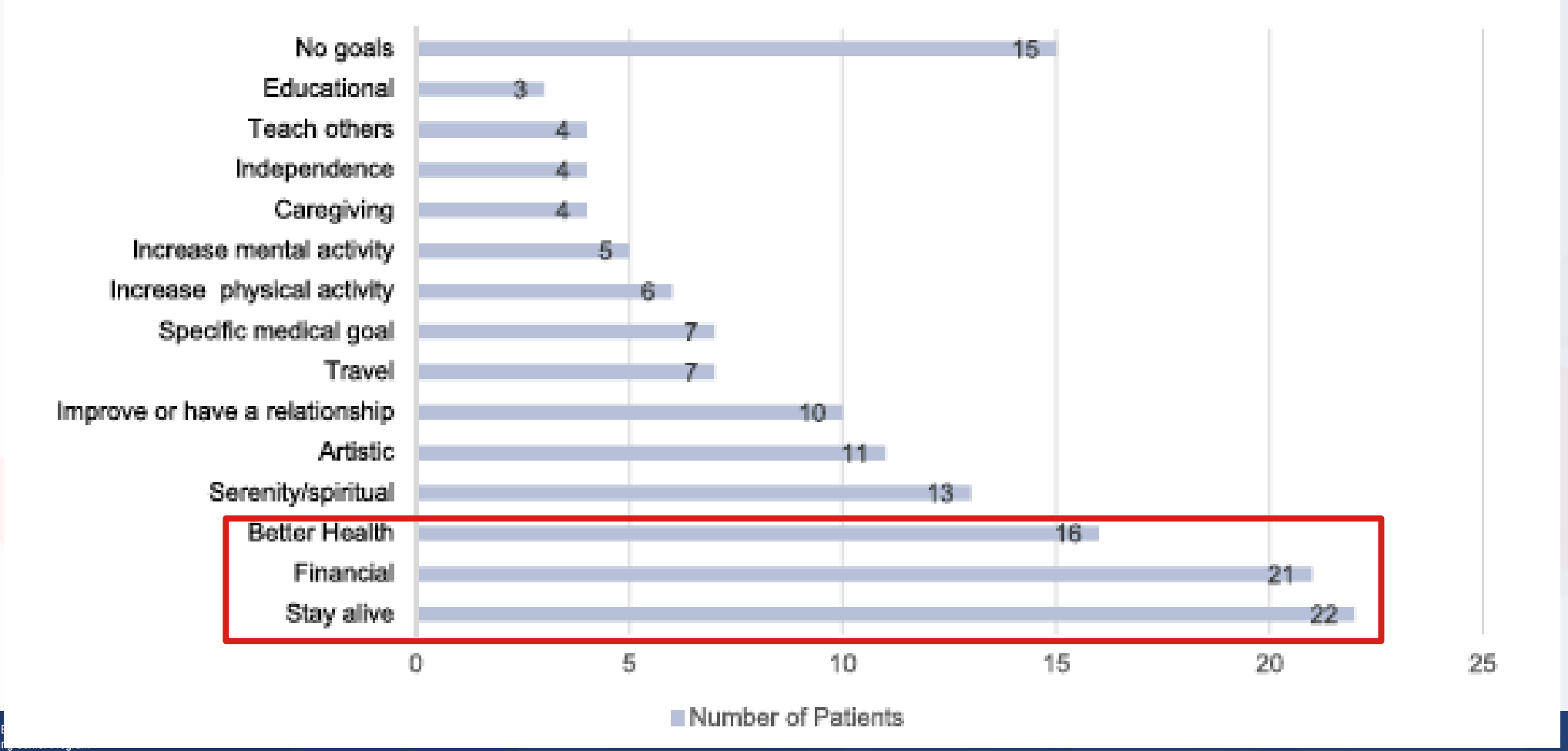
*"One thing that all of us who are here today share—we're all aging. We can't escape it. It's a process and a journey that is inevitable. But for those of us who have HIV, there are many added layers and dimensions to consider… **It's not enough for us just to be grateful that we are still here."** – Marc Thompson, CROI 2022*

