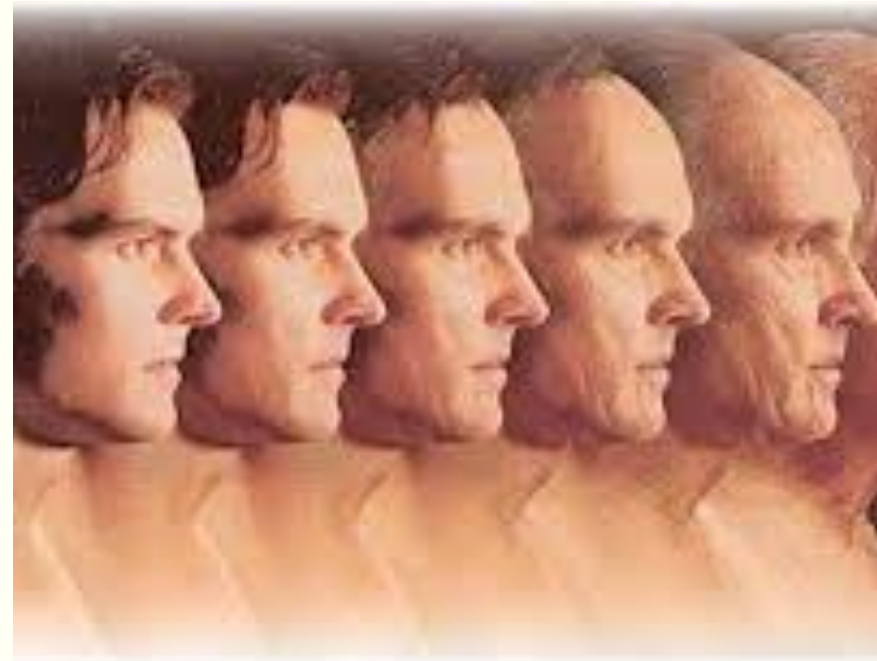




CLINICAL IMPACT OF AGEING IN PLHIV

Prof Jennifer Hoy
Alfred Hospital and Monash University



Department of Infectious
Diseases



Disclosures

- Alfred Health is reimbursed for my participation on Advisory Boards for Gilead Sciences, ViiV Healthcare and Merck, Sharp & Dohme.
- I am a member of the IAS-USA Antiretroviral Guidelines Panel from 2012 – current
- No other disclosures



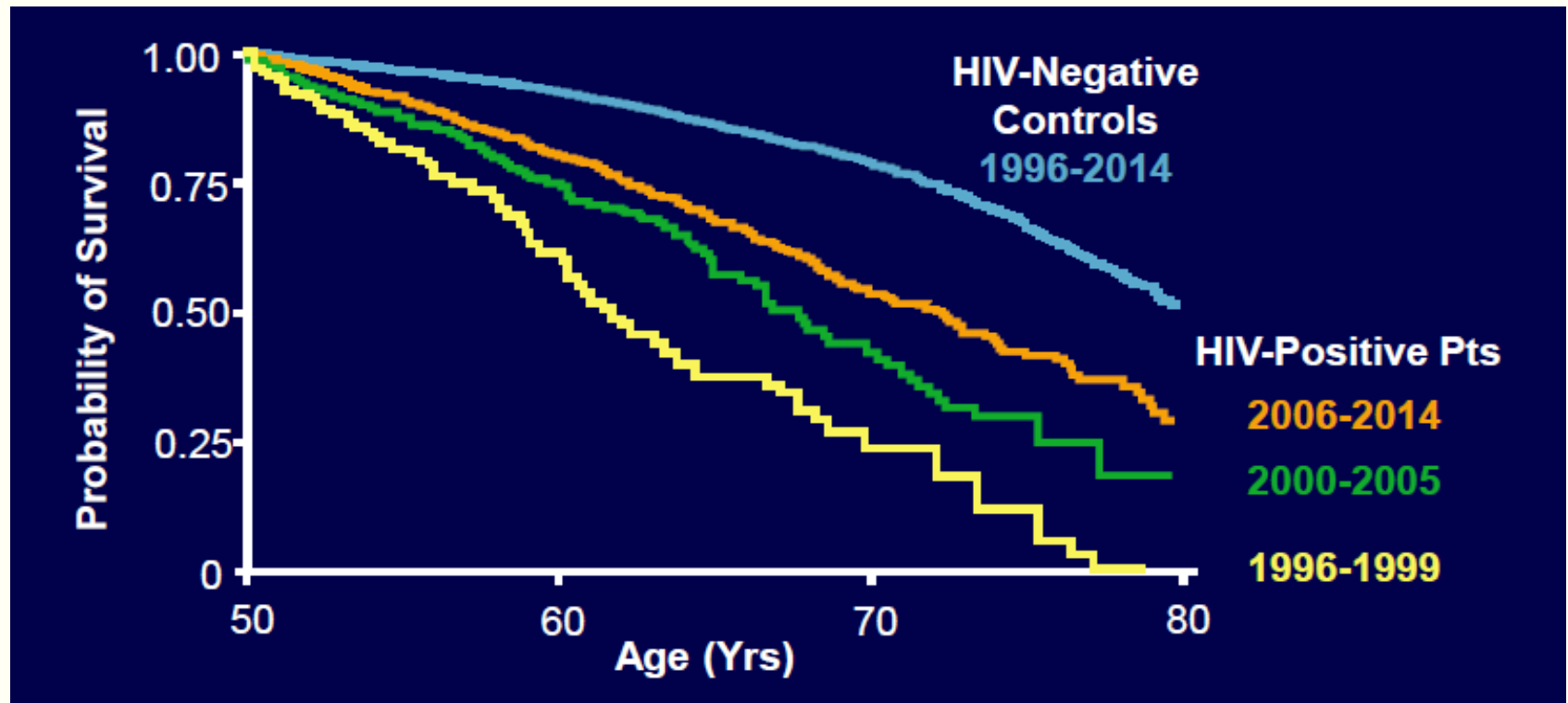
I am presenting data from a number of Australian studies that PLHIV volunteered for. I would like to acknowledge and thank them for their participation which enables us progress the field of Ageing in PLHIV together.

