The CQUIN Learning Network

Annual Meeting

DSD Research Priorities

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Georgetown University Center for Global Health and Quality

February 13-15
Maputo, Mozambique

HIV LEARNING NETWORK
The CQUIN Project for Differentiated Service Delivery

ICAP
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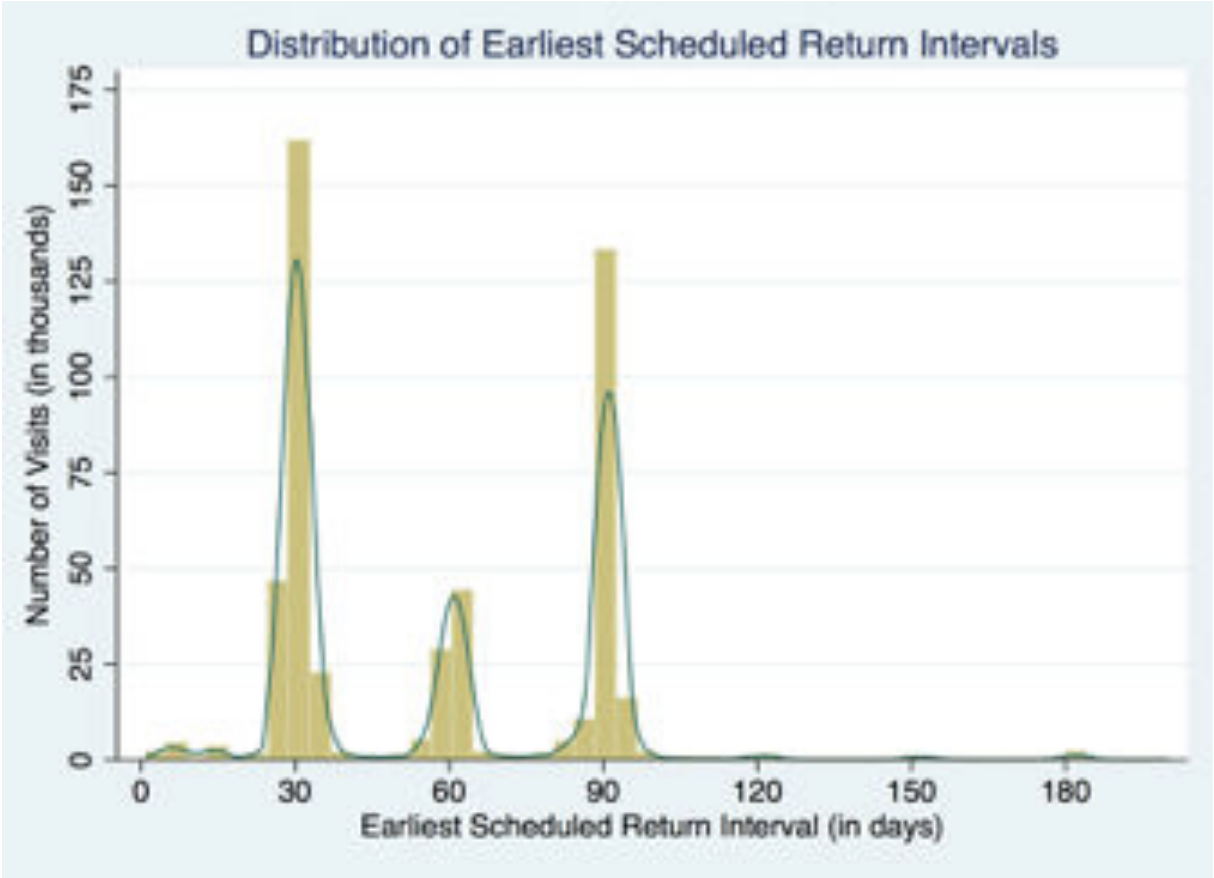
Columbia University
Mailman School of Public Health

What are some priorities for differentiated service delivery implementation research?

1. Visit spacing
2. Ensuring an accurate understanding of underlying program outcomes for assessment DSD effectiveness
3. Effective model selection/deployment
4. Patient experience to drive demand for differentiated/better care
5. Special patient populations
6. The science of differentiated care scale-up

2. Visit spacing

- The standard of care in most settings: frequent visits to clinic/ pharmacy
    - Is the standard of care making people non-adherent to visits?
- Spacing of visits is arguably the simplest form of differentiated care
- Yet, it is under-implemented in most settings..



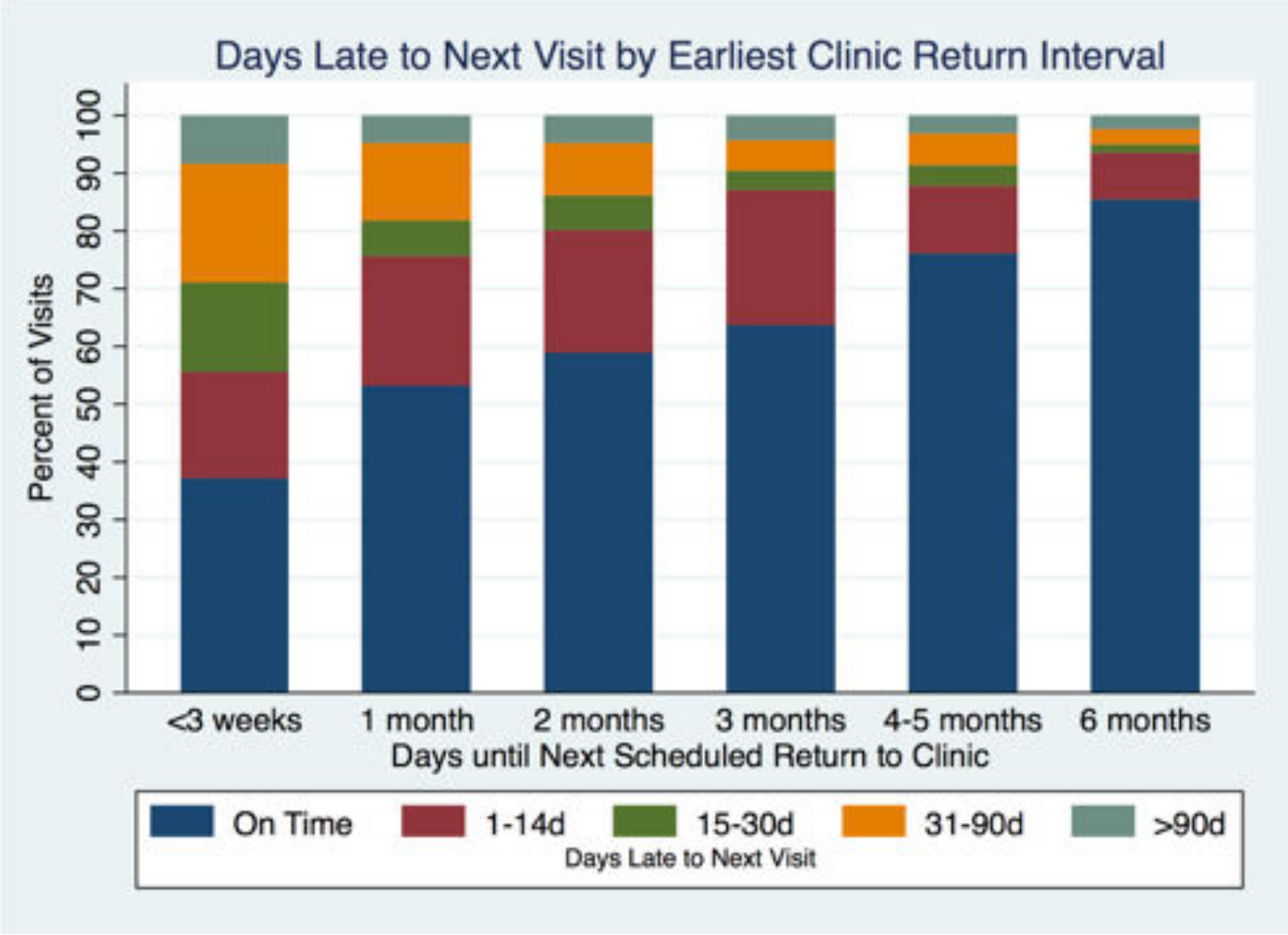
Mody et al, CID 2017

Cohort study of visit spacing in Zambia

Stable HIV-infected patients on ART (On ART>180 days, CD4>200 cells/µL for 6 months, No TB diagnosis in past 6 months)

Patients whose earliest scheduled return to clinic was at 6 months were less likely to:

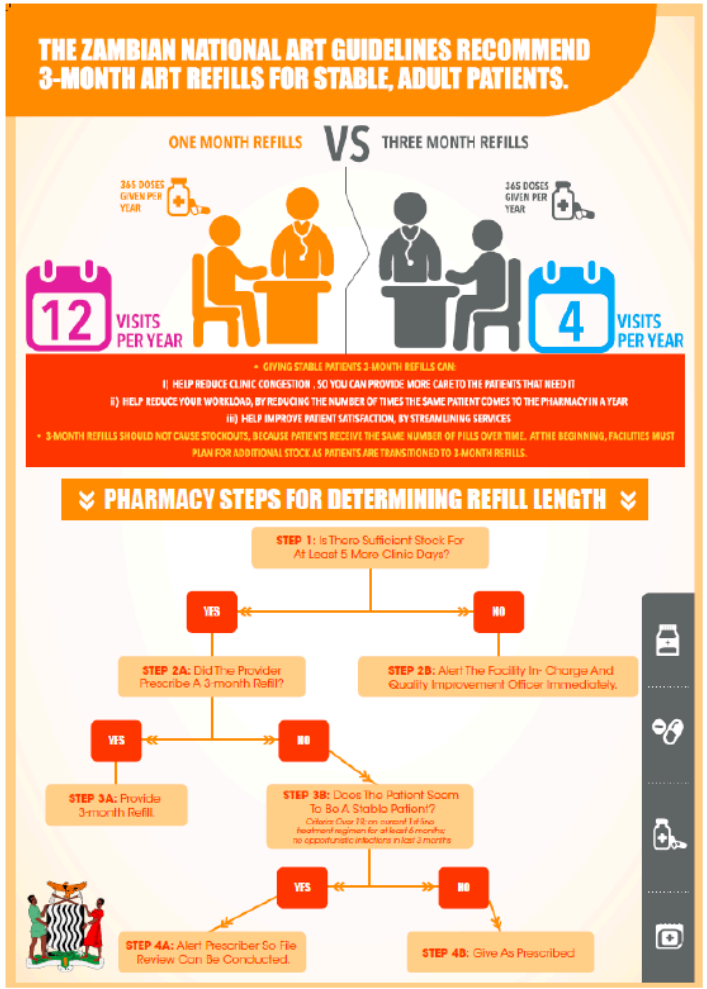
- miss their next visit (aOR 0.23)
- have a gap in medication (aOR 0.50)
- become LTFU by their next visit (aOR 0.48) compared to those scheduled to return at 1 month.