AIDS 2022

CROI Conference on Retroviruses and Opportunistic Infections

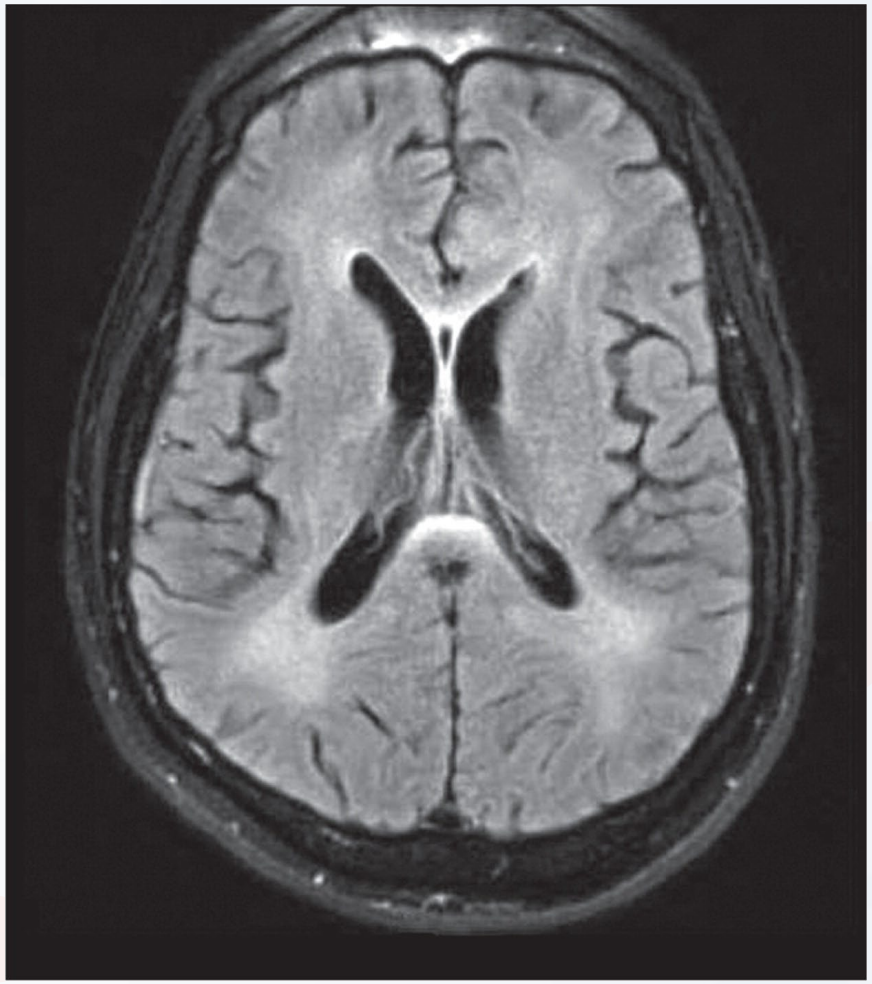
Goals – *Let's Talk About It*

Personal Goals Identified at HIV & Aging Clinic in NYC (n=90 PWH ≥50yo undergoing CGA)



Siegler et al. *HIV AIDS (Auckl)*. 2021

#2 Mind – Dementia & Depression



The Lancet Infectious Diseases 2013 13976-986DOI: (10.1016/S1473-3099(13)70269-X)

Cognitive Impairment

- HIV-associated neurocognitive disorder (2007): ≥2 cognitive domain scores ≥1 SD below expected.
  - Asymptomatic CI: *Clinical significance? False positives?*
  - MCI
  - Dementia
- Other criteria:
  - Gisslén criteria (more stringent version of HAND)
  - Global deficit score (takes all domains into account)
  - Multivariate normative comparison (uses study-specific control groups and statistical modelling for norms)

