



Integrating Geriatric Assessments into Routine HIV Care at The THRIVE Program: STRONG & STRIVE

Sarah Schmalzle, MD (Medical Director)

Judith Lee, CRNP, AACRN, AAHIVS

Institute of Human Virology

THRIVE Program/Center for Infectious Disease

University of Maryland School of Medicine

Disclosures

- Sarah Schmalzle
 - Gilead HIV Age Positively grant
 - Thera NAFLD advisory board
 - Merck DOR/ISL trial
 - All ended
- Judith Lee
 - Gilead HIV Age Positively grant
 - All ended

THRIVE Phase 1 Model:

Strengthening Therapeutic Resources for
Older adults agiNG with HIV





Model at



Interprofessional Team

- THRIVE medical director
- THRIVE social work director
- THRIVE pharmacy director
- THRIVE physicians & NPs
 - UMD Gerontologist
 - UMD Epidemiologist
 - UMD AETC lead
 - 2 PhD students

Planning Stage

- Medical literature review
- Consultation with experts
- Patient listening sessions
- Clinician input sessions, needs assessment
- Determination of geriatric assessments to include
 - Staff trainings
- Advertisement to patients

Any PLWH >50 at THRIVE self refers

1 hr study visit (PhD student):
Comprehensive Geriatric Assessment, Social Questionnaire

\$25

Chart Review:
Medical, Pharmacy

Appt with clinician, pharmD, SW:
Review results, interventions as necessary





Assessments Chosen

Geriatric Assessments

- Depression, suicidality: PHQ9
- Anxiety: GAD 7
- Cognition: MoCA
- Physical Performance: SPPB
- ADLs: OARS
- Frailty: Fried phenotype
- Nutrition: Determine score
- QOL: PROMIS physical & mental

Medical / Pharmacy Chart Review

- HIV: last CD4, HIV RNA
- BMD: DXA
- CVD: ASVCD risk score, ASA and statin use vs. recommendation
- Renal disease: UA, GFR
- Liver disease: LFTs
- Cancer screening: breast, cervical, colon, anal
- Medication reconciliation
- Polypharmacy
- Drug-drug interactions
- Beers list drugs
- Adherence

Social Questionnaire

- HIV history, stigmatization, loss
- Disclosure, support & relationships
- Caregiving & caretaking
- Substance use
- Housing, employment
- Education, finances
- Activities and community engagement
- Advanced care planning
- Health care utilization

Adjusting STRONG Model

- Dropped for Phase 2
 - ADLs (redundant)
 - Quality of Life scores (not actionable)
 - Questions (not actionable)
 - First HIV clinic
 - Health care systems/specialties used
 - # pharmacies
 - Support for ADLs
- Added for Phase 2
 - Insomnia screen
 - PTSD screen
 - Hearing test
 - STOPPING aspirin (rather than starting → guidelines changed)
 - Prostate and lung cancer screening
 - NAFLD screening
 - “What Matters Most” questions
 - Vision & dental screen
 - Vaccine review
 - Chewing/swallowing problems

THRIVE Phase 2 Model:

**STRENGTHENING THRIVE'S RESILIENT
INDIVIDUALS TO LIVE TO 100 CLINIC**



☛ ARE YOU 50+ YEARS OLD LIVING WITH HIV? ☛



STRENGTHENING THRIVE'S RESILIENT INDIVIDUALS TO LIVE TO 100 CLINIC

Goal: To improve health outcomes and your quality of life. Hour-long appointments to comprehensively assess **mind, mobility, multimorbidity, medications** and what **matters most** to you. Exercise, wellness, and nutrition classes will also be available.

☻ MONDAYS FROM 9 AM TO 4 PM ☻

800 Linden Avenue, 7th floor

Baltimore, MD 21201

410-225-8369

☛ APPOINTMENT: _____ ☛



DO YOU COME TO THRIVE
FOR HIV? ARE YOU
50+ YEARS
OLD?

STRIVE TO 100 YOGA AND WELLNESS PROGRAM

WEDNESDAYS FROM 2-3PM
CONFERENCE CENTER (LOWER LEVEL)
UMMC MIDTOWN CAMPUS OUTPATIENT TOWER
800 LINDEN AVENUE, BALTIMORE, MD 21201



Memory loss?
Mobility issues?
Fatigue?

