Addressing long-term complications to improve health outcomes in HIV

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Outline

- NCD management in HIV– how well are we doing?
- Challenges in dealing with long-term complications from a service/institutional perspective
- How to prioritize management of multimorbidity in HIV – evidence of impact on function and health outcomes?

Malaysian HIV & Aging Study

Age, sex, ethnicity matched

Sept 2014 – June 2016

HIV + (n=329)
UMMC

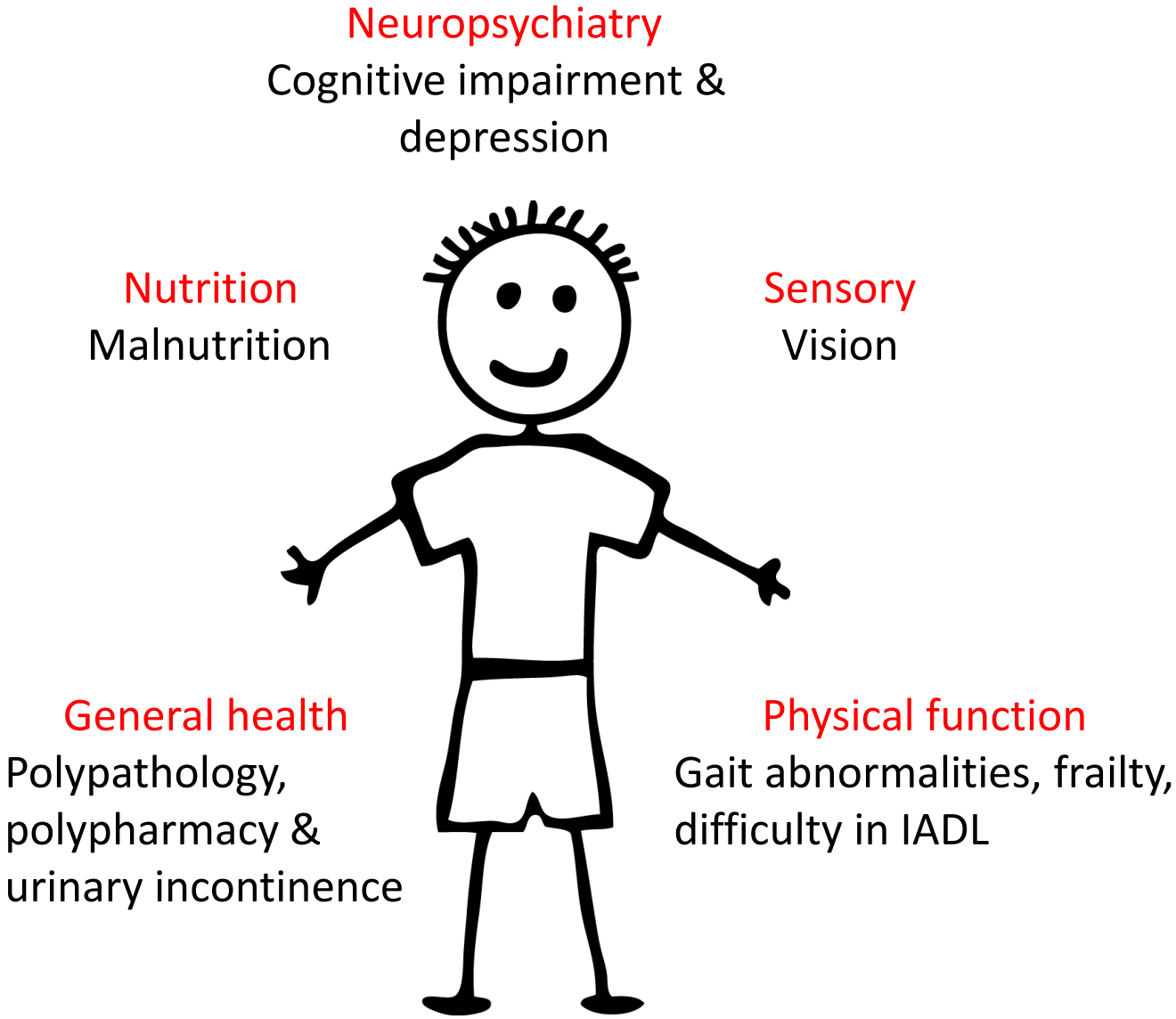
HIV – (n=290)
community-dwelling

Inclusion criteria:

- Age ≥25 years
- No reported acute illness at recruitment
- On stable cART (HIV RNA <50 copies/ml for at least 12 months)