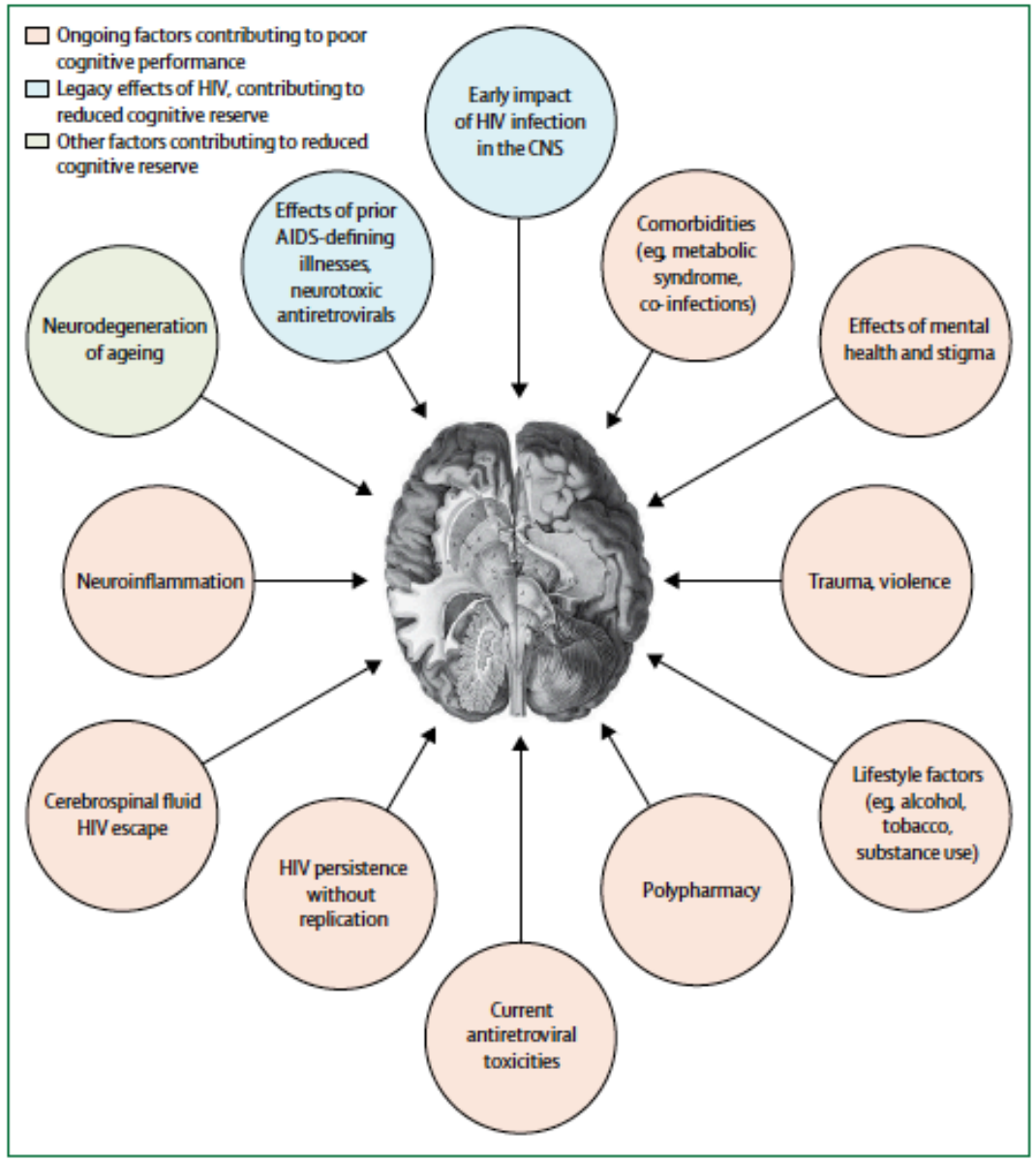


Figure: **Potential contributing factors to cognitive impairment in people with HIV**

Winston & Spudich. *Lancet HIV.* 2020

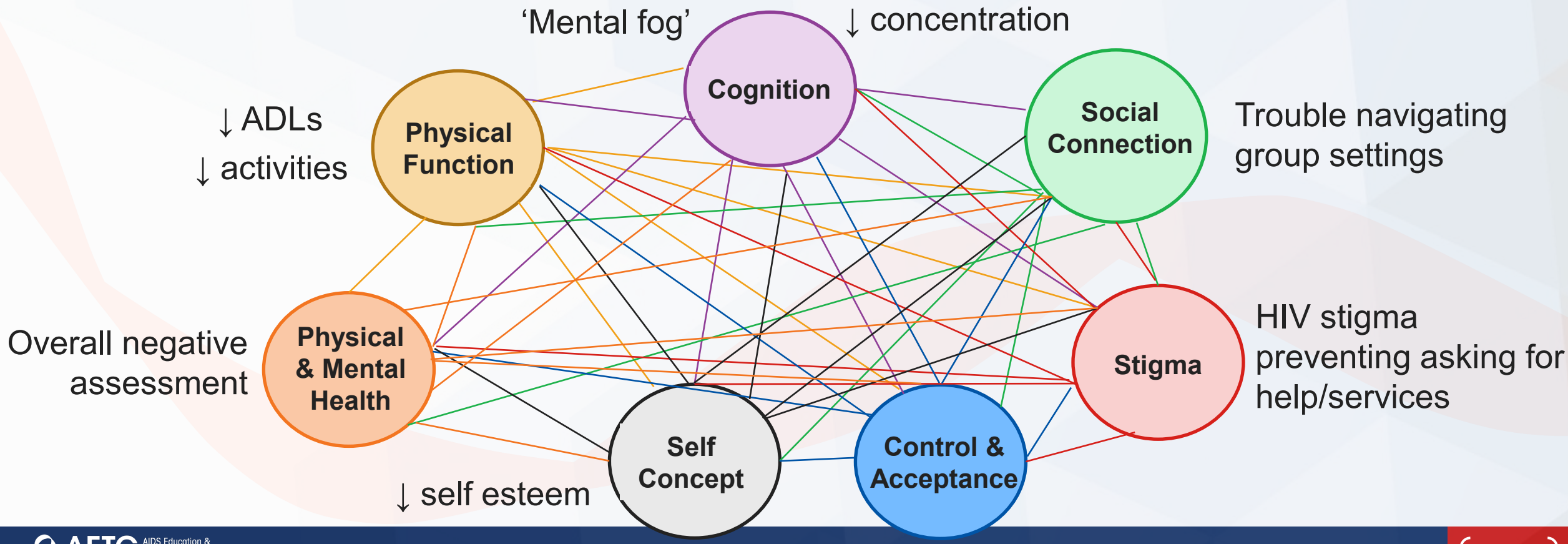
Screening & Diagnosis

- HIV-associated cognitive impairment is a diagnosis of exclusion based upon **neuropsychiatric testing**
  - Other medical conditions that affect cognition: **mental health**, liver disease, cardiovascular disease
- Should we screen widely?
  - *Pro:* early symptoms may not be recognized; early intervention
  - *Con:* unnecessary anxiety (providers and patients)?