Schedule your
STRIVE TO 100
visit for a
comprehensive
geriatric
assessment



STRIVE TO 100 YOGA AND WELLNESS

Spring Schedule

3/15	Wellness Walk (Canton Waterfront Park)
3/22	YOGA
3/29	Wellness Walk (Canton Waterfront Park)
4/5	Healthy Eating (snack provided)
4/12	YOGA
4/19	YOGA
4/26	YOGA
5/3	YOGA
5/10	Wellness Walk (Canton Waterfront Park)
5/17	YOGA
5/24	Wellness Walk (Canton Waterfront Park)
5/31	YOGA

All classes will be held on the lower level of the
Midtown Outpatient Tower unless otherwise noted in red



Comprehensive Geriatric Assessment

Comprehensive chart review: patient history, physical examination, questionnaires, labs, medications, etc.



Comorbidities

- Cardiovascular
- Diabetes
- Liver disease
- Renal disease
- Cancers
- Neurocognitive



Mental health and Cognition

- Depression, anxiety
- Substance use
- PTSD
- Insomnia
- IPV, elder abuse
- Memory changes



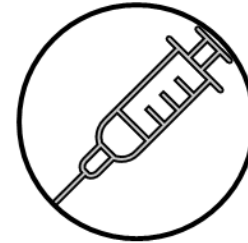
Physical Function

- Hearing & vision
- Balance & mobility
- ADLs and iADLs
- Strength/frailty



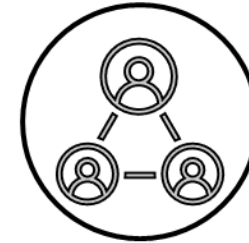
Nutritional Risk

- Food insecurity



Health Maintenance

- Cancer screenings
- Vaccinations



Social Function

- Social isolation
- Quality of life
- Housing
- Community engagement
- Sexual health
- Advanced care planning



Medications

- Polypharmacy
- Medication safety
- Utilization of pharmacies



Telemedicine Pharmacy Appointment

- Scheduled 1 week prior to STRIVE appointment
- In-person appointment for “brown bag method”
- Goals:
 - Review current therapy for drug interactions
 - Consider discontinuation of potentially unnecessary therapy
 - Consider adverse drug events as a potential cause for any new symptom(s)
 - Consider safer alternatives, non-pharmacological treatments
 - Ensure appropriate dosing and frequency of all medications
 - Simplify dosing regimens if possible

Medications: Polypharmacy

- The cutoff of 5 medications is consistently associated with negative health outcomes
- Higher chance of drug-drug interactions and adverse effects
 - Beers criteria from the American Geriatrics Society
 - STOPP criteria (Screening Tool of Older Person's Prescriptions)
- Underutilization of beneficial therapy
 - Benefit of statin medications for both primary and secondary prevention
 - ASCVD Risk Scores underestimate risk in PLWH

For the first 100 patients seen at STRIVE:

- Average number of pills: 8
- 29.5% of individuals were prescribed 10 or more medications

Gnjidic D. et al. J Clin Epidemiol 65.9 (2012):989–95
Back D, Marzolini C. J Int AIDS Soc. 2020;23(2):e25449. doi:10.1002/jia2.25449



STRIVE to 100 Visit

- STRIVE to 100 Questionnaire
 - HIV history, stigma, isolation, support system, substance use, housing, access to food, advanced directives, etc.
- DETERMINE Nutrition Screening
 - Disease, Eating poorly, Tooth loss, Economic hardship, Reduced social contact, Multiple medicines, Involuntary weight loss/gain, Needs assistance in self-care, Elder years above age 80
- Insomnia Severity Index (ISI)
- Primary Care PTSD Screen (PC-PTSD)

Matters Most

- “What is your worry or concern about aging?”
- “What does well-being mean to you?”



Matters Most

- “What is your worry or concern about aging?”
- “What does well-being mean to you?”

I don't want to die a painful death. I witnessed my father passing away in a painful way and that was traumatic.

Well-being means looking forward to tomorrow – that's my motto.

No worries. That's life. I just don't want too much wrinkles. I started making my own wrinkle cream.

I want to be around to watch my grandchildren grow.

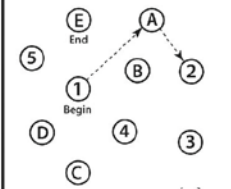

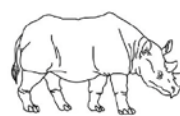

Not being able to do the things I used to do. You know I used to make and sell things at the flea market?