Overview

- Why do PLHIV have lower life expectancy and experience greater comorbidity?
- Is HIV a model for Accelerated (Premature) or Accentuated Ageing?
- Frailty in PLHIV – Alfred Hospital cohort?
- Implications of managing HIV in the setting of multiple chronic health conditions: polypharmacy, drug interactions, costs and quality of life - treatment complexities in ART-experienced PLHIV
- Goal - Person-Centred Care

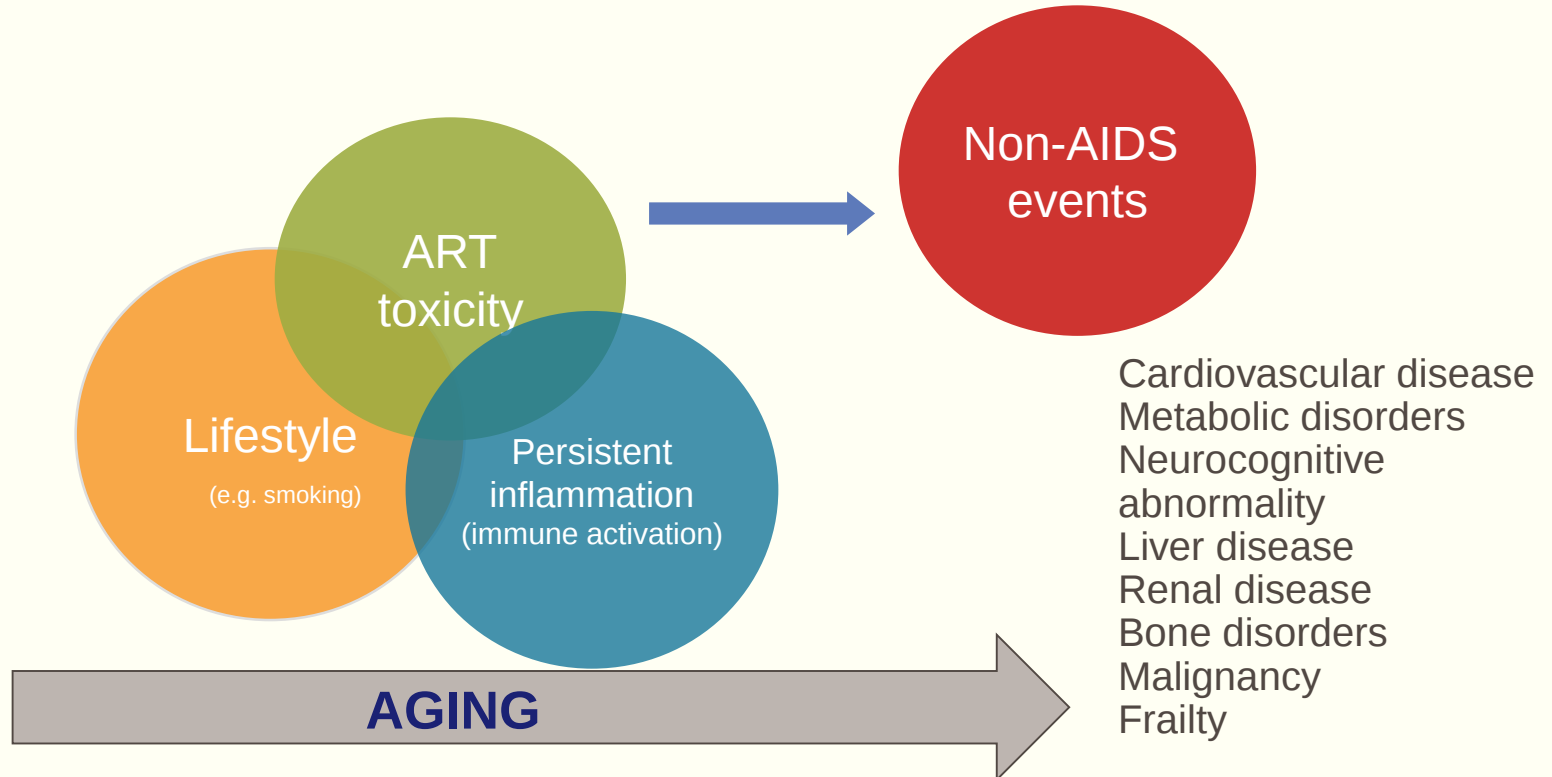
Decreased Life Expectancy persists in PLHIV in Modern ART Era