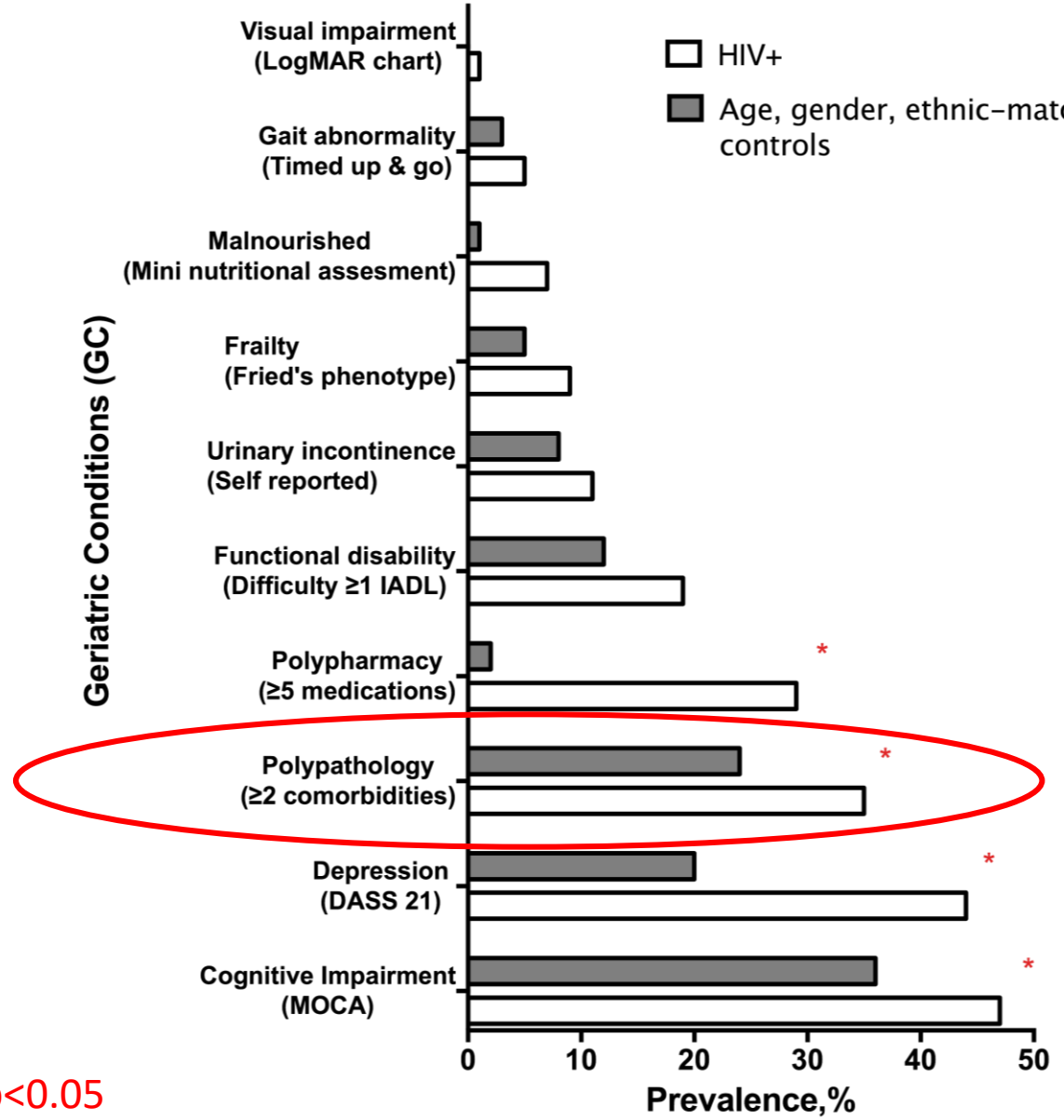
Assessments

- Screening:
  - Fasting glucose/lipid/HbA1c
  - Liver and kidney function
  - BMD
  - ECG
  - Urinalysis
  - Thyroid function
  - Vitamin D
  - Anthropometry assessments
  - Serial BP
  - HepB/HepC/Syphillis/CMV
- Comorbidities verified via blood results, medical records review, medications taken



N=172 HIV+ & matched HIV-ve
(**median age 42 years**)

Geriatric conditions are higher in HIV+ vs HIV-ve



Comorbidities present[a], *n* (%)	
Cardiovascular	280 (92.4%)
Endocrine	62 (18.5%)
Musculoskeletal	21 (6.3%)
Ophthalmic	27 (8.2%)
Urology	32 (9.5%)
Respiratory	34 (10.2%)
Oncological	9 (2.7%)
Gastrointestinal	23 (6.9%)
Renal	5 (1.5%)
Neurological	4 (1.2%)
Psychiatric	30 (9.0%)
Number of comorbidities	2 (1–3)
Number of medications	4 (3–6)

* $p<0.05$

Audit of NCD management in HIV

HIV + (n=329)
UMMC

1) New cases identified
2) Treatment prescribed (lifestyle/drug)
3) Achievement of target levels

(Local CPGs for individual comorbidities)