Mind: Cognition & Mental Health

- Evaluate for memory and/or cognitive changes
 - International HIV dementia scale
 - Montreal Cognitive Assessment (MOCA)
- Social isolation, loneliness, stress and stigma
- Assessments:
 - Patient Health Questionnaire (PHQ-9) for depression
 - General Anxiety Disorder (GAD-7)
 - Insomnia Severity Index
 - Primary Care PTSD Screen for DSM-5 (PC-PTSD-5)
 - 15% positive screening
 - Geriatric Depression scale

MONTREAL COGNITIVE ASSESSMENT (MOCA)
Version 7.1 Original Version

NAME: _____ Education: _____ Date of birth: _____
Sex: _____ DATE: _____

VISUOSPATIAL / EXECUTIVE		Copy cube	Draw CLOCK (Ten past eleven) (3 points)	POINTS		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	/5		
	Contour	Numbers	Hands			
NAMING						
			<input type="checkbox"/>	/3		
MEMORY						
Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.	FACE	VELVET	CHURCH	DAISY	RED	No points
1st trial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2nd trial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ATTENTION						
Read list of digits (1 digit/ sec.). Subject has to repeat them in the forward order [] 2 1 8 5 4	Subject has to repeat them in the backward order [] 7 4 2				/2	
Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors	[] FBACMNAAJKLBAFAKDEAAAJAMOFAB				/1	
Serial 7 subtraction starting at 100 [] 93	[] 86	[] 79	[] 72	[] 65	/3	
4 or 5 correct subtractions: 3 pts, 2 or 3 correct: 2 pts, 1 correct: 1 pt, 0 correct: 0 pt						
LANGUAGE						
Repeat: I only know that John is the one to help today. []	The cat always hid under the couch when dogs were in the room. []				/2	
Fluency / Name maximum number of words in one minute that begin with the letter F [] _____ (N ≥ 11 words)					/1	
ABSTRACTION						
Similarity between e.g. banana - orange = fruit [] train - bicycle [] watch - ruler					/2	
DELAYED RECALL						
Has to recall words WITH NO CUE	FACE	VELVET	CHURCH	DAISY	RED	Points for UNCLUES recall only
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Optional						
Category cue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Multiple choice cue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ORIENTATION						
[] Date [] Month [] Year [] Day [] Place [] City					/6	
© Z. Nasreddine MD		www.mocatest.org		Normal ≥ 26 / 30	TOTAL	/30
Administered by: _____				Add 1 point if ≤ 12 years		

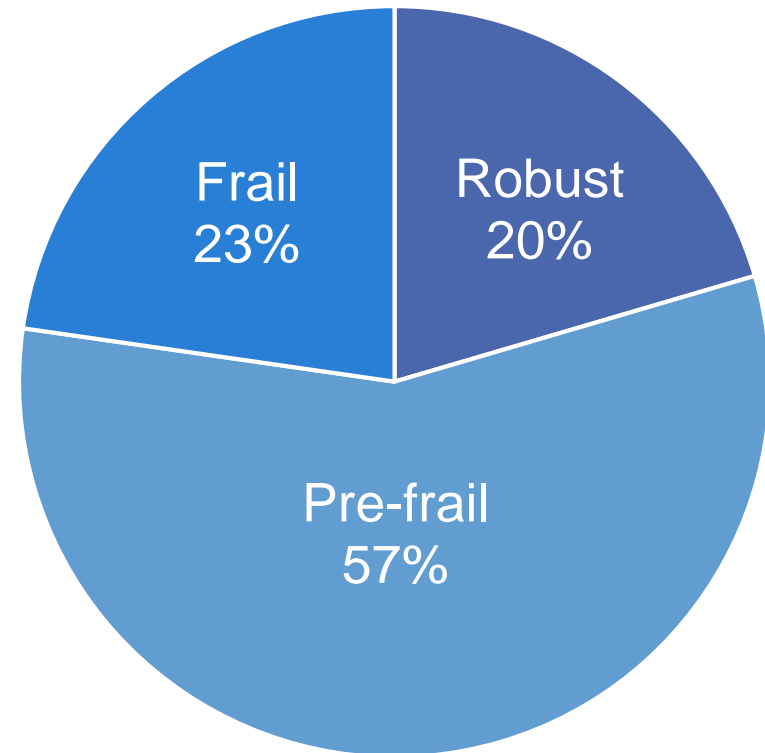
Haynes BI, Pitkanen M, Kulasegaram R, et al. HIV Med. 2018;19(6):376-385
 Nasreddine ZS, Phillips NA, Bédirian V, et al. J Am Geriatr Soc. 2005;53(4):695-699
 Aung HL, Aghvinian M, Gouse H, et al. AIDS Behav. 2021;25(3):917-960