- Population-based cohort study of survival in HIV-infected pts (n = 2440) and uninfected controls matched by age and sex (n = 14,588) in Denmark



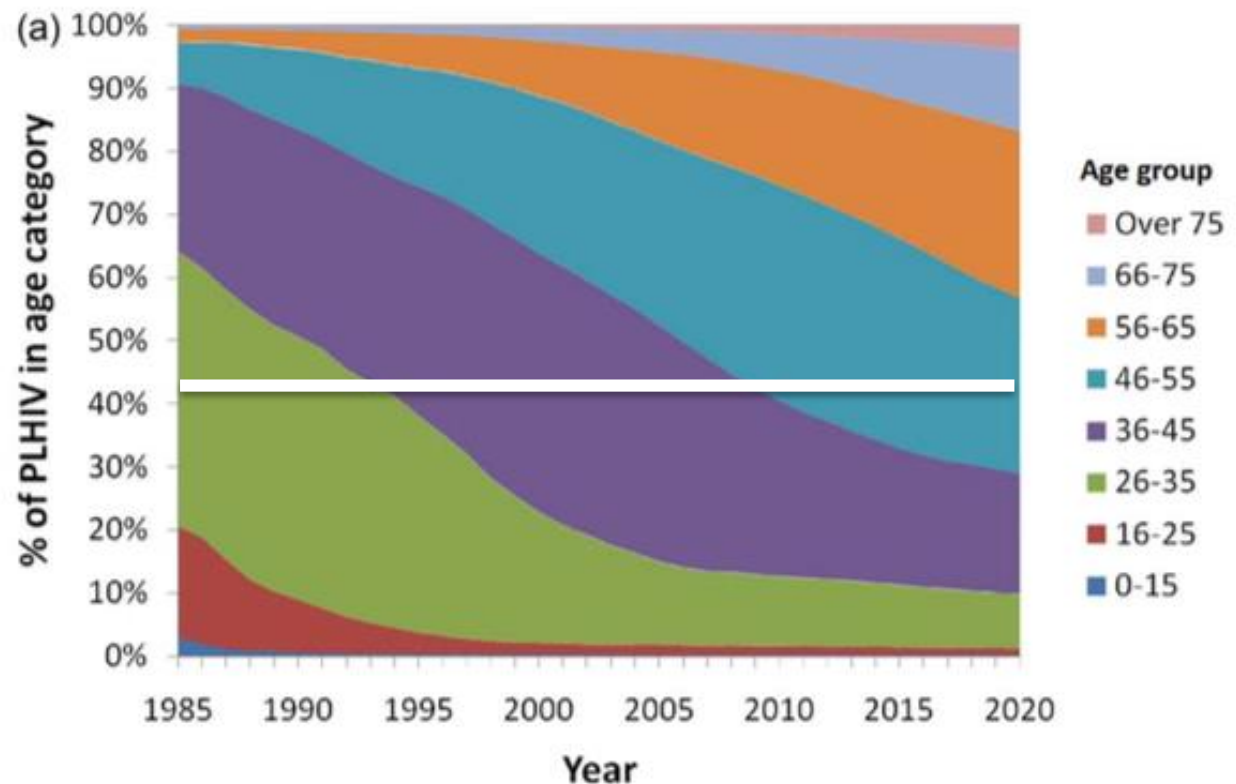
Significant morbidity persists on ART: Serious non-AIDS events