- Hypertension
- Dyslipidemia
- Diabetes mellitus

MHIVA results assessment

Prospective follow-up

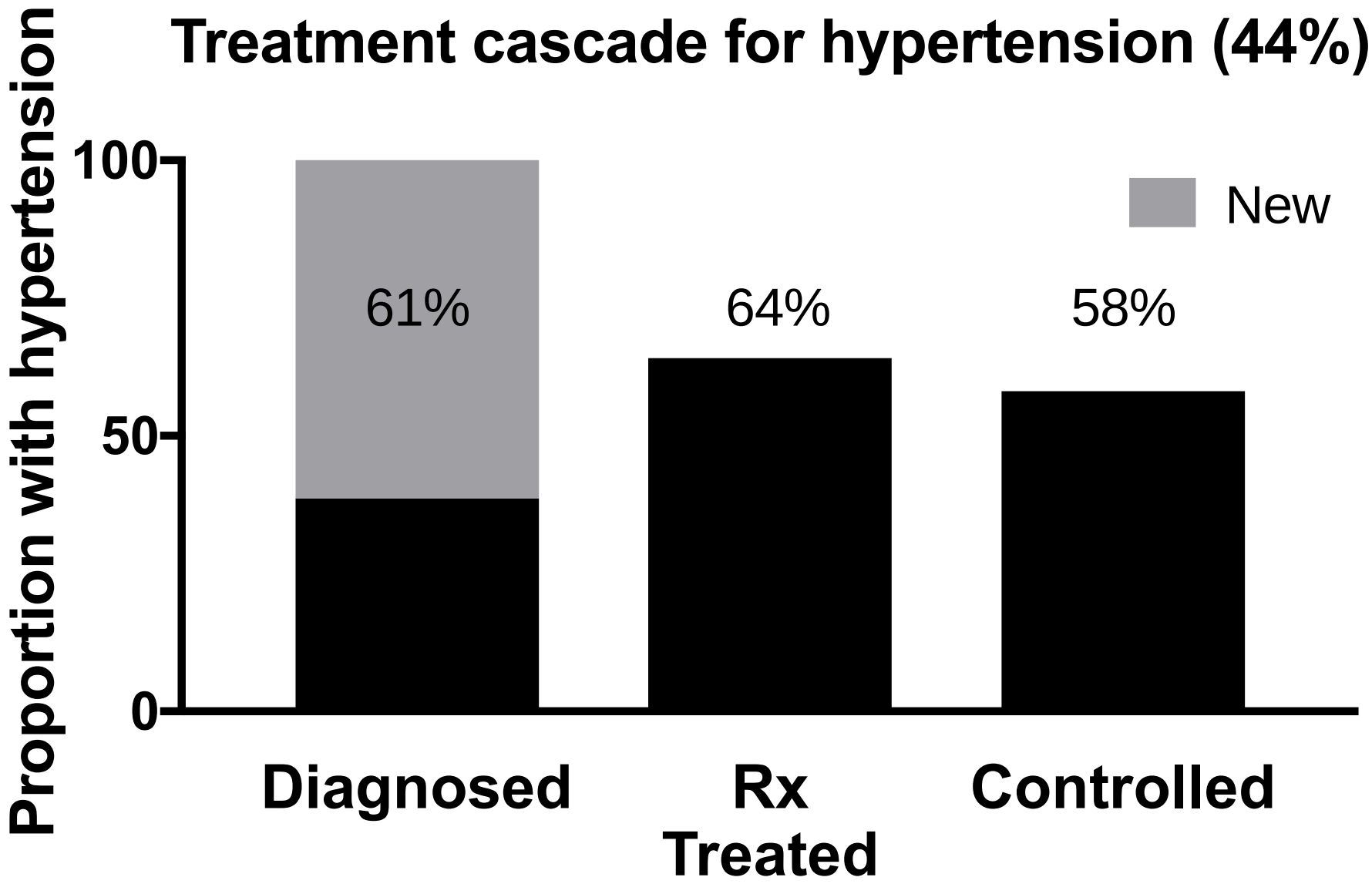
Assessment of treatment cascade

Timepoint

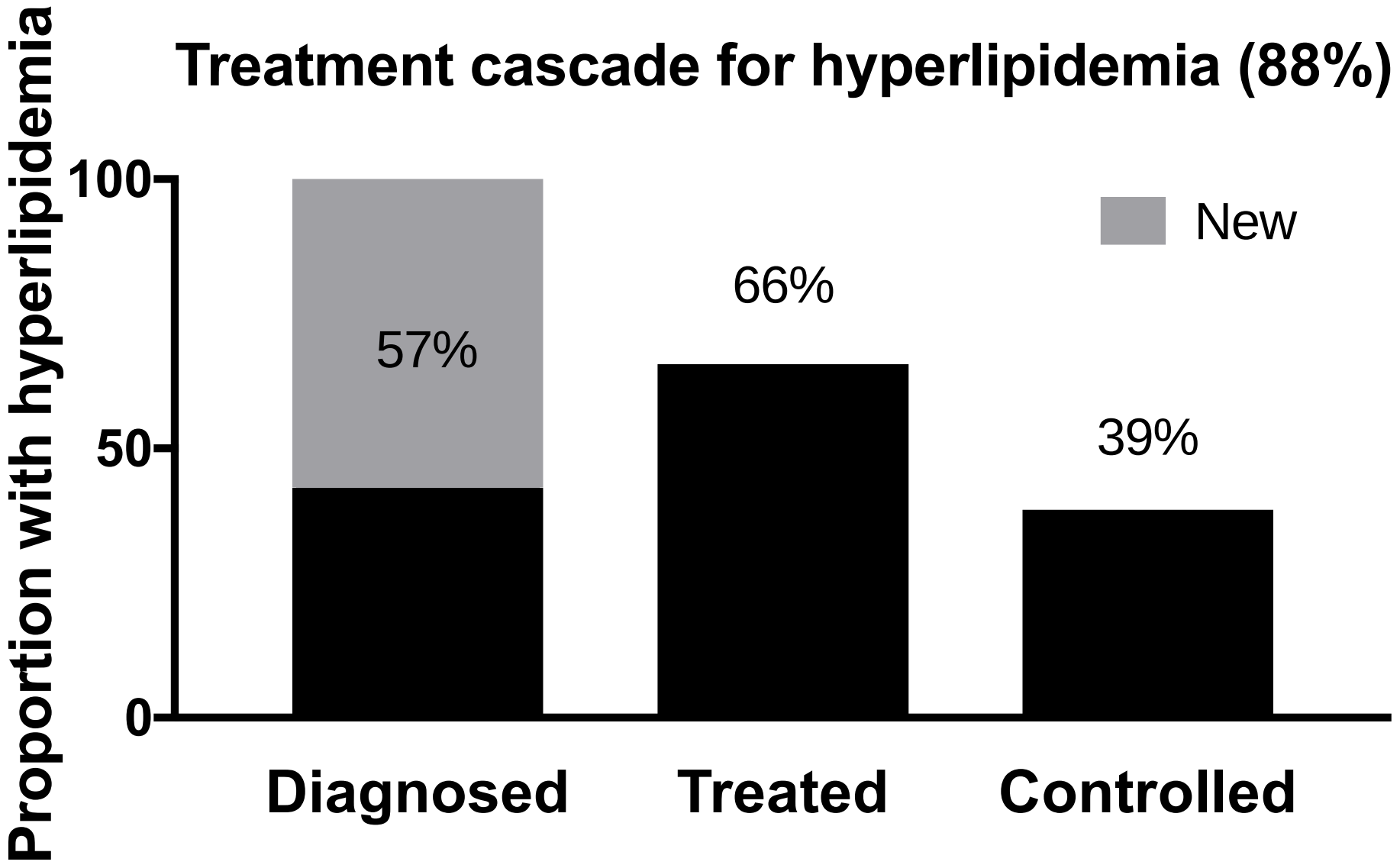
0

6-12 mo

