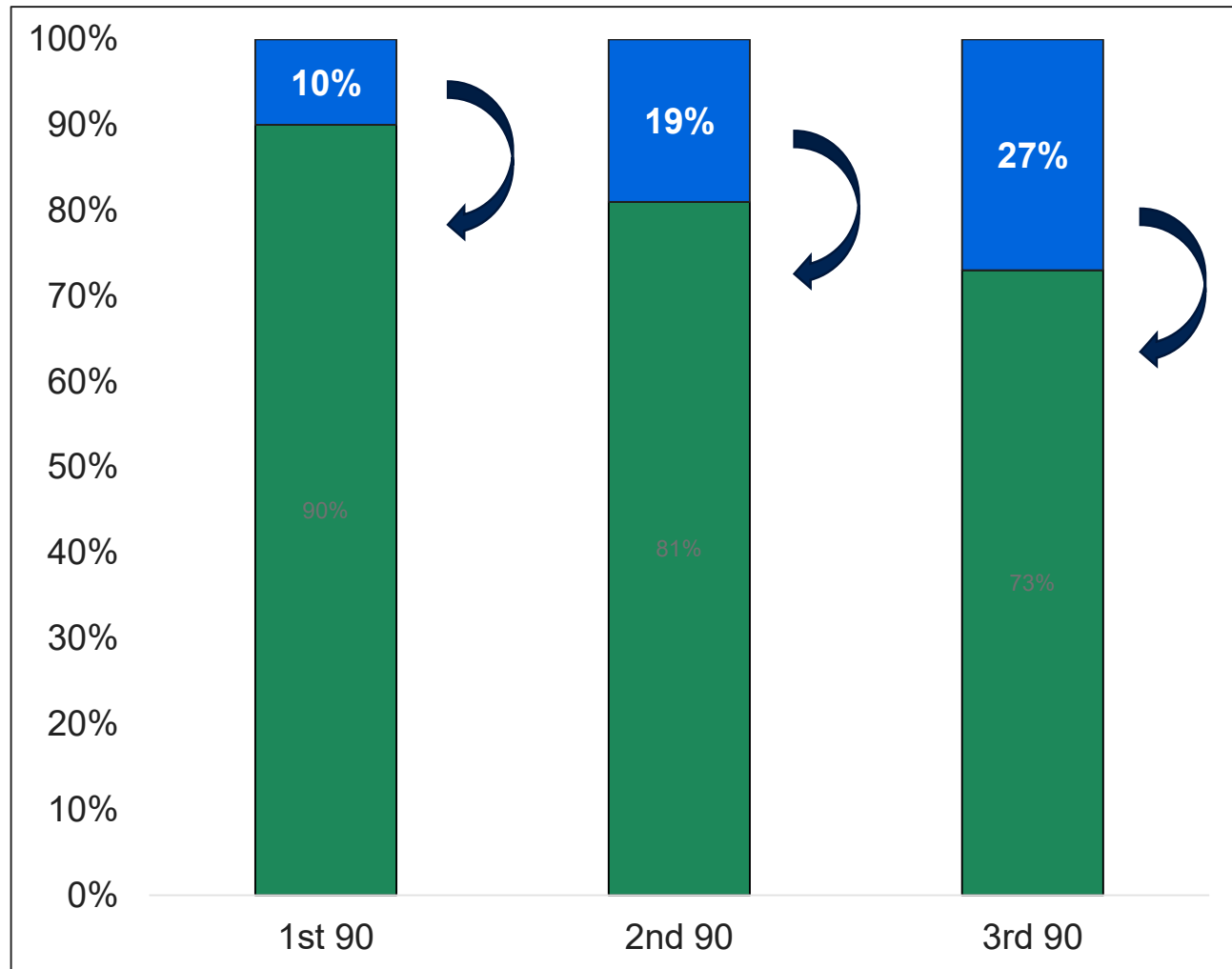


**HETEROGENEITY OF DEMOGRAPHIC AND
RISK STRATA ACROSS THE
UNAIDS 90-90-90 TARGETS IN
SUB-SAHARAN AFRICA –
A SYSTEMATIC REVIEW**

July 23, 2018

Do the Virally Suppressed Differ from the Unsuppressed?

- Achievement of the 90-90-90 targets will still leave 27% of people living with HIV virally unsuppressed
- **Objective:** systematically review and summarize literature assessing heterogeneity of demographic and risk strata across the 90-90-90 cascade



Risk heterogeneity could lead to higher incidence

Systematic Review Methods

Population

- Adults 15+,
- sub-Saharan Africa,
- Living with HIV-1

Exposures

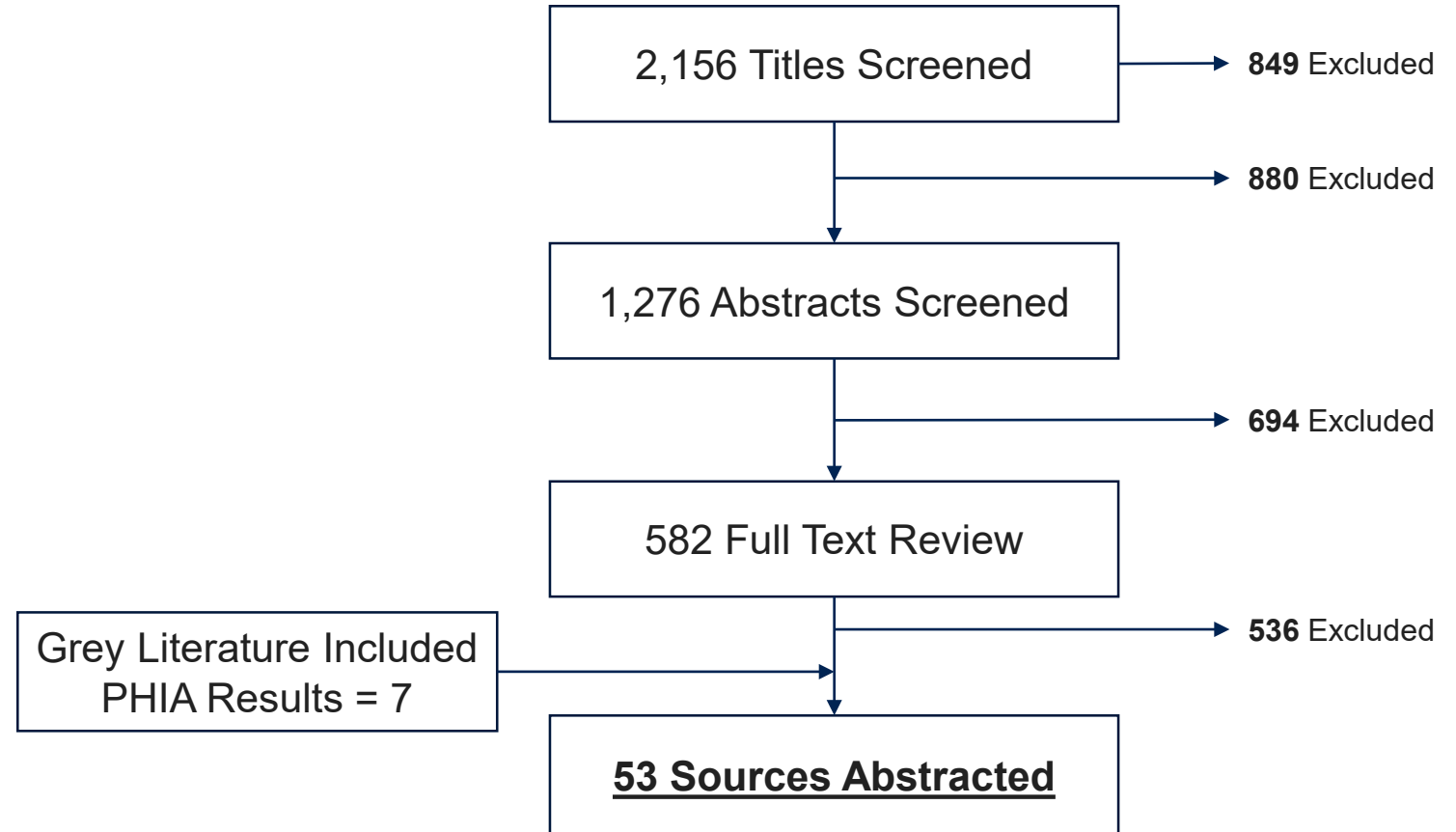
- Demographic strata,
- Sexual risk behavior