Non-AIDS-related events are more common in PLHIV, even after adjustment for age and traditional risk factors



Older Patients Becoming More Prevalent in the Population of PLHIV

Victorian
estimates: 60%
over age 50 yrs by
2020



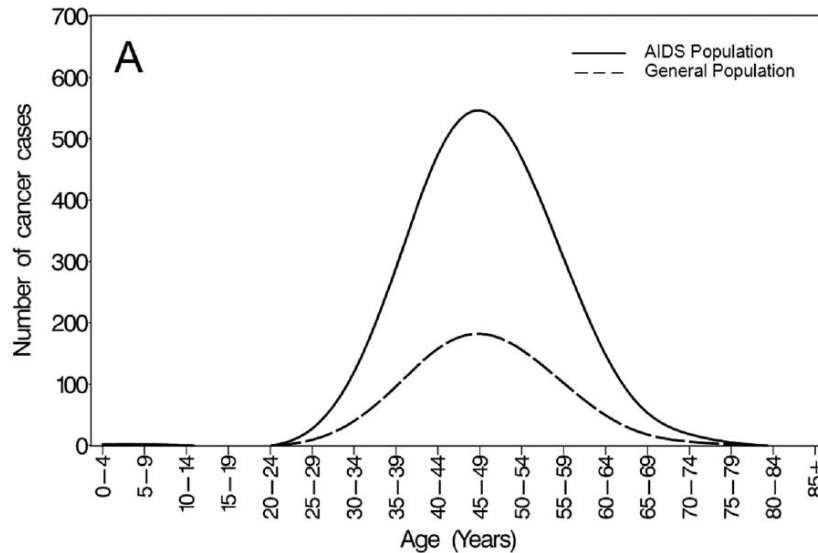
Is HIV a model for Accelerated or Accentuated Ageing?

- Does HIV cause accelerated ageing through pathways common to the ageing process?

OR

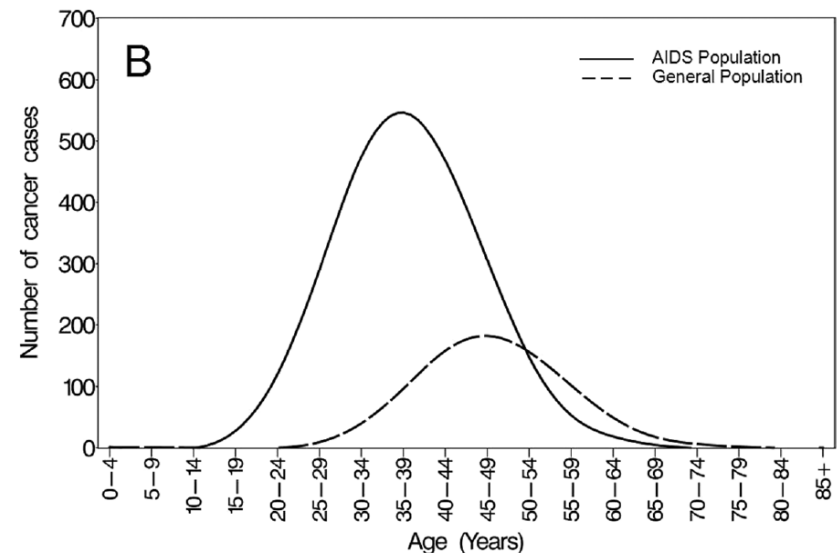
- Is HIV an additional risk factor for a variety of chronic conditions thereby accentuating the prevalence of the disease at each age
- Effective ART → improved life expectancy, reduction in AIDS related death
- Resulting in increased prevalence of non-AIDS morbidity and mortality
- Partly due to prevalent age and lifestyle/demographic factors

Accelerated or Accentuated Ageing?