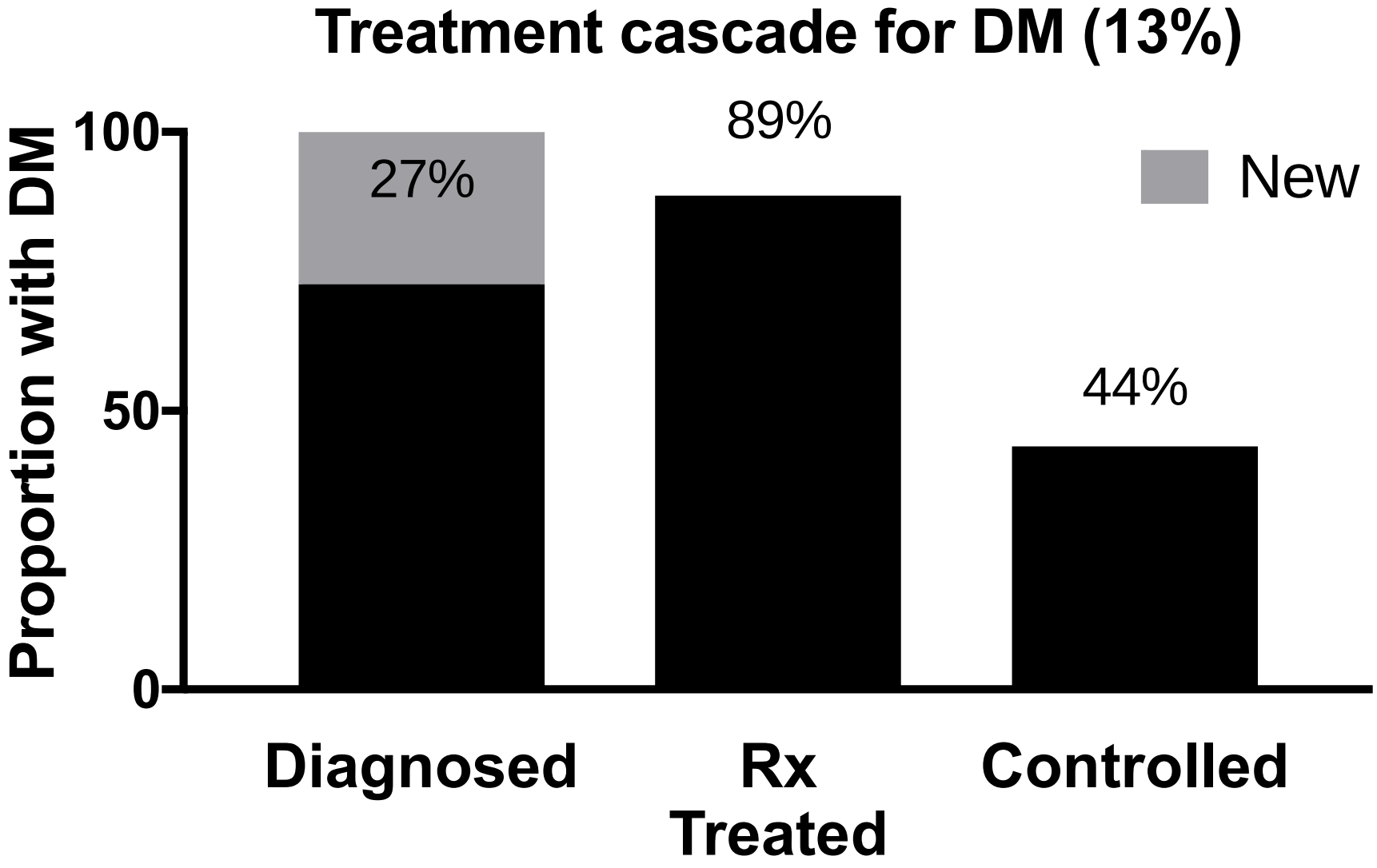
18 months



(Abnormal screening: SPB>140mmHg; Control: SBP <140mmHg)



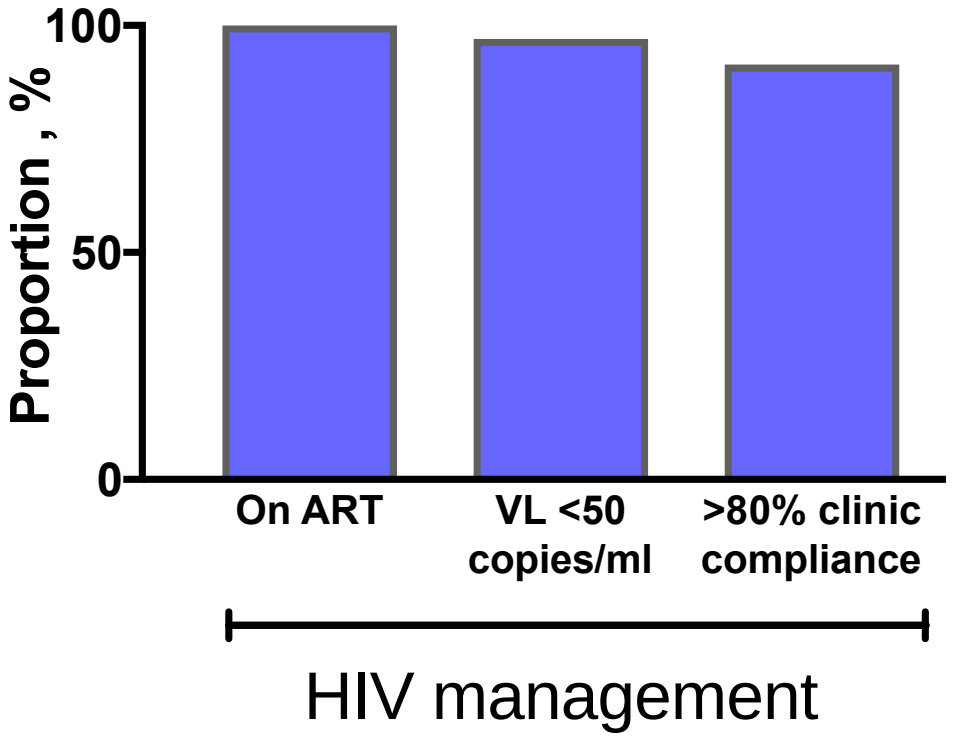
(Abnormal screening: LDL>3.4mmol/L, TC>5.2mmol/L; Control: CVD risk appropriate target for LDL)