Mody et al, CID 2017

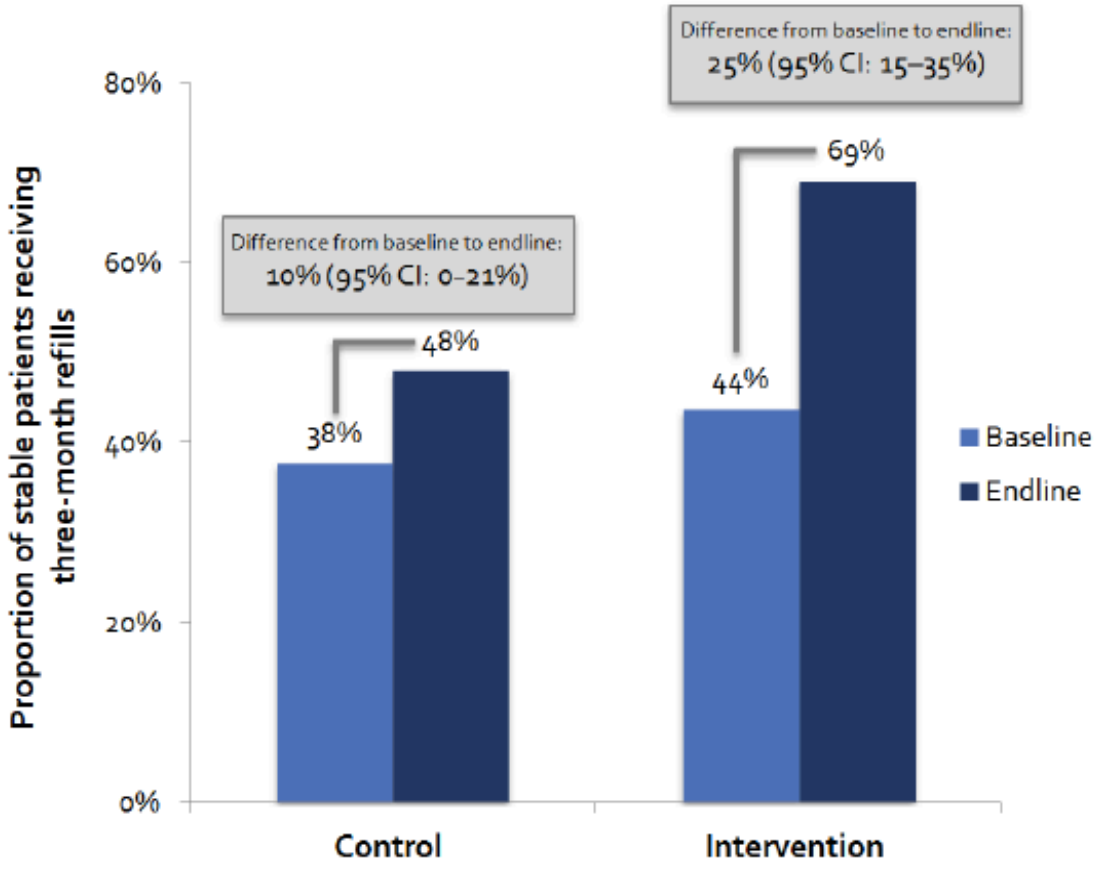
Cluster RCT of Visit Spacing- Zambia MOH/ CHAI

- 16 facilities- control vs intervention
- Intervention: Pharmacist job aide, QI officer, checklists, troubleshooting, forecasting tool (control too)
- Primary outcome: mean change in the proportion of patients receiving three-month refills between baseline and end-line for each facility
- 3-month follow-up

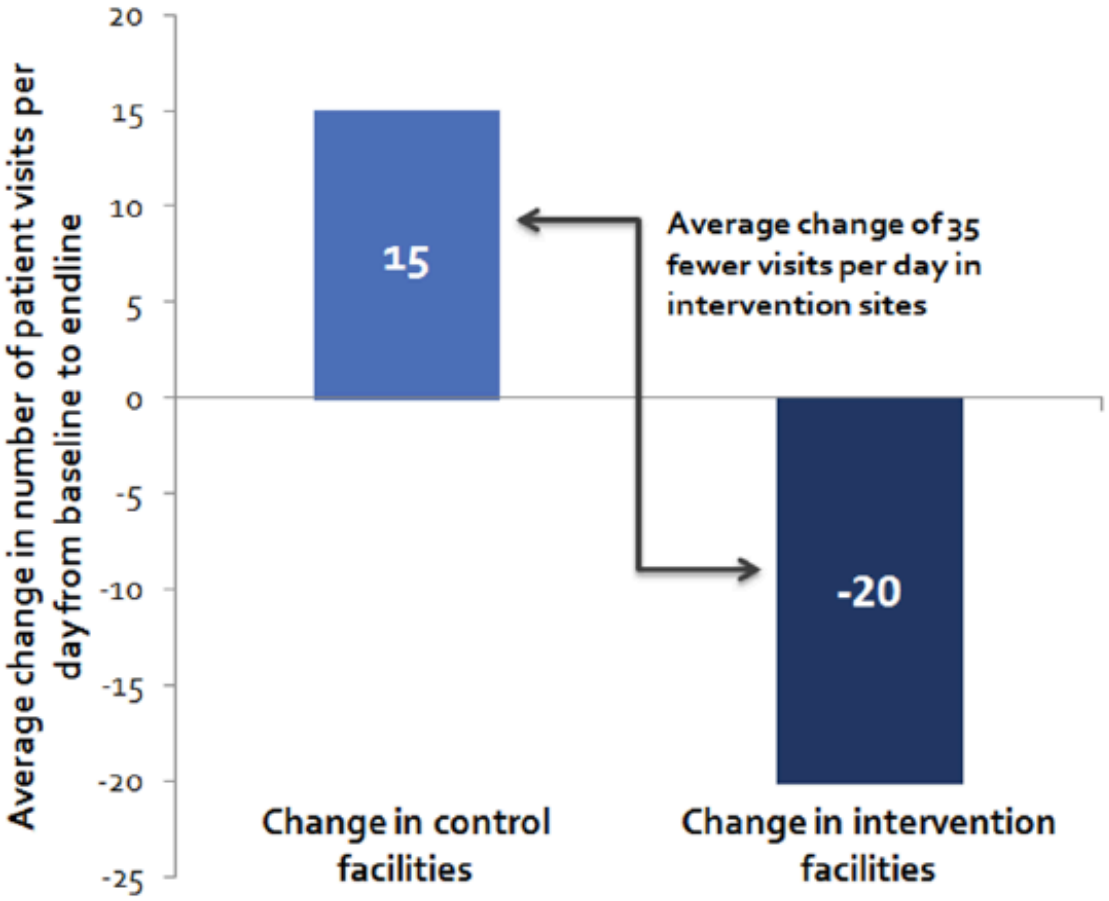


McCarthy, et al, 2017 PLOS One

Proportion of patients receiving 3-month refills



Average change in visits per day/site



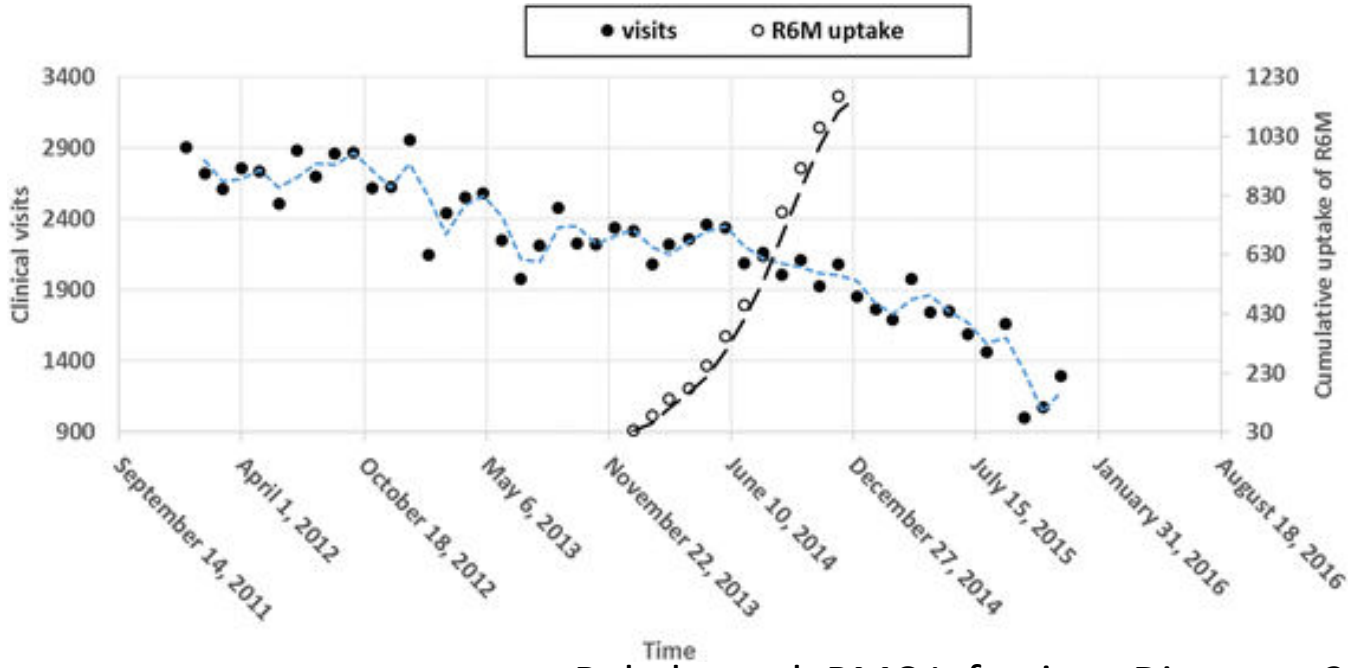
McCarthy, et al, 2017 PLOS One

RESEARCH ARTICLE Open Access

Six-monthly appointment spacing for clinical visits as a model for retention in HIV Care in Conakry-Guinea: a cohort study

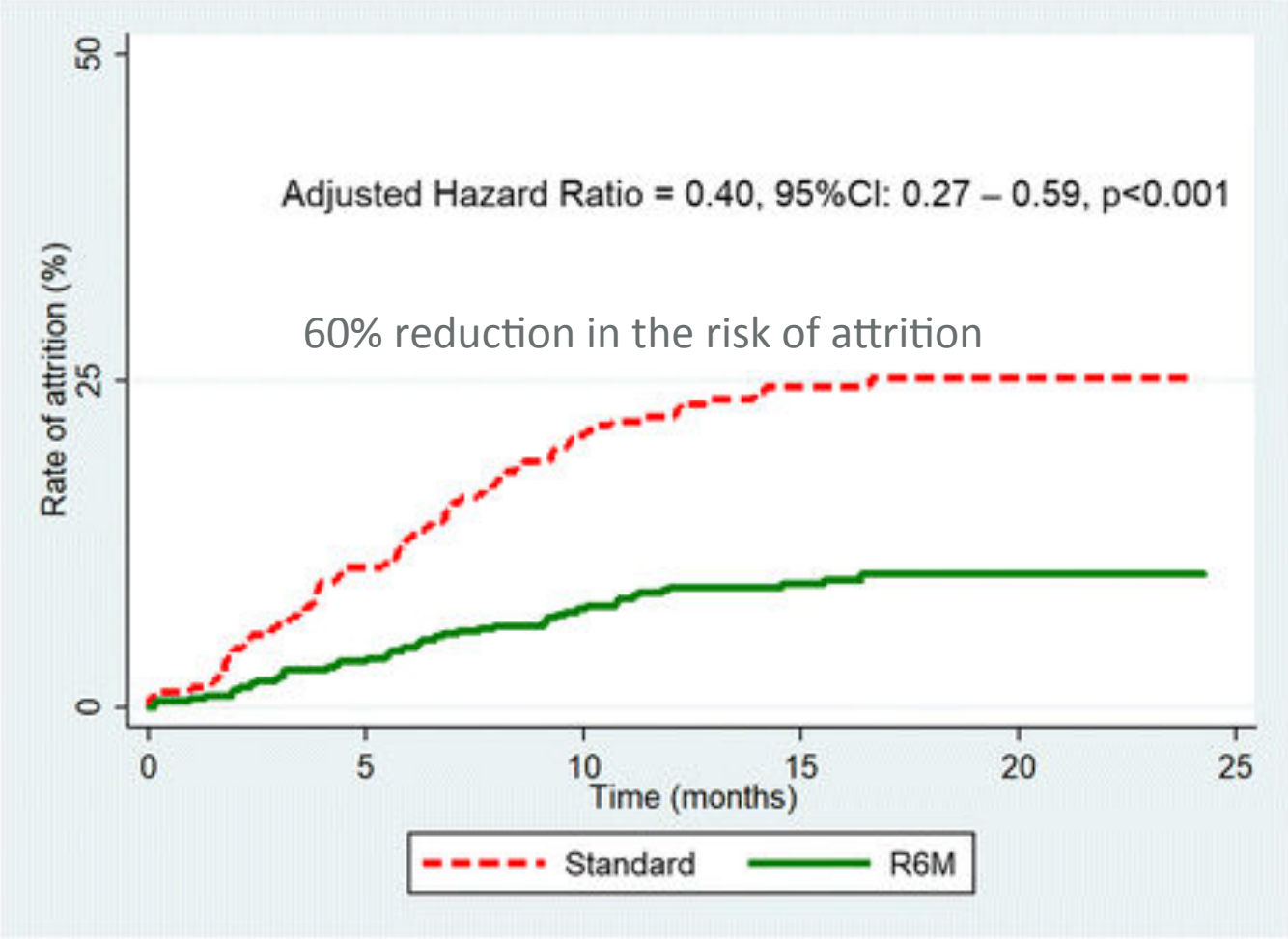
Cavin Epie Bekolo[1*], Abdourahimi Diallo[1], Mit Philips[2], Joseph-Desire Yuma[1], Letizia Di Stefano[1], Stéphanie Drèze[1], Jerome Mouton[1], Youssouf Koita[3] and Ousseni W. Tiomtore[4]