Winston & Spudich. *Lancet HIV.* 2020

Cognitive Impairment & HRQoL

Qualitative study of adults in UK with objective HIV-associated cognitive impairment (n=25, 38-80yrs)



Alford et al. *Quality of Life Res.* 2022

#3 – Mobility – Physical function

- Decreased physical function and frailty predictive of:
  - ↑ risk of hospitalization
  - ↑ risk of disability
  - ↑ risk of death
- However, many tools are available and unclear which are the most predictive of these outcomes

Pelloquin et al. *JAIDS.* 2020

Guralnik et al. *J Gerontol.* 1994

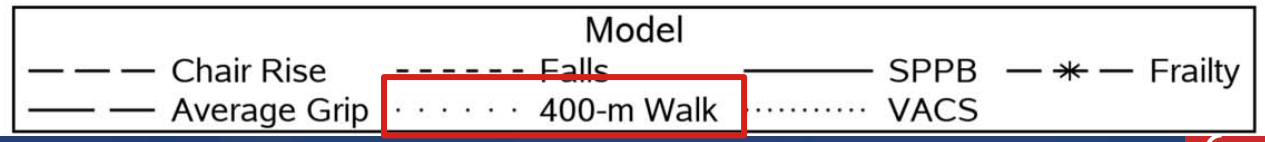
Sasaki et al. *Am J Med.* 2007

Fried et al. *J Gerontol A Biol Sci Med Sci.* 2001

Newman et al. *JAMA.* 2006

Physical Function Tools & Mortality

- Longitudinal study of frailty and physical function among PWH aged 45-65yrs (n=348)
- Assessed vital status after 8 years



Pelloquin et al. *JAIDS*. 2020

#3 – Mobility – Falls

Risk of falls among PWH is associated with:

- Older age
- Depressive symptoms
- Marijuana use
- Neuropathy
- Frailty
- Polypharmacy
- Cognitive impairment
- Death

Sharma et al. *JAIDS. 2022*
Pelloquin et al. *JAIDS.* 2020
Psomas et al. *J AIDS. 2022*
Sharma et al. *Antivir Ther. 2016*