(Abnormal screening: FPG>7mmol/L, HbA1c>6.5%; Control: HbA1c<6.5%)

Optimizing treatment for comorbidities

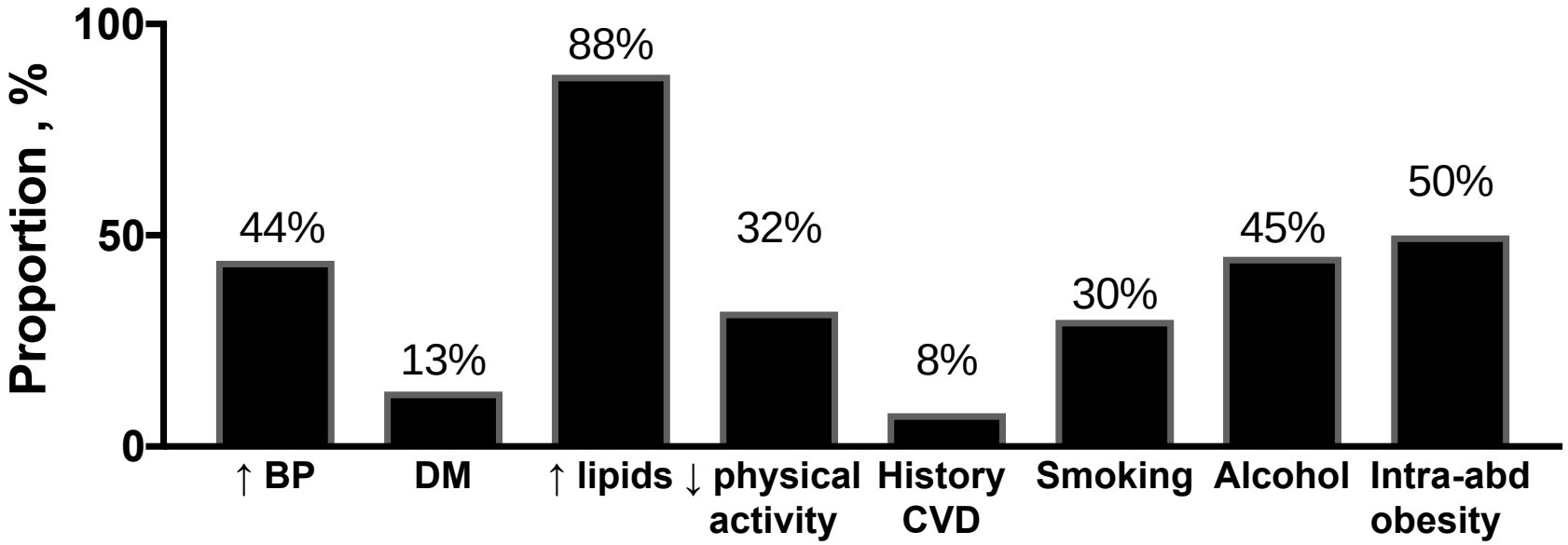
MHIVA: Assessment done 18 months after recruitment

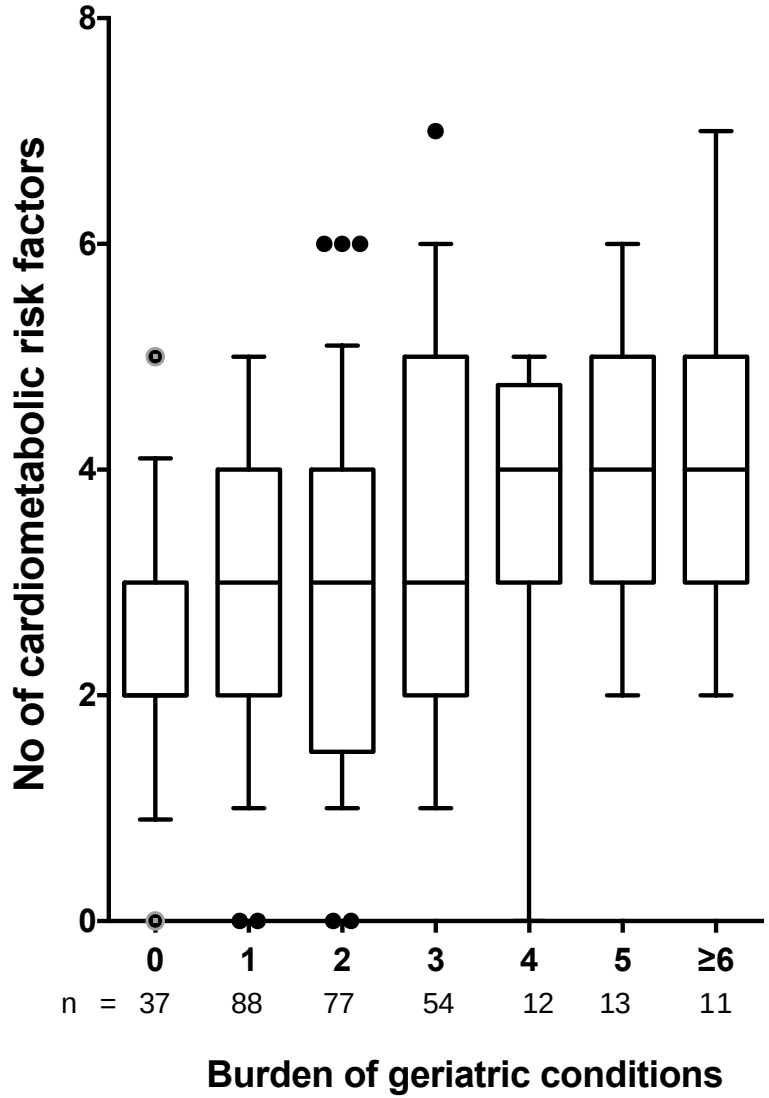


(Rajasuriar R, unpublished)