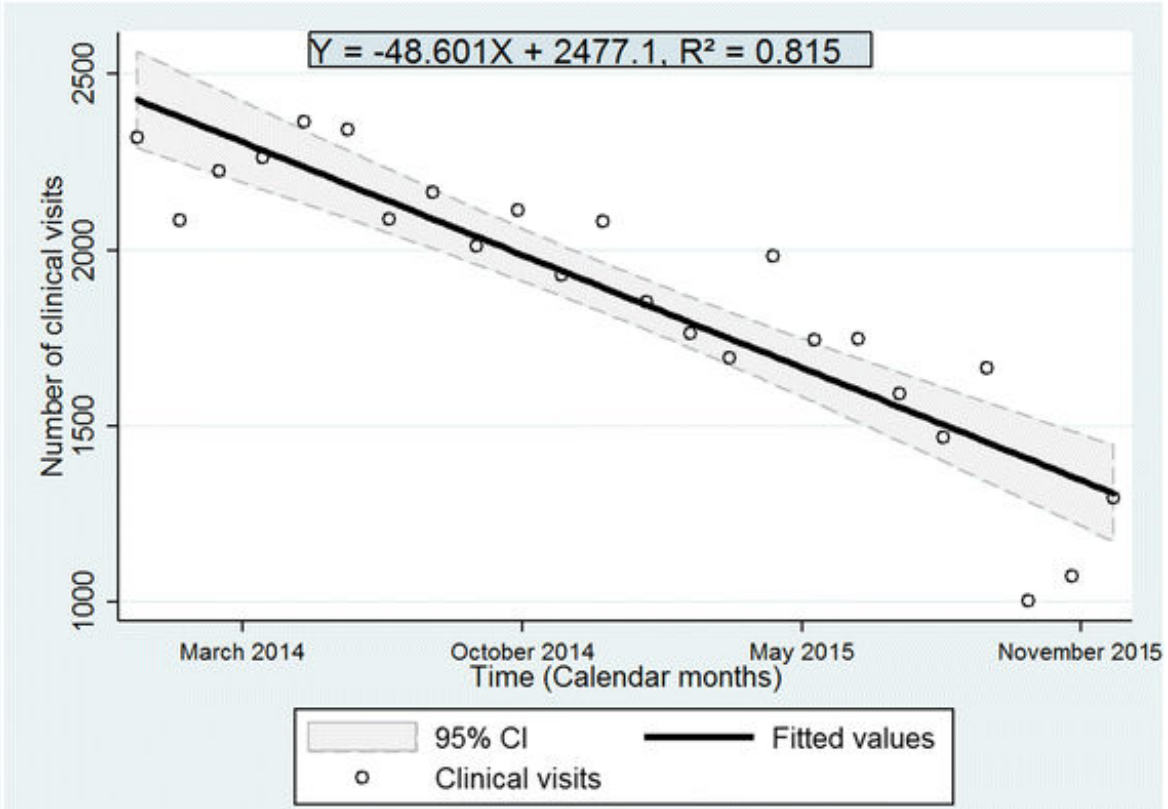
- In the setting of Ebola outbreak in 2015 in Guinea
- 1,957 adults aged 15 + stable on treatment
  - 1,166 opted into in R6M- six-monthly clinical visits with 3-month refills (~MSF Chiradzulu model)
  - 791 in standard of care



Bekolo et al, BMC Infectious Diseases, 2017

Attrition and health systems caseload





Implementation of R6M was linked to a reduction in caseload by about half over a 24-month period at a rate of 50 clinical visits per month on average

Bekolo et al, BMC Infectious Diseases, 2017

2. Visit spacing summary

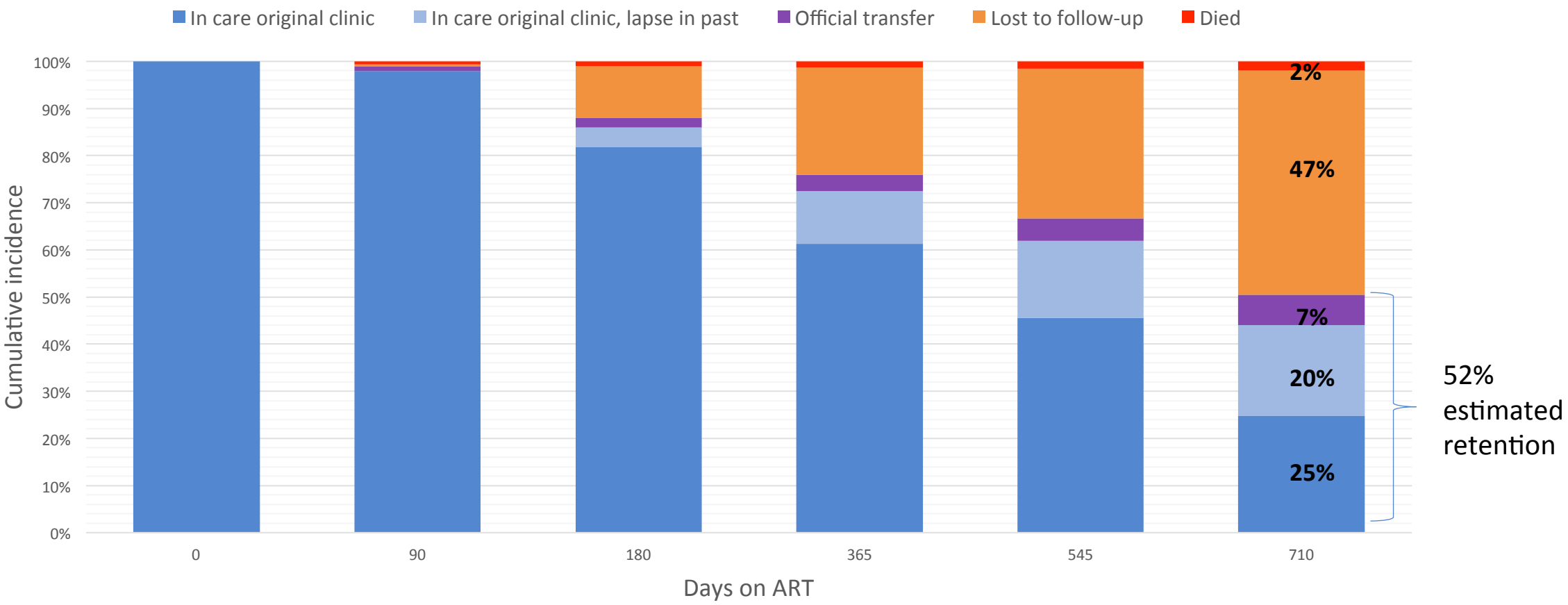
- These studies suggest the feasibility and likely effectiveness of 3-6 month appointments/refills
  - Further supported indirectly through CAGs, which facilitate individuals being seen clinically only every 6 months
- Also suggest that visit-spacing may require additional strategies in order to promote its uptake and maintenance among providers
- Where do we go from here?

2. Visit spacing research agenda

- What are the most effective quality-improvement approaches to drive and sustain the shift to 3-6 month visits/refills?
  - Strategy studies nested in broader scale-up? What elements are most important and linked to the best outcomes?
- How can lab performance (e.g., VL) be streamlined/aligned with visits in a way that does not defeat gains made through visit spacing?
- Any qualitative evidence of disconnection to health facility/ adherence support?
  - How can technology be employed to address this? 2-way SMS?

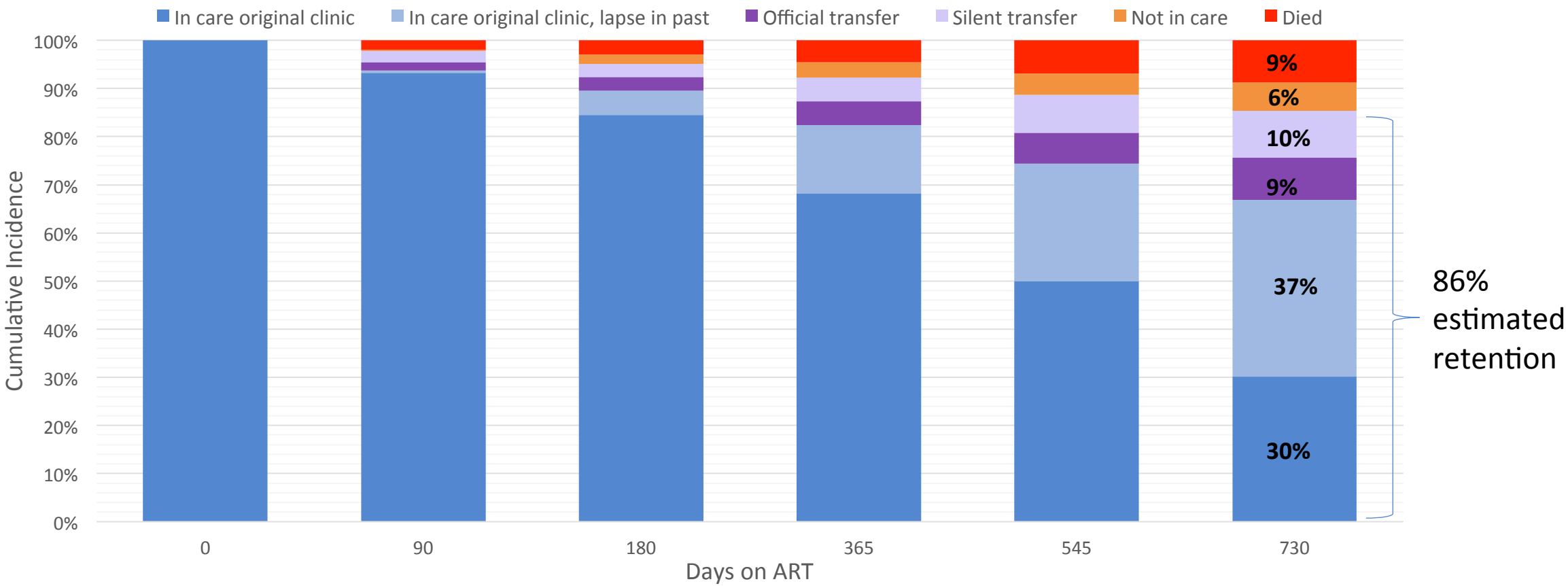
2. Ensuring an accurate understanding of outcomes

Cascade of care among ART initiators without sampling based approach (naïve estimates)