#4 – Medications – Polypharmacy

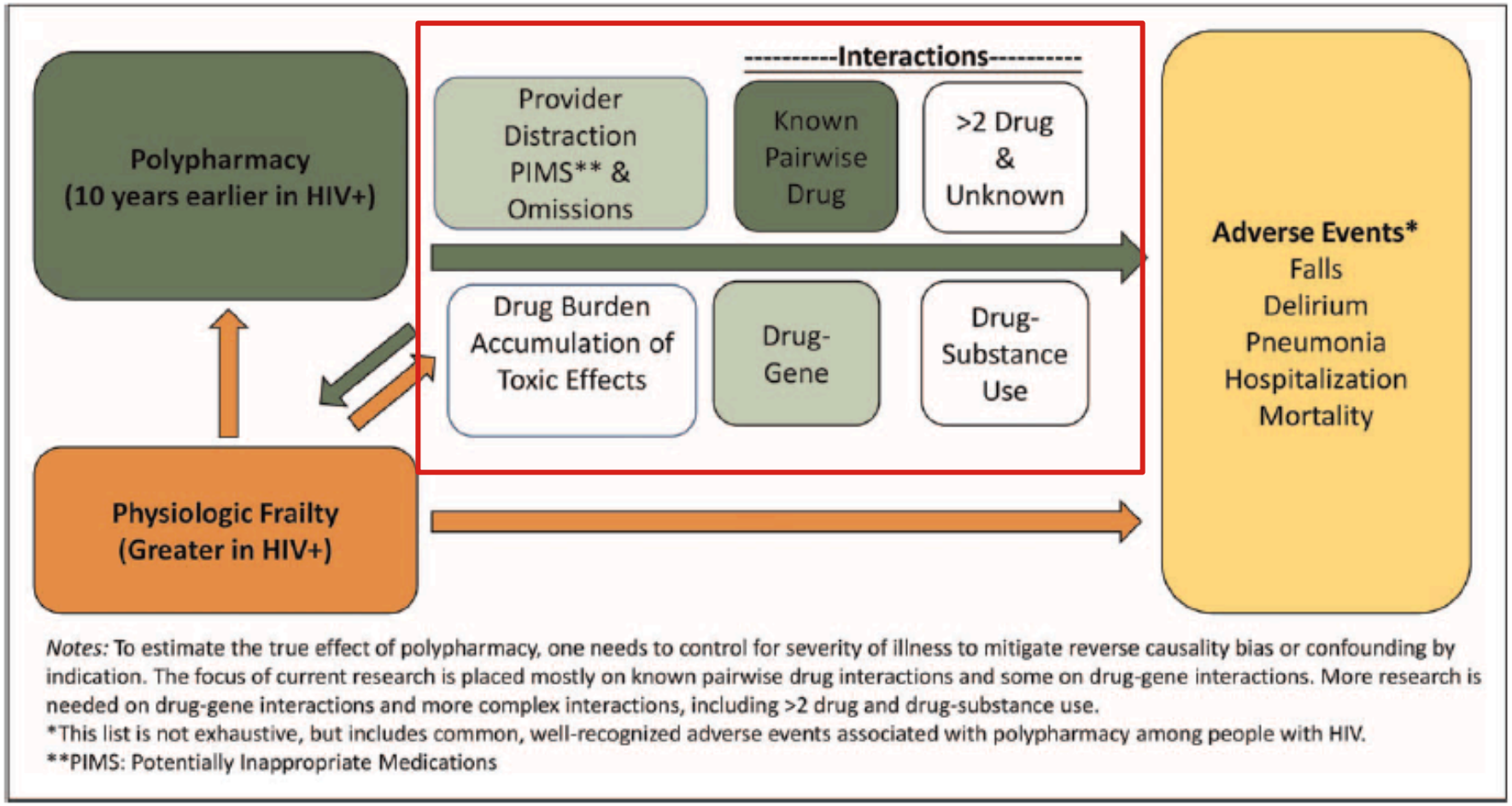


FIGURE 1. Conceptual model of harm associated with polypharmacy.

Edelman et al. *Curr Opin HIV AIDS. 2020*

#5 – Multicomplexity – Frailty

FRAIL

NOT FRAIL

"frailty" (def): a state of increased vulnerability to poor resolution of homeostasis after a stressor event

