WEBINAR 6/6

HIV Costing, Cost-Effectiveness and Impact Modeling

Thursday 22 October 2020
9am EST/ 3pm CAT

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Innovation in Global Health

HIV SELF-TESTING AFRICA INITIATIVE

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ECONOMICS of HIV SELF-TESTING
AN OVERVIEW OF LEARNINGS

SPEAKER

Fern Terris-Prestholt

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London School of Hygiene & Tropical Medicine

On behalf of the STAR Economics Network

Lawrence Mwenge
Nurilign Ahmed
Katleho Matsimela
Hendramoorthy Maheswaran
Jason Ong

Linda Sande
Marc D'Elbee
Cheryl Johnson
Gesine Meyer-Rath
Valentina Cambiano

Collin Mangenah,
Pitchaya Indravudh
Galven Maringwa
Gabriella Gomez
Euphemia Sibanda

CHIL CENTRE FOR HEALTH ECONOMICS IN LONDON

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

Background

- ECONOMICS NETWORK
- SUMMARY OF FINDINGS
  - COSTS
  - COST-EFFECTIVENESS
  - USER BEHAVIOUR:
    - PREFERENCES
    - WILLINGNESS TO ACCEPT (& PAY)

STAR Economics Network approach

- Multi-country collaboration of economists
  - Methods development
  - Joint cross country analyses and outputs
    - ➢ Strong & lasting economics network, 7 PhD enrolments

Mwenge, PlosOne2017

Mangenah, JAIS 2019
D'Elbee, AIDS 2020

Cambiano, Cambiano 2019
Eaton, JAIS 2019

Sande, AIDS Care 2018

Indravudh, AIDS 2017
D'Elbee, AIDS 2018
Sibanda, JAIS 2019

More in pipeline

Costs of HIV Testing

Costing Methods

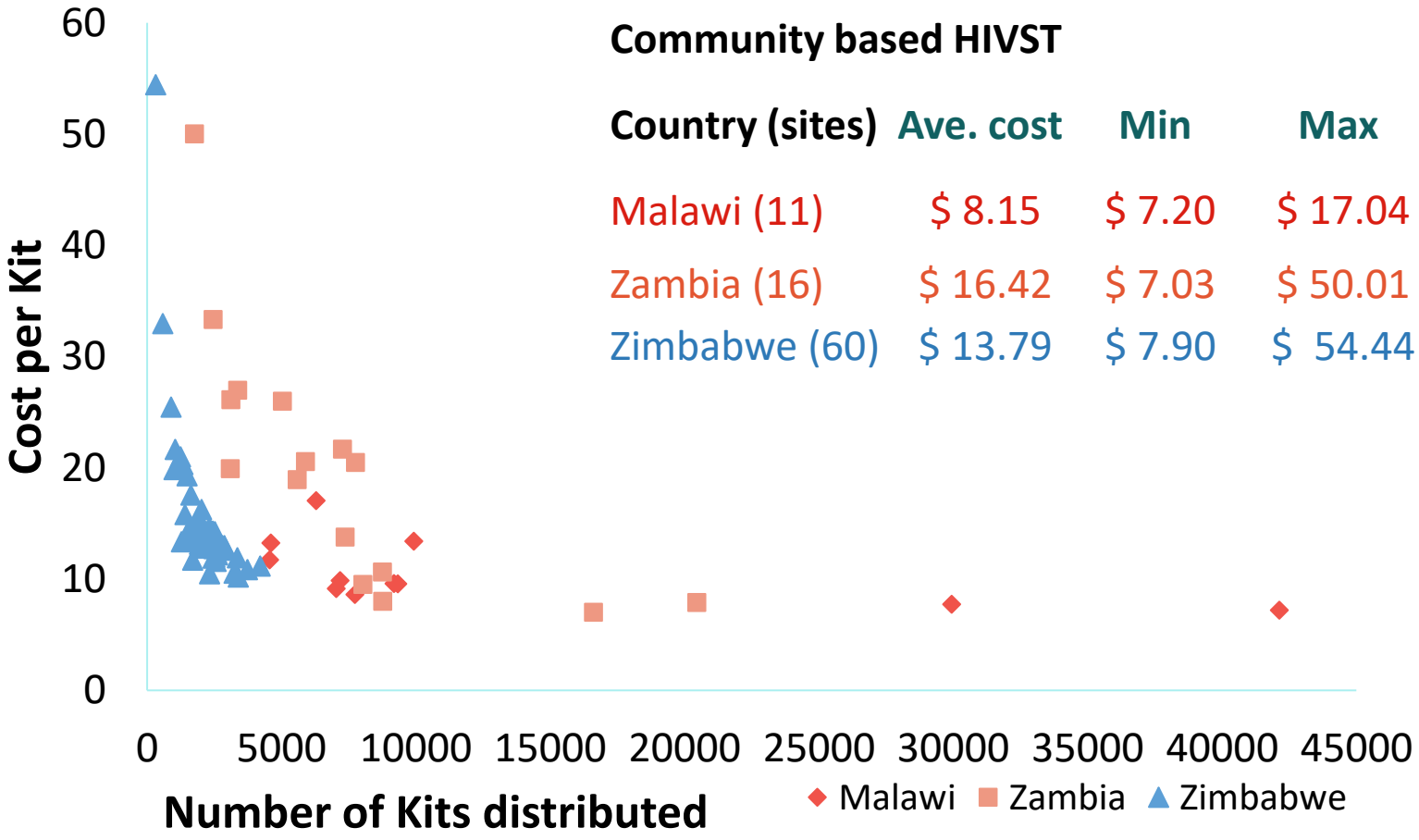
- Models:
  - Facility Provider delivered testing;
  - HIVST: 1.community based delivery, 2.community led delivery, 3.facility-based primary and secondary; 4.workplace, 5.private sector, 6.integrated mobile testing, 7.key pops and 8.FSW.
- Full (includes above service level costs), unless stated as incremental.
- Provider's perspective: Line-by-Line project expenditures allocated to Distribution Models and Sites
- Allocation factors based on # staff, # kits, distance, and direct site expenditures
- Complemented analysis with Time and motion studies and onsite observations
- Start-up, training and other capital costs annualise 3% and local DR