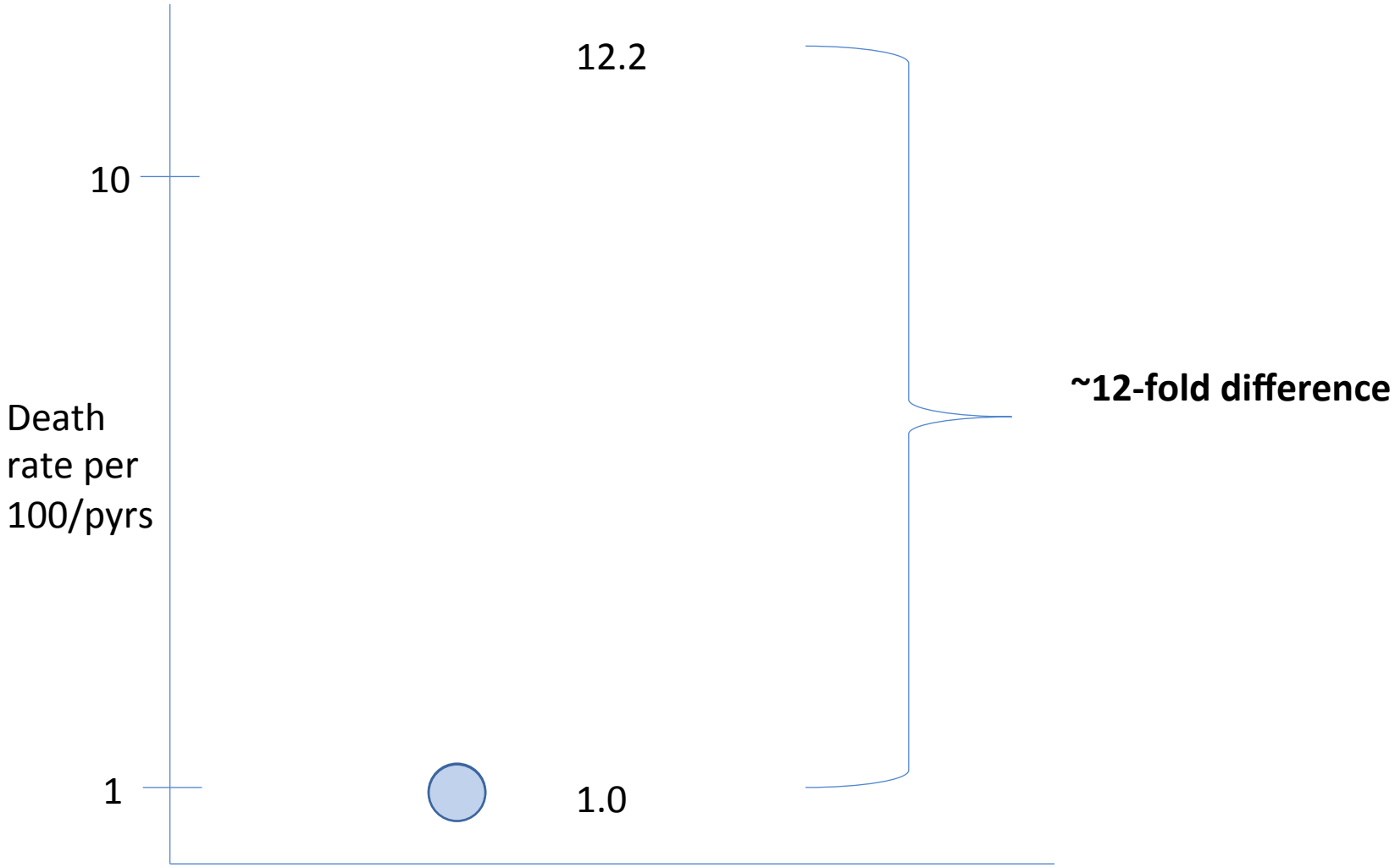
CROI abstract 995, 2017

Cascade of care among ART initiators using data from sampling (revised estimates)

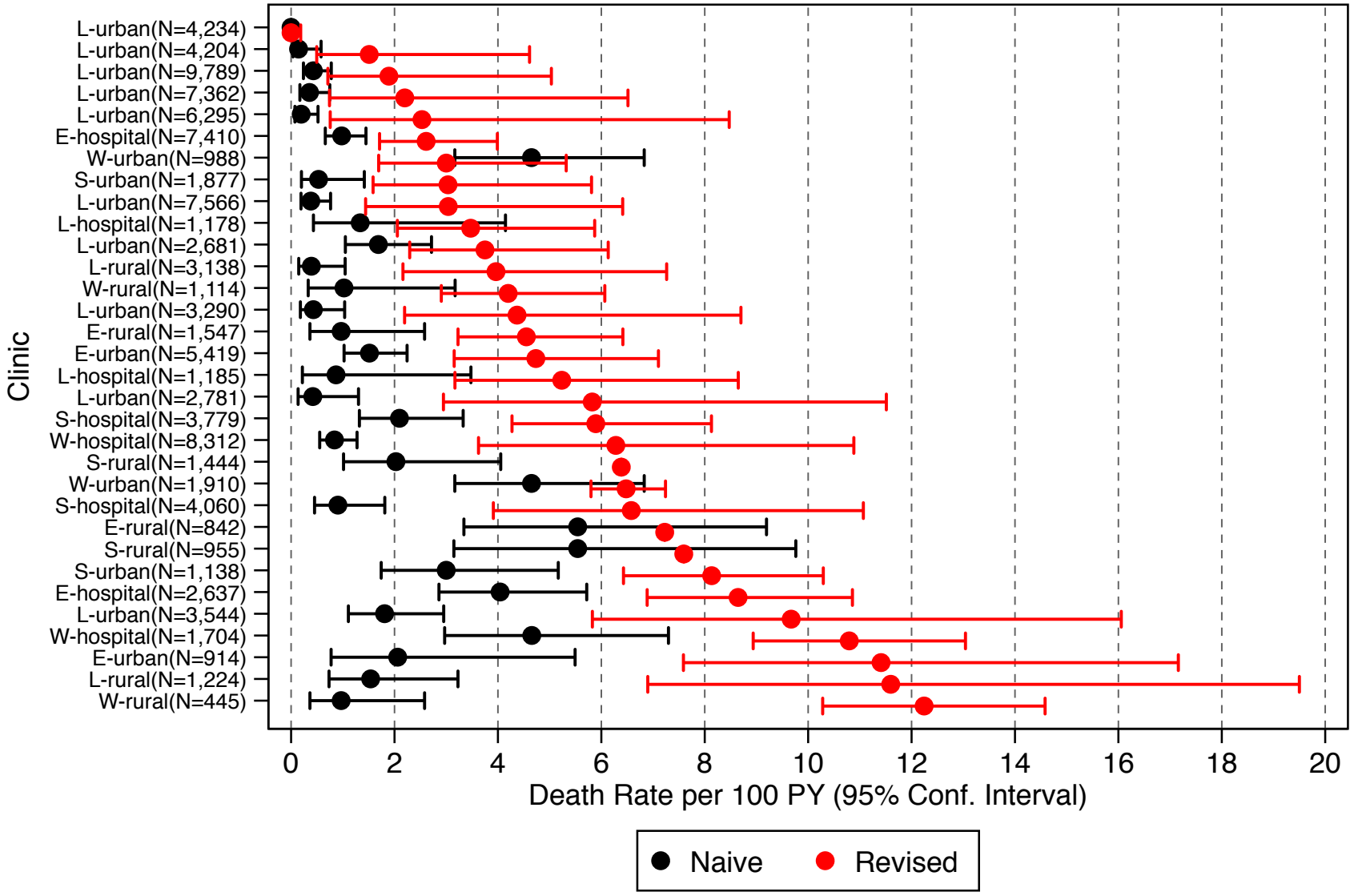


CROI abstract 995, 2017

Death rate among people starting HIV treatment



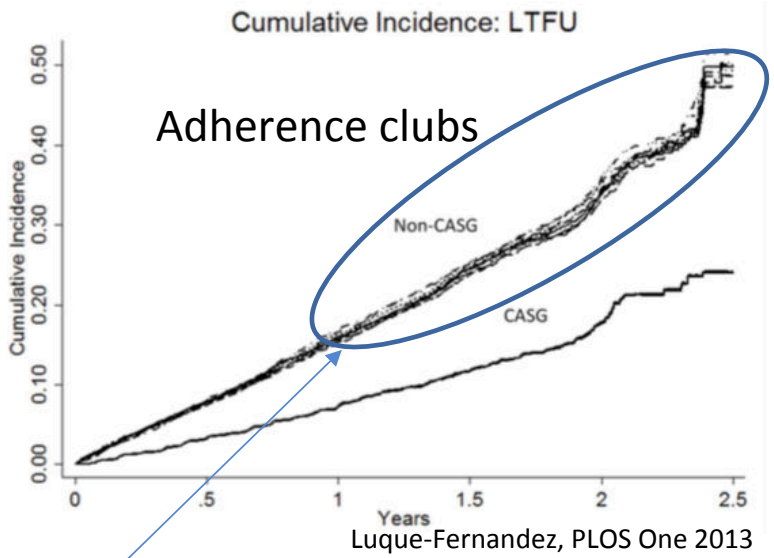
Naïve and revised mortality estimates, by clinic, for individuals initiating ART



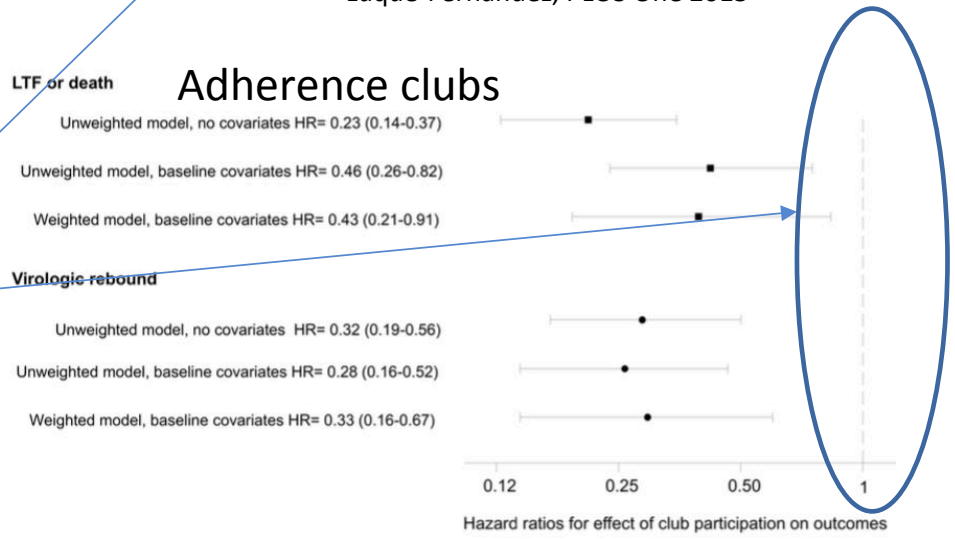
PLOS Medicine 2018

3. Effective selection/deployment of differentiated care models

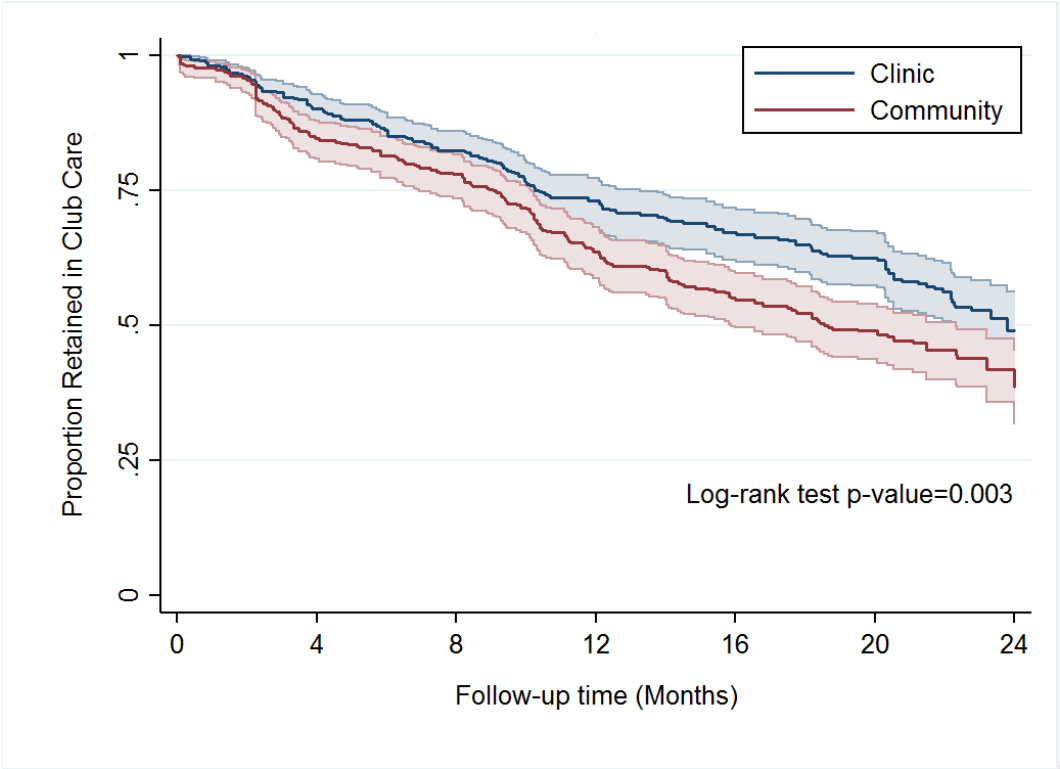
- We have multiple models that have proven effective in add'n to visit spacing
- CAGS: 91.8% retention at 4 years in Mozambique (Decroo, 2014)
- ART adherence clubs: 94% retention at 1 year
- What about those that don't opt-in for whatever reason?