Addressing cardiometabolic risk factors may impact the burden of functional aging

>90% of the cohort had one or more cardiometabolic risk factors





(Rajasuriar R, unpublished)

Addressing screening and treatment gaps

Issues :

- Stable patients tend to be seen by more junior/trainee doctors --> focused on HIV issues
- Patients seen by different doctors at each visit
- Patients not keen to be followed-up in other specialist clinics – only 30% of referrals to osteoporosis clinic met their appointments

Addressing screening and treatment gaps

Strategies :

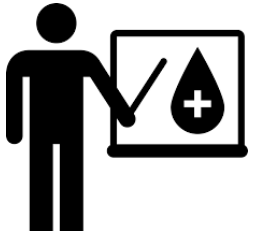
- Review of cases at the end of clinic with senior consultants
- Tailored proforma in EMR
  - Patient focus: New patient, stable patient, counselling (mental health)
  - Provides prompts for NCD screening and monitoring if not done
  - Automated calculation of patient risks – ASCVD, FRAX
- Emphasizing NCD management in ID journal club for trainees

Integration challenges

Human resources – lack of staff, high turnover, provide on-going training, staff motivation (Program leadership)

Referral systems – lacks strategies to ensure referrals are completed, bidirectional

Patient records – adapt records to include both NCD and HIV-related information → ↑ amount of information→ finding a balance



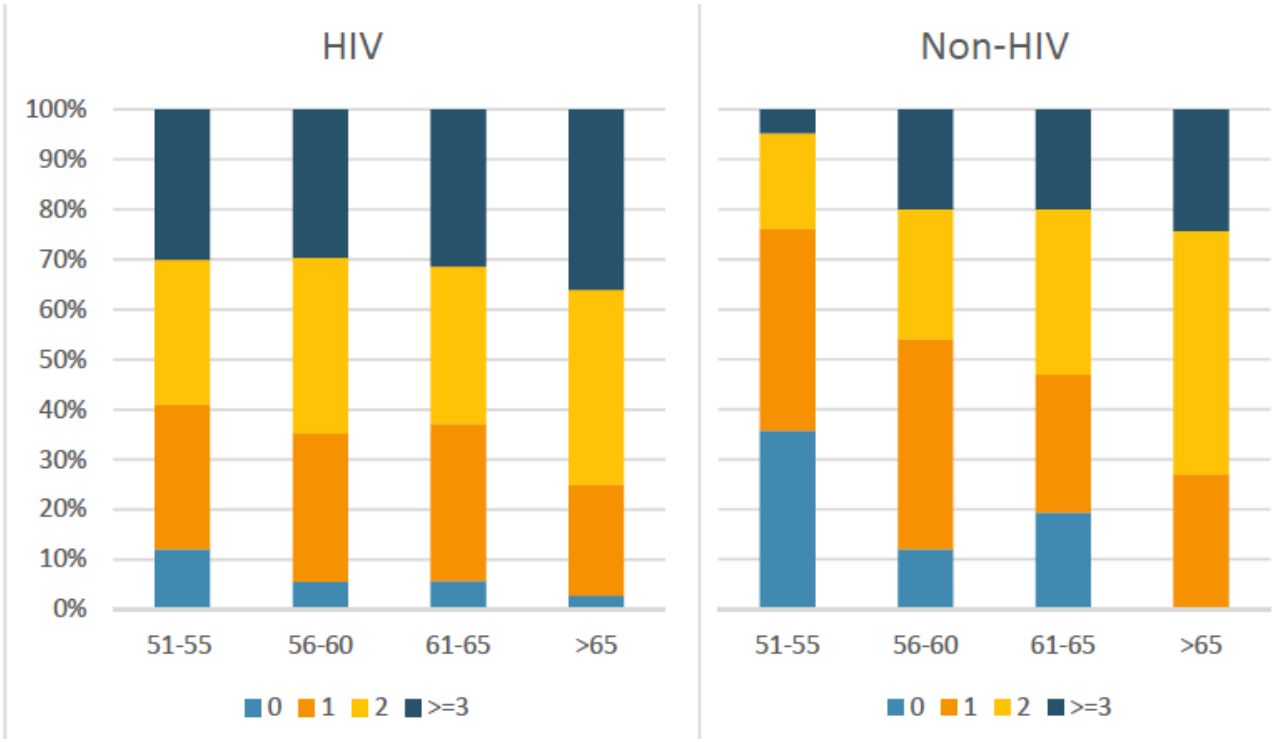
Patient education - adapting material in clinic to include HIV and NCDs