Outcomes

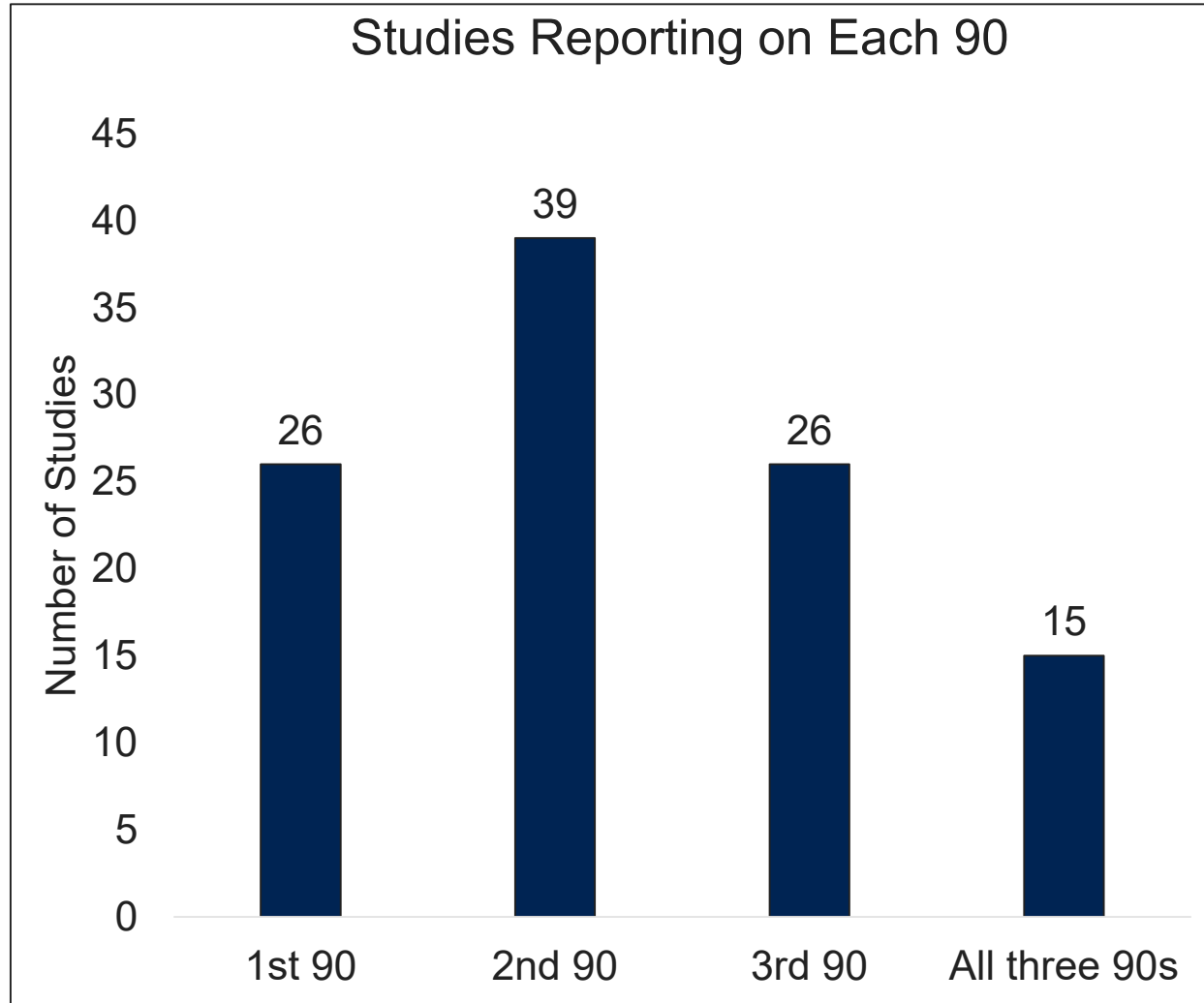
- Awareness of status,
- ART use,
- Viral suppression among ART users,
- **Viral suppression among all living with HIV**