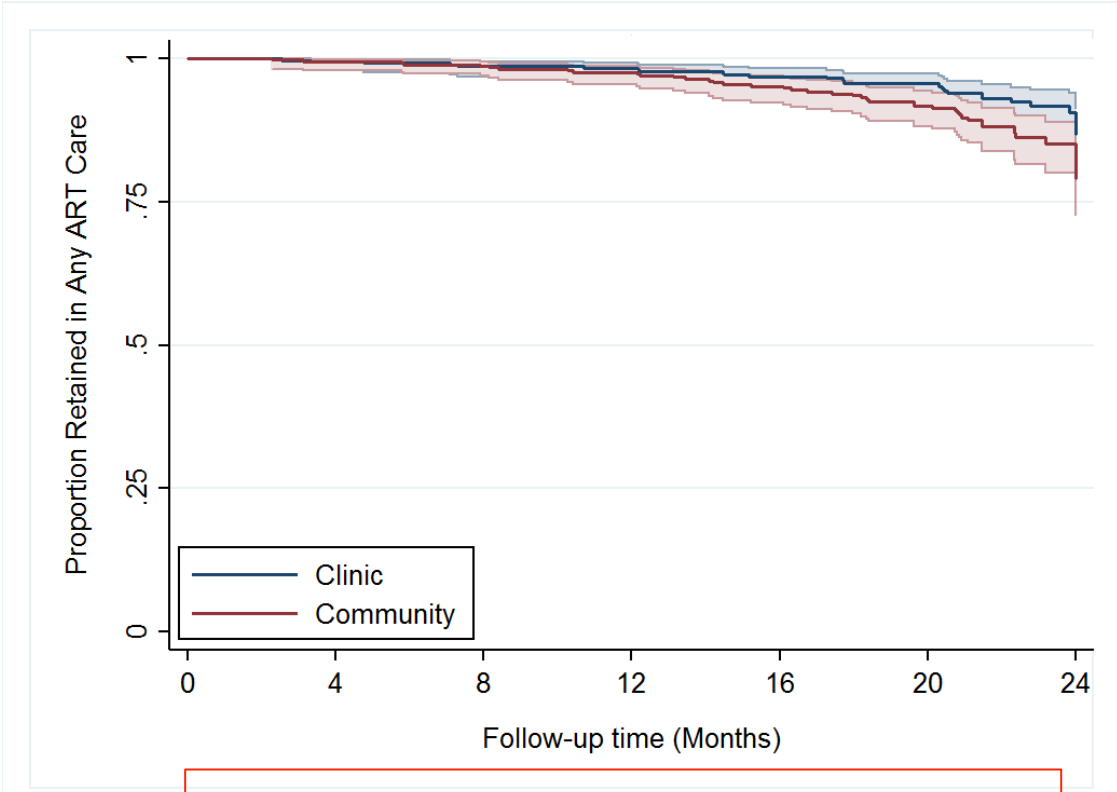


Luque-Fernandez, PLOS One 2013



RCT of ART clubs (clinic vs community-based) in South Africa: Retention in Club-based Care





24 month proportion retained in club care and virally suppressed:

Clinic: 57% (95% CI: 52-62%)

Community: 48% (95% CI: 43-53%)

24 month proportion retained in Any ART care and virally suppressed:

Clinic: 93% (951% CI: 90-95%)

Community: 88% (95% CI: 84-91%)

Hanrahan, IAS 2017

3. Effective selection/deployment of differentiated care models

- How well are we adapting/differentiating care based on evidence of the most influential barriers?
- What if we explicitly took into account patient barriers when deciding what models would be most effective at the individual or site level?

PLoS Med. 2016 Nov; 13(11): e1002183. PMCID: PMC5127502
Published online 2016 Nov 29. doi: 10.1371/journal.pmed.1002183

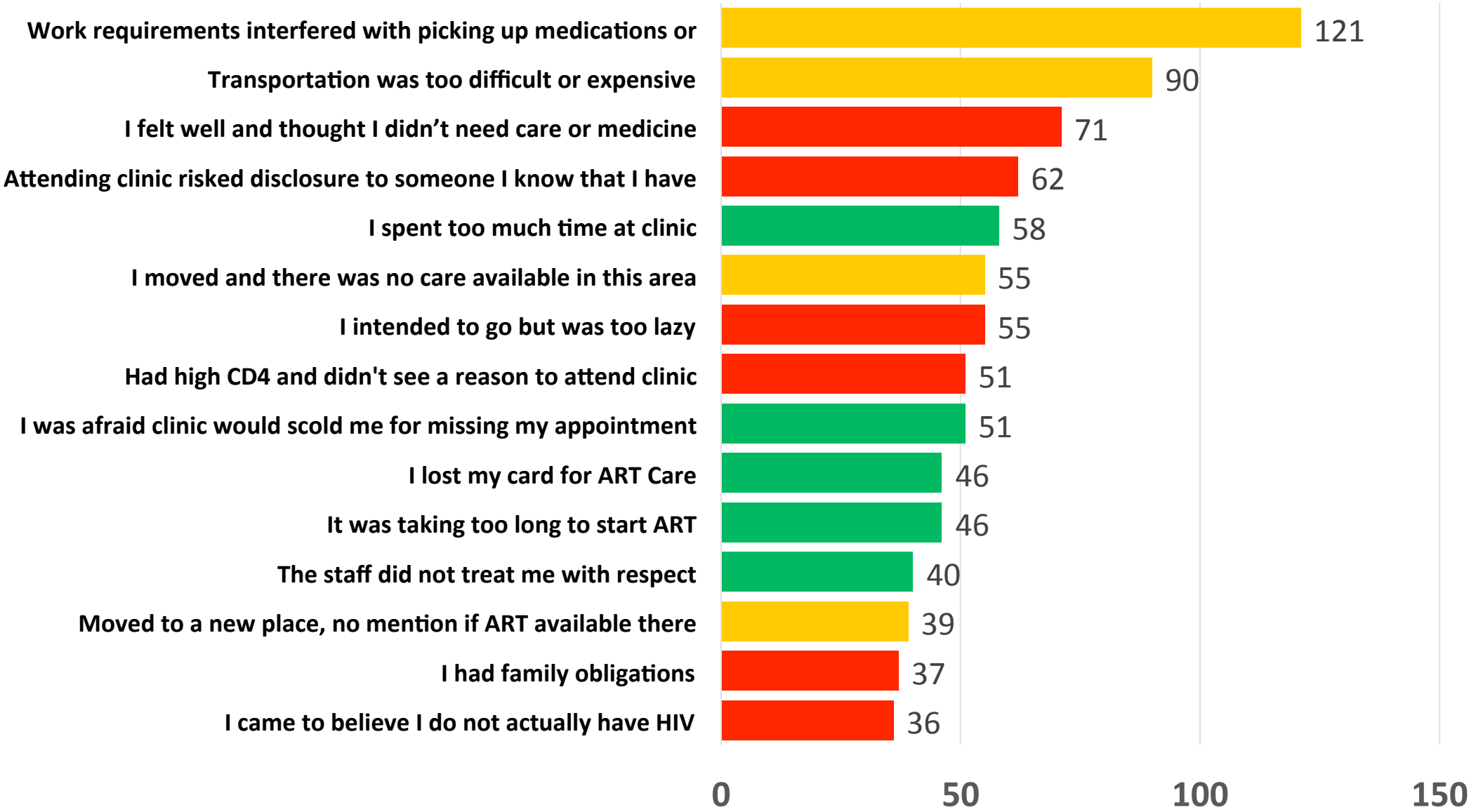
Patient-Reported Barriers to Adherence to Antiretroviral Therapy: A Systematic Review and Meta-Analysis

Zara Shubber,[1] Edward J. Mills,[2] Jean B. Nachega,[3,4,5] Rachel Vreeman,[6,7] Marcelo Freitas,[8] Peter Bock,[9] Sabin Nsanzimana,[10,11] Martina Penazzato,[12] Tsitsi Appolo,[13] Meg Doherty,[12] and Nathan Ford[12,14,*]

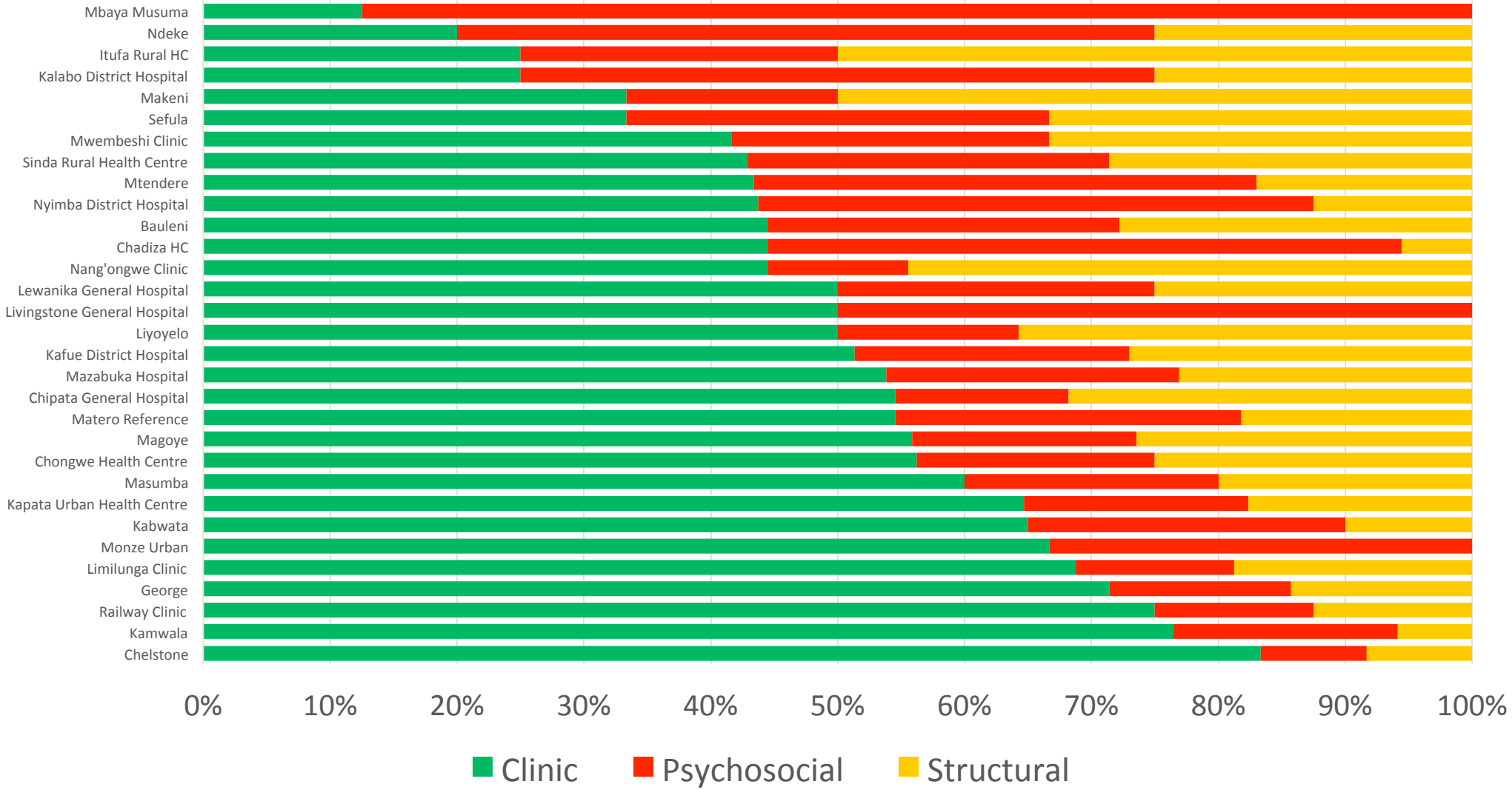
Barriers to Care and 1-Year Mortality Among Newly Diagnosed HIV-Infected People in Durban, South Africa

