

Healthy Aging with HIV in the Context of
COVID-19

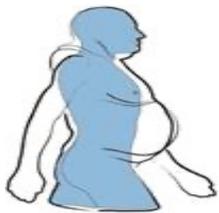
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This activity is jointly provided by Physicians' Research Network
and the Medical Society of the State of New York.

Healthy aging with HIV



Giovanni Guaraldi
Università di Modena



UNIMORE
UNIVERSITÀ DEGLI STUDI DI
MODENA E REGGIO EMILIA

Disclosures

GG received research grant and speaker honorarium from Gilead, ViiV, MERCK and Jansen. He attended advisory boards of Gilead, ViiV and MERCK.

The “Lisbon patient”

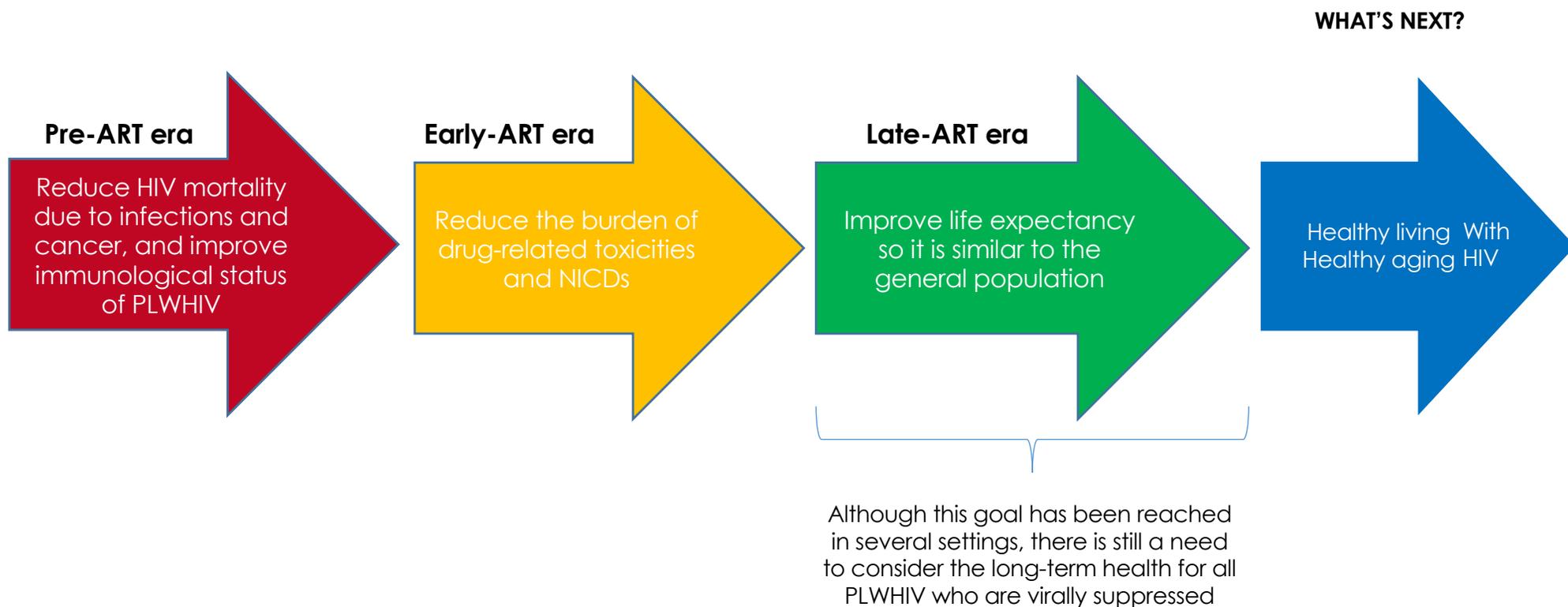
Miguel,
was born on May 11, 1919
He Died on August 31, 2019
He was the first known person who
reached 100 year of life living with HIV.

He was frail, but not disable.
He had **not** multimorbidity and
polypharmacy
He lived alone and was autonomous, up
to his death which occurred while
sleeping. He was never admitted to
hospital.

Pintassilgo I and Guaraldi G, BMC Infectious diseases, 2020



THE OBJECTIVES OF HIV CARE AND OUTCOME MEASURES have evolved OVER TIME



Two HIV patients



Mrs A, 80 years,

HIV duration 14 years
(diagnosed at 66 yrs)

CD4=478/microL

CD4/CD8=0.7

HIV VL<40 c/mL (ND)

Co-morbidities:

✓MetS (HTN, DLP)

✓Osteopenia

✓CKD

Two HIV patients



Mrs A, 80 years,

HIV duration 14 years
(diagnosed at 66 yrs)
CD4=478/microL
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HIV VL<40 c/mL (ND)

Co-morbidities:

- ✓MetS (HTN,
DLP)
- ✓Osteopenia
- ✓CKD
- ✓Osteoartrosis



Mr B, 55 years,

HIV duration 24 years
(diagnosed at 31 yrs)
CD4=407/microL
CD4/CD8=0.6
HIV VL<40 c/mL (ND)

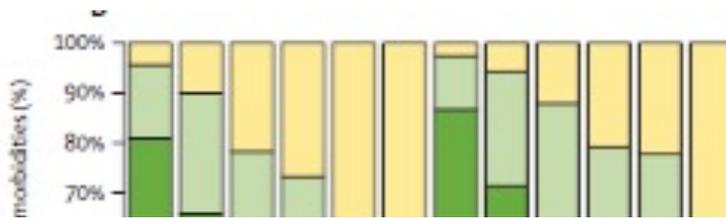
Co-morbidities:

- ✓T2DM
- ✓DLP
- ✓Osteonecrosis
- ✓MI
- ✓CKD
- ✓Depression

Future challenges for clinical care of an ageing population infected with HIV: a modelling study

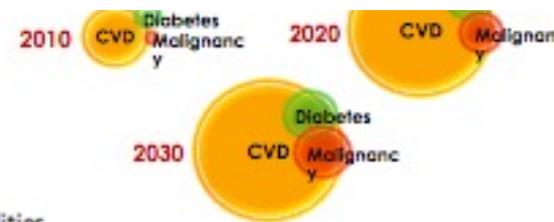
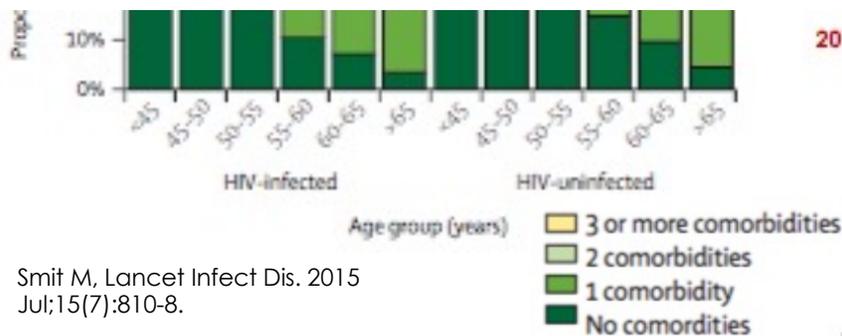


Mikaela Smit, Kees Brinkman, Suzanne Geerlings, Colette Smit, Kalyani Thyagarajan, Ard van Sighem, Frank de Wolf, Timothy B Hallett, on behalf of the ATHENA observational cohort



- In the ATHENA cohort, proportion of patients on ART aged ≥ 50 years old will increase from 28% to 73% between 2010 and 2030
- Burden of NCDs mostly driven by larger increases in cardiovascular

Complexity is: Advancing age

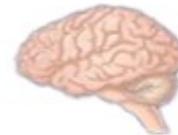
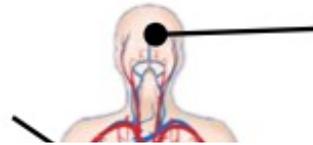


Smit M, Lancet Infect Dis. 2015 Jul;15(7):810-8.

EACS Guideline Recommendations for Screening for Comorbidities*

Cancer

- Mammography
- Cervical PAP
- Anoscopy and PAP (MSM)
- Ultrasound and alpha-fetoprotein

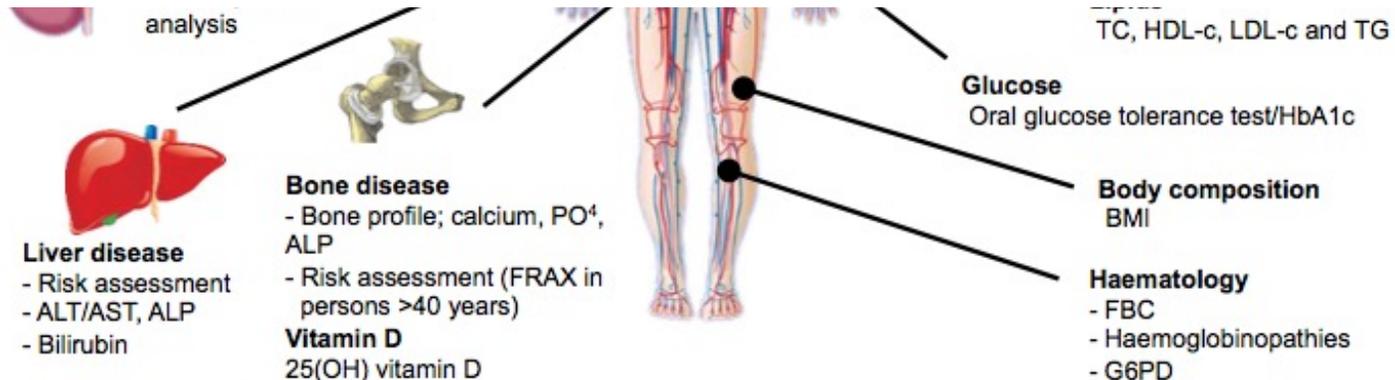


Neurocognitive impairment

- Screening questionnaire
- Depression**
- Questionnaire

Cardiovascular disease

Complexity is: Co-morbidities



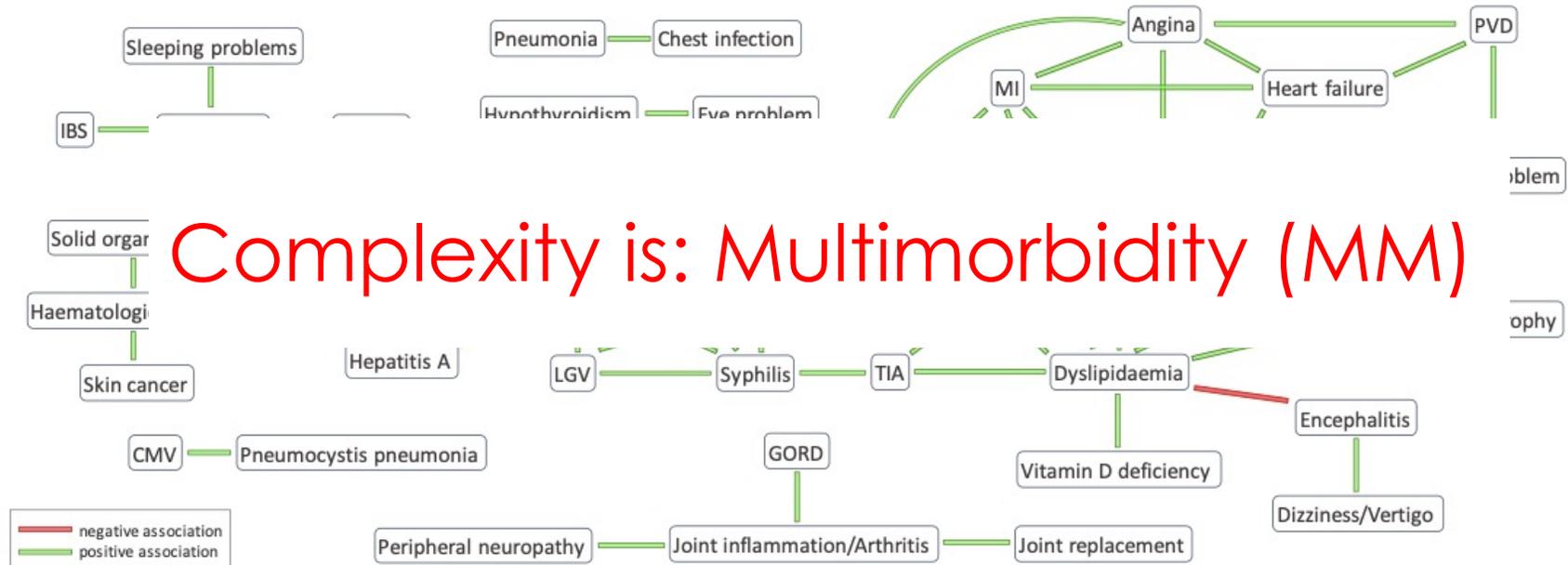
* See guidelines for detail on follow-up frequency, subgroups to be screened and further information

EACS guideline version 7.0, October 2013; Available at: http://www.eacsociety.org/Portals/0/Guidelines_Online_131014.pdf (accessed Apr 2014).