Costs: Provider delivered and HIVST in communities

Mwenge 2017, Mangenah 2019

Cross country study: Malawi, Zimbabwe, Zambia

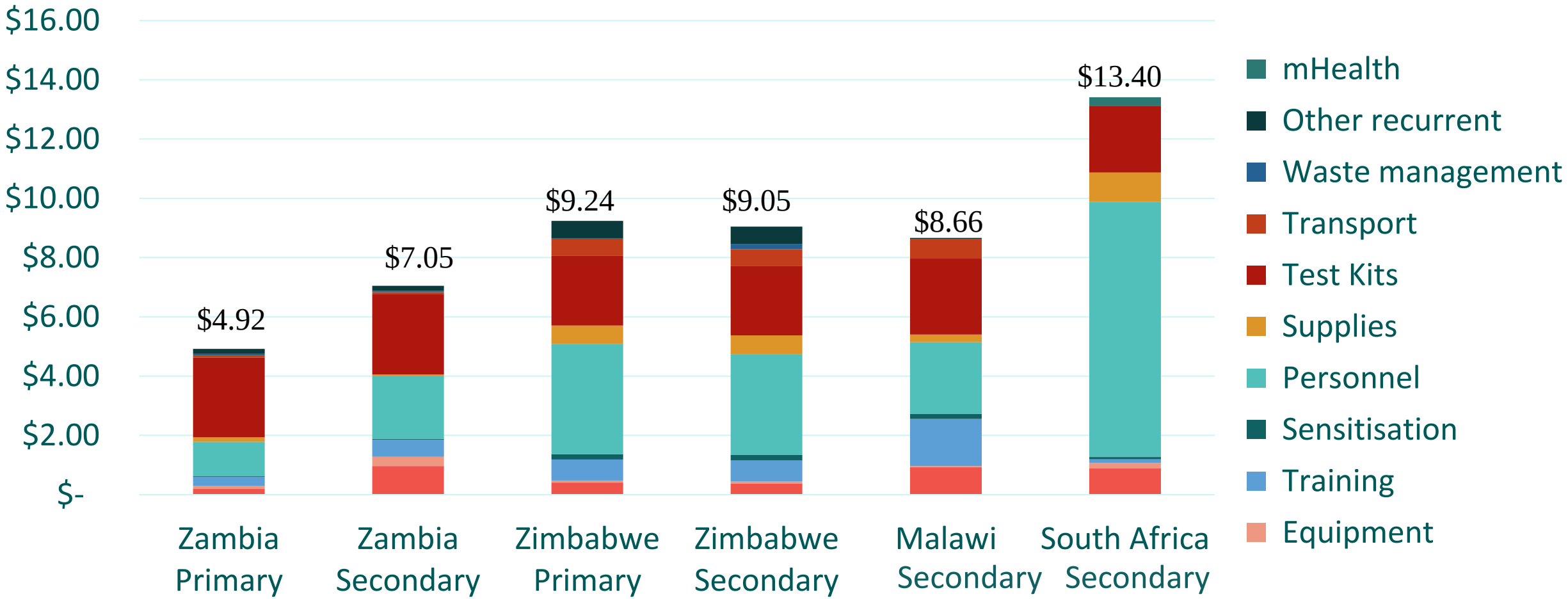
- Wide variation in unit costs by site
- Provider delivered facility testing: $5-$20
- HIV Self-Testing - Community based distribution: $8-$17
- Economies of Scale