Ingrid V. Bassett, MD, MPH,†‡§‖ Sharon M. Coleman, MS, MPH,¶ Janet Giddy, MBChB, MFamMed,#*
*Laura M. Bogart, PhD,§‖**†† Christine E. Chaisson, MPH,¶ Douglas Ross, MBChB, MBA,‡‡*
Moses J. E. Flash, BA,‡ Tessa Govender, MSc,# Rochelle P. Walensky, MD, MPH,†‡§‖§§*
Kenneth A. Freedberg, MD, MSc,†‡§‖‖‖¶¶ and Elena Losina, PhD‡§‖‖‖##****

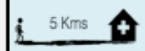
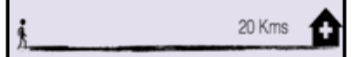
Most common patient-reported reasons for stopping



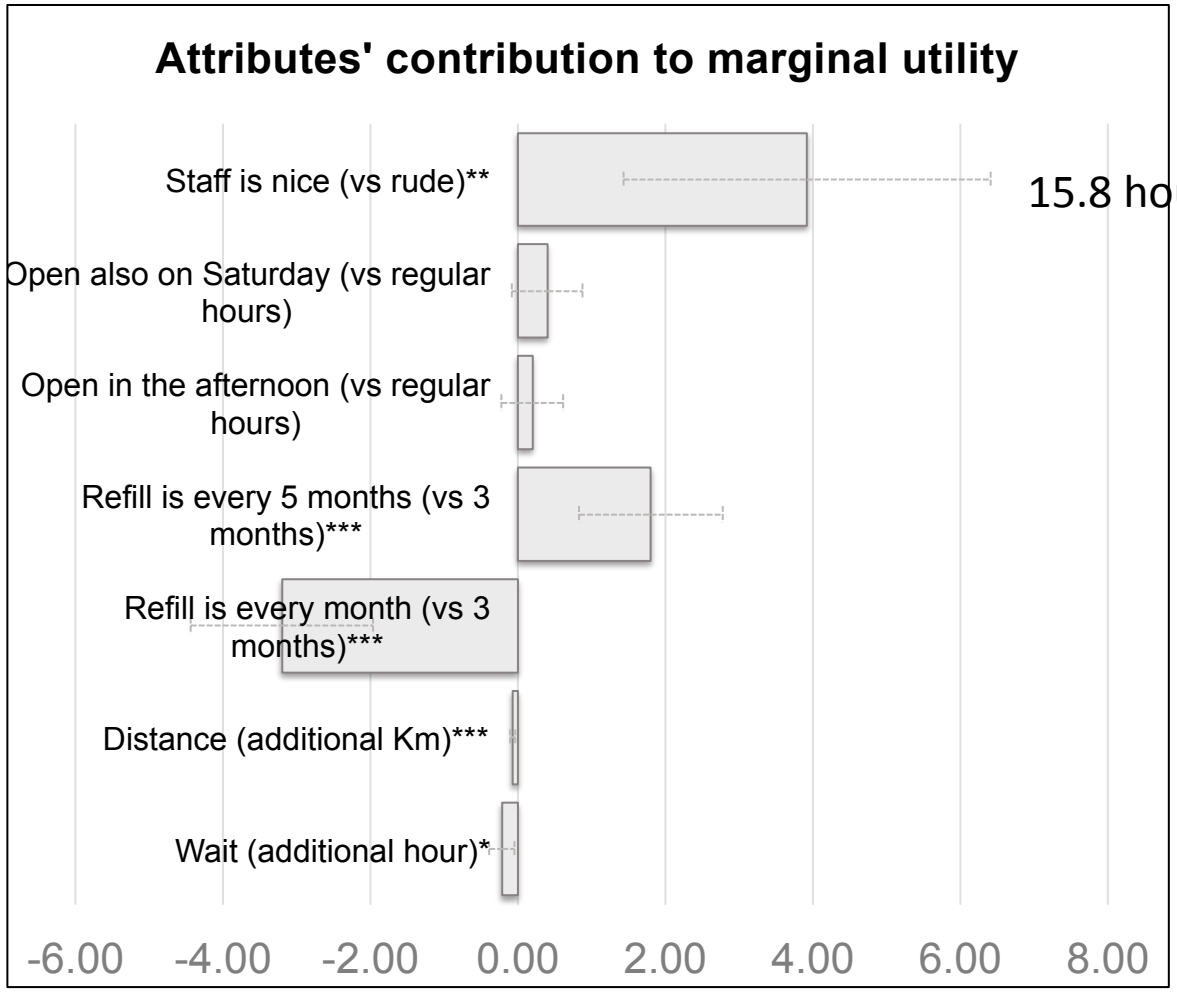
Change required to return to clinic



Discrete Choice Experiments: “Do you prefer going to Clinic A, Clinic B, or would you rather not go to either one, given the circumstances?

	Clinic A	Clinic B
Total time you spend at the facility at each visit	1 hour 	3 hours 
Distance to the facility	< 5 Kms 	20 Kms 
Months of supply of ARV you are given at each visit	1 month 	3 months 
Time at which you could go for your visit and find the facility open and seeing patients	Regular hours Mornings, Mon-Fri ~~Afternoons also~~ ~~Saturday also~~	Saturday open Mornings, Mon-Fri ~~Afternoons also~~ *Saturday open*
Attitude of staff at the facility	Rude 	Nice 

Choice Experiment Results

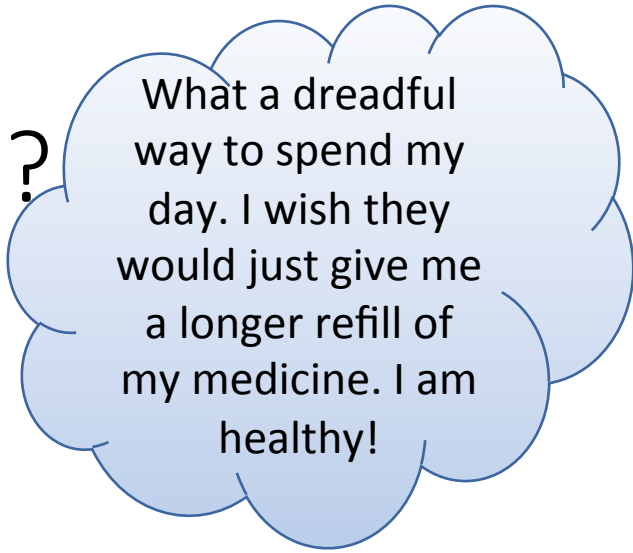


15.8 hour willingness to wait

3. Research agenda for effective model selection/ deployment for optimal care differentiation

- Can choice of models at the site or individual level be guided by expressed and/or observed patient needs and health systems capacity?
- Do individuals reporting solely structural or clinic-based barriers to care do best when guided to visit-spacing, whereas those reporting psychosocial barriers may do best in a model incorporating peer-community support?
- How many and what combination of models are needed to efficiently and effectively meet the needs of a community?
- Consideration should also be given to how to monitor and screen for model appropriateness as care proceeds..
- Stepwise increases in intensity over time depending on outcomes?
  - e.g., Visit-spacing→ CAGs→more intensive models?

4. The patient experience: a key driver of demand generation for differentiated care?



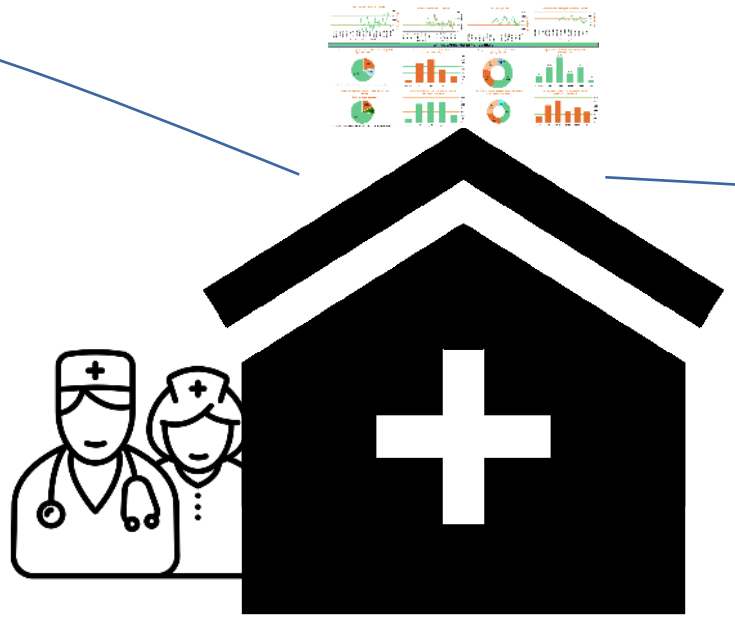
- If we believe that patients should be at the center of care, how well are we listening to their voices?
- How can data on the patient experience and outcomes of care be systematically incorporated into the healthcare delivery system to drive greater:
  - Flexibility
  - Accountability
  - Responsiveness to patient needs
  - Uptake of differentiated models of care

Research agenda on the patient experience

- First need to systematically measure the patient experience
  - Patient reported experience measures (PREMs), Patient reported outcomes (PROs)
  - Then, use it!

Enriching data streams to enhance care: reaching beyond the clinic- funded by BMGF

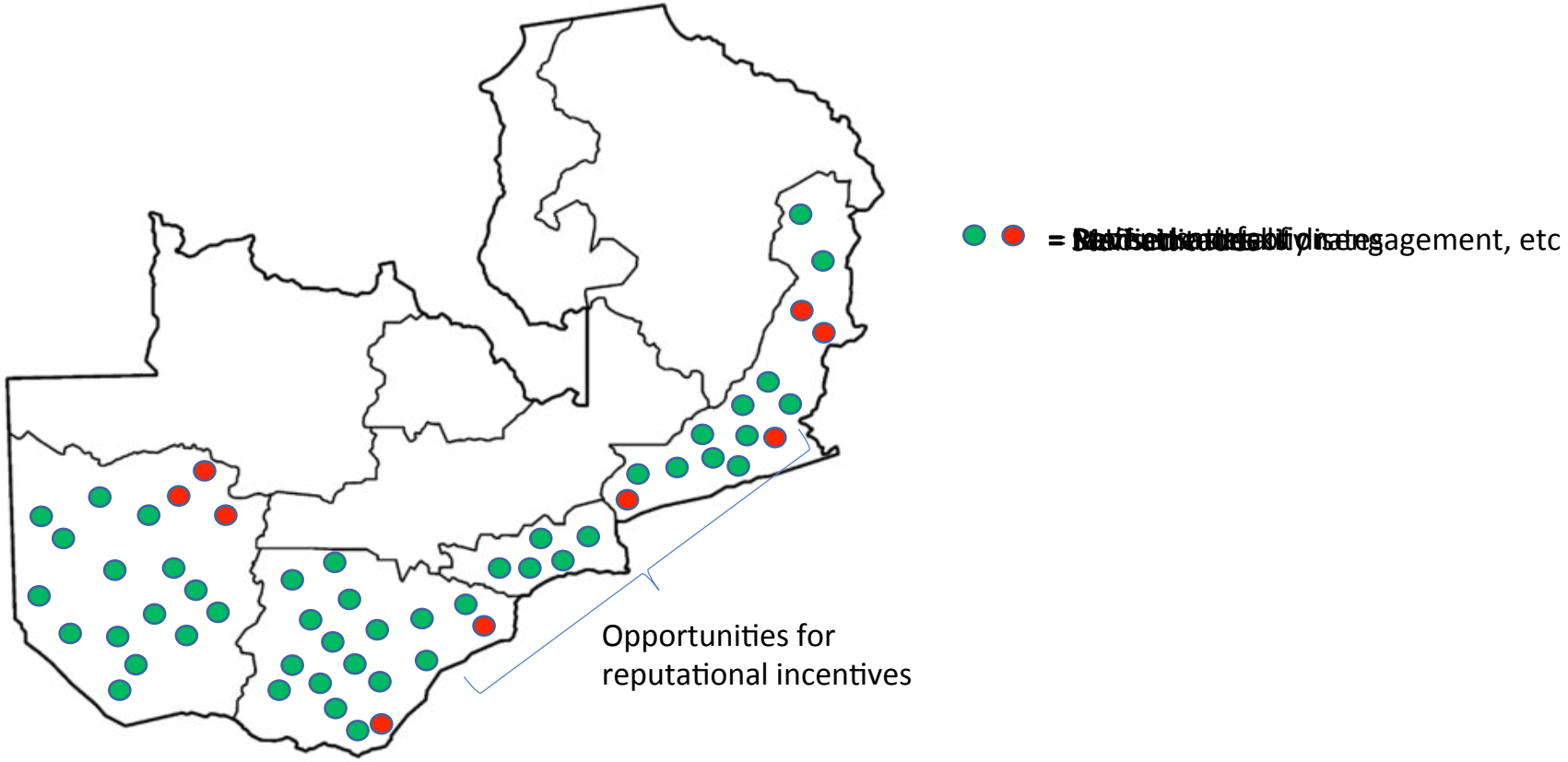
SMS/Exit interviews
- Were medicines available?
- Were labs available?
- Were the staff kind to you?
- Were your needs met?