Other Criteria

- 2014 onwards

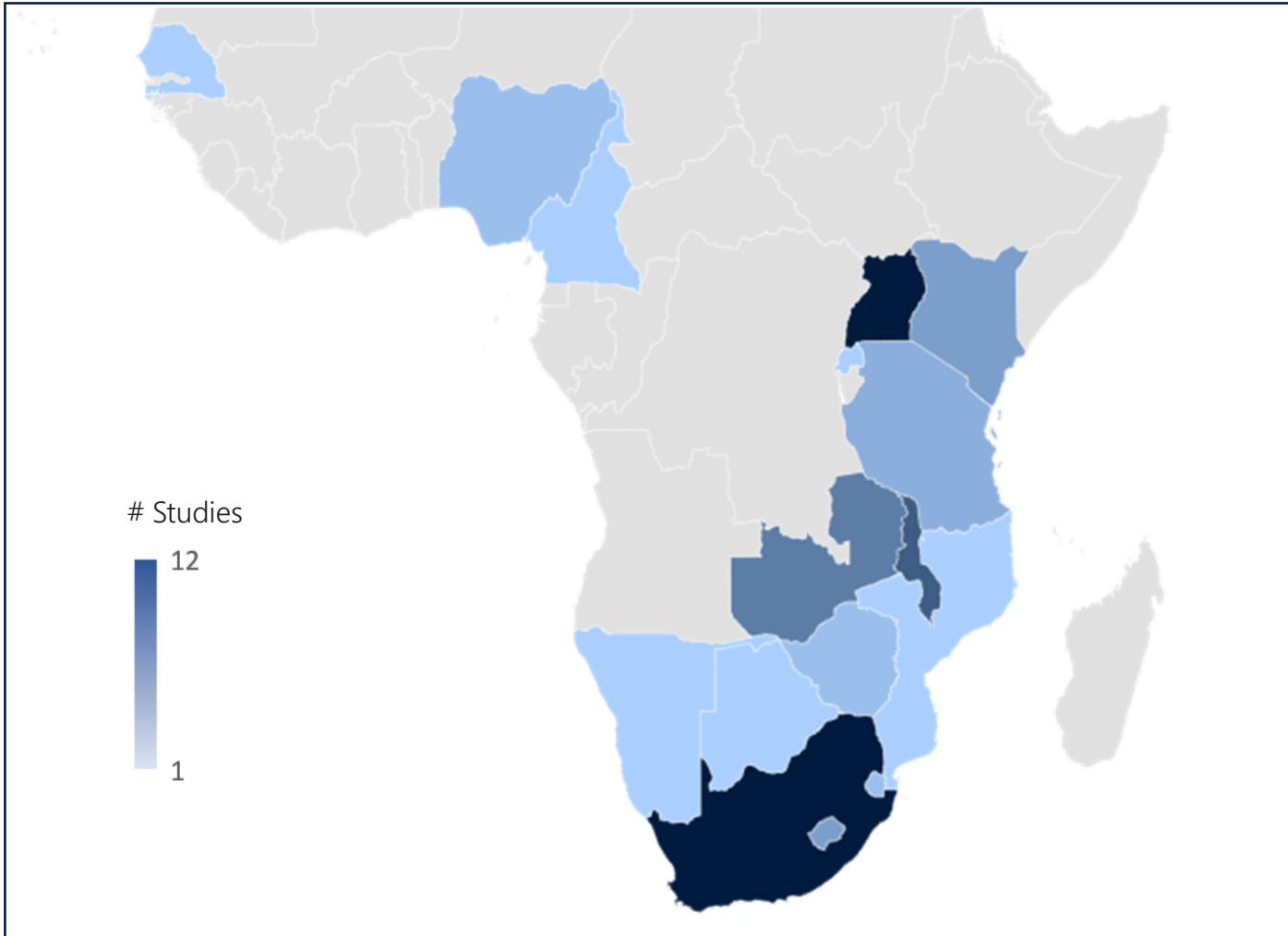


Which 90 Measures Are Reported On?



- Majority of studies define viral suppression as **<1,000 copies/mL**
- Other cutoffs include:
 - <50 (1)
 - <200 (1)
 - <400 (3)
 - <500 (1)
 - <5,000 (1)
 - <40 in plasma, <550 in DBS (1)