'Mapping' ageing in PLWH

Certain co-morbidities cluster in PLWH

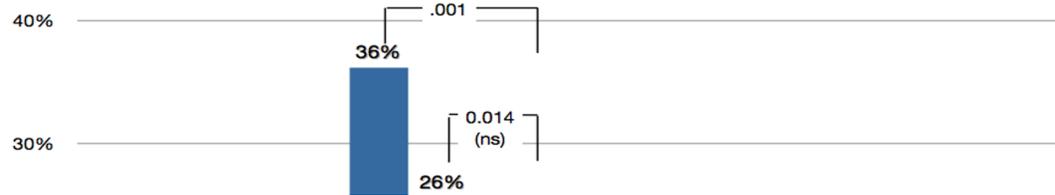
POPPY study and the AGE_hIV cohort study



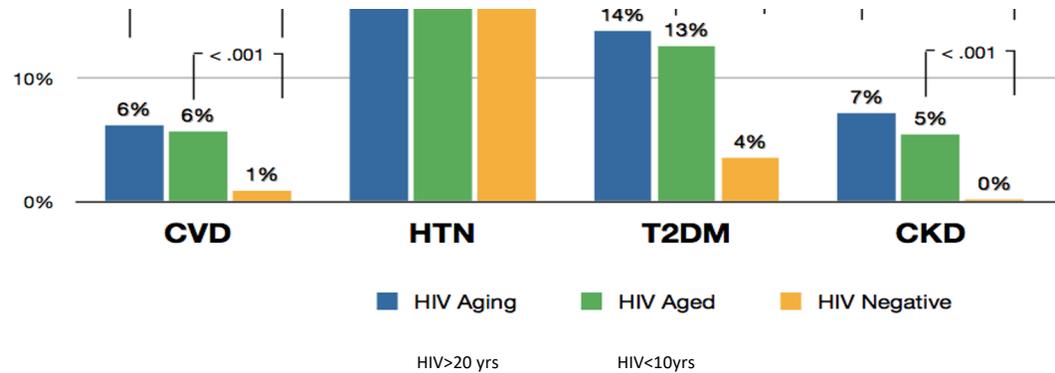
Complexity is: Multimorbidity (MM)

RESEARCH ARTICLE

Aging with HIV vs. HIV Seroconversion at Older Age: A Diverse Population with Distinct Comorbidity Profiles



Complexity is: time spent with HIV



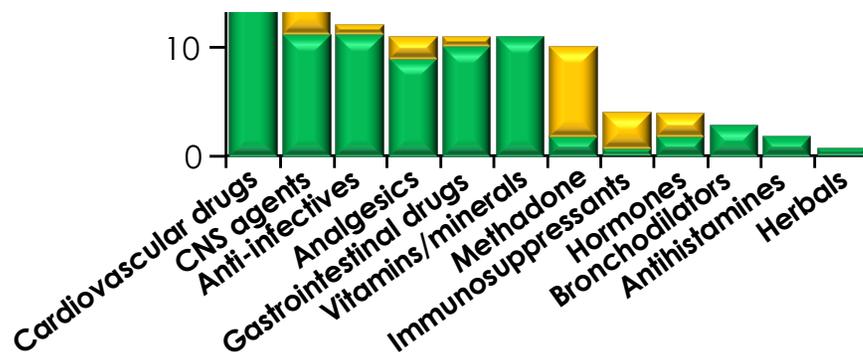
One year with HIV impacts biological age more than one chronological year

Potential drug-drug interactions with cART are more likely in older patients



- ARVs may interact with a number of medications, including*²
 - Methadone
 - Oral contraceptives
 - Antiepileptics
 - Antidepressants

Complexity is: Polypharmacy



- tuberculosis therapy
- Anti-cancer drugs
- Immunosuppressants
- Phosphodiesterase inhibitors
- Anti-HCV therapies

*For further information please visit www.hiv-druginteractions.org

1. Marzolini C, et al. Antivir Ther 2010;15:413-423; 2. BHIVA Draft Guidelines 2012 Available at: www.bhiva.org/documents/Guidelines/Treatment%20Guidelines/2012/formatted__ART_guidelines_04022012_v3_IW.pdf. Accessed Apr 2012.

Two patients with multimorbidity and polypharmacy



Mrs A, 80 years,

HIV duration 14 years
(diagnosed at 66 yrs)
CD4=478/microL
CD4/CD8=0.7
HIV VL<40 c/mL (ND)

Multi-morbidities

Polipharmacy:

- ✓ Calcium antagonist
- ✓ Beta-bloker
- ✓ Statin
- ✓ Alendronate
- ✓ Vit D



Mr B, 55 years,

HIV duration 24 years
(diagnosed at 31 yrs)
CD4=407/microL
CD4/CD8=0.6
HIV VL<40 c/mL (ND)

Multi-morbidities

Polipharmacy:

- ✓ Metformine
- ✓ Ace inhibitors
- ✓ Beta-bloker
- ✓ Statin
- ✓ ASA
- ✓ Vit D

What is the impact of COVID-19 the the HIV cascade of care?

Shaping chronic diseases health care models implies the recognition of new paradigm of care



PERSPECTIVE

Check for updates

<https://doi.org/10.1038/s41467-021-24673-w>

OPEN

Consensus statement on the role of health systems in advancing the long-term well-being of people living with HIV

Jeffrey V. Lazarus¹, Kelly Safreed-Harmon¹, Adeeba Kamarulzaman^{2,3}, Jane Anderson⁴, Ricardo Baptista Leite⁵, Georg Behrens⁶, Linda-Gail Bekker⁷, Sanjay Bhagani⁸, Darren Brown⁹, Graham Brown¹⁰, Susan Buchbinder¹¹, Carlos Caceres¹², Pedro E. Cahn¹³, Patrizia Carrieri¹⁴, Georgina Caswell¹⁵, Graham S. Cooke¹⁶, Antonella d'Arminio Monforte¹⁷, Nikos Dedes¹⁸, Julia del Amo¹⁹, Richard Elliott²⁰, Wafaa M. El-Sadr²¹, María José Fuster-Ruiz de Apodaca^{22,23}, Giovanni Guaraldi²⁴, Tim Hallett¹⁶, Richard Harding²⁵, Margaret Hellard²⁶, Shabbar Jaffar²⁷, Meaghan Kall²⁸, Marina Klein²⁹, Sharon R. Lewin^{30,31,32}, Ken Mayer³³, Jose A. Pérez-Molina³⁴, Doreen Moraa³⁵, Denise Naniche¹, Denis Nash³⁶, Teymur Noori³⁷, Anton Pozniak^{9,38}, Reena Rajasuriar², Peter Reiss³⁹, Nesrine Rizk⁴⁰, Jürgen Rockstroh⁴¹, Diana Romero³⁶, Caroline Sabin⁴², David Serwadda⁴³ & Laura Waters⁴⁴

A global multidisciplinary group of HIV experts developed a **consensus statement** identifying key issues that health systems must address in order to move beyond the HIV field's longtime emphasis on viral suppression to instead deliver **integrated, person-centered healthcare for PLHIV throughout their lives.**

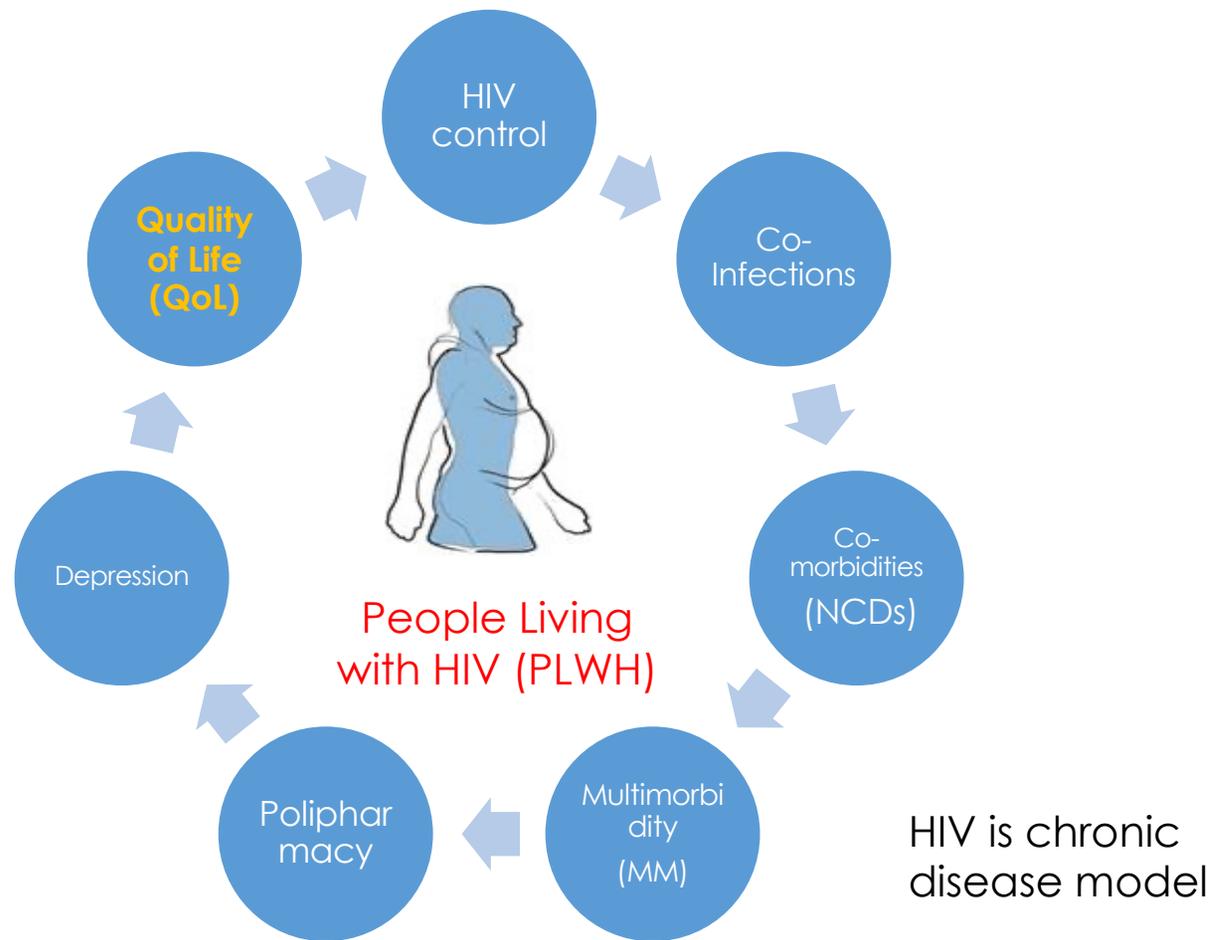
Consensus points on the role of health systems in advancing the long-term well-being of people living with HIV (PLHIV)

1. **Framing a more comprehensive health agenda for people living with HIV (PLHIV)**
2. **Multimorbidity**
3. **Self-reported health-related quality of life (HRQoL)**
1. **Stigma and discrimination**

Key next steps for health systems to advance the long-term well-being of people living with HIV

1. Incorporate the monitoring of **comorbidities** in electronic health records
2. Develop and pilot models of care that employ frameworks for **healthy aging, frailty, functional ability**, and other dimensions of health that are relevant to PLHIV, **using HRQoL as a key outcome measure.**
3. Expand primary care that **reduce access barriers for marginalized and vulnerable groups** including community-based health and psychosocial services and peer support programs.
4. Establish **annual surveys of PLHIV.**
5. Strengthen **empathy among healthcare staff and decrease stigma** and discrimination in healthcare settings.

Multidisciplinary patient-centered approach to people living with HIV



Two HIV patients with impaired QoL



Mrs A
Maria, 80 years,

HIV duration 14 years
(diagnosed at 66 yrs)
CD4=478/microL
CD4/CD8=0.7
HIV VL<40 c/mL (ND)

Multi-
morbidity
Polipharmacy
QoL 90%
✓ Pain

MOBILITY

I have no problems in walking about
I have slight problems in walking about
I have moderate problems in walking about
I have severe problems in walking about
I am unable to walk about

SELF-CARE

I have no problems washing or dressing myself
I have slight problems washing or dressing myself
I have moderate problems washing or dressing myself
I have severe problems washing or dressing myself
I am unable to wash or dress myself

USUAL ACTIVITIES (e.g. work, study, housework, family or leisure activities)

I have no problems doing my usual activities
I have slight problems doing my usual activities
I have moderate problems doing my usual activities
I have severe problems doing my usual activities
I am unable to do my usual activities

PAIN / DISCOMFORT

I have no pain or discomfort
I have slight pain or discomfort
I have moderate pain or discomfort
I have severe pain or discomfort
I have extreme pain or discomfort

ANXIETY / DEPRESSION

I am not anxious or depressed
I am slightly anxious or depressed
I am moderately anxious or depressed
I am severely anxious or depressed
I am extremely anxious or depressed



Mr B
Pietro, 55 years,

HIV duration 24 years
(diagnosed at 31 yrs)
CD4=407/microL
CD4/CD8=0.6
HIV VL<40 c/mL (ND)

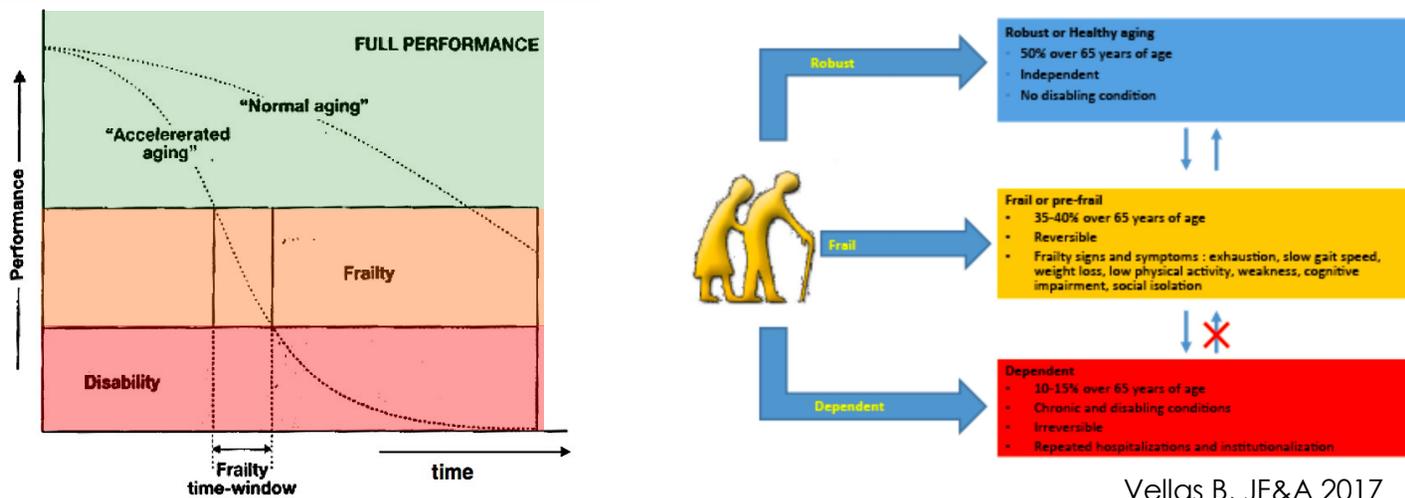
Multi-morbidity
Polipharmacy:
QoL 70%
✓ Mobility
✓ Self care
✓ Pain
✓ Depression



Special Article

Frailty Consensus: A Call to Action

John E. Morley MB, BCh^{a,*}, Bruno Vellas MD^{b,c}, G. Abellan van Kan MD^{b,c}, Stefan D. Anker MD, PhD^{d,e}, Juergen M. Bauer MD, PhD^f, Roberto Bernabei MD^g, Matteo Cesari MD, PhD^{b,c}, W.C. Chumlea PhD^h, Wolfram Doehner MD, PhD^{d,i}, Jonathan Evans MD^l, Linda P. Fried MD, MPH^k, Jack M. Guralnik MD, PhD^l, Paul R. Katz MD, CMD^m, Theodore K. Malmstrom PhD^{a,n}, Roger J. McCarter PhD^o, Luis M. Gutierrez Robledo MD, PhD^p, Ken Rockwood MD^q, Stephan von Haehling MD, PhD^r, Maurits F. Vandewoude MD, PhD^s, Jeremy Walston MD^t



Vellas B, JF&A 2017

“...A medical syndrome with multiple causes and contributors that is characterized by diminished strength, endurance, and reduced physiologic function that increases an individual’s vulnerability for developing increased dependency and/or death...”