Coaching on **data use** and **principles of patient-centered care** (e.g., empathy, understanding non-clinical needs) and differentiated care

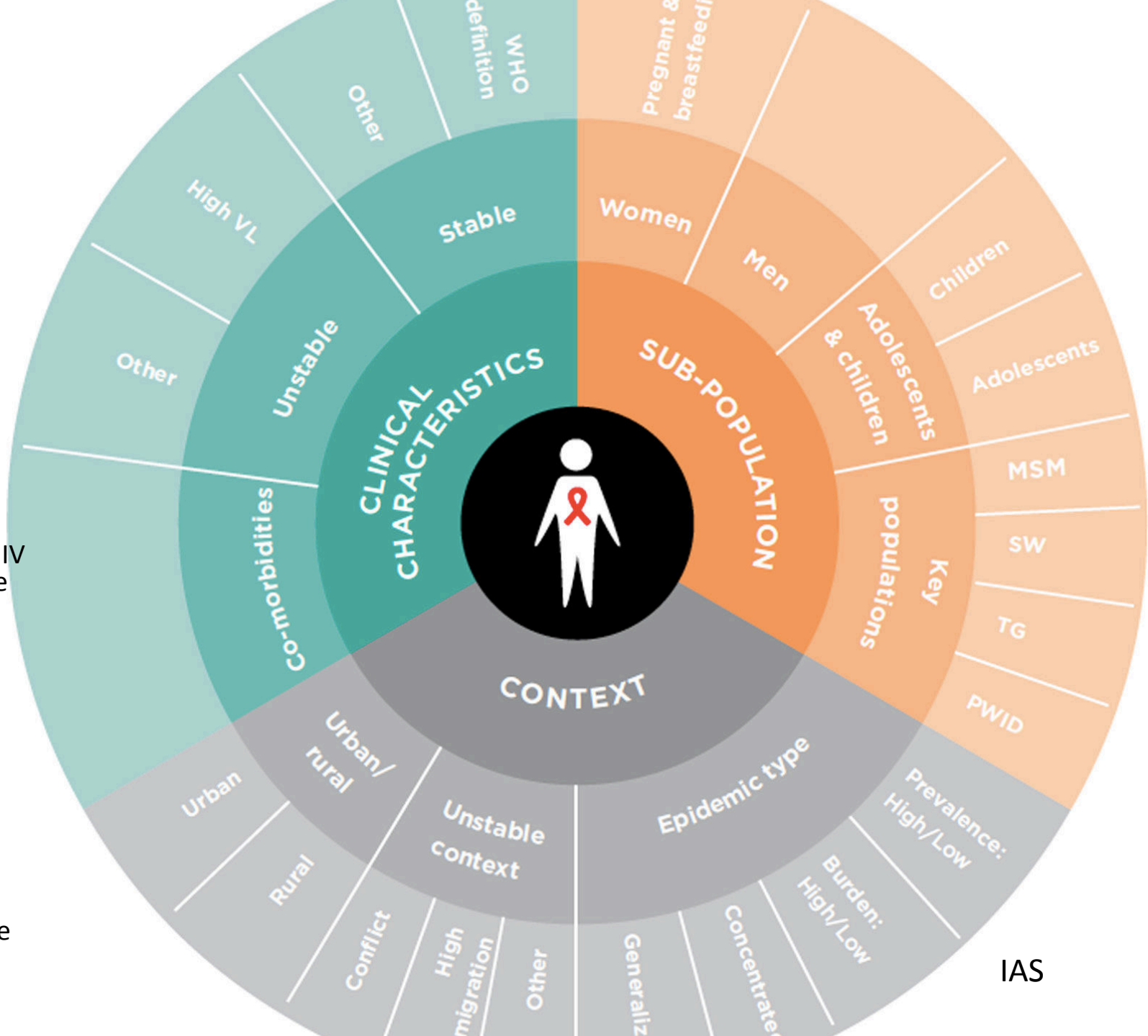
Ongoing surveillance of the lost
- Regular tracing of a random sample of the lost to update clnic-based outcomes of disengagement, death and transfer
- Tablet-based capture of reasons for disengagement

District, Provincial and National leaders will have visibility into health systems “hotspots”



5. Special patient populations..

- Key population friendly models
  - What models are most effective at reducing stigma and enhancing retention and outcomes?
- Adolescents
  - Can wkd/off-hours “club”-type approaches effectively reach and retain adolescents in HIV and SRH and other care, and how can this be adapted by MOH given often restrictive HR policies?
- Pregnant and post-partuum women
  - What is the most effective approach to maintaining continuity of care (and simplifying) when women in various models of care become pregnant?
- Advanced disease
  - Building from – how do we better identify those in need of advanced care and what are effective models that provide these services in scalable fashion?



IAS

6. The science of differentiated care scale-up: DSD scale-up fidelity – Malawi

- **30 ART clinics were sampled purposefully to achieve diversity (4 FTR sites, 8 CAG sites, and 30 MMS sites)**
- **6 data collection methods were used in all sites**

# and type of data	Purpose
32 ART in-charge interviews	• Understand on-the-ground implementation and challenges
30 focus groups with 216 patients	• Explore benefits, challenges and costs for patients
136 health worker surveys	• Explore provider views and experiences with models of care
75,364 patient record reviews	• Understand the percentage of stable patients getting the models
1,473 visit time observations	• Collect wait and servicing times at each step of visit process
30 facility questionnaires	• Document facility characteristics, schedules, lab and stock issues

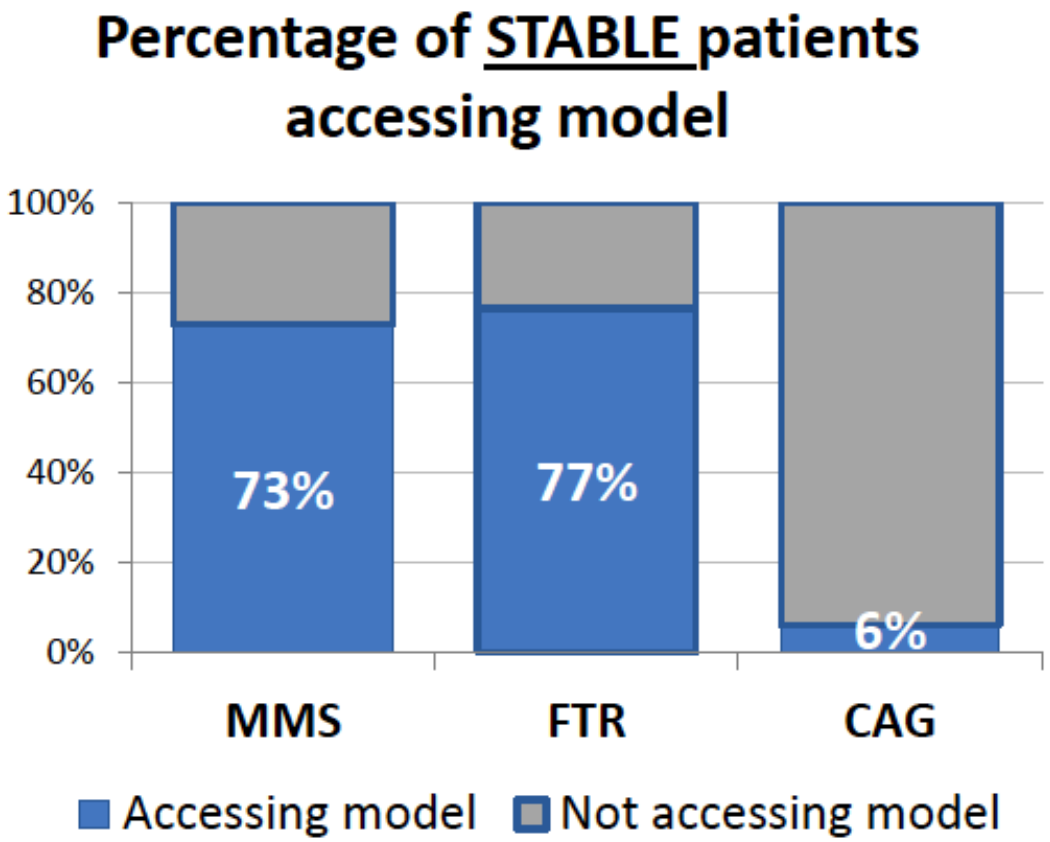
Multi-Month Prescriptions (MMS)

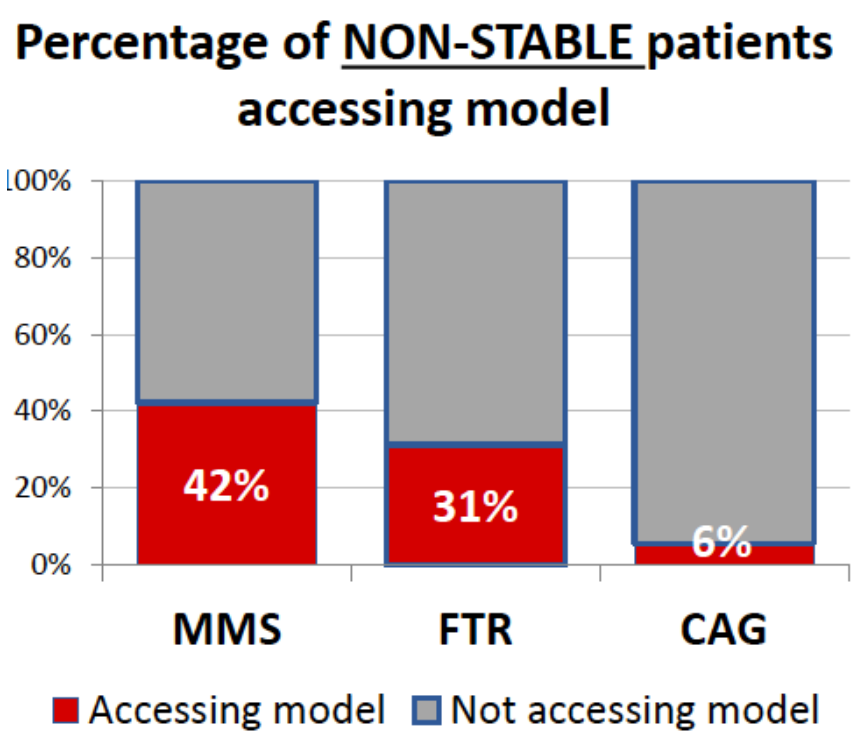
Fast-Track Refills (FTRs)

Community ART Groups (CAGs)