Mobility: Osteoporosis and Frailty

- Higher levels of markers of inflammation and immune activation found in PLWH
- Associations: HIV infection, advanced age, male sex, smoker, chronic HCV infection, depression, and central adiposity
- Screening for osteoporosis with DXA bone density scan recommendations for PLWH:
 - Women post-menopause
 - Men over age 50
- 74.3% of individuals seen for STRIVE were not up to date

Fried Frailty Score



AIDS30(2):241-250, January 2016.

Mobility Assessments

- Frailty
 - **Fried Frailty Index** - weight loss, grip strength, walking speed, fatigue, and physical activity
- Physical function
 - **Short Physical Performance Battery (SPPB)**
 - **Gait speed**
 - **Falls Risk Assessment**
- Degree of disability
 - **Self-report of daily living and instrumental activities of daily living (OARS Multidimensional Functional Assessment Questionnaire)**

Greene M, Justice AC, Covinsky KE. Virulence. 2017;8(5):586-598.



Multicomplexity

Cardiovascular & Pulmonary

- Leading cause of morbidity and mortality in PLWH with a nearly 2-fold increased incidence of cardiovascular events
- Cardiometabolic dysfunction with the use of certain ART such as protease inhibitors
- Screen for tobacco use and counsel on cessation

Renal & Liver

- Exposure to drugs with nephrotoxic potential (such as tenofovir) increases risk for kidney disease
- Rates of co-infection with hepatitis B and C viruses are approximately 25 times higher in PLWH
- Nonalcoholic fatty liver disease has been reported in 30-65% of PLWH

Endocrine & MSK

- 4x more likely to have osteoporosis with higher rates of fracture
- Bone density screening recommended for post-menopausal women and men > 50 years old, yet screening rates remain low

Cancer Screenings

- Annual screening for anal cancer and treating/removing abnormal lesions early (ANCHOR study)
- Cervical pap smears should continue after age 65 due to increased risk
- Low-dose CT scan for over 20-pack-year smoking history
- Rates of breast and prostate cancer are comparable to rate in people without HIV