Frailty recognition in clinical practice

Frailty Related Phenotype¹

- A person can be said to be frail if they have any 3 of the following features:
 1. They move slowly
 2. They have a weak handgrip
 3. They have reduced their level of activity
 4. They have (unintentionally) lost weight
 5. They feel exhausted
- “pre-frail” is used when only one or two of these deficits is present
- Clinically recognizable and not otherwise definable as being disabled or as having multiple co-morbid illnesses

1. Fried et al., *J Gerontol Med Sc* 2001

Frailty as a deficit accumulation²

- Frailty can be operationalized as deficit accumulation and can be expressed in a frailty index
- Can be summarised as a scale from Robust to Terminally Ill
- A frailty index derived from routinely collected clinical data can offer insights into the biology of aging using mathematics of complex systems

2. Rockwood et al. *Lancet* 1999;353:205-6

Two Frail patients with HIV



Mrs A, 80 years

- ✓ Multi-morbidity
- ✓ Polipharmacy
- X Disaability

Geriatric syndromes

- ✓ **Frailty**
- F. Phenotype 3/5 ✓
- FI=0.39✓
- ✓ **Urinary incontinence**



Mr B, 55 years

- ✓ Multi-morbidity
- ✓ Polipharmacy:
- ✓ Disability (walk assistance)

Geriatric syndromes

- ✓ **Frailty**
- F. Phenotype 3/5 ✓
- FI=0.35✓
- Falls ✓
- Viusual imp. ✓
- ✓ **Falls**

Trajectories of Ageing

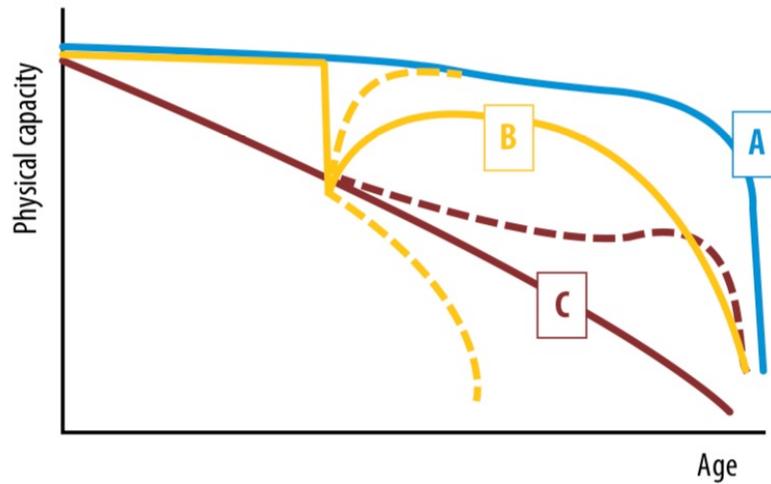
Mr "B", 55 yrs
Accentuated aging



Mrs "A", 80 yrs
physiological aging

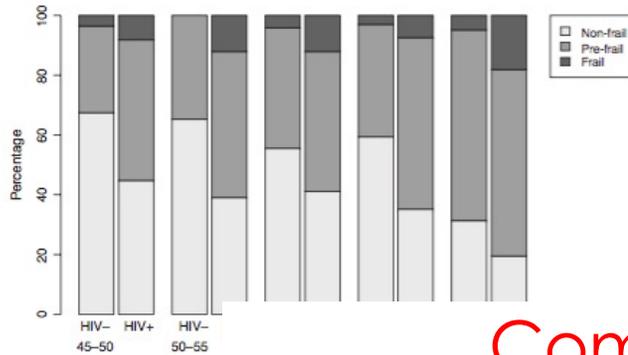


Mr «C». 50 yrs, Accelerating aging



- A. Optimal trajectory, intrinsic capacity remains high until the end of life.
 - B. Interrupted trajectory, an event causes a decrease in capacity with some recovery.
 - C. Declining trajectory, capacity declines steadily until death.
- The dashed lines represent alternative trajectories.

Prevalence of frailty by age

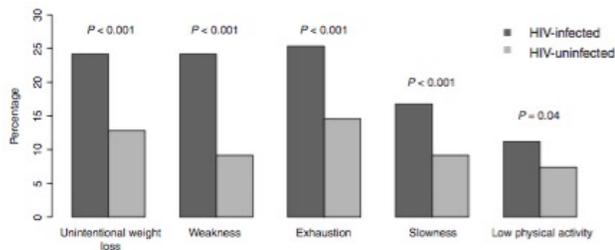


HIV infection is independently associated with frailty in middle-aged HIV type 1-infected individuals compared with similar but uninfected controls

Katherine W. Kooij^a, Ferdinand W.N.M. Wit^{a,b}, Judith Schouten^{a,c},
 Marc van der Valk^b, Mieke H. Godfried^b, Ineke G. Stolte^{b,d},
 Maria Prins^{b,d}, Julian Falutz^e, Peter Reiss^{a,b,f}, on behalf of the
 AGE_hIV Cohort Study Group

Complexity is: Frailty

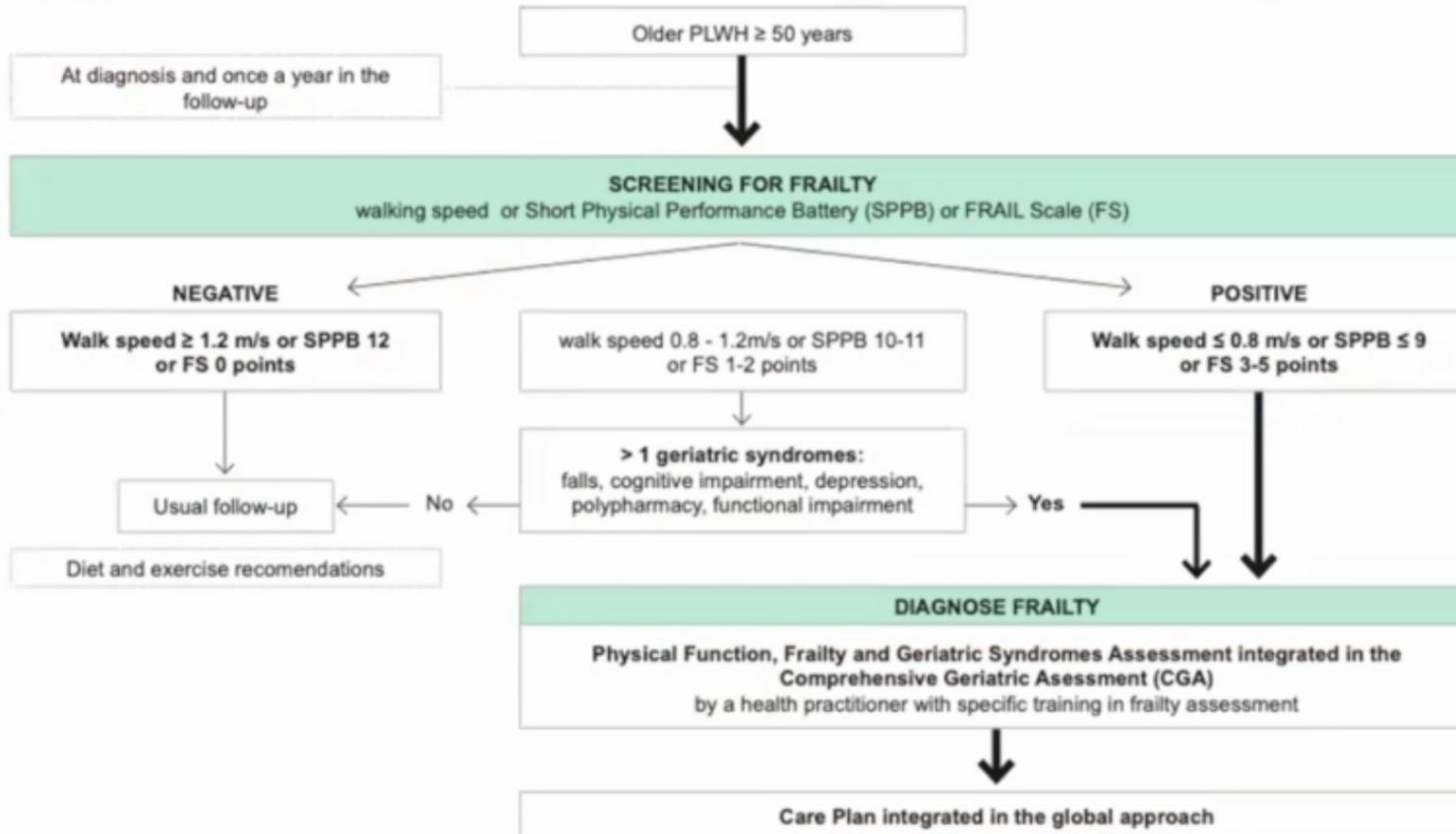
Prevalence of frailty criteria.



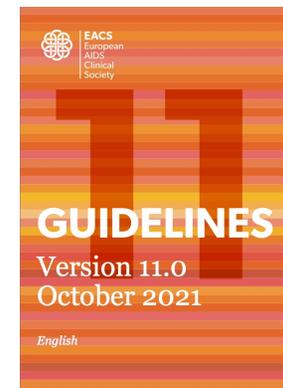
HIV infection was independently associated with prefrailty/frailty in middle-aged HIV-infected patients compared with HIV-uninfected controls

AIDS 2016, 30:241–250

Approach to screening for Frailty



New section – Frailty and Ageing



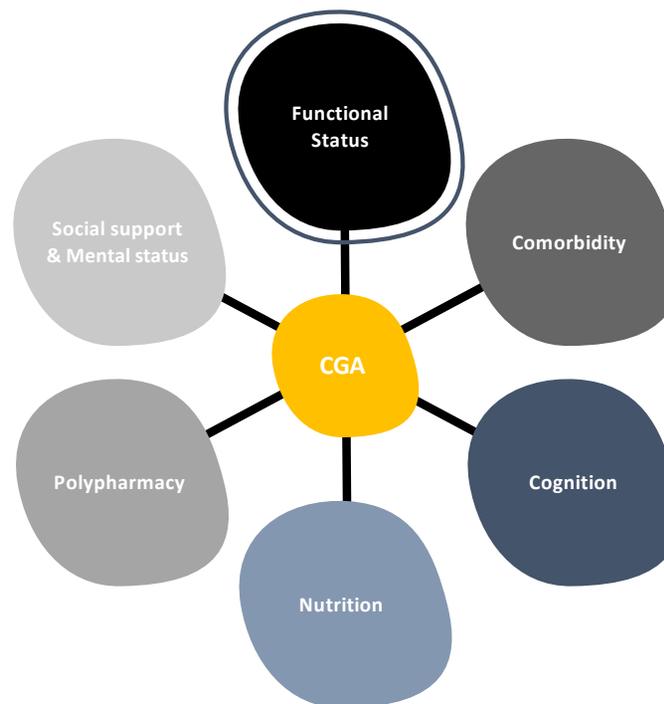
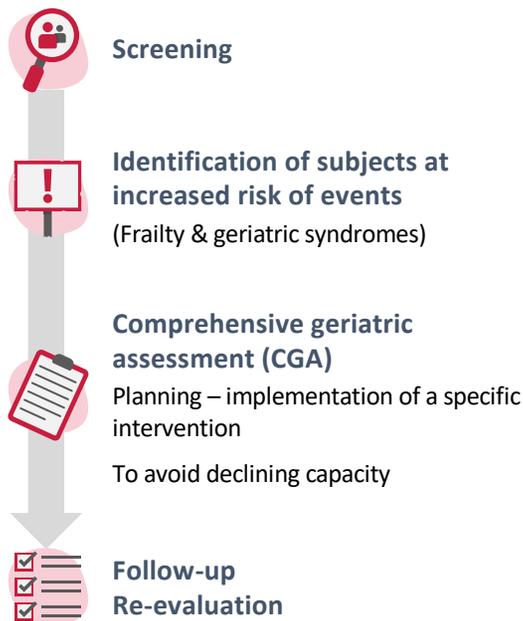
Feature	Frailty Phenotype	Frailty Index
Clinical definition	Based on presence of signs, symptoms (pre-disability syndrome)	Based on presence of diseases, disabilities (accumulation of deficits)
How to assess	Assessed by five specific features [22]: 1. self-reported weight loss (a) 2. self-reported exhaustion (b) 3. low levels of physical activity as measured by Minnesota Leisure physical activity questionnaire (c) 4. measured 4 m walk speed time (d) 5. measured grip strength (e)	A frailty index is calculated based on the number of health deficits out of > 30 assessed health deficits [23] Health variables, including signs and symptoms of disease, laboratory measures, and self-reported data Data routinely collected in medical records can be included if they characterise age-related, acquired health deficits which cover a range of physiologic systems
How to interpret	Categorical variables Total score of 5 items: 0 deficits = fit 1-2 deficits = pre-frail 3 + deficits = frail	Continuous variables Index ranges from 0 to 1: > 0.25 = fit 0.25 - 0.4 = frail > 0.4 = most frail