Accentuated Ageing:
Greater prevalence of comorbidities

Accentuated and accelerated Ageing:
Greater prevalence of comorbidities
and occurring at younger age

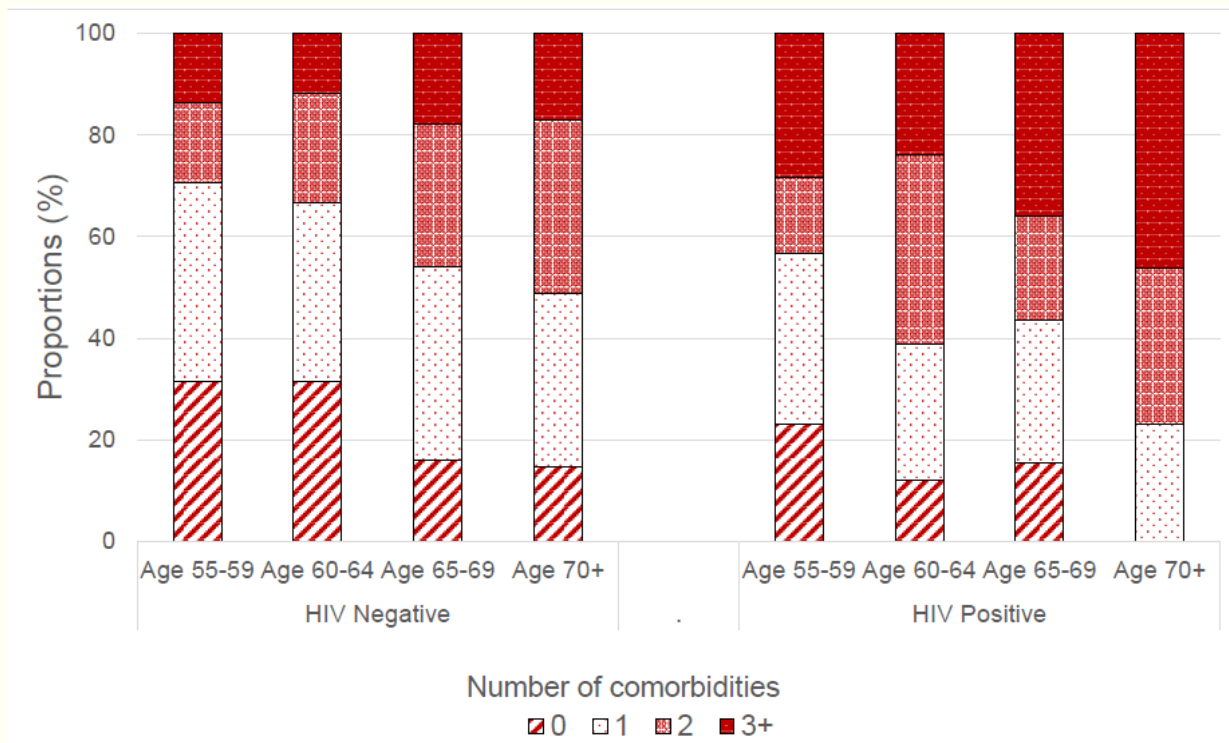


APPLES – (Australian Positive and Peers Longevity Evaluation Study): Number of comorbidities by age and HIV status