IAS, 2017

DSD scale-up fidelity – Malawi



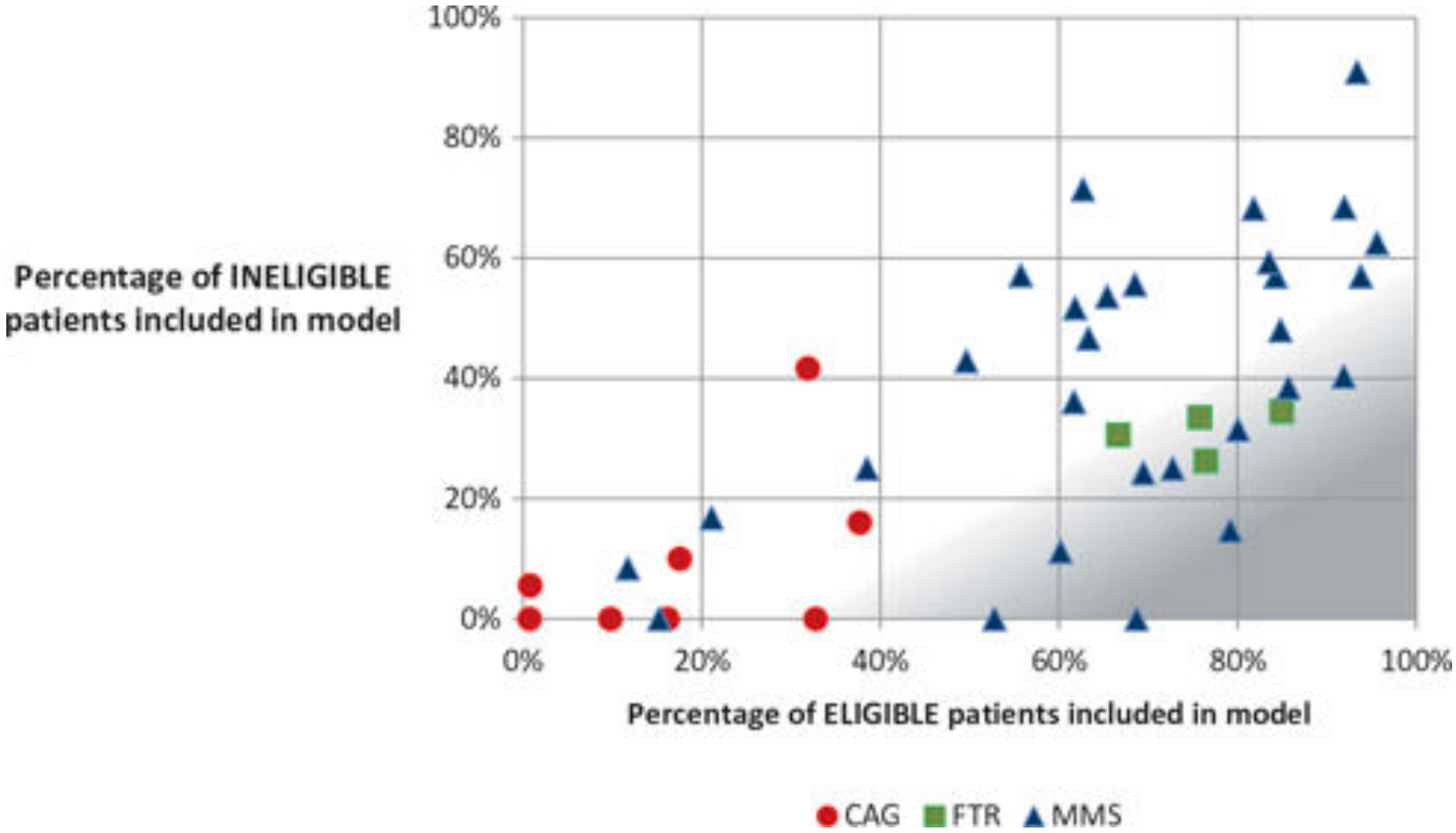


Inclusion of non-stable patients:

- Transitioning out of model
- Lack of understanding of criteria
- Patient requests
- Attempt to reduce workload

IAS, 2017

DSD scale-up fidelity – Malawi



Prust et al, JIAS, 2017

Tsondai PR et al. *Journal of the International AIDS Society* 2017, **20(Suppl 4)**:21649
http://www.jiasociety.org/index.php/jias/article/view/21649 | http://dx.doi.org/10.7448/IAS.20.5.21649

JIAS Journal of the International AIDS Society

Research article

High rates of retention and viral suppression in the scale-up of antiretroviral therapy adherence clubs in Cape Town, South Africa

Priscilla Ruvimbo Tsondai[1§], Lynne Susan Wilkinson[1,2], Anna Grimsrud[3], Precious Thembekile Mdlalo[1], Angelica Ullauri[1] and Andrew Boulle[1,4]

- At scale evaluation of ART clubs, 2011-2014
- >32,000 ART patients in clubs in Cape Town district
- Sampled 10% of clubs (n=100) proportional to number of clubs at each facility and linked to lab data and digitized registers
- 3,216 adults with 4,019 pyrs

Tsondai et al, JIAS 2017

Cumulative Retention

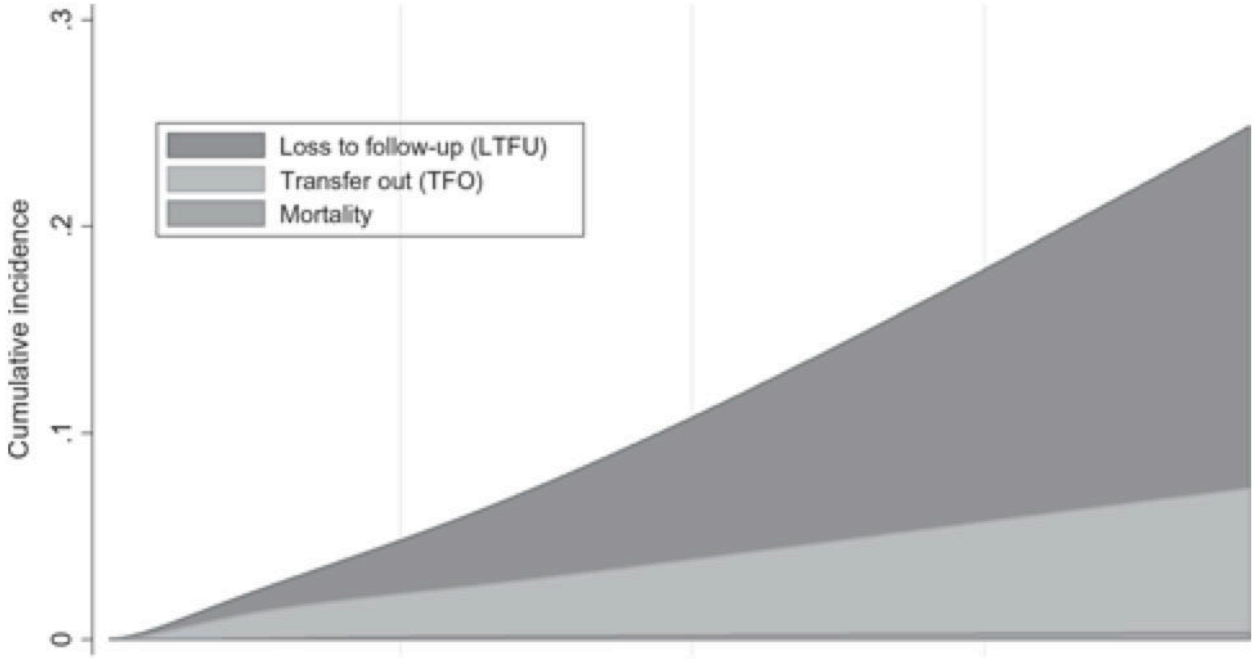
Cross-sectional retention at study closure

was 88.8% using data from the registers and patient clinic folders and 93.1% after database linkage

1 yr: 95.2%

2 yr: 89.3%

3 yr: 82.1%



Months of follow up	12	24	36
n (%)	1736 (54.0)	540 (16.8)	97 (3.0)
LTFU, % (95% CI)	2.6 (2.1 – 3.2)	6.9 (5.7 – 8.1)	12.2 (9.7 – 14.7)
TFO, % (95% CI)	2.1 (1.6 – 2.6)	3.7 (2.8 – 4.5)	5.4 (3.9 – 7.0)
Mortality, % (95% CI)	0.1 (-0.01 – 0.2)	0.2 (-0.01 – 0.4)	0.3 (-0.1 – 0.6)
Retention, % (95% CI)	95.2 (94.0 – 96.4)	89.3 (87.1 – 91.4)	82.1 (77.7 – 86.5)

Tsondai et al, JIAS 2017

Predictors of outcomes of DSD at scale

Characteristic	LTFU		Viral rebound[a]	
	Univariate HR (95% CI)	aHR (95% CI) (n = 3106)	Univariate HR (95% CI)	aHR (95% CI) (n = 3106)
Age at AC enrolment (years)				
16-24	2.16 (1.06-4.40)	2.41 (1.10-5.23)	1.60 (0.68-3.76)	1.52 (0.59-3.95)
25-34	1.37 (0.93-2.00)	1.55 (1.03-2.33)	1.64 (1.11-2.41)	1.74 (1.17-2.59)
35-44	1.0 (ref)	1.0 (ref)	1.0 (ref)	1.0 (ref)
≥ 45	0.99 (0.58-1.69)	1.04 (0.60-1.82)	0.70 (0.37-1.32)	0.69 (0.36-1.31)
Sex				
Male	0.99 (0.68-1.44)	1.13 (0.77-1.68)	0.77 (0.51-1.15)	0.94 (0.62-1.43)
Duration on ART at AC enrolment (years)	0.97 (0.88-1.07)	0.98 (0.89-1.09)	1.07 (0.98-1.17)	1.12 (1.03-1.23)
Ever sent a buddy				
Yes	0.75 (0.52-1.07)	0.79 (0.55-1.14)	0.63 (0.43-0.92)	0.63 (0.43-0.93)
Number of clubs at facility/1000 patients	1.01 (0.93-1.09)	1.02 (0.93-1.11)	0.96 (0.89-1.03)	0.94 (0.87-1.02)
Number of patients on ART in facility/1000	1.34 (1.13-1.59)	1.32 (1.11-1.58)	0.99 (0.81-1.20)	0.97 (0.79-1.18)

HR: hazard ratio, aHR: adjusted hazard ratio, CI: confidence interval, AC: adherence club, ART: antiretroviral therapy.

[a]Viral rebound defined as the first viral load >400 copies/mL after enrolment into an AC.

Tsondai et al, JIAS 2017

6. Research agenda around the scale-up of DSD

- How often should we be conducting special studies (example from Malawi) to assess scale-up fidelity/effectiveness/safety?
- What alternative simple strategies can be embedded and tested during scale-up

Hey, buddy!

- Are high-burden communities with high penetration of DSD experiencing improved outcomes and reduced stigma?
- Are cost-effectiveness projections being met as scale is achieved? How can programmatic expenditure analysis be used to ensure the efficiency of differentiated care scale-up?

Conclusions

- Further work is needed to ensure maintenance of **visit spacing**- try to incorporate systems-based strategies into scale-up plans and test them
- Ensuring an accurate understanding of **underlying program outcomes**: what is differentiated care solving for?
- Emerging data on **patient barriers/preferences** may be useful to help guide rational regional, site and individual-level deployment/choices of DSD models
- **Patient experience** is an overlooked source of information and couples with patient centered care, should be tested along with better outcome data as a strategy to improve responsiveness of the health system and drive the uptake of DSD
- Substantial questions about the most effective way to **tailor differentiated care for special populations** – need greater attention to accelerating evaluations of feasibility, acceptability and effectiveness
- **Special studies** are needed to assess whether the broader hopes for differentiated care (**reduced patient costs, simplicity, stigma, systems costs, etc**) are realized when taken to scale

Acknowledgements

- Ministry of Health, Zambia
- CIDRZ staff
- Izukanji Sikazwe and Elvin Geng and Kombatende Sikombe and others
- Bill and Melinda Gates Foundation
- CDC/PEPFAR

CQUIN attendees research questions