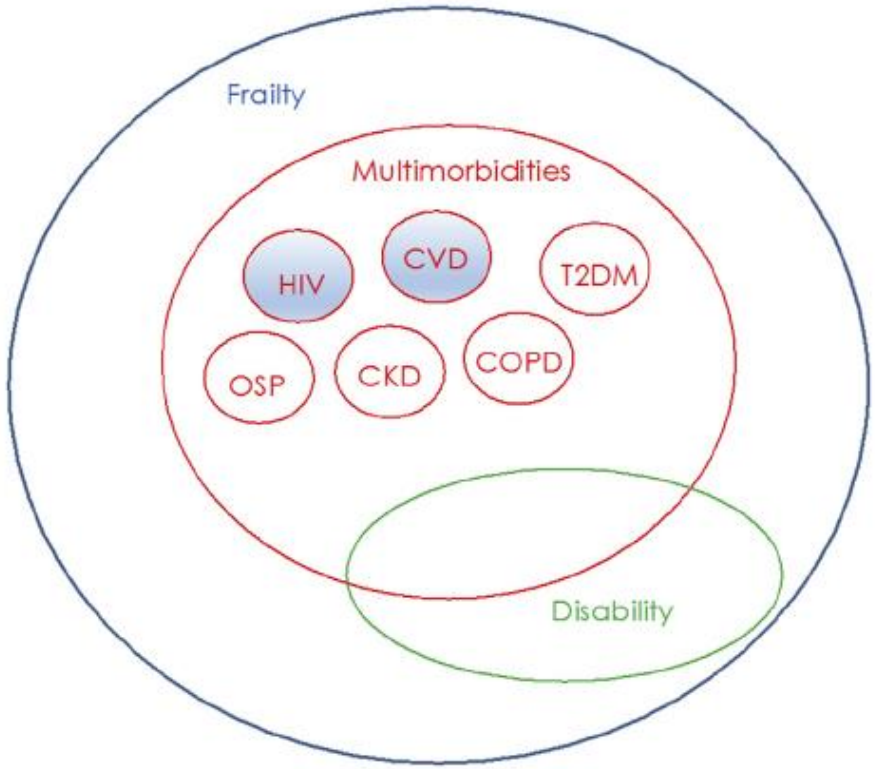
Supply chains – not all drugs readily available; adequate equipment for screening

(Duffy M Trop Med Int Health 2017; Haldane V AIDS Care 2018)

Multimorbidity in HIV

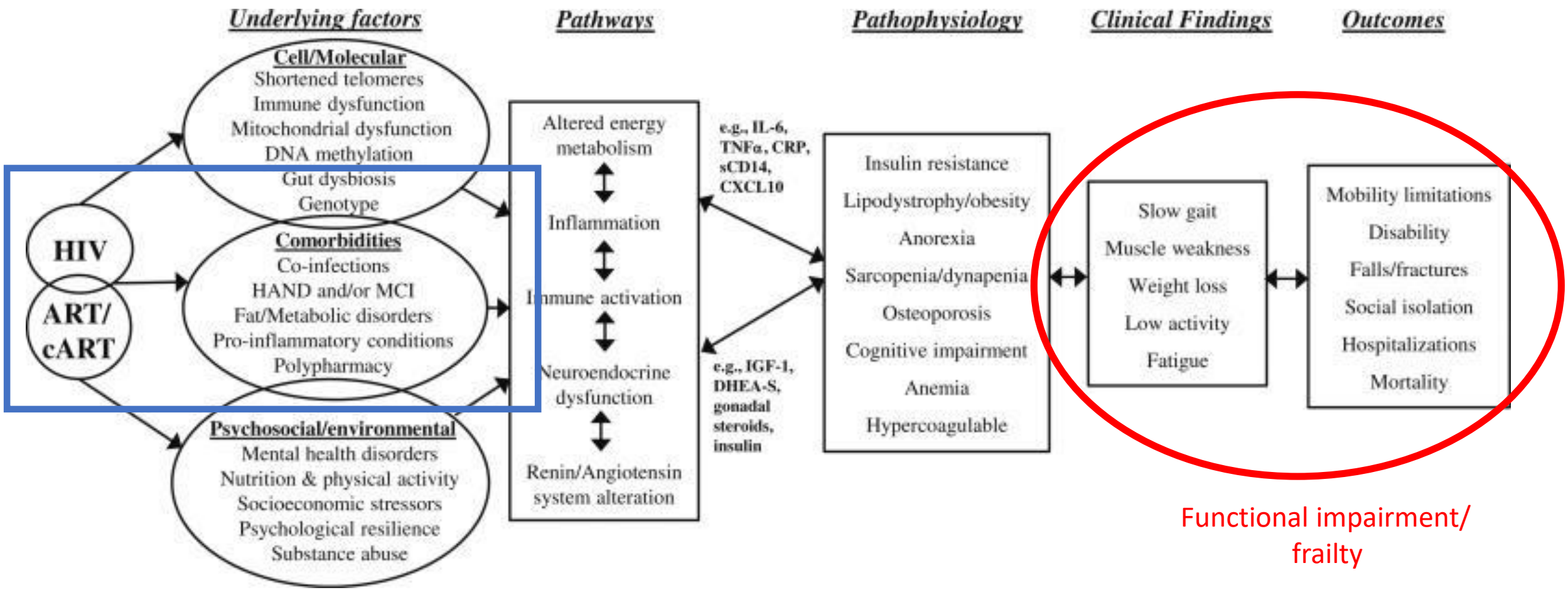
- Multimorbidity is common in HIV and a strong risk factor for functional impairment and frailty – how do we prioritize interventions?





(Marciel RA *et al.* Int J Infect Dis 2018)

Changing focus in the management of HIV



Functional impairment/ frailty

(Piggott DA *et al,* Curr HIV/AIDS Rep 2016)