Promote Comprehensive Geriatric Assessment (CGA), aimed at personalising interventions according to benefits/priorities for a given person through a multidisciplinary diagnostic and treatment process, that identifies medical, psychosocial, and functional limitations aimed at maximising overall health with ageing and the improvement of quality of life

Prescribing in Elderly PLWH

3. Screen for, and address modifiable causes of fatigue
4. For PLWH exhibiting unintentional weight loss, screen for reversible causes and consider food fortification and protein/caloric supplementation
5. Prescribe vitamin D for individuals deficient in vitamin D, see page 62

Scope of geriatric care is to preserve functional status avoiding geriatric syndromes

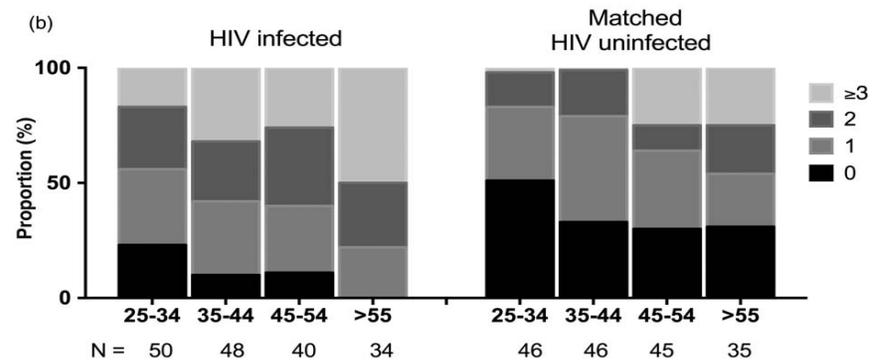
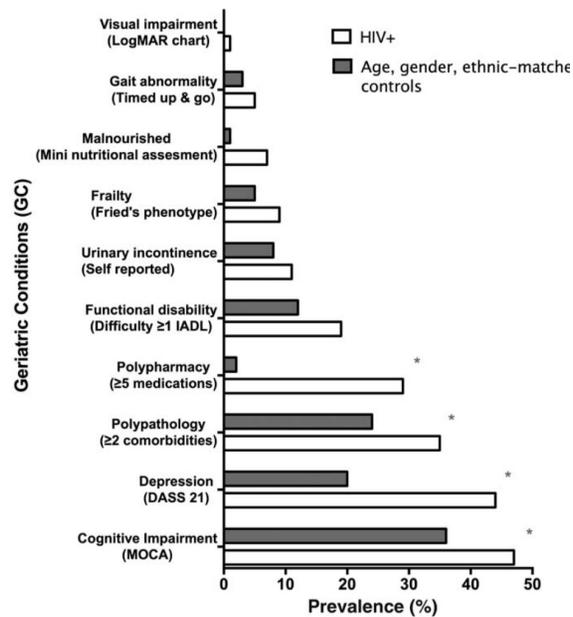


Geriatric syndromes:

Conditions which don't fit into discrete disease categories, have multifactorial etiologies, & involve multiple organ systems:

- Polypharmacy
- Sensory impairment
- Impaired mobility and falls
- Cognitive impairment
- Urinary incontinence
- Sarcopenia
- Frailty

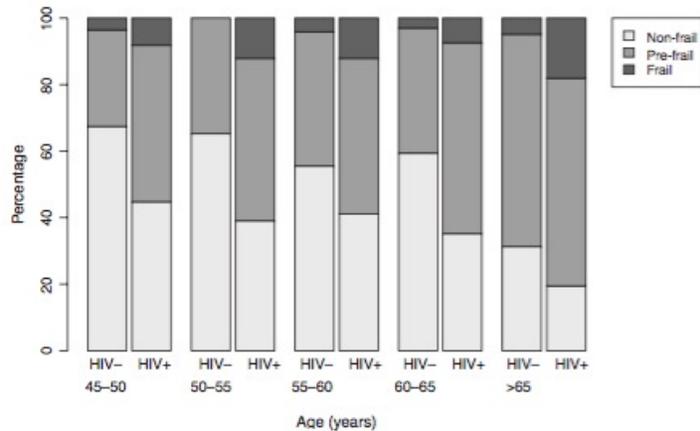
Geriatric syndromes more common in Malaysian PLWH (45 yo) c/w controls



Geriatric Syndromes assessed:

- Visual impairment (LogMAR chart)
- Gait abnormality (Timed up & go)
- Mainourished (Mini nutritional assessment)
- Frailty (Fried's phenotype)
- Urinary incontinence (Self reported)
- Functional disability (Difficulty ≥ 1 IADL)
- Polypharmacy (≥ 5 medications)
- Polypathology (≥ 2 comorbidities)
- Depression (DASS 21)
- Cognitive impairment (MOCA)

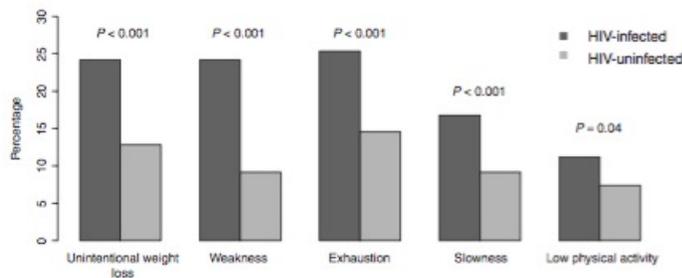
Prevalence of frailty by age



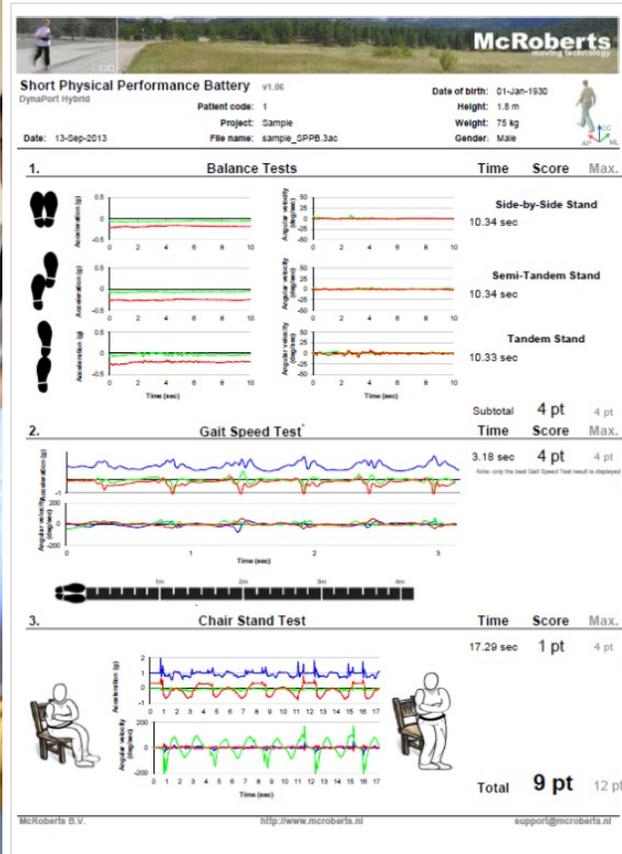
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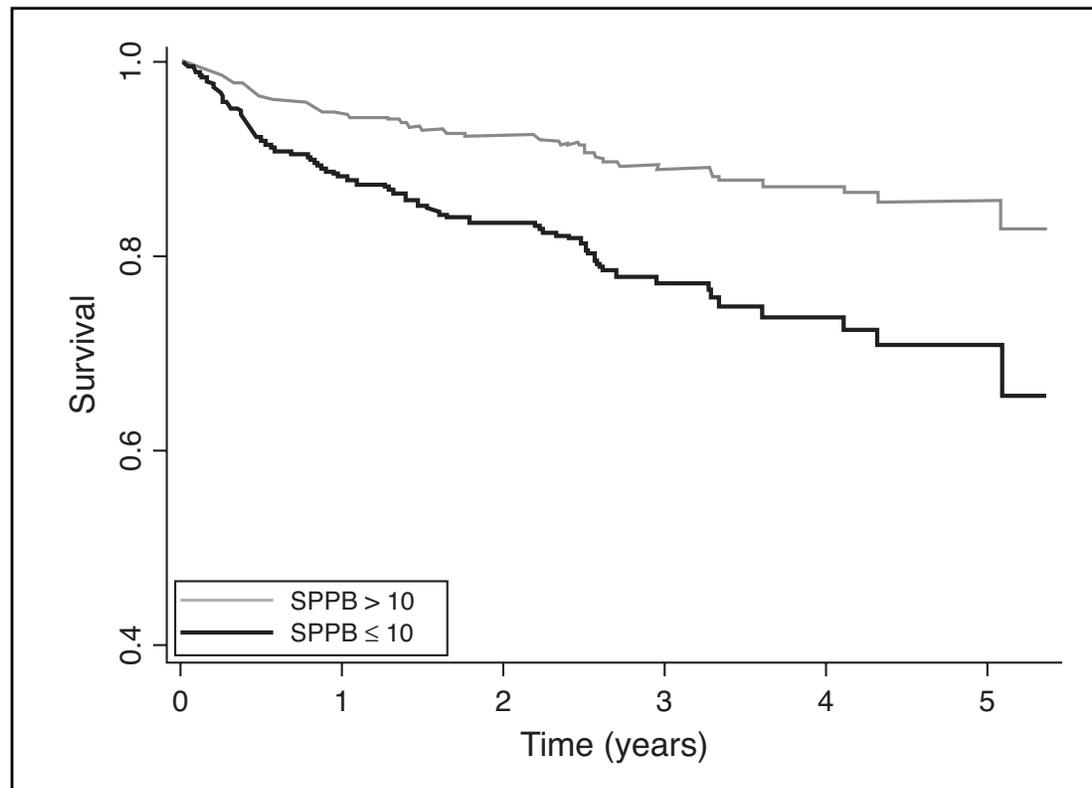
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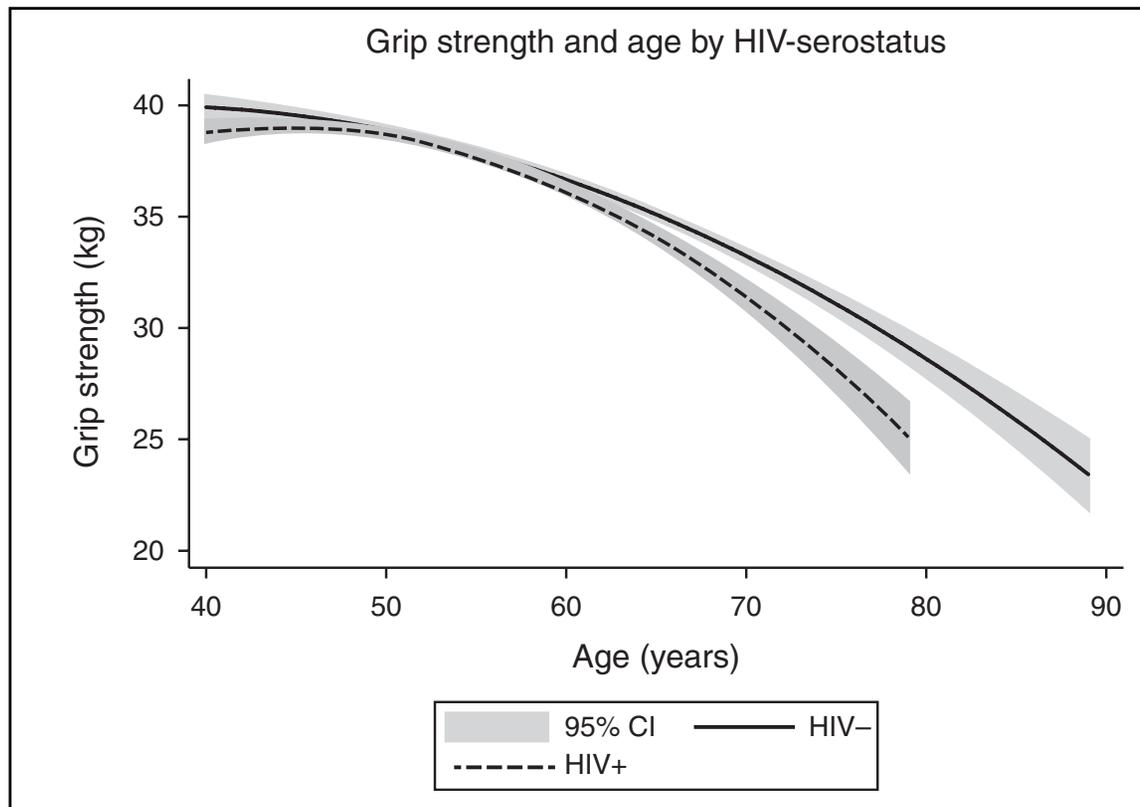
HIV infection was independently associated with prefrailty/frailty in middle-aged HIV-infected patients compared with HIV-uninfected controls