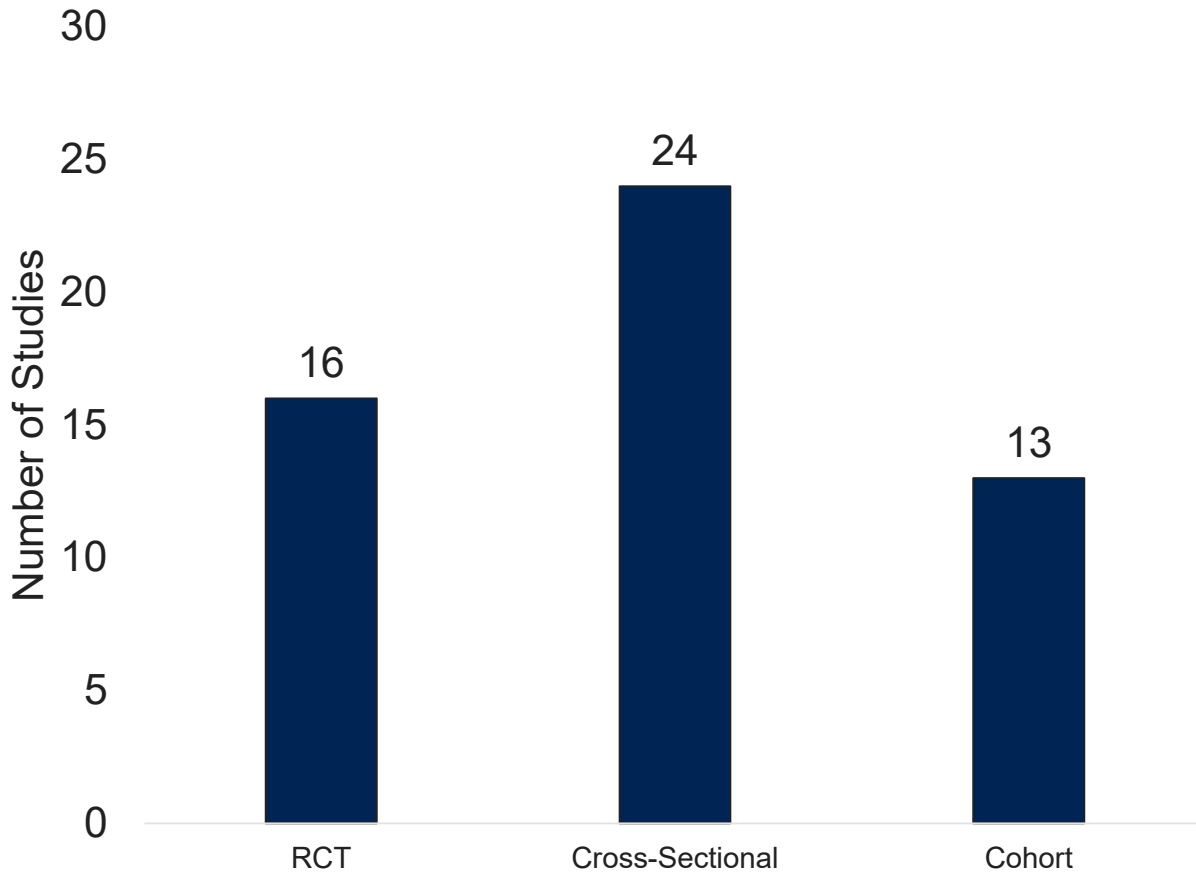
17 Countries Represented in Review



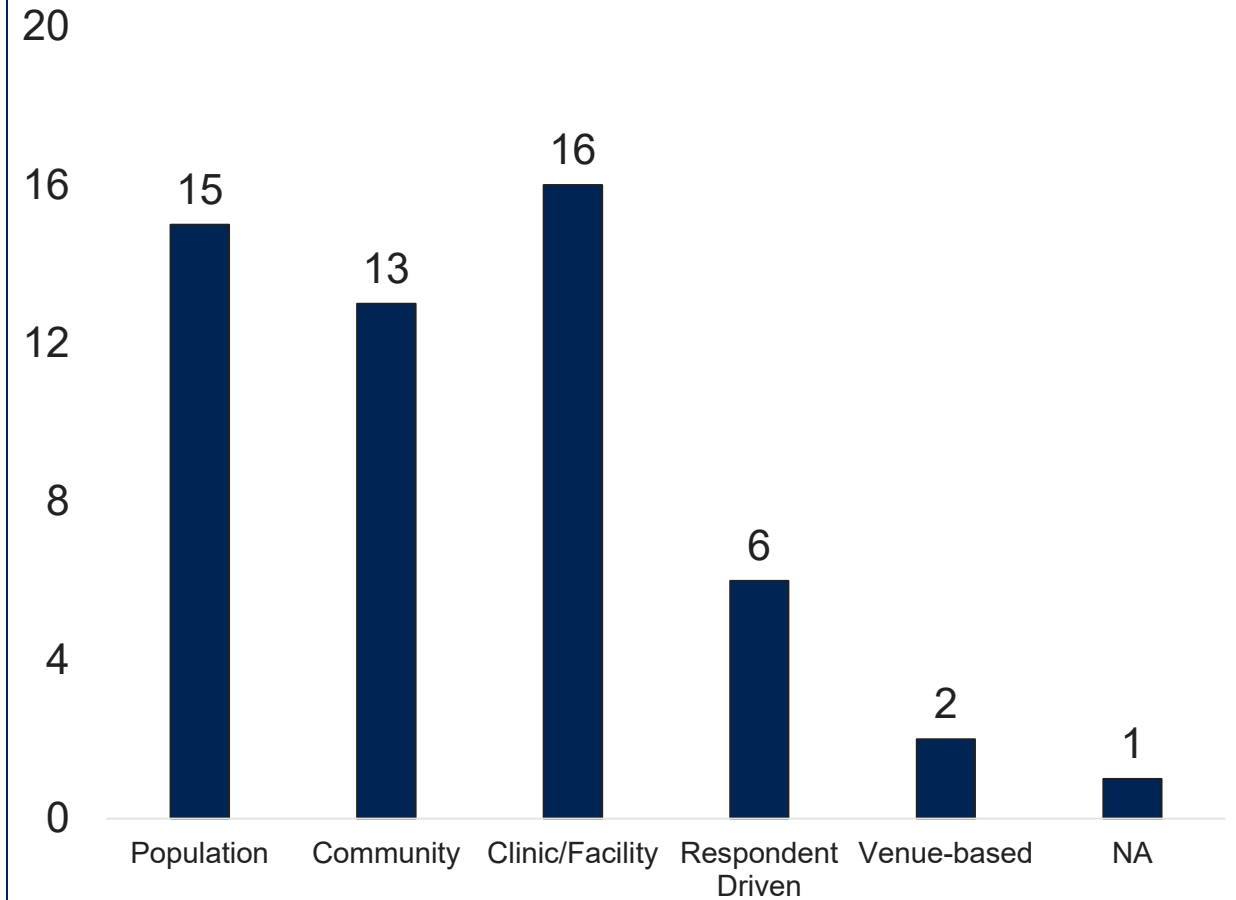
Country	Number of Studies
Uganda	12
South Africa	12
Malawi	8
Zambia	6
Kenya	4
Lesotho	4
Tanzania	3
Nigeria	2
Swaziland	2
Zimbabwe	2
Botswana	1
Rwanda	1
Cameroon	1
Mozambique	1
Kenya	1
Namibia	1
Senegal	1