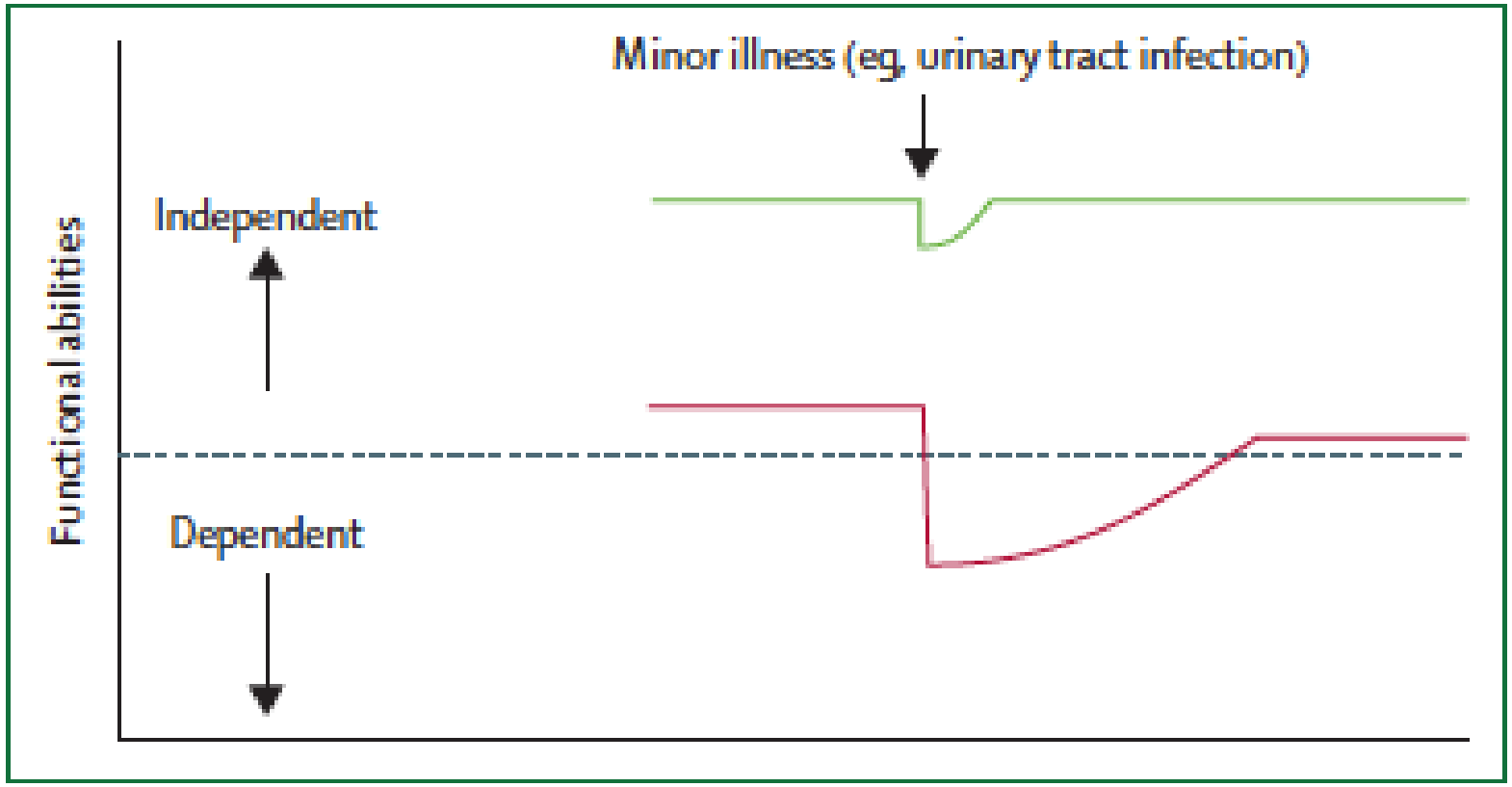
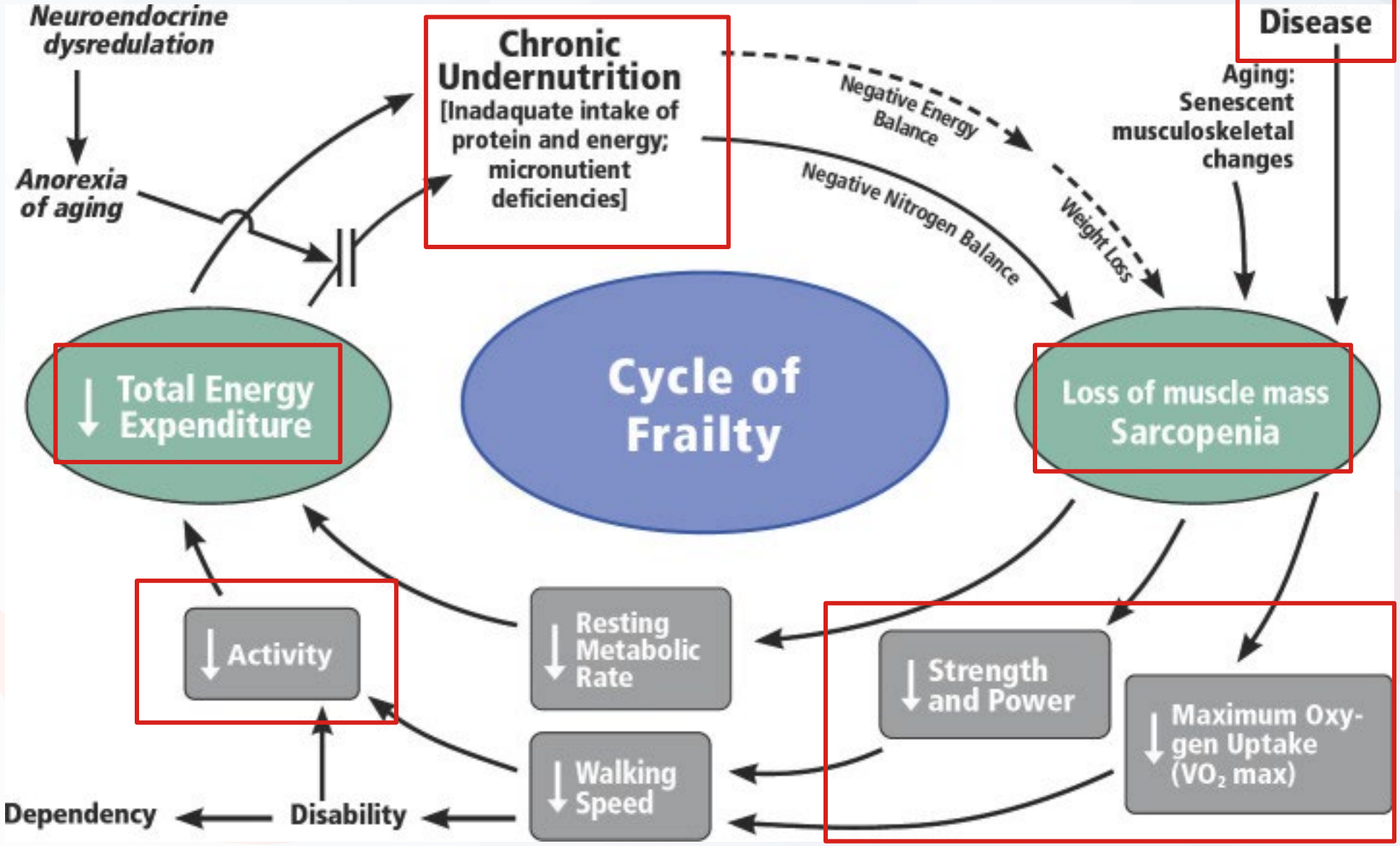


Figure 1: Vulnerability of frail elderly people to a sudden change in health status after a minor illness