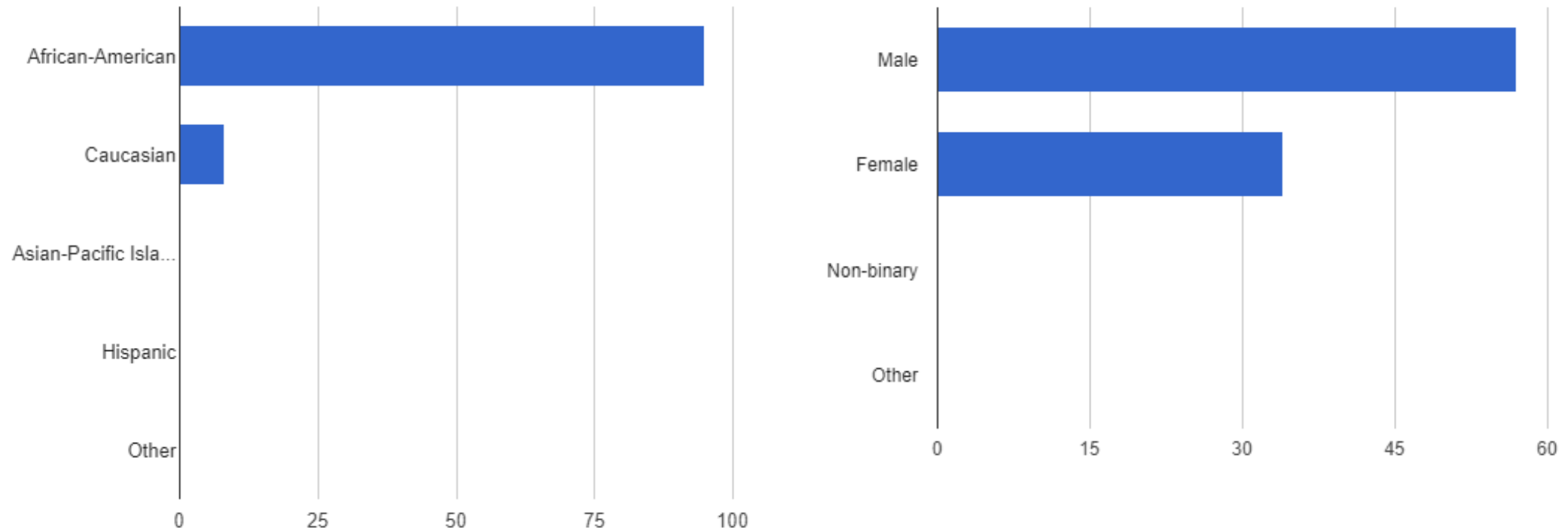
Vaccinations

- HPV vaccine until the age of 45
- Pneumonia vaccine after the age of 65
- Shingles vaccine
- Recommendations include those for the