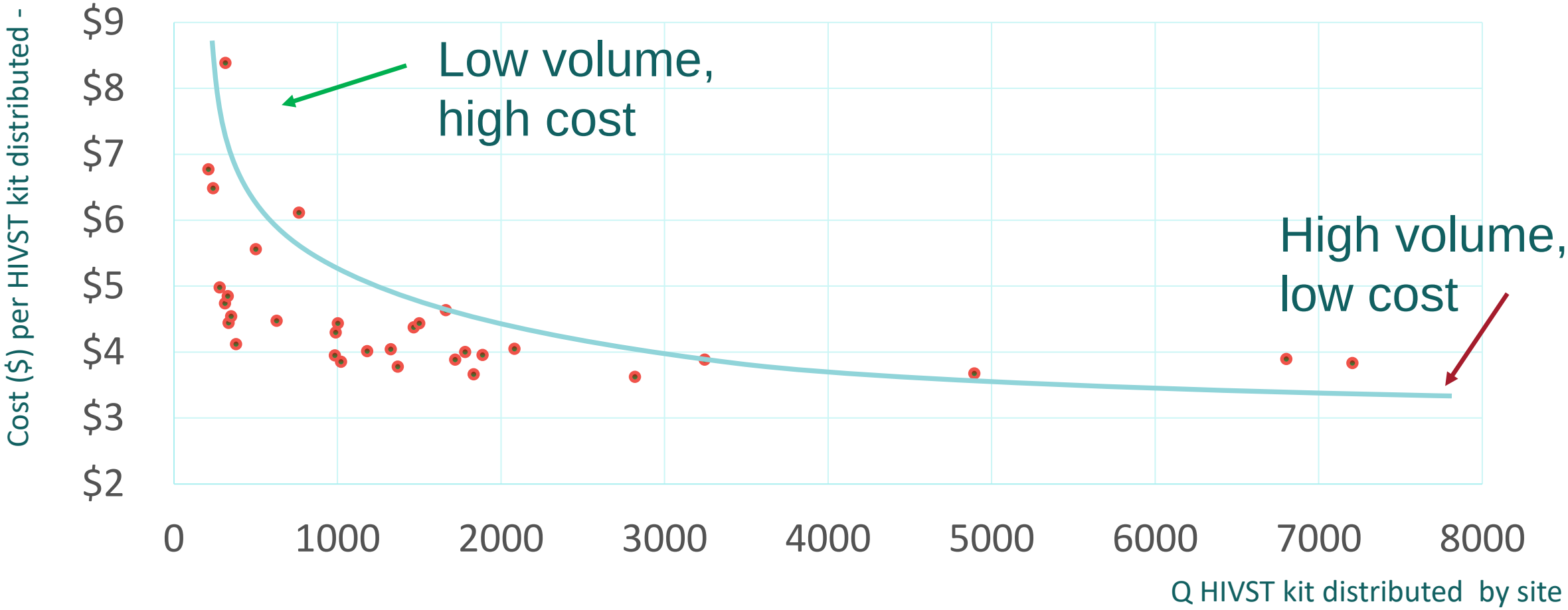
Community based HIVST

Country (sites)	Ave. cost	Min	Max
Malawi (11)	$ 8.15	$ 7.20	$ 17.04
Zambia (16)	$ 16.42	$ 7.03	$ 50.01