Diverse Study Designs and Sampling Methods

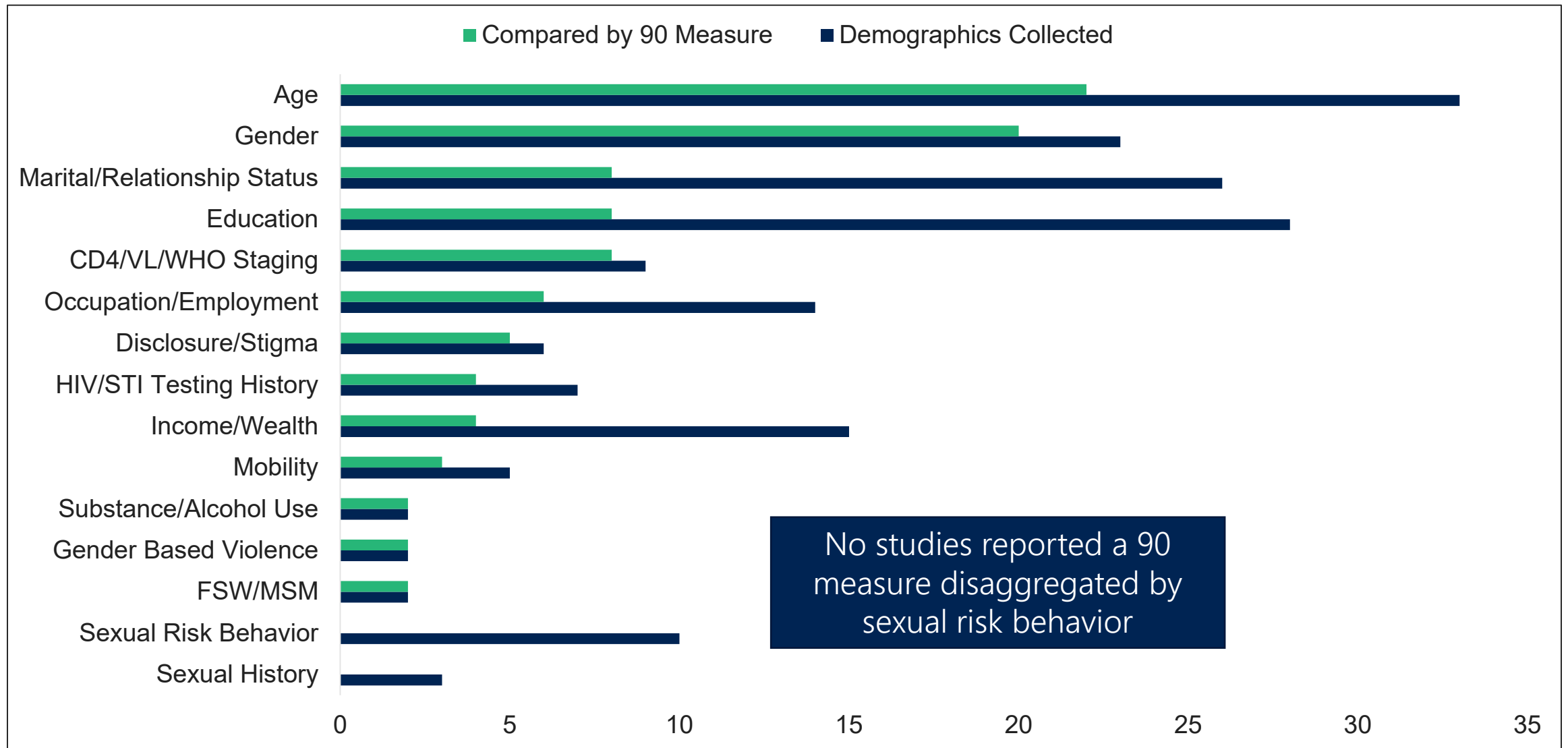
Study Designs



Sampling Methods



More Potential for Assessment of Risk-Heterogeneity





SCIENTIFIC REPORTS

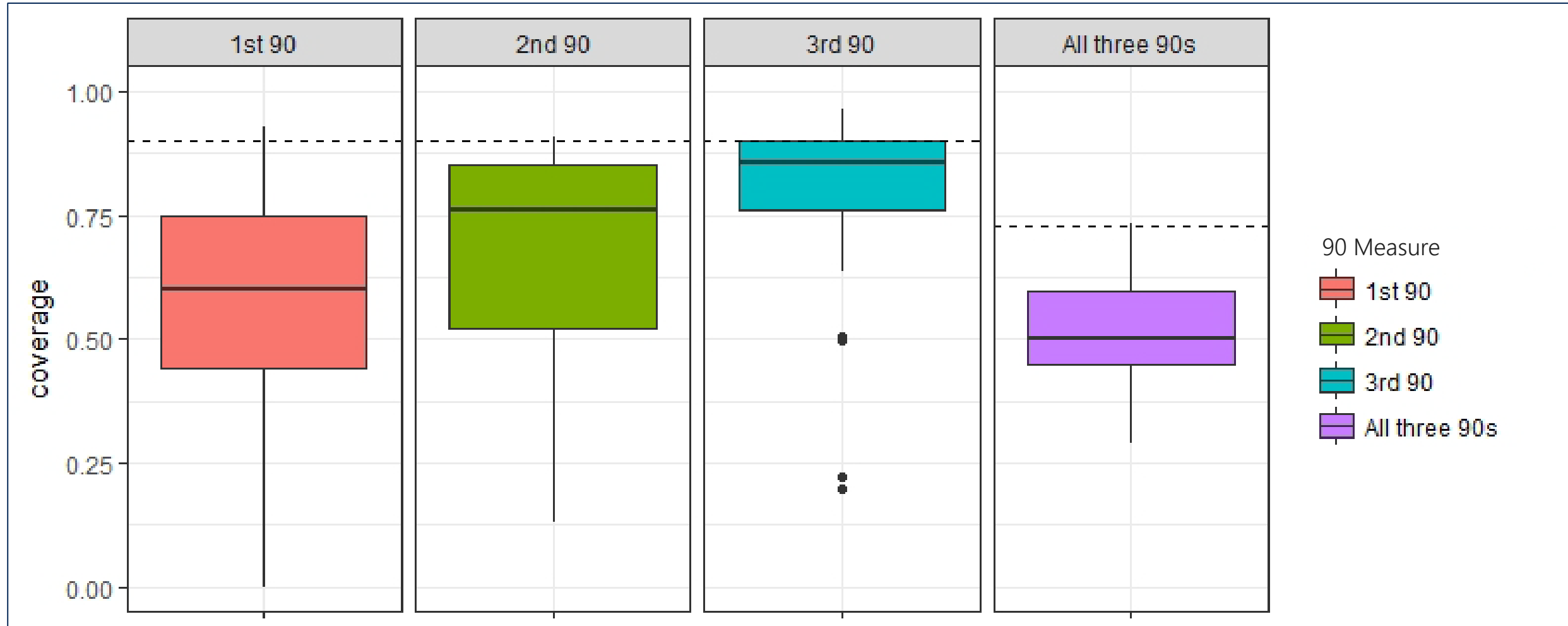


OPEN

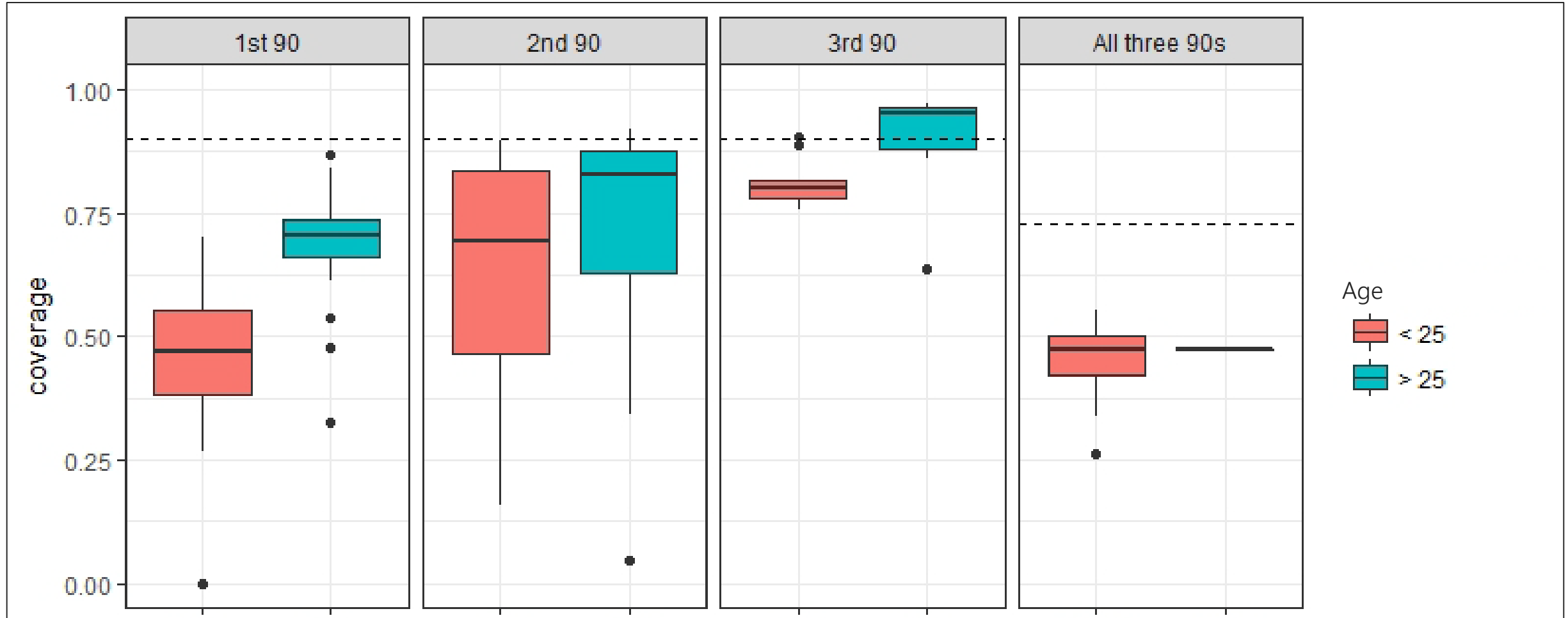
Higher risk sexual behaviour is associated with unawareness of HIV-positivity and lack of viral suppression – implications for Treatment as Prevention