immunocompromised population, including varicella and MMR if CD4 count is ≥ 200 cells/ μ L²

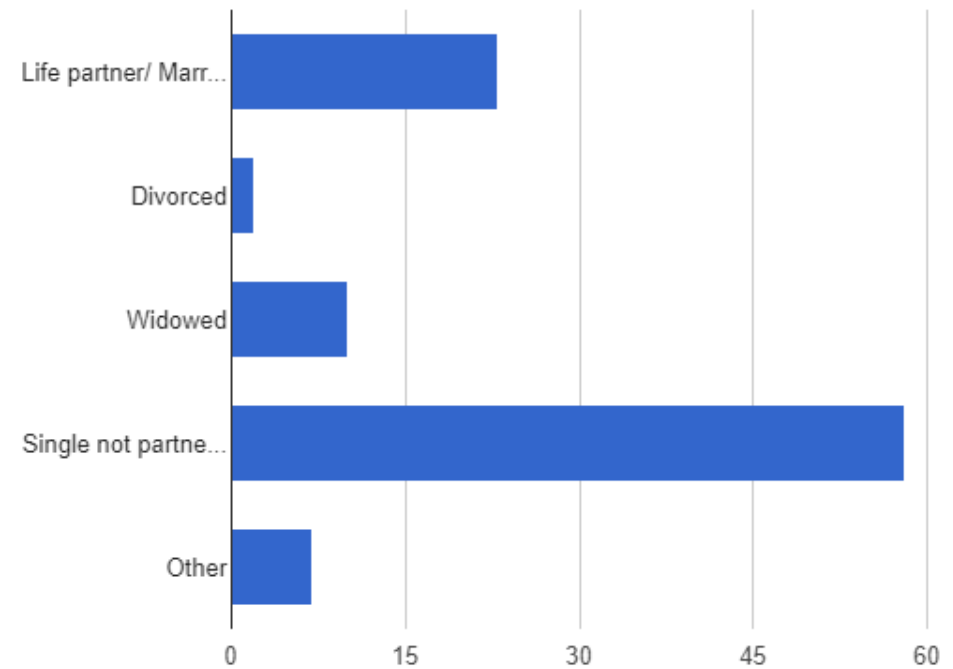
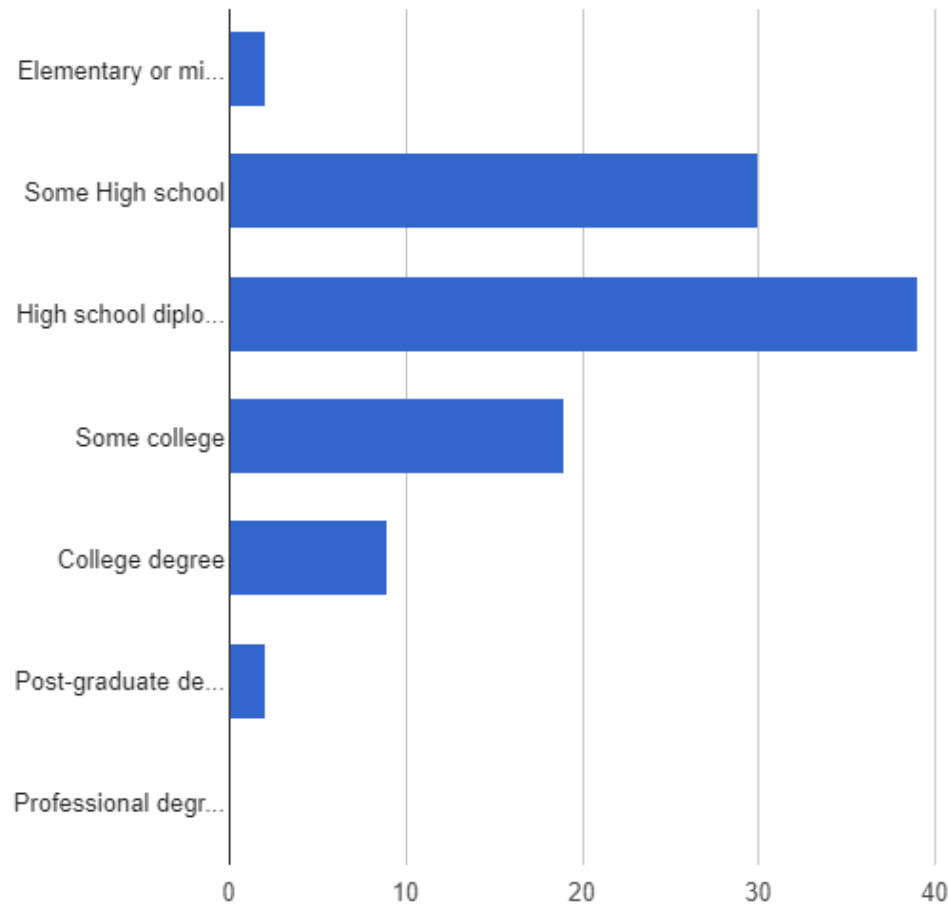
Health Maintenance