Comorbidities independently associated with measures of functional performance

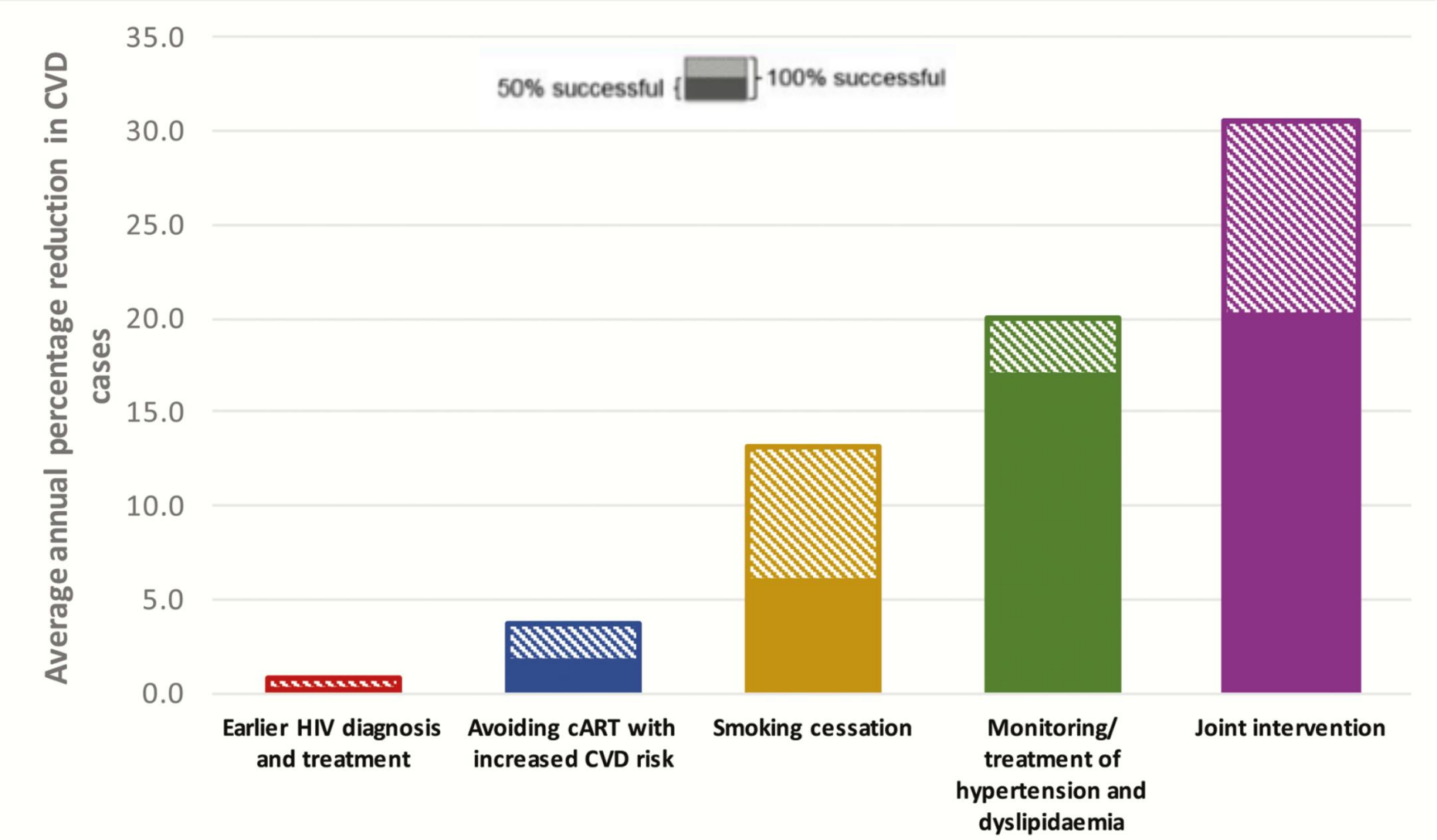
Comorbidities	Frailty	ADL/IADL	Timed walk	Short Physical Performance Battery
Depression	1,7,11,12,17,19,22, 25	1,23		
Cognitive impairment	2,5,8,11	4,10,23		
Abdominal obesity/obesity/WHR (Changes in body composition)	3,8,15,21		20,21	21
Osteoporosis	3,7,9,25			
CVD	6			
Insulin resistance/DM			20	20,24
COPD/Lung disease	13	13	20	
CKD	14			
Liver disease (FIB-4)	14			
Multimorbidity (≥ 2-4)	6,7,16,18,19,20,22	23	20	20

(1Avila-Funes JA Int J Geriatr Psychiatry 2018; 2Oppenhelm H Neurology 2018; 3 Hawkins KL AIDS 2018; 4 Erlandson KM CID 2018; 5 Zamudio-Rodriguez A AIDS Res Hum Retroviruses 2018; 6 Guaraldi G HIV Med 2017; 7 Yeoh HL Antivir They 2018; 8 Erlandson, JID 2017; 9 Bregogeon S AIDS 2017; 10 Johs NA AID 2017; 11 Ding Y JID 2017; 12 Branas F Age Aging 2017; 13 Akgun KM AIDS 2016; 14 Gustafson DR J Frailty Aging 2016; 15 Kooij KW AIDS 2016; 16 Guaraldi D AIDS 2015; 17 Onen NF J Frailty Aging 2014; 18 Althoff KN J Gerontol A Biol Sci Med Sci 2014; 19 Piggott DA PlosOne 2013; 20 Erlandson KM HIV Clin Trials 2012; 21Shah K J Am Geriatr Soc 2012; 22 Onen J Intect 2009; 23 Morgan EE JAIDS 2012, 24 Baranoski AS J Womens Health 2014; 25 Yeah HL Antivir Ther 2018)

CVD prevention in HIV

(ANTHENA cohort, median age = 44 years; 78% male; median CD4 T-cell count = 500cells/ul)

OUTCOME MEASURES
Improved function/reduced disability/frailty ?



(Smith M *et al,* Clin Infect Dis 2018)

PREPARE study

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PREPARE (A5361s) Substudy of REPRIEVE (A5332) (PREPARE)

The safety and scientific validity of this study is the responsibility of the study sponsor and investigators. Listing a study does not mean it has been evaluated by the U.S. Federal Government. Read our disclaimer for details.

ClinicalTrials.gov Identifier: NCT03070223

Recruitment Status: Active, not recruiting
First Posted: March 3, 2017
Last Update Posted: February 22, 2018

Study Type:	Observational
Actual Enrollment:	602 participants
Observational Model:	Cohort
Time Perspective:	Prospective
Official Title:	Pitavastatin to REduce Physical Function Impairment and FRailty in HIV (PREPARE)
Actual Study Start Date:	February 28, 2017
Estimated Primary Completion Date:	February 28, 2022
Estimated Study Completion Date:	February 28, 2022

Summary

- Studies should now focus on assessing **functional status** as study end-points/outcomes (standardised measurements)

- Interventions for comorbidities in HIV should align with long-term goals of preserving function.

- Best model of HIV care ?? → start small with audits

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