Cross-sectional study
228 PLHIV and 218 HIV
negative GBM, aged >55
years

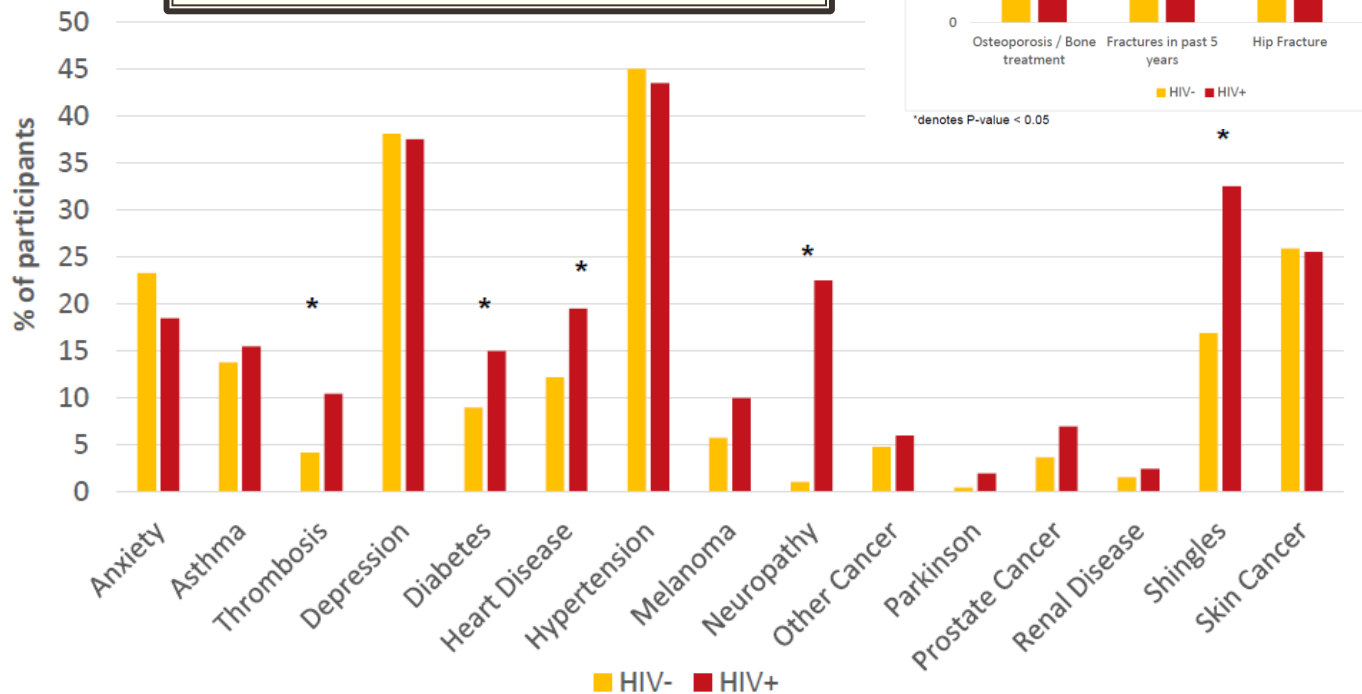
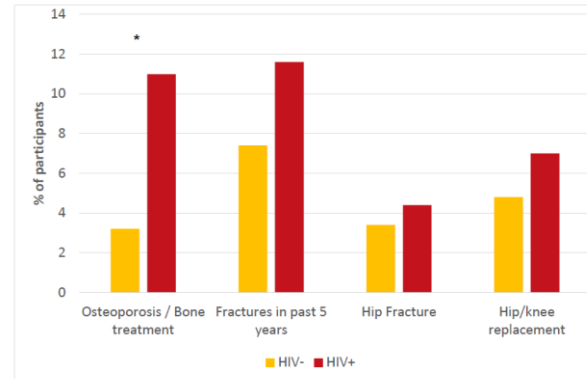
Median age 63 years

Higher rates of non-AIDS
events c/w HIV negative
GBM despite similar
current smoking but
higher rates of ever
smoking and recreational
drug use in PLHIV



APPLES - Comorbidities

PLHIV significantly increased prevalence of diabetes, heart disease, bone disease, diabetes, neuropathy



*denotes P-value < 0.05 **hypertension – self reported “high blood pressure”

Prevalence of Frailty in Alfred Hospital PLHIV

2015 Prevalence of Frailty in men
over 50 years

10%

(Double that of general
population aged >65 years)