- Smoking cessation
- Cancer screenings
 - Low dose CT scan for >20 year pack-year history
- Whisper test for hearing
- Dental care
- Eye exams
- Immunizations

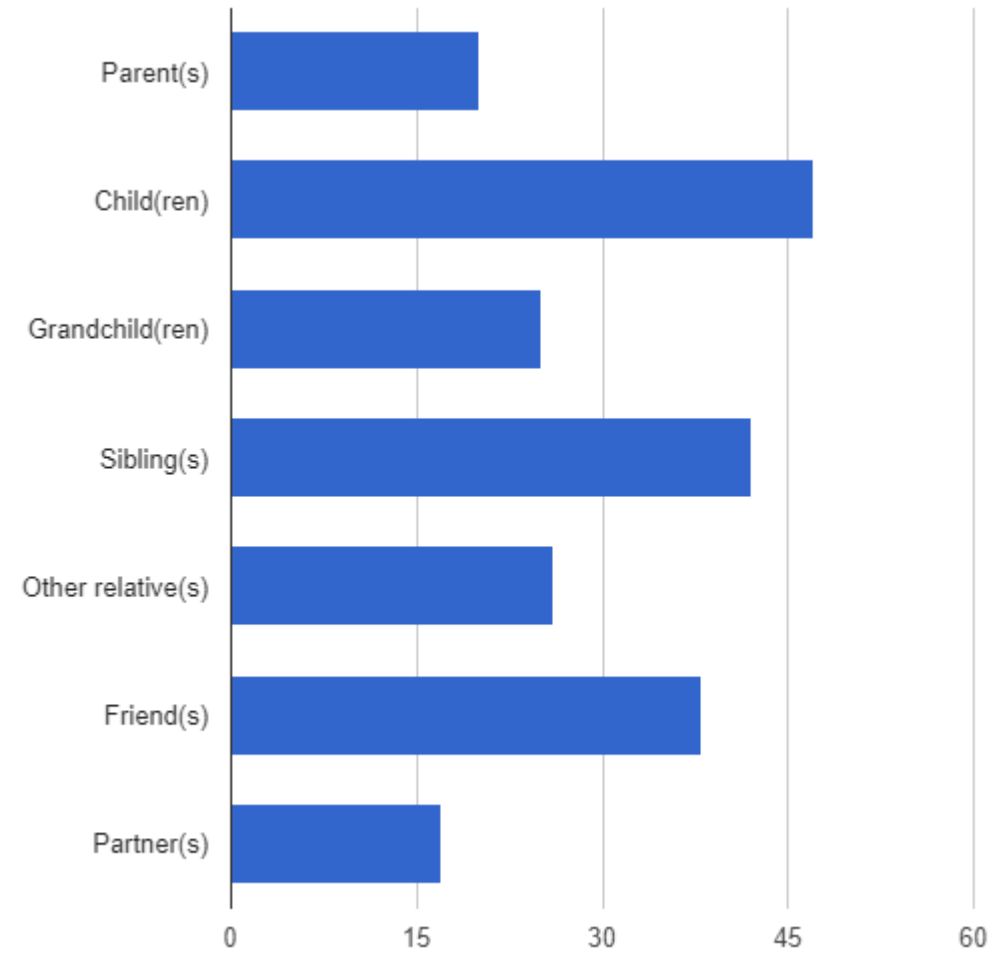
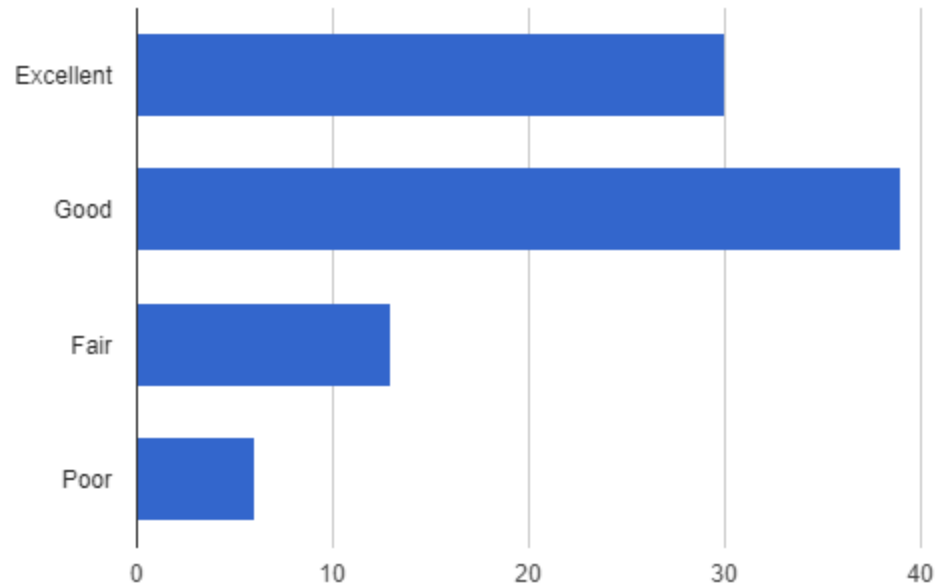
Preliminary Findings: Demographics