Lower (worse) SPPB scores predicts decreased survival:
ALIVE Cohort

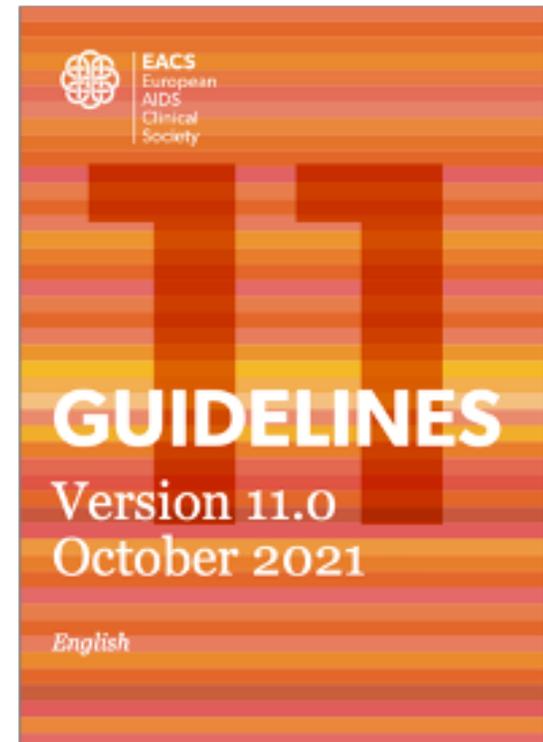


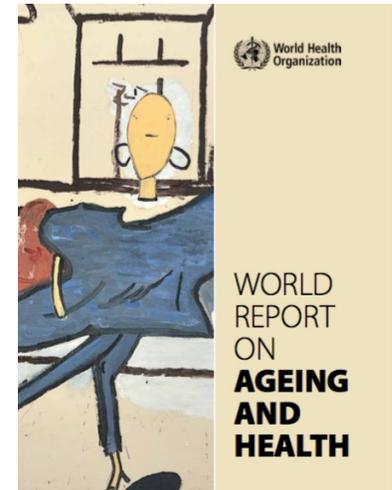
Hand grip strength declines faster in ageing PLWH than in controls



Recommendations for treating frailty:

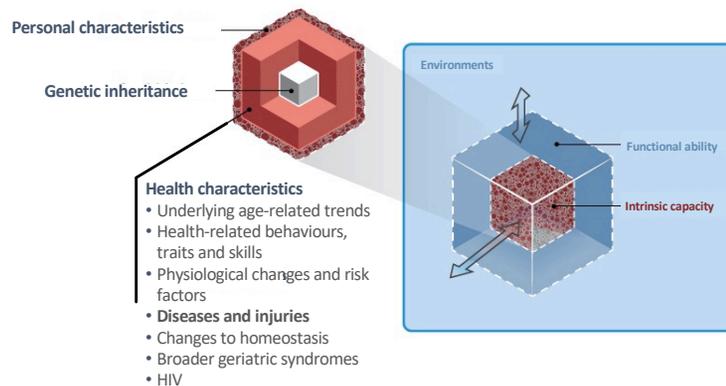
- Sustain and recover physical function impairment and sarcopenia prescribing physical activity
- Address polypharmacy
- Screen for modifiable causes of fatigue
- Consider food fortification and protein supplementation





A definition of healthy ageing

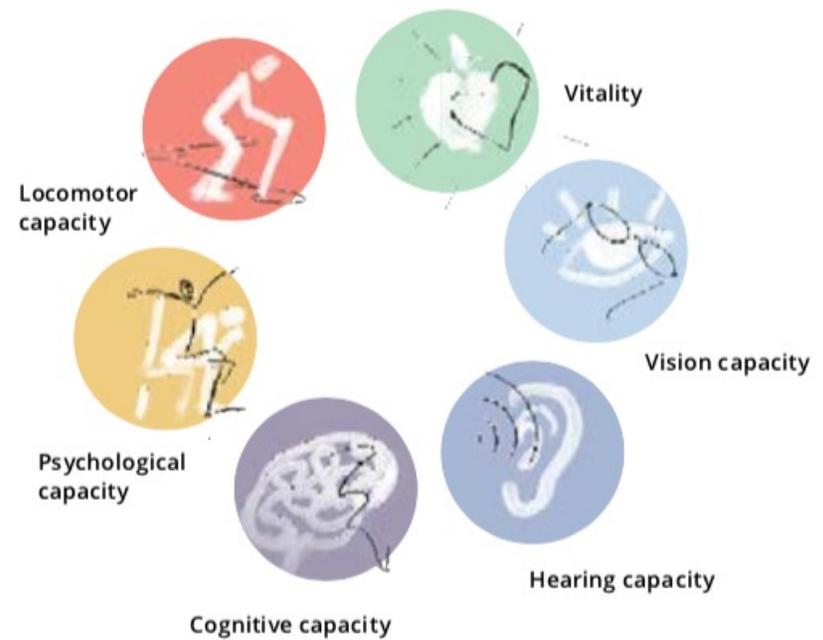
The process of developing and maintaining functional ability that enables wellbeing in older age



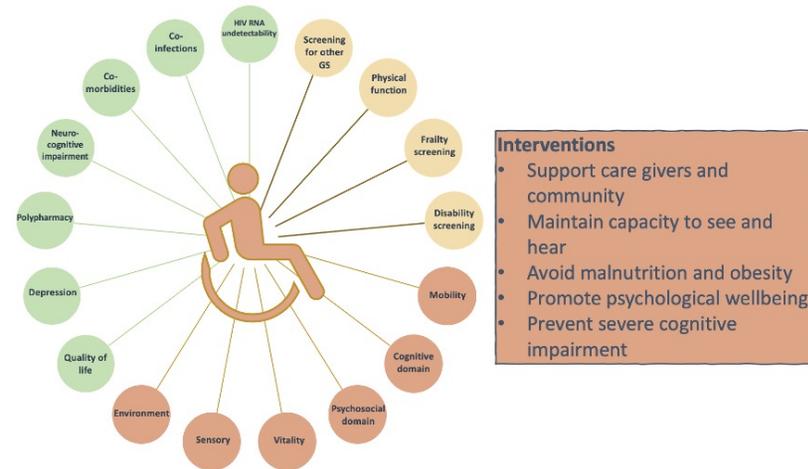
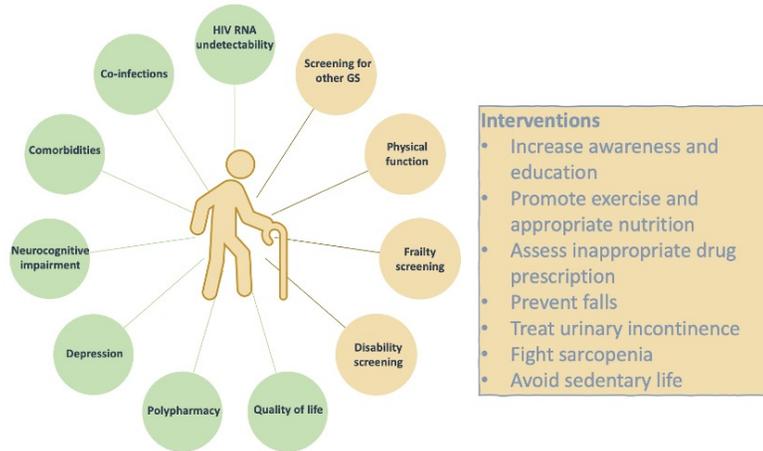
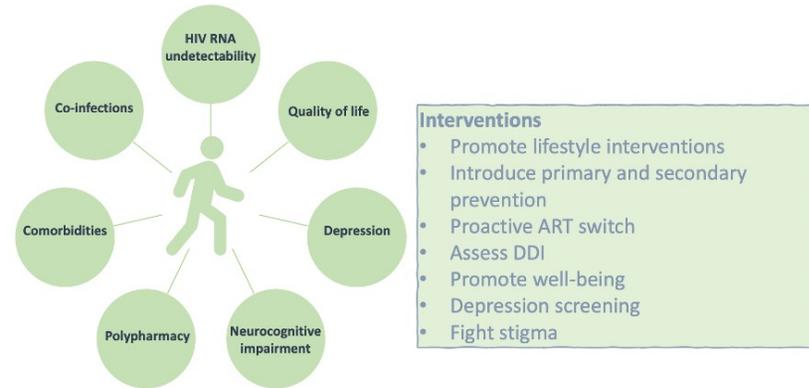
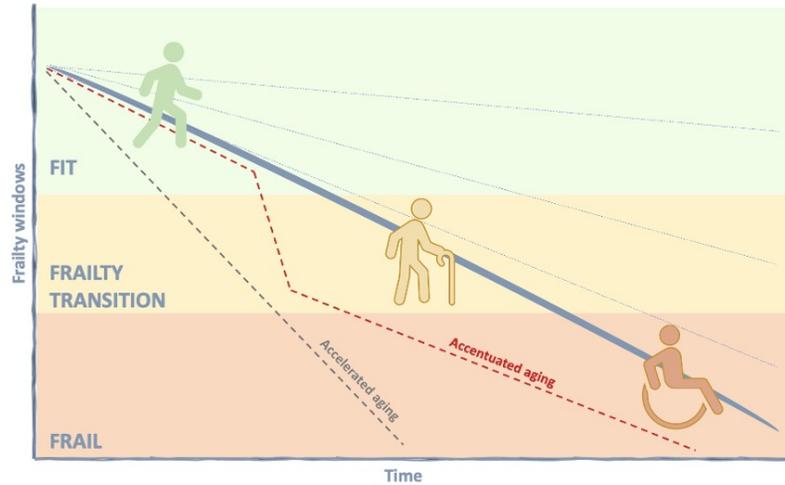
Functional ability = Health-related attributes that enable people to be and to do **what they value**

Intrinsic capacity = All physical and mental capacities of an individual

Key domains of intrinsic capacity



HIV care models: what to screen, how to cope



HIV care models

ACCEPTED MANUSCRIPT

HIV care models during the COVID-19 era ^{FREE}

Giovanni Guaraldi, Jovana Milic, Esteban Martinez, Adeeba Kamarulzaman, Cristina Mussini, Laura Waters, Anton Pozniak, Patrick Mallon, Jürgen Rockstroh, Jeffrey V Lazarus ✉

Clinical Infectious Diseases, ciaa1864, <https://doi.org/10.1093/cid/ciaa1864>

Published: 19 December 2020 **Article history** ▼



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Abstract

The COVID-19 pandemic is an unprecedented global challenge that substantially risks reversing the progress in ending HIV. At the same time, it may offer the opportunity for a new era of HIV management. This viewpoint presents the impact of COVID-19 on HIV care, including the Joint United Nations Programme on HIV/AIDS (UNAIDS) “three 90s” targets. It outlines how to enhance a patient-centered care approach, now known as the “fourth 90,” by integrating face-to-face patient-physician and telemedicine encounters. It suggests a framework for prevention and treatment of multimorbidity and frailty, to achieve a good health-related quality of life and preserve intrinsic capacity in all people living with HIV.

Health systems have expanded the use of telehealth to enhance the care of people living with HIV

Integrating face-to-face and telemedicine interactions between HCPs and patients can provide a useful framework for shared decision-making

	Assessment	Follow-up frequency	F2F	Telehealth
3rd 90 target				
Virology	Plasma HIV-VL + genotypic resistance test and subtype	12 months and at VF, respectively	✓	
Immunology	CD4 and CD4:CD8	12 months	✓	
4th 90 target				
HRQoL	–	4+8 months post F2F		✓
Psychosocial	Current lifestyle, employment social and welfare, psychological morbidity, partner/children	4+8 months post F2F		✓
Sexual and reproductive health	Sexual history, safe sex, partner status/disclosure	4+8 months post F2F		✓
Blood exams	FBC, TC, HDL-c, LDL-c, TG, serum glucose, AST, ALT, bilirubin, ALP	12 months	✓	
Body composition	Physical examination and BMI	12 months and 4+8 months post F2F, respectively	✓	✓
Comorbidities	CVD, hypertension, pulmonary/liver/renal/bone disease, cancers	12 months or per EACS guidelines for special populations	As indicated by EACS guidelines (+ telehealth can be leveraged at 4+8 months post-F2F)	
Cognitive impairment	–	4+8 months post F2F		✓
Depression	–	4+8 months post F2F		✓
Polypharmacy	–	12 months and 4+8 months post F2F	✓	✓
Frailty	Frailty phenotype	12 months and 4+8 months post F2F	✓	✓
Intrinsic Capacity	Locomotion, vitality, sensory, cognition, psychosocial	4+8 months post F2F		✓

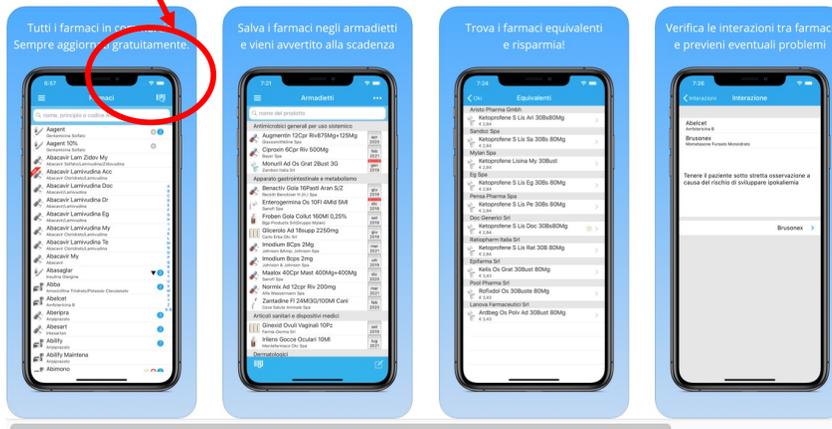
Health systems have expanded the use of telehealth to enhance the care of people living with HIV