Zimbabwe (60)	$ 13.79	$ 7.90	$ 54.44

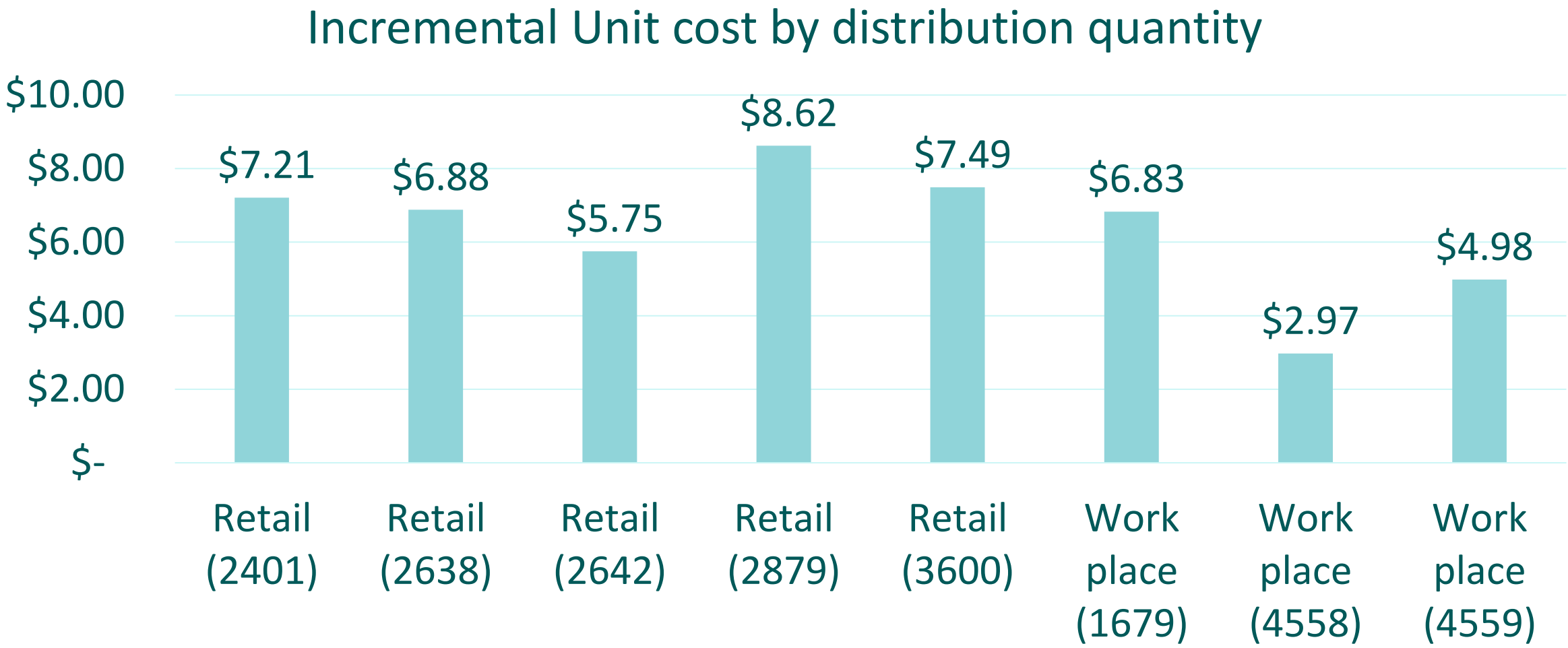
Primary & Secondary HIVST Delivery in Facilities, Cost per kit distributed Sande 2020