Preliminary Findings: Demographics



Support System



Recommendations

- Simplifying medication regimen
 - De-prescribing low-dose ASA for primary prevention of CVD in adults 60 years or older according to updated USPSTF guidelines
- NAFLD screening with Fibroscan
- Overdue DEXA and cancer screenings
- Smoking cessation and low-dose CT scan if appropriate
- Initiating or adjusting statin therapy
- Counseling on lifestyle modifications for diet, exercise, and sleep hygiene
- Addressing frailty status and prevention of falls
- Mental health resources, support groups

References

- Aung HL, Aghvinian M, Gouse H, et al. Is There Any Evidence of Premature, Accentuated and Accelerated Aging Effects on Neurocognition in People Living with HIV? A Systematic Review. *AIDS Behav.* 2021;25(3):917-960. doi:10.1007/s10461-020-03053-3
- Back D, Marzolini C. The challenge of HIV treatment in an era of polypharmacy. *J Int AIDS Soc.* 2020;23(2):e25449. doi:10.1002/jia2.25449
- Brothers TD, Kirkland S, Guaraldi G, et al. Frailty in people aging with human immunodeficiency virus (HIV) infection. *J Infect Dis.* 2014;210(8):1170-1179. doi:10.1093/infdis/jiu258
- Campos P, Ortiz A, Soto K. HIV and kidney diseases: 35 years of history and consequences. *Clin Kidney J.* 2016;9(6):772-781. doi:10.1093/ckj/sfw104
- Erlandson KM, Karris MY. HIV and Aging: Reconsidering the Approach to Management of Comorbidities. *Infect Dis Clin North Am.* 2019;33(3):769-786. doi:10.1016/j.idc.2019.04.005
- Escota GV, O'Halloran JA, Powderly WG, Presti RM. Understanding mechanisms to promote successful aging in persons living with HIV. *Int J Infect Dis.* 2018;66:56-64. doi:10.1016/j.ijid.2017.11.010
- Gnjidic D, Hilmer SN, Blyth FM, et al. Polypharmacy cutoff and outcomes: five or more medicines were used to identify community-dwelling older men at risk of different adverse outcomes. *J Clin Epidemiol* 65.9 (2012):989–95
- Greene M, Justice AC, Covinsky KE. Assessment of geriatric syndromes and physical function in people living with HIV. *Virulence.* 2017;8(5):586-598. doi:10.1080/21505594.2016.1245269
- Graupera I, Thiele M, Serra-Burriel M, et al. Low Accuracy of FIB-4 and NAFLD Fibrosis Scores for Screening for Liver Fibrosis in the Population. *Clin Gastroenterol Hepatol.* 2022;20(11):2567-2576.e6. doi:10.1016/j.cgh.2021.12.034
- Haynes BI, Pitkanen M, Kulasegaram R, et al. HIV: ageing, cognition and neuroimaging at 4-year follow-up. *HIV Med.* 2018;19(6):376-385. doi:10.1111/hiv.12598
- Kong AM, Pozen A, Anastos K, Kelvin EA, Nash D. Non-HIV Comorbid Conditions and Polypharmacy Among People Living with HIV Age 65 or Older Compared with HIV-Negative Individuals Age 65 or Older in the United States: A Retrospective Claims-Based Analysis. *AIDS Patient Care STDS.* 2019;33(3):93-103. doi:10.1089/apc.2018.0190



References

- Kooij KW, Wit FW, Schouten J, et al. HIV infection is independently associated with frailty in middle-aged HIV type 1-infected individuals compared with similar but uninfected controls [published correction appears in *AIDS*. 2016 Jul 17;30(11):1863]. *AIDS*. 2016;30(2):241-250. doi:10.1097/QAD.0000000000000910
- Martínez-Sanz J, Serrano-Villar S, Vivancos MJ, Rubio R, Moreno S; HIV-associated comorbidities Study Group. Management of Comorbidities in Treated HIV Infection: A Long Way to Go: HIV, comorbidities and aging. *Int J Antimicrob Agents*. 2022;59(1):106493. doi:10.1016/j.ijantimicag.2021.106493
- Nasreddine ZS, Phillips NA, Bédirian V, et al. The Montreal Cognitive Assessment, MoCA: a brief screening tool for mild cognitive impairment [published correction appears in *J Am Geriatr Soc*. 2019 Sep;67(9):1991]. *J Am Geriatr Soc*. 2005;53(4):695-699. doi:10.1111/j.1532-5415.2005.53221.x
- Okeke NL, Chin T, Clement M, Chow SC, Hicks CB. Coronary artery disease risk reduction in HIV-infected persons: a comparative analysis. *AIDS Care*. 2016;28(4):475-482. doi:10.1080/09540121.2015.1099602
- Pandeyarajan V, Gish RG, Alkhoury N, Noureddin M. Screening for Nonalcoholic Fatty Liver Disease in the Primary Care Clinic. *Gastroenterol Hepatol (N Y)*. 2019;15(7):357-365.
- Piggott DA, Erlandson KM, Yarasheski KE. Frailty in HIV: Epidemiology, Biology, Measurement, Interventions, and Research Needs. *Curr HIV/AIDS Rep*. 2016;13(6):340-348. doi:10.1007/s11904-016-0334-8
- Proulx J, Ghaly M, Park IW, Borgmann K. HIV-1-Mediated Acceleration of Oncovirus-Related Non-AIDS-Defining Cancers. *Biomedicines*. 2022;10(4):768. Published 2022 Mar 25. doi:10.3390/biomedicines10040768
- Pyrali F, Iordanov R, Ebner B, et al. Cardiovascular disease and prevention among people living with HIV in South Florida. *Medicine (Baltimore)*. 2021;100(28):e26631. doi:10.1097/MD.00000000000026631
- Rabanaque-Hernández MJ. Polypharmacy in older adults with human immunodeficiency virus infection compared with the general population. *Clin Interv Aging*. 2016;11:1149-1157. Published 2016 Aug 26. doi:10.2147/CIA.S108072
- Seth A, Sherman KE. Fatty liver disease in persons with HIV infection. *Top Antivir Med*. 2019 May;27(2):75-82. PMID: 31136997; PMCID: PMC6550355.