The 4th 90 targets can be assessed using telehealth

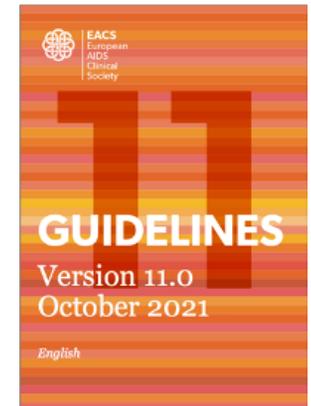
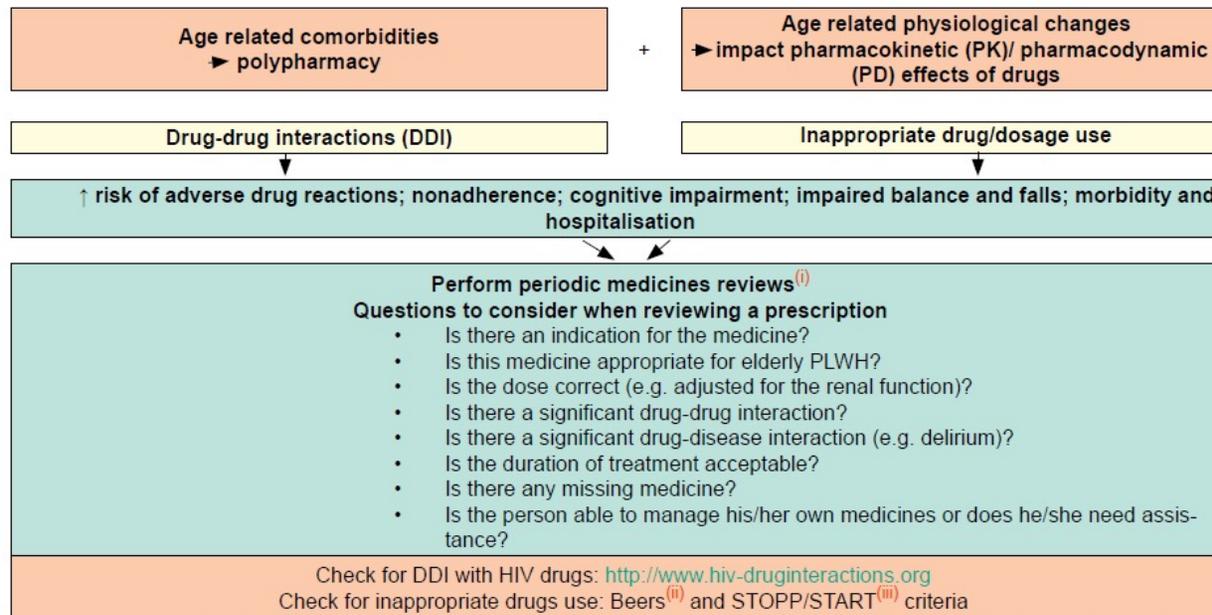
4 th 90 target				
HRQoL	–	4+8 months post F2F		✓
Psychosocial	Current lifestyle, employment social and welfare, psychological morbidity, partner/children	4+8 months post F2F		✓
Sexual and reproductive health	Sexual history, safe sex, partner status/disclosure	4+8 months post F2F		✓
Blood exams	FBC, TC, HDL-c, LDL-c, TG, serum glucose, AST, ALT, bilirubin, ALP	12 months	✓	
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Polypharmacy	–	12 months and 4+8 months post F2F	✓	✓
Frailty	Frailty phenotype	12 months and 4+8 months post F2F	✓	✓
Intrinsic Capacity	Locomotion, vitality, sensory, cognition, psychosocial	4+8 months post F2F		✓



Q-code to identify the drug from a barcode



Prescribing in the Elderly



Adapted from [10], [11], [12]

i-iii The Beers and STOPP criteria are tools established by experts in geriatric pharmacotherapy to detect and reduce the burden of inappropriate prescribing in elderly. Inappropriate medicines include, for instance, those which in elderly persons with certain diseases can lead to drug-disease interactions, are associated with a higher risk of adverse drug reactions in the elderly, medicines that predictably increase the risk of falls in the elderly or those to be avoided in case of organ dysfunction. The START criteria consist of evidence-based indicators of potential prescribing omission in elderly with specific medical conditions

Top 10 drug classes to avoid in older people living with HIV

Drug class	Problems/alternatives
First generation antihistamines e.g., clemastine, diphenhydramine, doxylamine, hydroxyzine	Strong anticholinergic properties, risk of impaired cognition, delirium, falls, peripheral anticholinergic adverse reactions (dry mouth, constipation, blurred vision, urinary retention). Alternatives: cetirizine, desloratadine, loratadine
Tricyclic antidepressants e.g., amitriptyline, clomipramine, doxepin, imipramine, trimipramine	Strong anticholinergic properties, risk of impaired cognition, delirium, falls, peripheral anticholinergic adverse reactions (dry mouth, constipation, blurred vision, urinary retention). Alternatives: citalopram, escitalopram, mirtazapine, venlafaxine
Benzodiazepines Long and short acting benzodiazepines e.g., clonazepam, diazepam, midazolam Non-benzodiazepines hypnotics e.g., zolpidem, zopiclone	Elderly are more sensitive to their effect, risk of falls, fractures, delirium, cognitive impairment, drug dependency. Use with caution, at the lowest dose and for a short duration. Alternatives: non-pharmacological treatment of sleep disturbance/sleep hygiene.
Atypical antipsychotics e.g., clozapine, olanzapine, quetiapine	Anticholinergic adverse reactions, increased risk of stroke and mortality (all antipsychotics). Alternatives: aripiprazole, ziprasidone
Urological spasmolytic agents e.g., oxybutynin, solifenacin, tolterodine	Strong anticholinergic properties, risk of impaired cognition, delirium, falls, peripheral anticholinergic adverse reactions (dry mouth, constipation, blurred vision, urinary retention). Alternatives: non-pharmacological treatment (pelvic floor exercises).
Stimulant laxatives e.g., senna, bisacodyl	Long-term use may cause bowel dysfunction. Alternatives: fibres, hydration, osmotic laxatives
NSAIDs e.g., diclofenac, indomethacin, ketorolac, naproxen	Avoid regular, long-term use of NSAIDs due to risk of gastrointestinal bleeding, renal failure, worsening of heart failure. Alternatives: paracetamol, weak opioids
Digoxin Dosage > 0.125 mg/day	Avoid doses higher than 0.125 mg/day due to risk of toxicity. Alternatives for atrial fibrillation: beta-blockers
Long acting sulfonylureas e.g., glyburide, chlorpropamide	Can cause severe prolonged hypoglycemia. Alternatives: metformin or other antidiabetic classes
Cold medications Most of these products contain antihistamines (e.g., diphenhydramine) and decongestants (e.g., phenylephrine, pseudoephedrine)	First generation antihistamines can cause central and peripheral anticholinergic adverse reactions as described above. Oral decongestants can increase blood pressure.

Interventions to limit and manage polypharmacy/prescribing issues

1) Medication reconciliation

- Establish list of current prescription & over-the-counter drugs to be updated at each medical visit

2) Periodic medication review

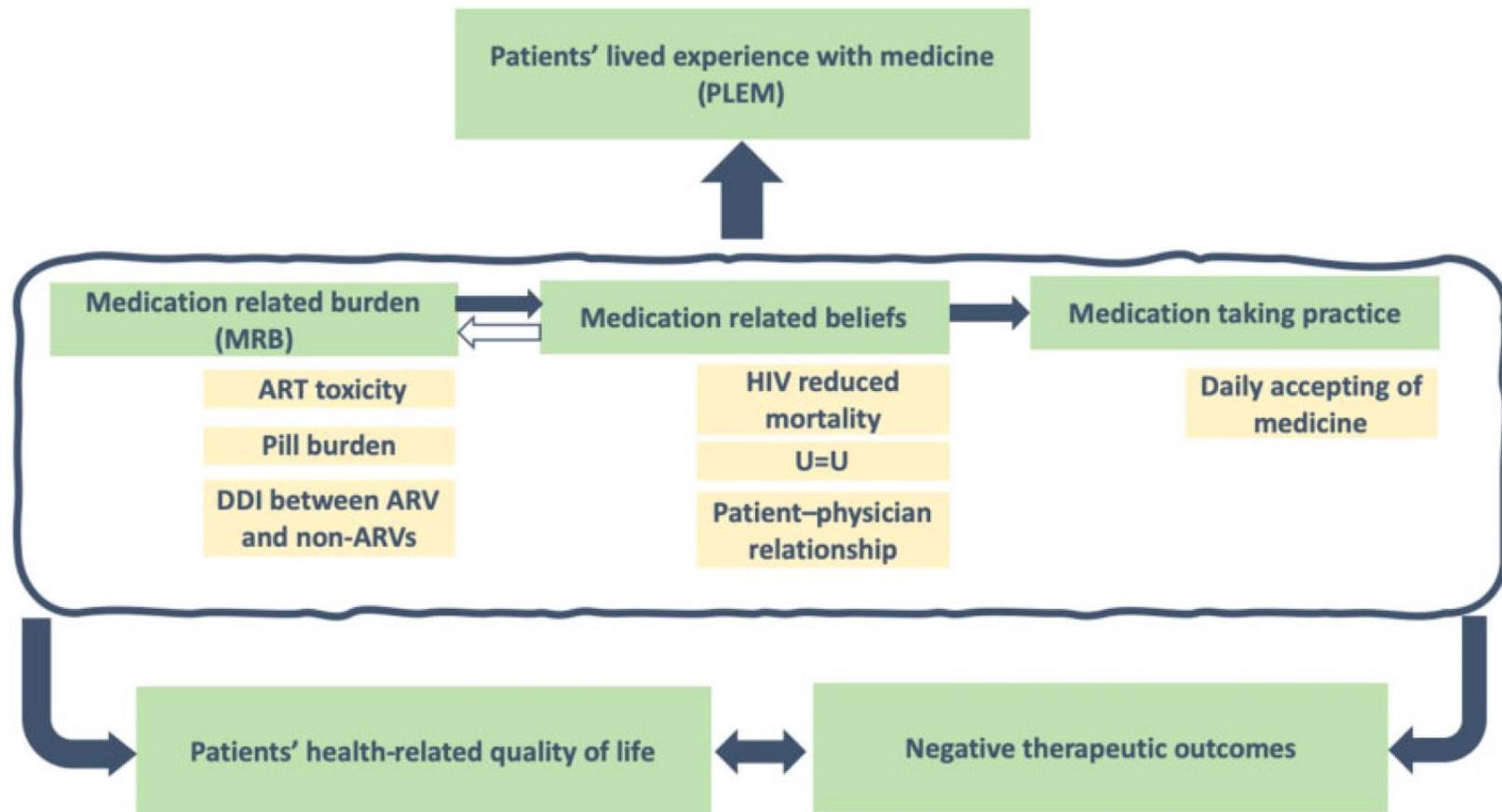
Questions to consider when reviewing a prescription

- Is there an indication for the medicine?
- Is the medicine appropriate for elderly PLWH? → Beers/STOPP&START criteria
- Is the dose correct (e.g. adjusted for renal function)?
- Is there a significant drug-drug interaction? (favor unboosted ARV) → www.hiv-druginteractions.org
- Is there a significant drug-disease interaction?
- Is the duration of treatment acceptable?
- Is there any missing medicine?
- Is the person able to manage his/her own medicines or does he/she need assistance?

3) Medication prioritization

- Consider risk/benefit of each medication within context of a given patient's care goals, level of functioning, life expectancy and preference

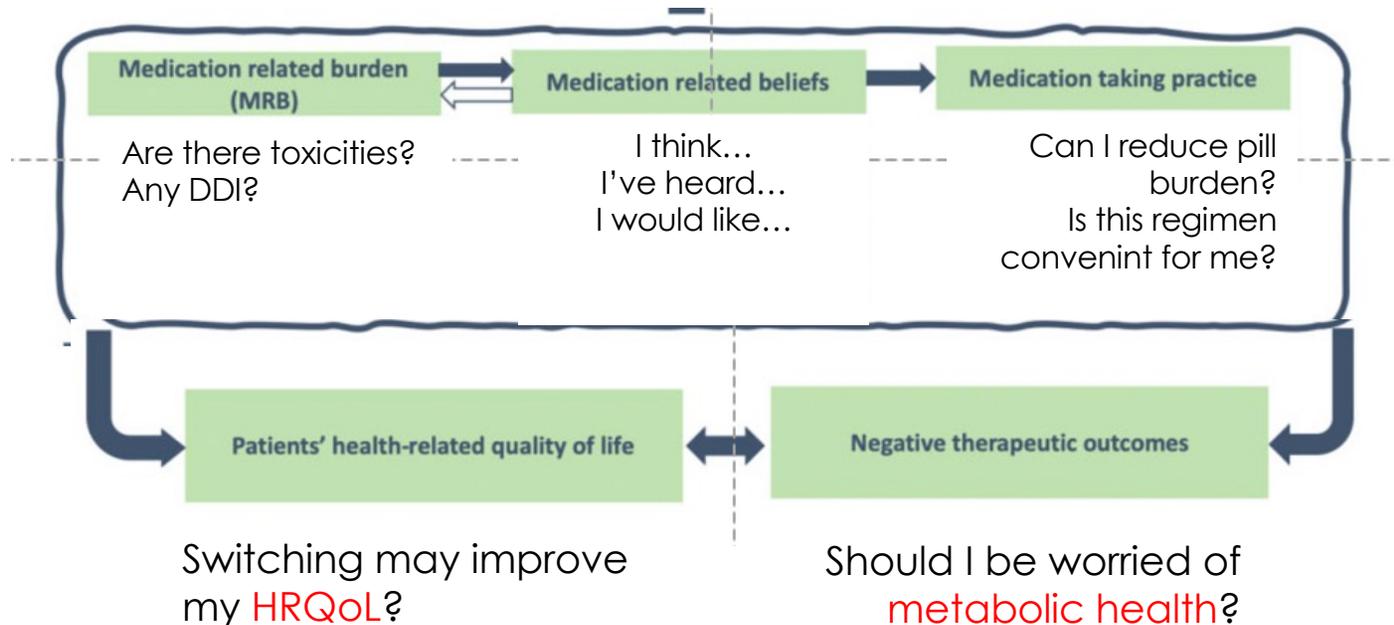
Patient centered deprescribing framework