Helena Huerga¹, Emilie Venables ^{2,3}, Jihane Ben-Farhat¹, Gilles van Cutsem^{2,4}, Tom Ellman² & Chris Kenyon ^{5,6}

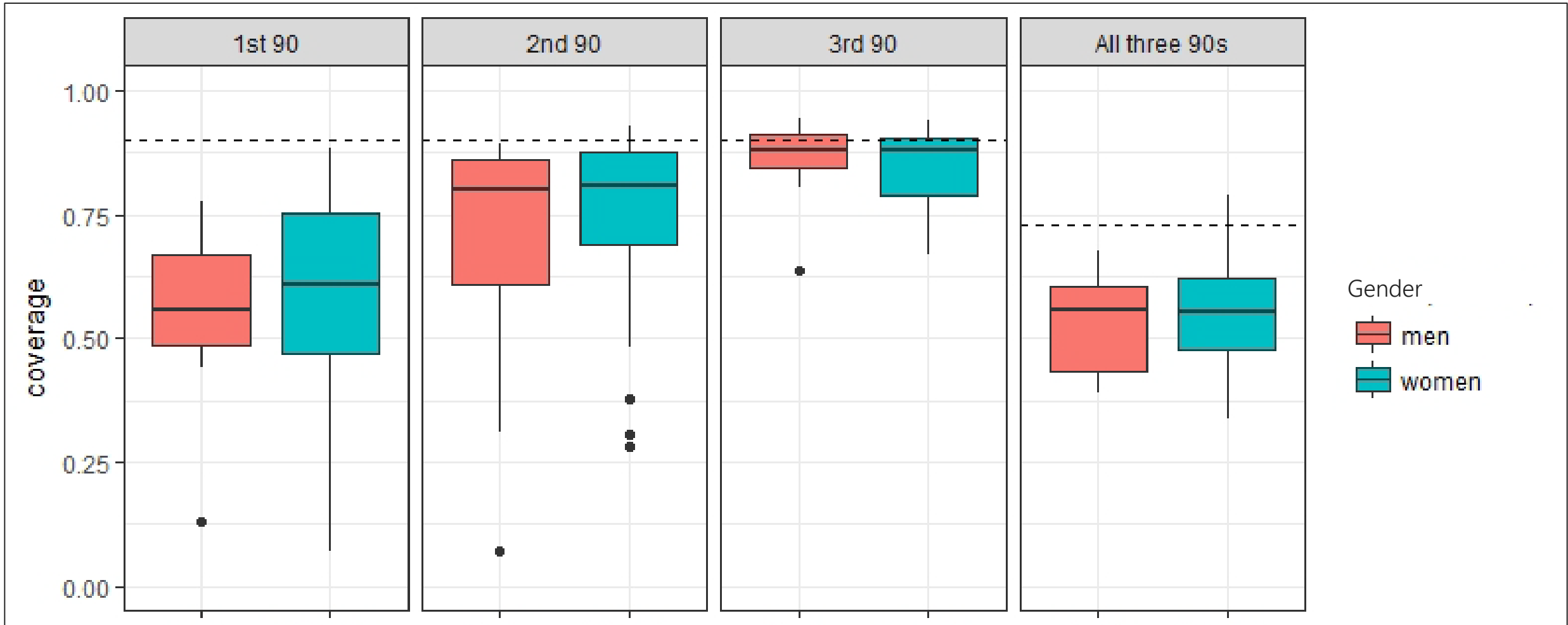
Substantial Variation in Study Estimates