HIVST distribution at transport hubs in Zimbabwe, by distribution site Mangenah 2020



Private sector delivery in Zambia: from small retailers, hairdressers to employer led delivery. Mwenge, 2020



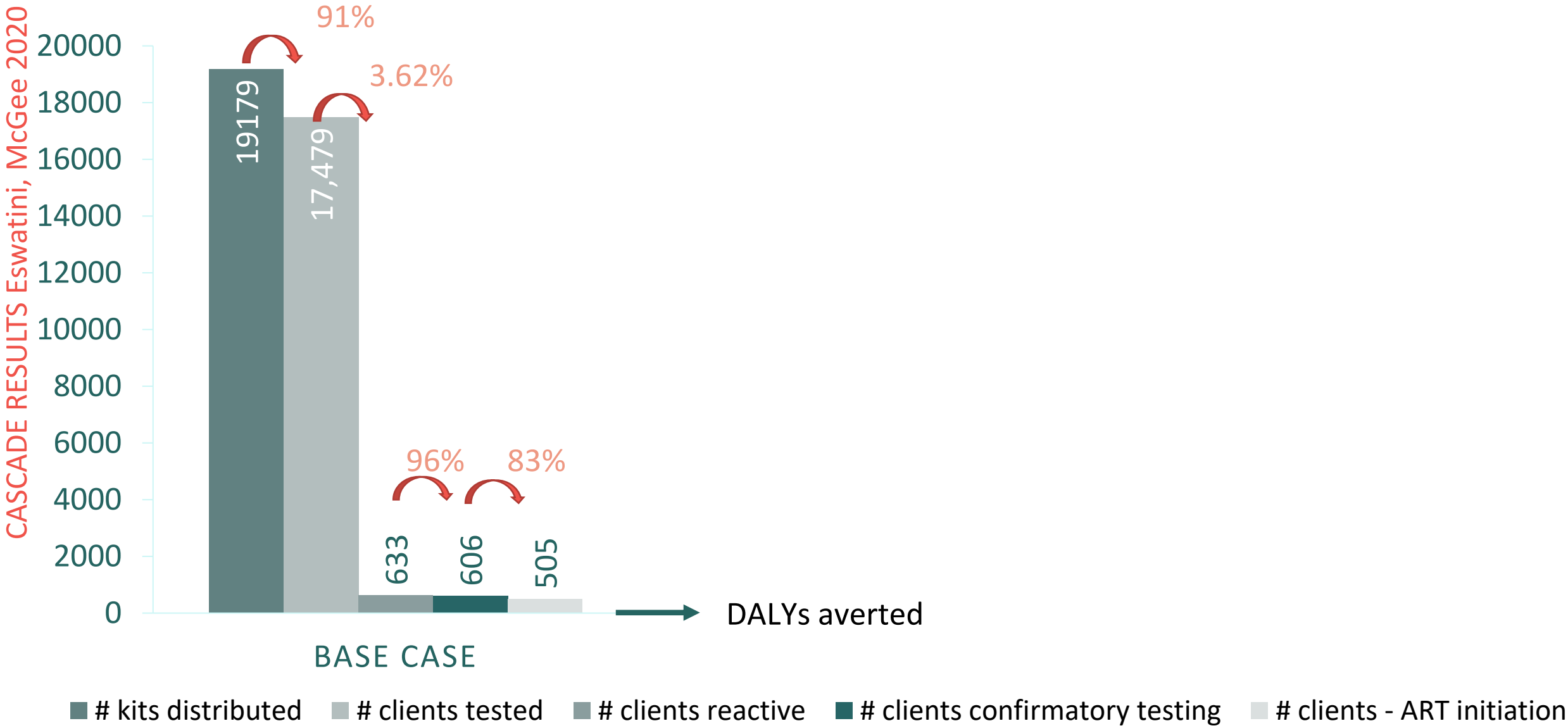
Costs - lessons

- As new product distribution matures, programmes learn and adapt
  -> D’elbee's presentation
  New models develop that can deliver large quantities at low costs
  -> Rath-Meyer's presentation
- But cost per kit is not the full story……