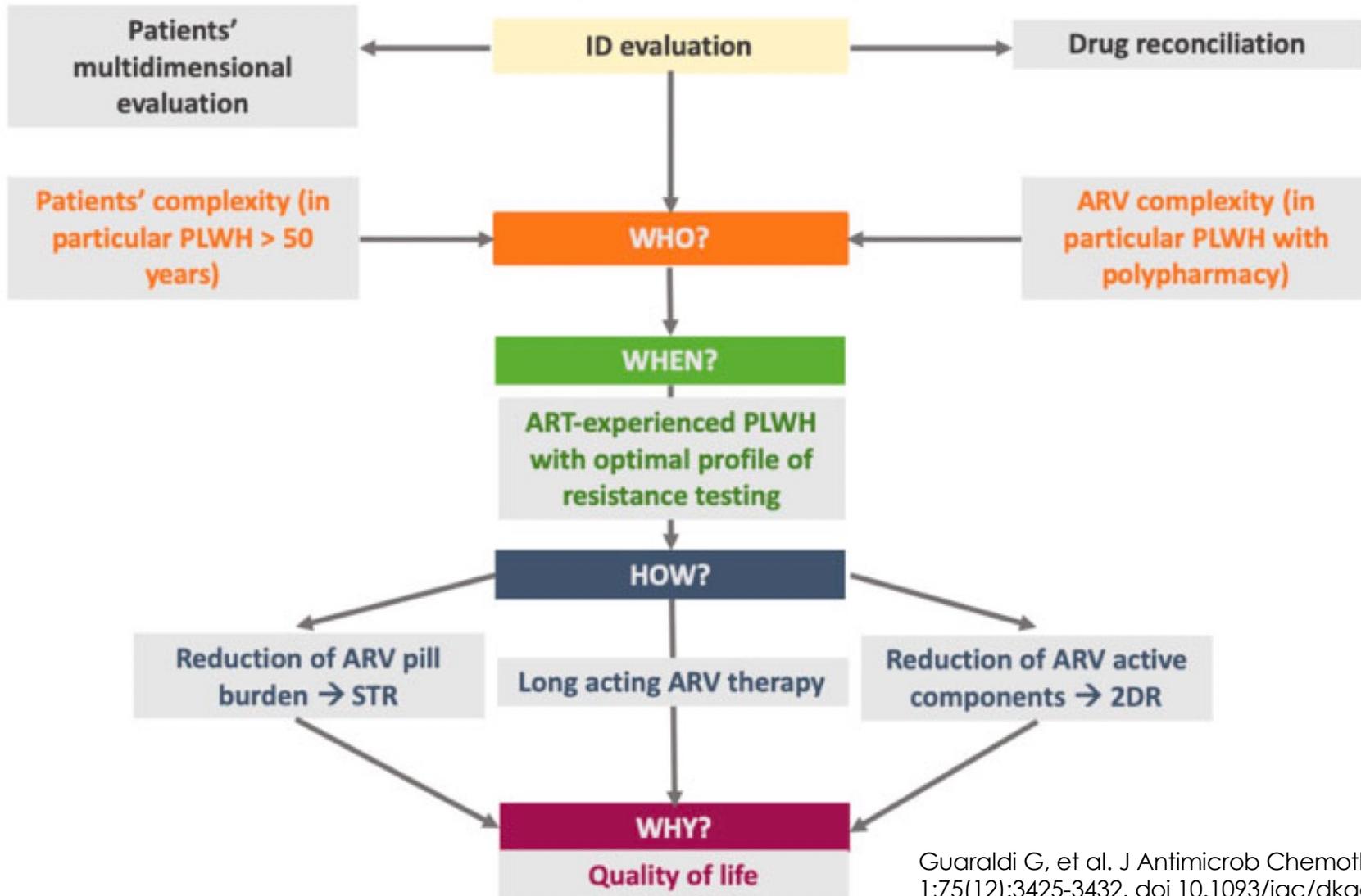
My lived experience with medicine (PLEM)

Hey Dr, these are my medicines....

Are all needed? Are dosages corrects?
Can you offer me somthing else?

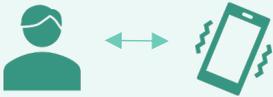


Algorithm for deprescribing ARV in PLWH



Guaraldi G, et al. J Antimicrob Chemother. 2020 Dec 1;75(12):3425-3432. doi 10.1093/jac/dkaa329.

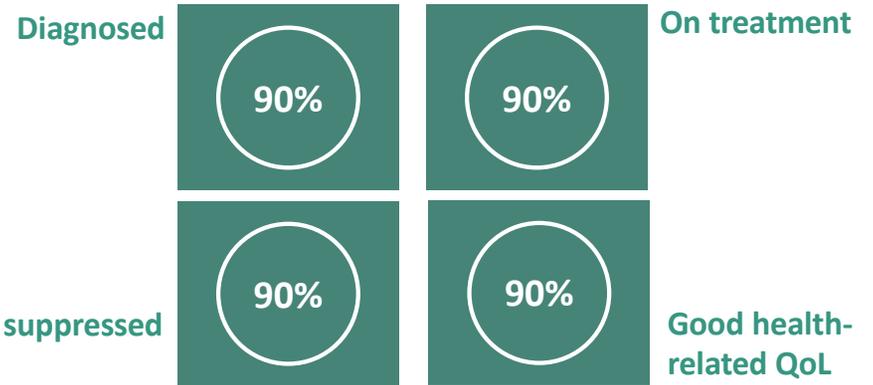
Next step: comparative studies

	Telemedicine tools	Telemedicine services
Clinician to patient 	<ul style="list-style-type: none"> • Video • Phone • E-mail • Remote wireless monitoring • Internet 	<ul style="list-style-type: none"> • Care for chronic conditions • Medication management • Wound care • Counseling • Post discharge follow-up • Mental health
Patient to mobile health technology 	<ul style="list-style-type: none"> • Wearable monitors • Smartphones • Mobile apps • Video • E-mail • Web portals • Games 	<ul style="list-style-type: none"> • Health education • Monitoring of physical activity • Monitoring of diet • Medication adherence • Cognitive fitness



Integration with electronic medical records
Data analytics

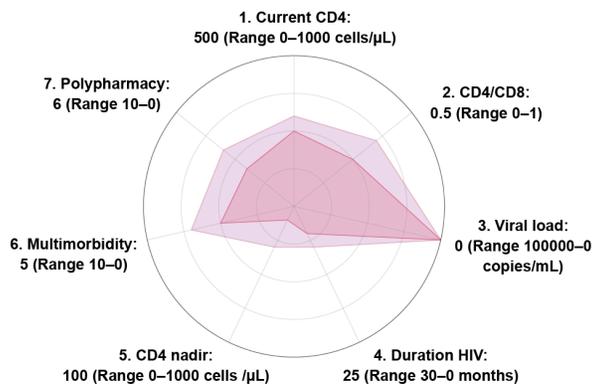
Compare F2F («mask to mask») clinical visit, telemedicine and hybrid approach to reach the 4 targets of HIV care



Summary of HIV variables and patient-reported outcomes in a personalized approach to health

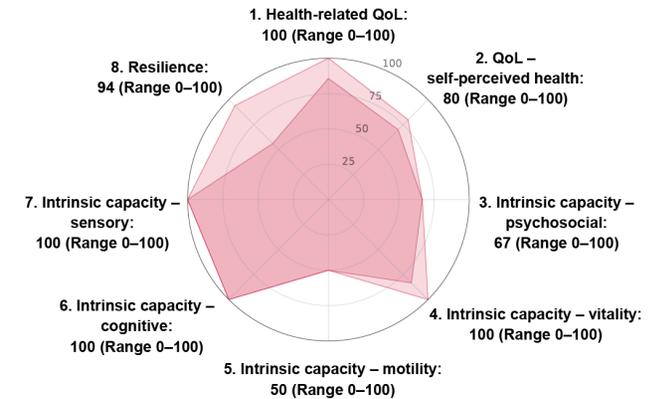
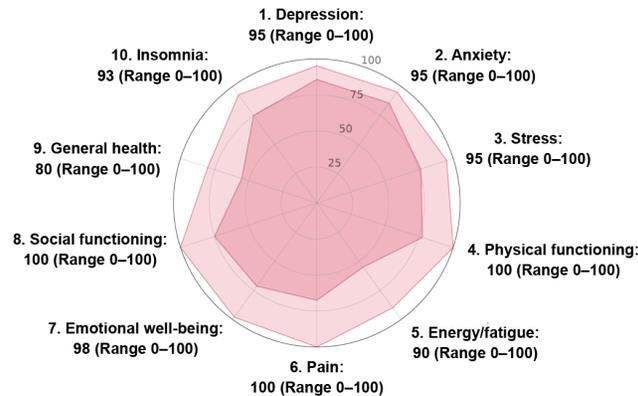
HIV VARIABLES

(Each variable uses a different range)



PATIENT-REPORTED OUTCOMES

(All domains use a standardized 0-100% range)



Questionnaires used:

- DASS-21
- SF36
- Insomnia severity index

Questionnaires used:

- EQ5D5L
- Intrinsic capacity
- CD-RISC-25 (resilience)

How to assess vulnerability

FRAILITY

Is the **accumulation of deficit** exposing the individual to **higher risk of negative outcomes**

It conceptualize the age-related increase of vulnerability and it is considered to be a measure of **biological age** of the individual



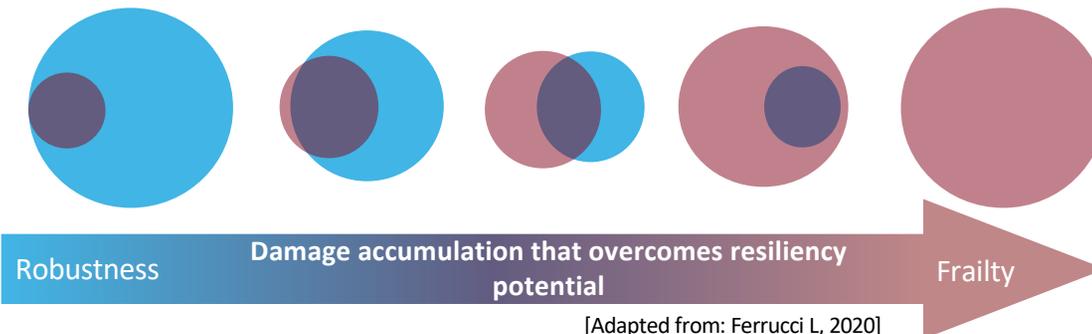
RESILIENCE

Is the human **ability to adapt** in the face of significant life **stressors**

Physical resilience is a characteristic at the whole person level which determines an individual's **ability to recover** physical health following a **stressor**

Psychological resilience refers to **effective coping and adaptation** although faced with **adversity**

● Resilience reserve ● Damage ● Compensated stress



The relationship between Frailty and Resilience depicts the reduction of homeostatic reserves of an individual in relation to stressors and aging

The Connor Davidson & Brief Resilience Scales

The Connor Davidson Resilience Scale measures several components of resilience:

1. The ability to adapt to change
2. The ability to deal with what comes along
3. The ability to cope with stress
4. The ability to stay focused and think clearly
5. The ability to not get discouraged in the face of failure
6. The ability to handle unpleasant feelings such as anger, pain or sadness

Composite reliability	
1	Able to adapt when changes occur
2	Have one close and secure relationship
3	Sometimes fate or God helps me
4	Can deal with whatever comes my way
5	Past successes give me confidence
6	Try to see the humorous side of things when I am faced with problems
7	Having to cope with stress can make me stronger
8	Tend to bounce back after illness, injury or other hardships
9	Believe most things happen for a reason
10	Make my best effort, no matter what
11	Believe I can achieve my goals, even if there are obstacles
12	When things look hopeless, I do not give up
13	In times of stress, I know where to find help
14	Under pressure, I stay focused and think clearly
15	Prefer to take the lead in problem-solving
16	Not easily discouraged by failure
17	Think of myself as a strong person
18	Make unpopular or difficult decisions
19	Able to handle unpleasant/painful feelings like sadness, fear, anger
20	Have to act on a hunch
21	Have a strong sense of purpose in life
22	In control of my life
23	I like challenges
24	I work to attain goals
25	Take pride in my achievements

Impact of COVID-19 at MHMC

Objective:

1. To characterize resilience in PLWH
2. To describe the relationship between frailty and resilience in PLWH which identifies 4 different phenotypes which impact on QoL

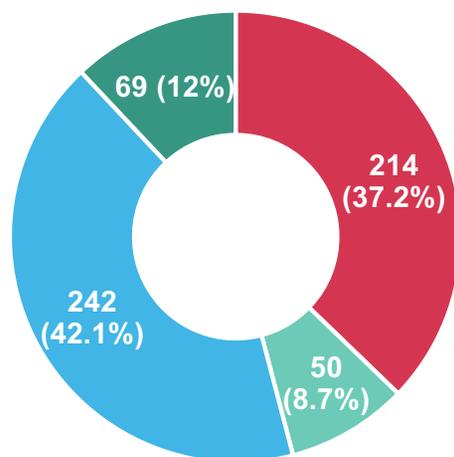
Methods:

- In January 2021, PLWH attending MHMC at least once during 2019, were offered an electronic questionnaire to complete, including:
 - **Resilience score questionnaire (CD-RISC-25)**
 - Insomnia Severity Index (ISI)
 - Depression Anxiety Stress (DASS)
 - **Symptoms (Short-form health survey) (SF36)**
 - **Health-related quality of life (EQ 5D5L)**

Impact of COVID-19 on an HIV clinic in Modena

- Out of 800 PLWH reached via mail, **575 (72%) completed the questionnaires**
- Frailty was assessed in 2019, at the closest visit prior to the onset of COVID pandemic