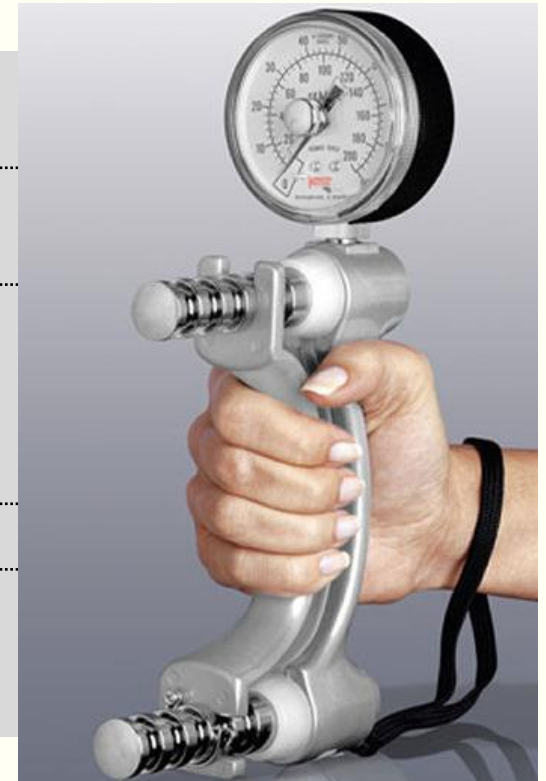


- Of the Aging cohort of PLHIV at the Alfred – 30% diagnosed with HIV and 20% started ART prior to 1996
- 65% with comorbid conditions
- Pioneers – carry the legacy of exposure to earlier ART drugs

Measuring Frailty

Frailty Phenotype

Weakness	Grip strength with dynamometer in kilograms
Slowness	Timed gait 15 feet;
Shrinking	Unintentional weight loss of >10 pounds (4.5 kg) (self-reported) BMI <18.5 kg/m ²
Low Activity	Self-reported Kcals expenditure
Exhaustion	Self-reported assessment based on CES-D depression scale;



SCORING

0 Robust; 1-2 Pre-Frail; ≥3 Frail

Measuring Frailty

Frailty Index

- 30-40 variables, each deficit scores 1 point
- Number of deficits present/total number of deficits assessed
Continuum - score of >0.25 = frail
- Examples of variables included:²
 - Help with Activities of Daily Living (ADLs)
 - Weight loss, exhaustion
 - Diseases, including: hypertension, diabetes

¹Rockwood et al. *Clin Geriatr Med.* 2011. 27(1):17-

Overlap in Frailty Measurement

93 men aged >50 years completed all questionnaires (represented 22% of all eligible men)

• Mean CD4 cell count 630 • 93% undetectable VL • 42% prior AIDS • 36% initiated ART –pre1996 • 69% exposed to early NRTIs	Frailty Phenotype n=10 (10.8%)		Frailty Index >0.25 n=21 (22.6%)	
	Frailty Instrument	Frail	Pre-Frail	Robust/Non-frail
	N=93			
	Frailty Phenotype	10 (10.8%)	49 (52.7%)	34 (36.6%)
	Frailty Index	21 (22.6%)		72 (77.4%)

Prevalence of frailty in **men** ≥65-years-old in the general population: **5.2%**

Frailty in PLHIV at the Alfred

- Frailty significantly associated with the presence of 4 or more comorbidities, polypharmacy, serious non-AIDS events, (cancer, stroke, osteoporosis), duration of ART, initiation of ART prior to 1996 on univariate analysis
- Not associated with current/nadir CD4 cell count, or detectable viral load
- On multivariable regression, frailty phenotype was associated with initiation of ART prior to 1996
- Frailty was also significantly associated with **poorer Quality of Life**, regardless of which frailty instrument used to denote frailty

PAART Study – Impact of socioeconomic factors and polypharmacy

- 522 Australian PLHIV, on ARV and virologically suppressed, mean age 51 years
- Recruited into a national prospective 2 year study (2013-2015), at 17 sites, 6 states
- Participants completed a comprehensive questionnaire (204 questions) covering
 1. Demographics, 2. Physical health,
 3. Mental health and emotional well being, 4. Life stressors, social support, 5. HIV disclosure and stigma, 6. Health and treatment perception,
 7. HIV healthcare access, treatment adherence and side effects,
 8. Financial and employment status.
- Pharmacy records for ARV dispensing and clinical and laboratory data pertaining to HIV monitoring were all collected

PAART Study – A snapshot of Australian PLHIV socioeconomic factors

- 95% participants – male, 62% Australian born
- Mean CD4 cell count – 659 cells, Median duration of HIV infection – 15 years, Median duration of ART was 11 years (IQR 5-19 years)
- 64% were on once daily ART, 30% on a single tablet regimen
- 23% prior AIDS illness, 17% had symptoms consistent with major depressive disorder
- 97% had medicare coverage, 18% reached the Medicare Safety Net in prev 12 mths
- 26% had sought financial assistance for basic necessities over prev 12 mths
- 20% lived in subsidized housing, 40% on social welfare.
- 15% reported missing a dose of ART each month for prev 3 months