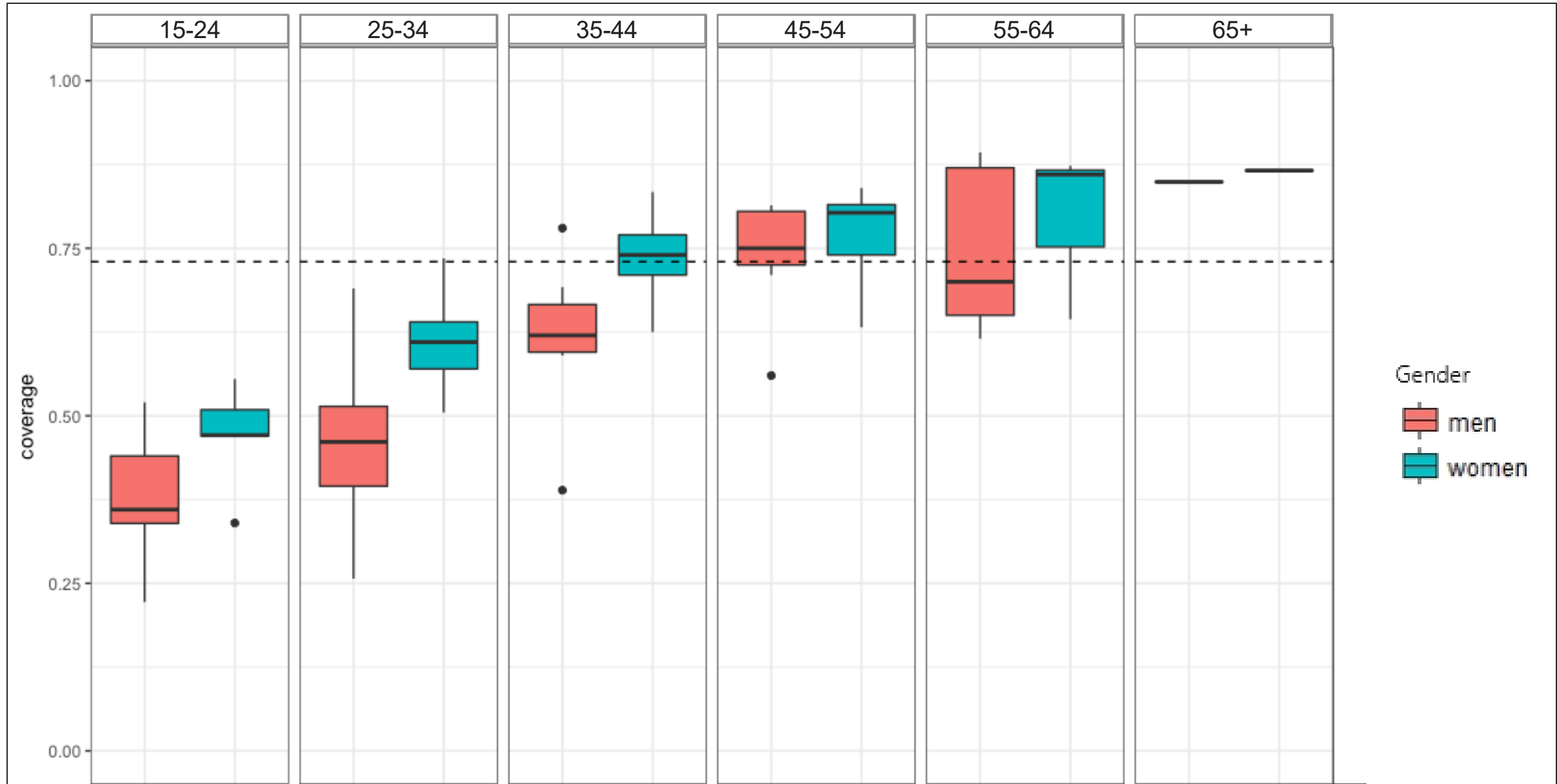
90-90-90 by Age



90-90-90 by Gender



PHIA Viral Suppression by Age and Gender

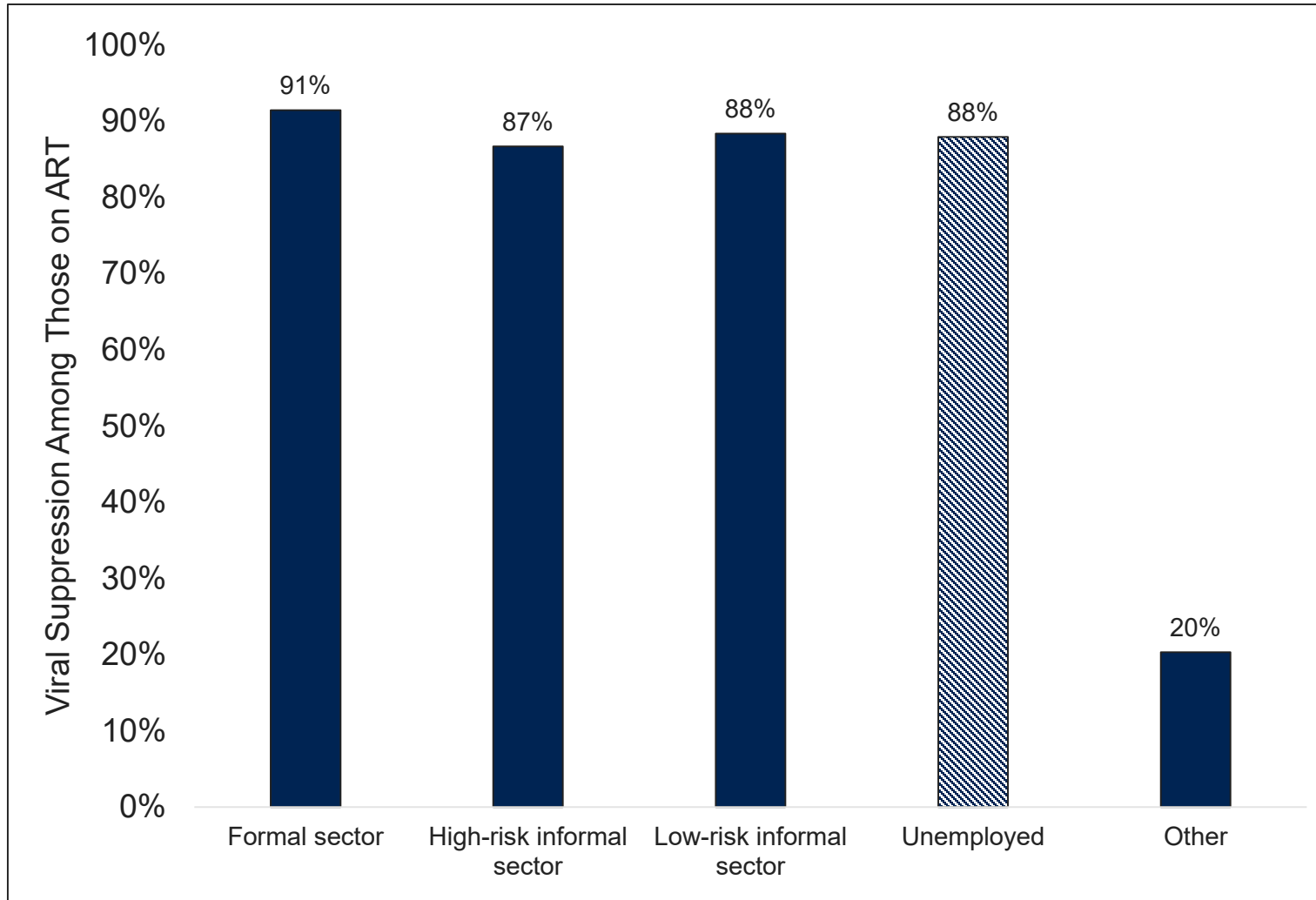


Are Mobile Populations Less Likely to be Suppressed?

Study	Country(s)	Mobility Definition	Ref. Group	Assoc. with Viral Suppression
SEARCH	Kenya, Uganda	>1 mo. away	<1 mo. away	RD: -2.6% (n.s.)
HIPSS	South Africa	>1 mo. away	<1 mo. away	OR: 0.77 (n.s.)
BCPP	Botswana	>3 mo. away	No time away	PR: 0.78