Clegg et al. *Lancet*. 2013;381:752-62

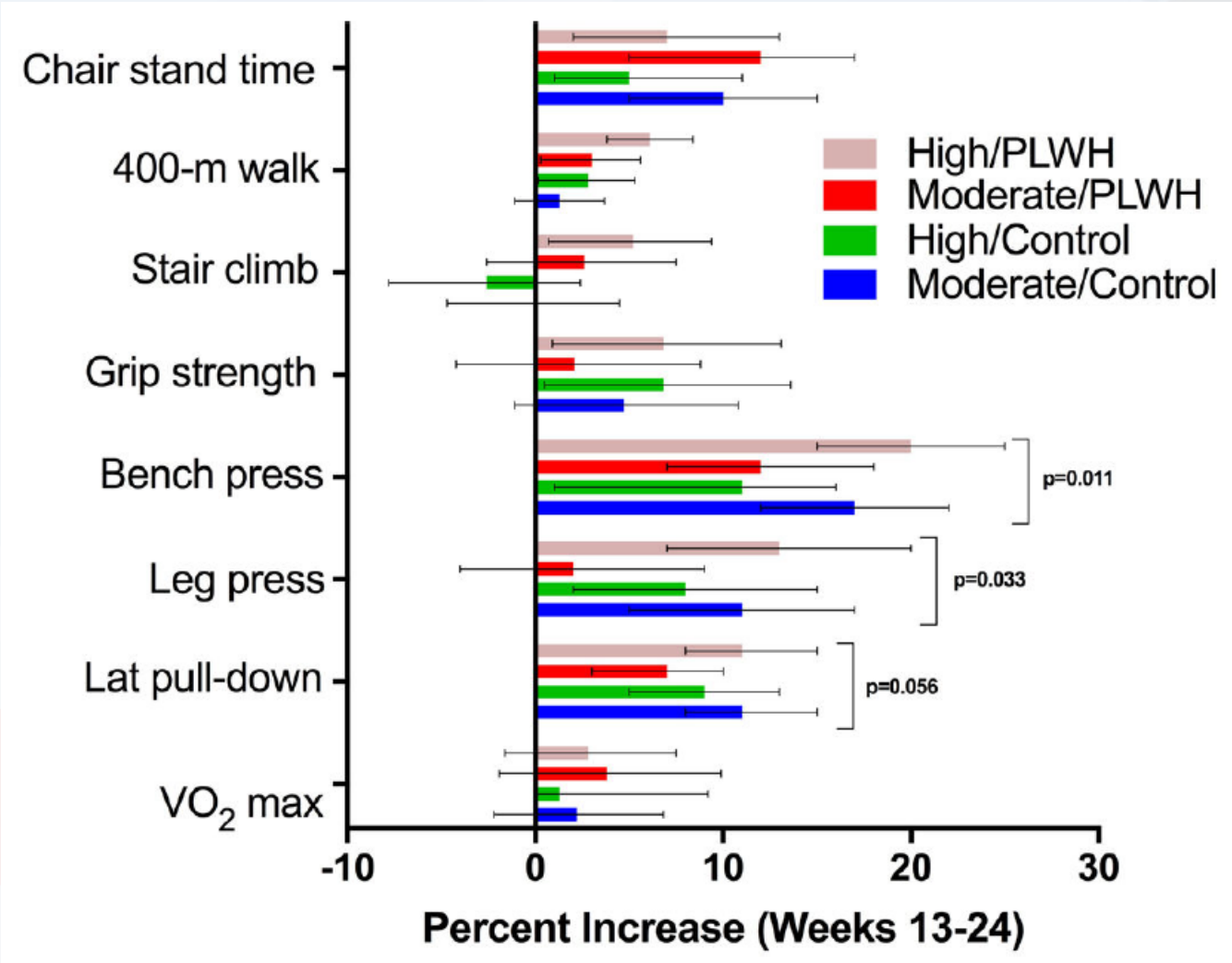
Cycle of Frailty



Adapted from Fried et al. *J Gerontol A Biol Sci Med Sci*. 2001

Improving physical function: **Exercise**

- Prospective study of sedentary PLWH (n=32) and controls (HIV-negative, n=37), ages 50-75 years
- Attended supervised exercise 3x/week for 24 weeks (treadmill, weights) that was randomized for intensity
- 79% of PLWH were pre-frail and 49% of controls were pre-frail, none were frail
- **PLWH had similar improvements in VO_2 max and other exercise parameters**
- Also saw improvements in SPPB (physical function assessment) and frailty status in a number of PLWH and controls