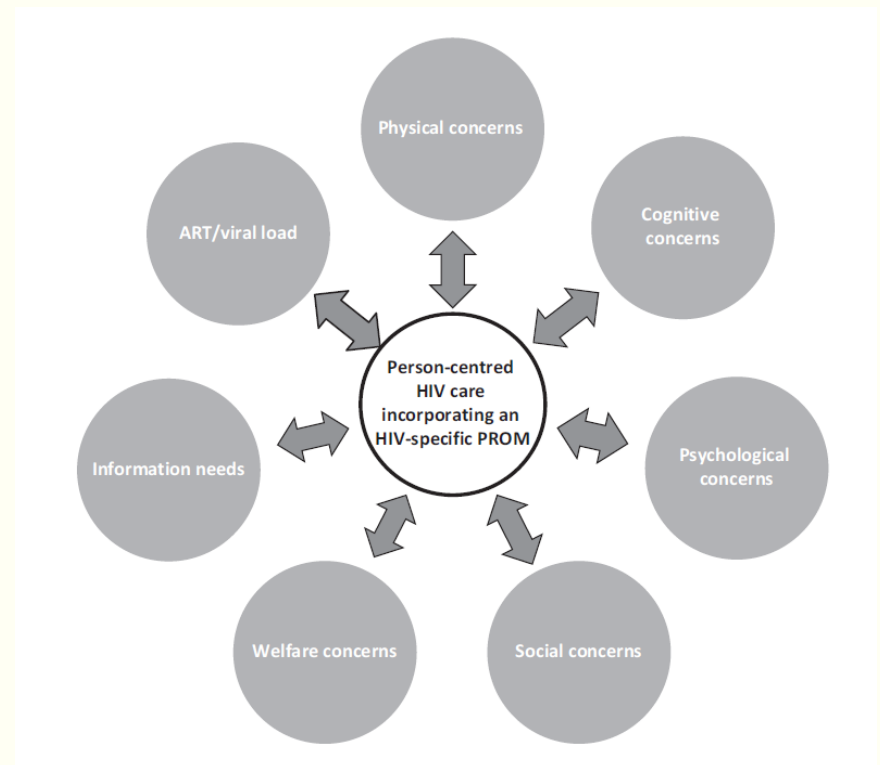
PAART Study – Impact of Co-morbidities and Polypharmacy

- 56% had at least 1 comorbidity
 - Heart Disease – 11%
 - Stroke – 2%
 - Peripheral vascular disease 2%
 - Diabetes – 6%
 - Chronic liver failure 0.5%
 - Chronic kidney disease – 3%
 - Hepatitis B/C co-infection 13%

- 75% took at least 1 concomitant medication apart from ART
 - Among the 75%, mean daily pill burden was 6 pills
 - 31% (or 23% of all participants) took at least 5 concomitant meds (polypharmacy definition) – mainly for comorbidities (also complementary meds)
 - 4% were taking a medication contraindicated with their ART regimen
 - At least half the participants had either polypharmacy, contraindicated medication or adverse pharmacokinetic interaction
 - Imperfect adherence to co-medications (12%) associated with financial issues

Conclusions – Importance of Quality of Life

- PLHIV have multidimensional concerns
→ require person centred care
- HIV professionals have biomedical focus of current HIV care – physical needs
- Need to individualize care by identifying patient priorities
- Multidisciplinary screening for geriatric syndromes – evaluate older person's functional ability, physical health, cognition, overall mental health and socio-economic circumstances
- Ambulatory care visits should include encounters with multiple providers (social workers, nutritionists, physiotherapists, geriatricians, HIV specialist, general physicians)



Need to go beyond the Cascade of HIV Care – implement routine screening and treatment of age-related illnesses, assessment of functional status and disability, optimization of QoL

ACKNOWLEDGMENTS



Dr Janine Trevillyan
Dr Hui-Ling Yeoh
Dr James McMahon
Clinical Research Nurses
Janine Roney



Dr Anna Hearps
Dr Clovis Palmer
A/Prof Anthony Jaworowski
Prof Suzanne Crowe