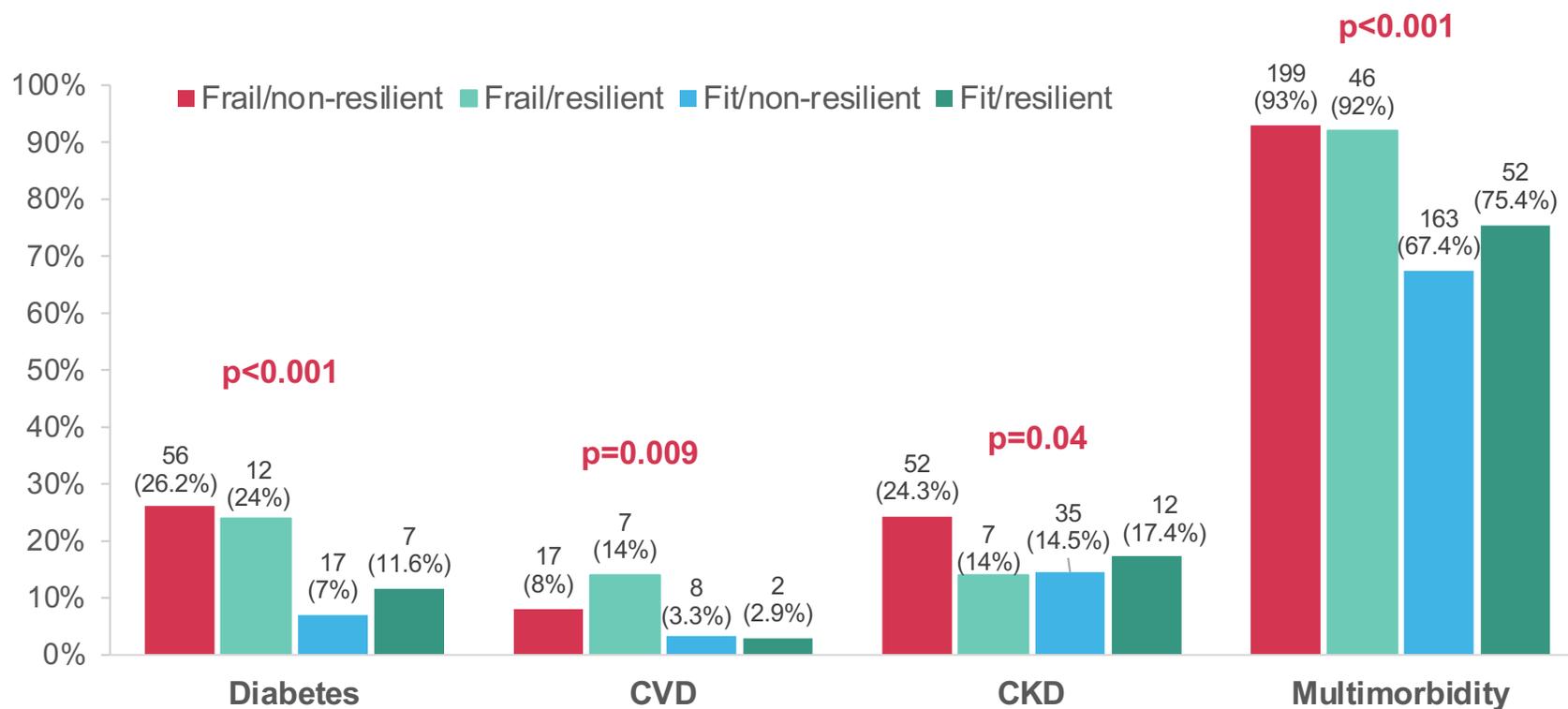
- Frail/non-resilient ■ Frail/resilient
- Fit/non-resilient ■ Fit/resilient



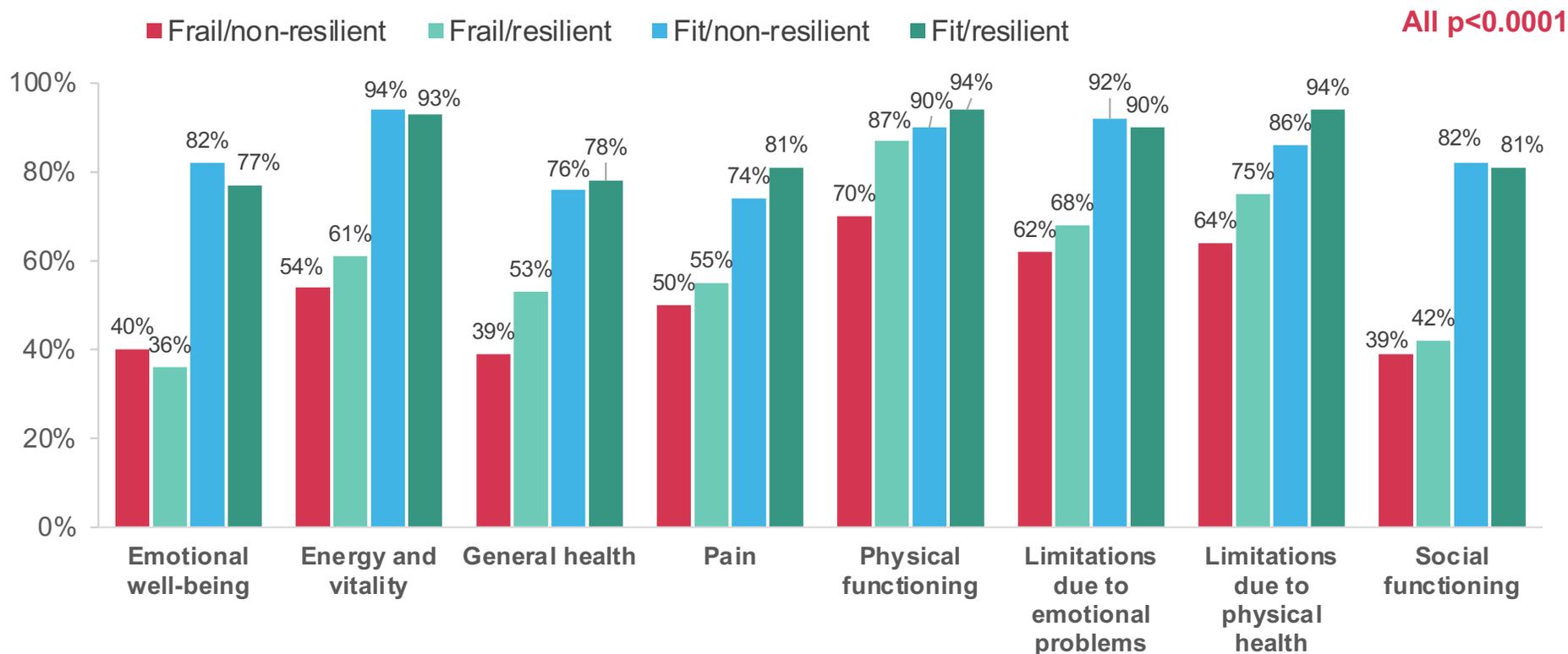
	Fit & resilient N=69 (12%)	Fit & non-resilient N=242 (42.1%)	Frail & resilient N=50 (8.7%)	Frail & non-resilient N=214 (37.2%)	p value
Age, years, mean (±SD)	52.9 (8.6)	52.7 (7.5)	56.9 (7.6)	56.5 (6.3)	<0.001
HIV duration, months, median (IQR)	246 (139–307)	263 (152–334)	290.5 (207.3–347.5)	326 (267–386)	<0.001
Nadir CD4 cell count, cells/μL, median (IQR)	250 (162–361)	261 (127–350)	202.5 (84.8–363.5)	190.5 (66.3–284.8)	<0.001
Multimorbidity, %	52 (75.4%)	163 (67.4%)	46 (92%)	199 (92.9%)	<0.001
Loneliness, %	7 (10.1%)	53 (21.9%)	4 (8%)	59 (27.6%)	0.002

The best value
 The worst value

Prevalence of co-morbidities across frailty-resilience phenotypes

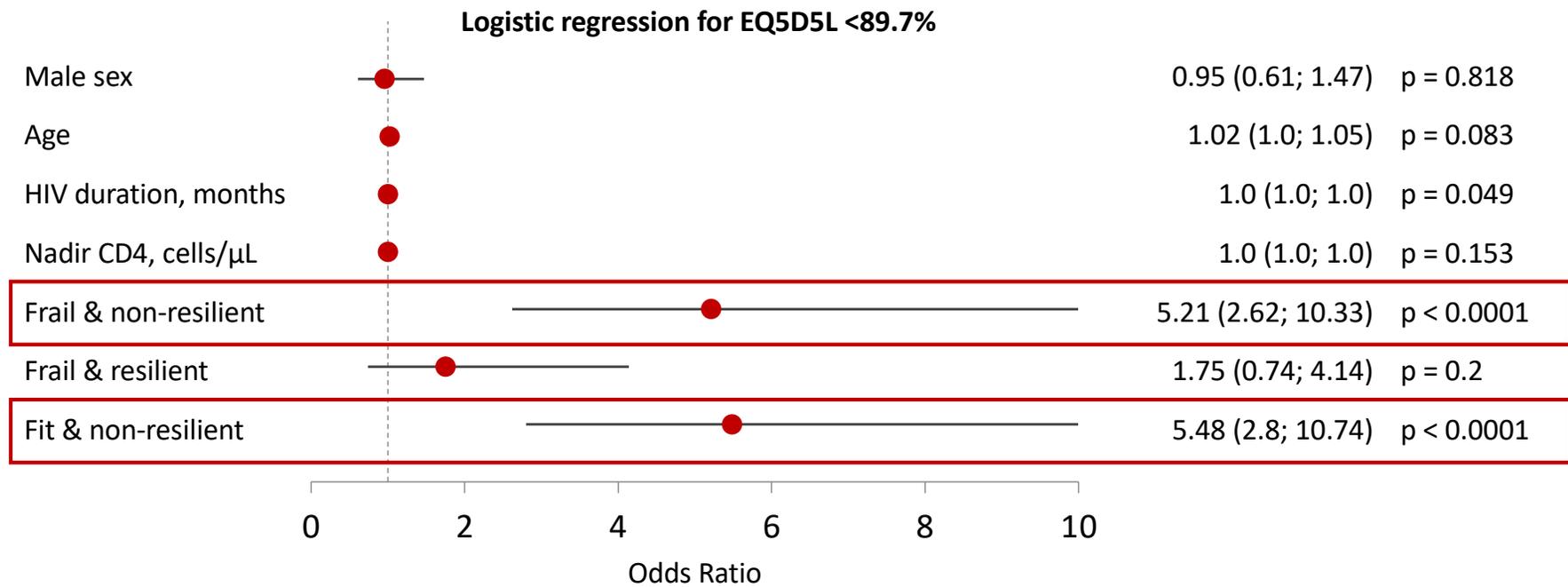


Domains of SF-36 across frailty/resilience phenotypes (% of PLWH with score above the average)



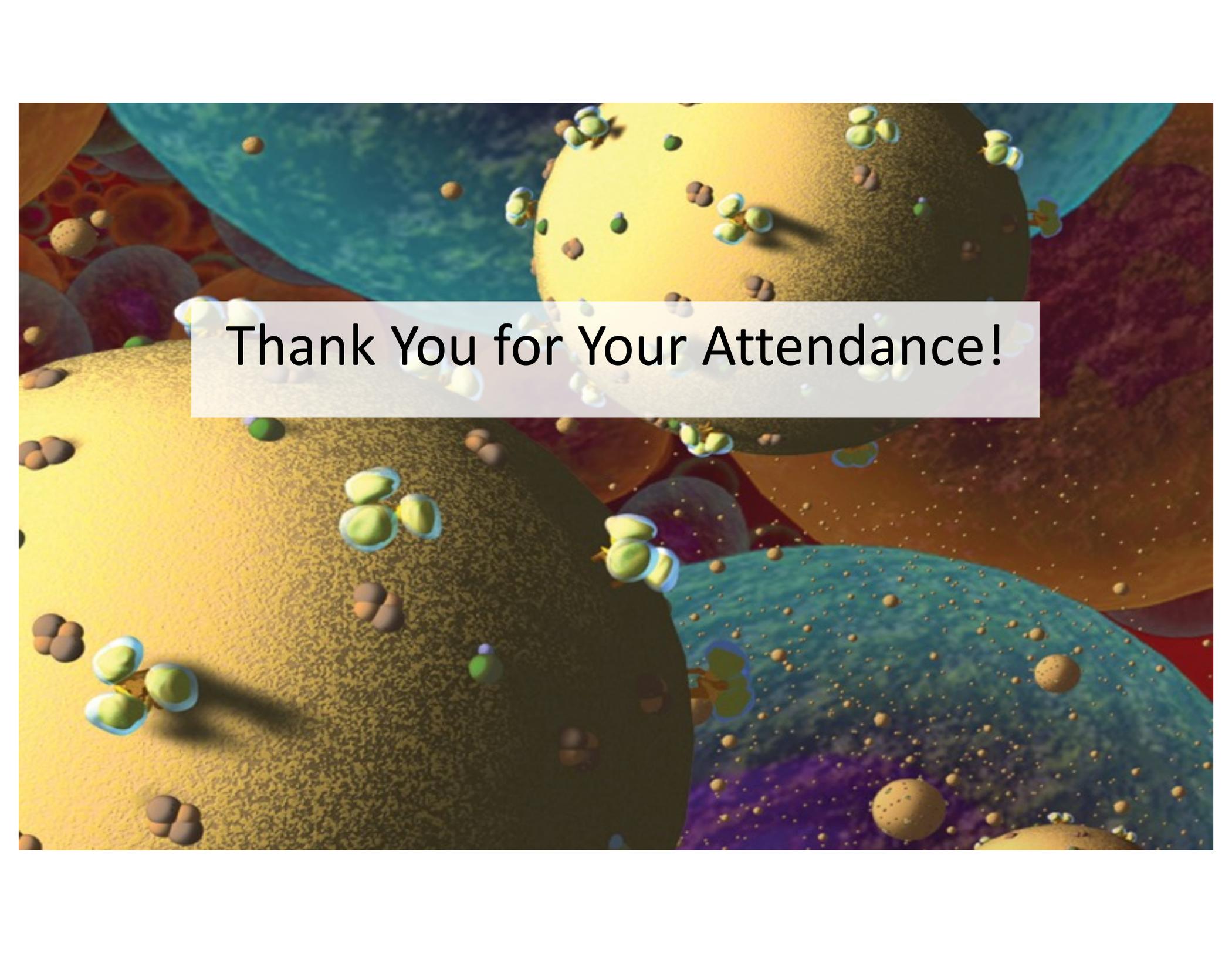
Logistic regression model to predict EQ-5D-5L < 89.7%

As described in the Spanish general population and according to EQ-5D Guide



Take home message

- The new paradigm of care in OALWH is prevention and treatment of multimorbidity and frailty, and achievement of good health-related quality of life and preservation of intrinsic capacity
- COVID-19 offers an opportunity to reform a patient-centered care approach, now known as the "fourth 90," by integrating face-to-face patient-physician and telemedicine encounters.
- Resilience is complementary to frailty in the identification of clinical phenotypes with different impacts on relevant clinical outcomes including HRQoL
- Frailty and resilience should be evaluated in PLWH to identify vulnerable individuals in order to prioritize urgent health interventions



Thank You for Your Attendance!