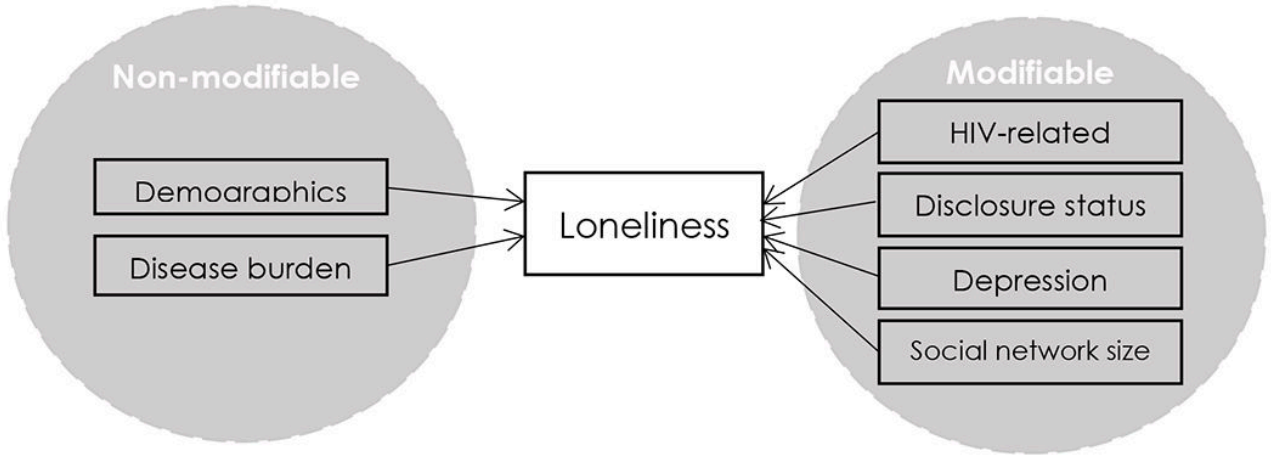
Erlandson et al. *AIDS*. 2018

#5 – Multicomplexity - Social Isolation

"We have enough evidence that tell us that people with HIV already experience loneliness and isolation. In a world where old age already renders you invisible, this will only increase."
– Marc Thompson, CROI 2022

Loneliness in older PWH

- Potentially modifiable condition associated with morbidity and mortality in older adults
- Older PWH more likely to live alone, have smaller social networks due to stigma
- Study of 146 older PWH in Atlanta found that lonely adults were more likely to have:
  - Poor/fair self-rated health
  - Clinical depression
  - Non-disclosure of HIV status
  - Smaller social network size
  - Greater HIV-related stigma



Yoo-Jeong et al. *AIDS Care*. 2020

Implementing geriatric medicine into HIV clinical care – ***The 5 Ms***

- **Matters most** – goals ~~of care~~. **Talk & listen**
- **Mind** – depression, dementia. **Screening for sx**
- **Mobility**- falls prevention, physical function. **Ask about falls, consider gait speed measurements**
- **Medications** – polypharmacy, drug-drug interactions. **Med reconciliation, look for opportunities to de-prescribe**
- **Multi-complexity** – multimorbidity, psychosocial situations (social isolation, food insecurity), frailty & vulnerability. **Don't forget about loneliness**

Adapted from presentation by Dr. Alison Moore. *9th International Workshop on HIV & Aging.* 2018

Mr. D (56 yo)

PMHx:

- **HIV** (dx 2000) – last CD4 794, VL UD
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- **Depression** & **PTSD**
- **Obesity** (BMI 34)
- **BPH**
- **Basal cell carcinoma s/p MOHS** (2022)
- **CAD s/p CABG** (2022)
  - Episode of unstable angina in spring 2022
  - CABG x3 a couple of weeks later
  - Complicated by paralyzed R hemidiaphragm, arrythmias
- **Osteoarthritis** of L hip – upcoming THA

SHx:

- Prior truck driver, stopped after CABG
- Lives with partner (HIV+), own a farm
- Quit smoking, no EtOH
- Grown children
- Multiple friends/family members died in past 2 years

Meds (18 total):

- BIC/TAF/FTC single pill
- Amiodarone
- ASA
- Atorvastatin
- Clopidogrel
- Vitamin B12
- Duloxetine
- Empagliflozin
- Famotidine
- Furosemide
- Gabapentin
- Metformin
- Metoprolol
- Lisinopril
- Terazosin

Mr. D (56 yo)

"TREE" PLAN

1. HIV: controlled, stable
   - Recent labs reviewed
   - Continue BIC/TAF/FTC
2. CAD: no sx of ischemia
   - follow-up with Cardiology
   - Continue cardiac rehab
3. OA of L hip
   - THA scheduled for next month
4. Diabetes
   - A1c at goal, continue meds
5. Depression

"FOREST" PLAN

1. **Matters Most**
   - "Gentleman farmer"
   - Financial stressors of not working **Mind**
   - Surgery triggering PTSD, mortality fears
   - Re-engaging with mental health
2. **Mobility**
   - Continue cardiac rehab
   - Post-op fall prevention
3. **Medication**
   - Reconciliation, review for toxicities
4. **Multicomplexity**
   - Frailty / gait speed assessment

HIV & Aging: clinical guidelines

www.hiv-age.org

Conclusions

- Older PWH is a special but increasingly predominant population in our clinics.
- The causes and individualized care of multimorbidity in PLWH are complex and demanding.
- However, awareness of geriatric syndromes and principles of geriatric medicine can aid in providing best care.
- Successful clinics for older HIV adults include multidisciplinary teams (geriatricians, SW, nursing, pharmacists, others) that focus **physical and cognitive function** are are located within the HIV clinic
- Adding the 5 M's (**matters most, mind, mobility, medications, multi-complexity**) into routine HIV care can improve holistic care for aging adults for prevention of adverse outcomes

Thank you!

Comments/Questions?

jessica.castilho@vumc.org