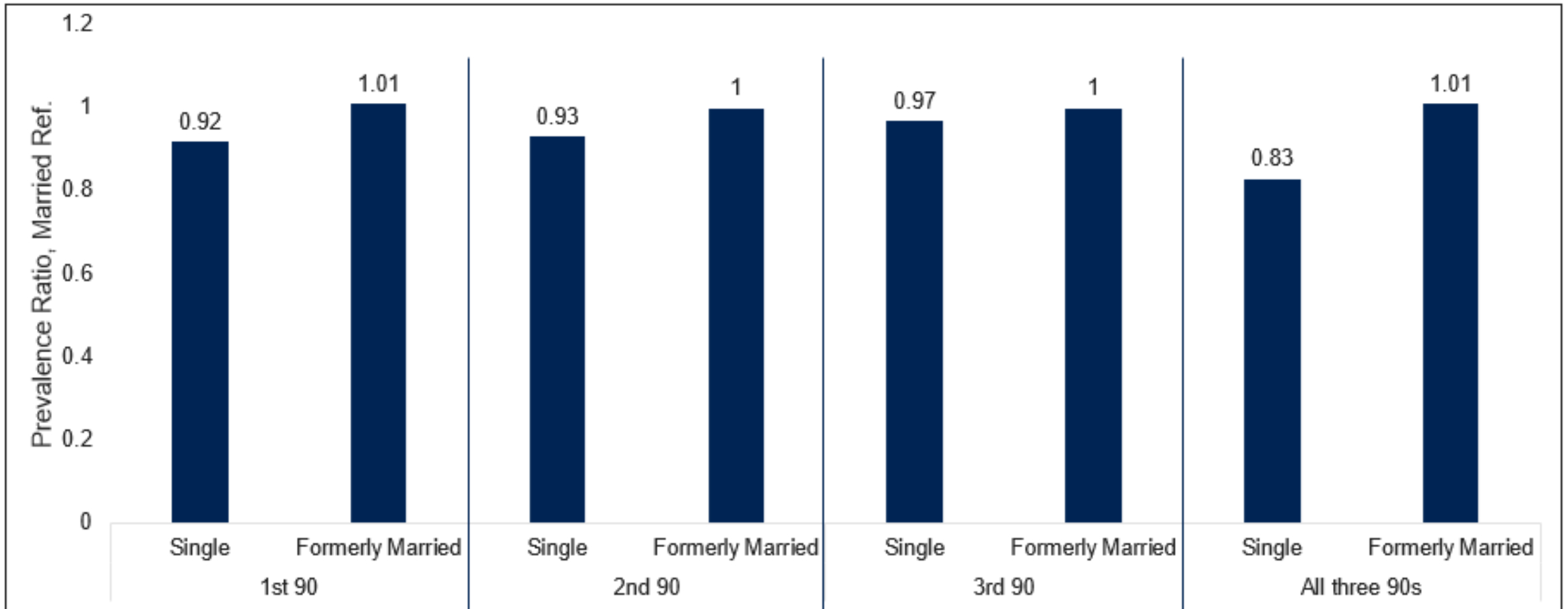
- Limited published assessment, and mixed results for association of mobility with viral suppression
- Unbiased measure of association inherently challenging, even in population-based studies
- True effect and magnitude of mobility may differ by setting

Heterogeneity by Employment in Kenya & Uganda



- Similar suppression among employed and unemployed
- Are employment categories useful for assessing viral suppression?
 - Ex. “Other”
- Need for assessment by gender and age?

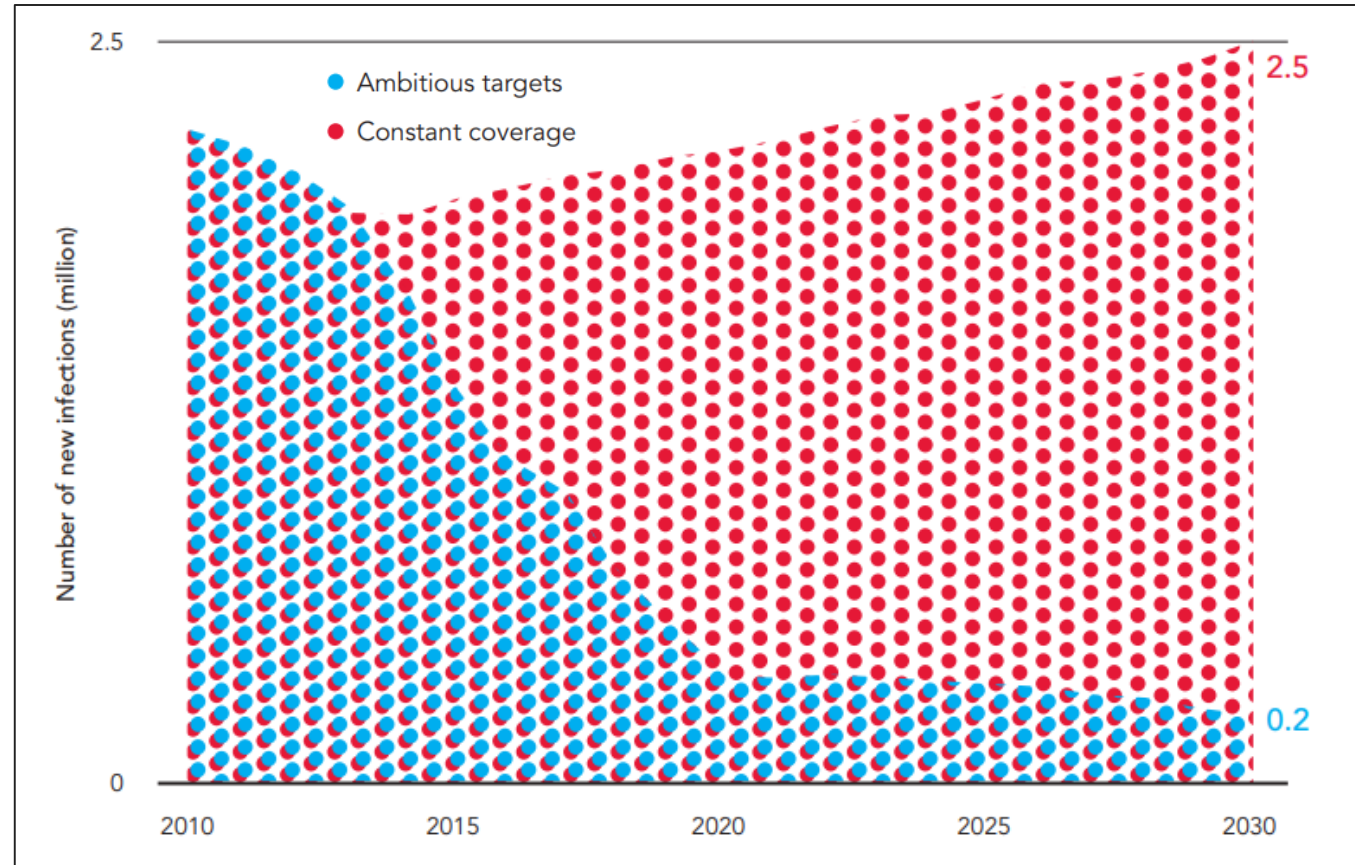
Heterogeneity and Relationship Status in Botswana



- Single persons may have lower prevalence of 90 achievement
- Gender and age likely critical for stratified analysis

Understanding Risk-Heterogeneity of 90-90-90 is Critical

- Suggestion of age and sex heterogeneity
 - Other demographic strata are more complex
- Much more to be learned especially by risk behavior
- Profile of the unsuppressed has programme, policy, and planning implications



Acknowledgements

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