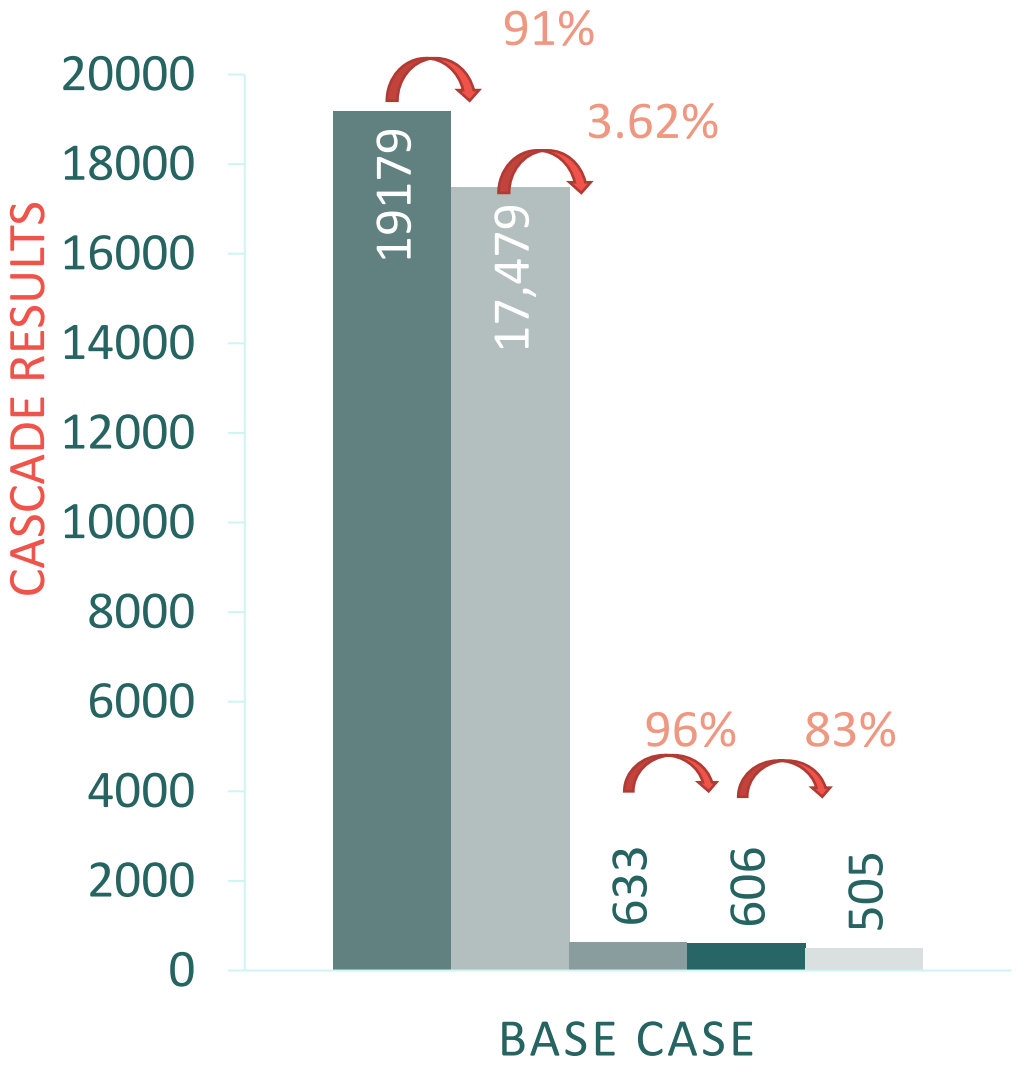
-> Cost effectiveness

RESULTS: Eswatini testing -> linkage -> treatment-> impact

McGee 2020



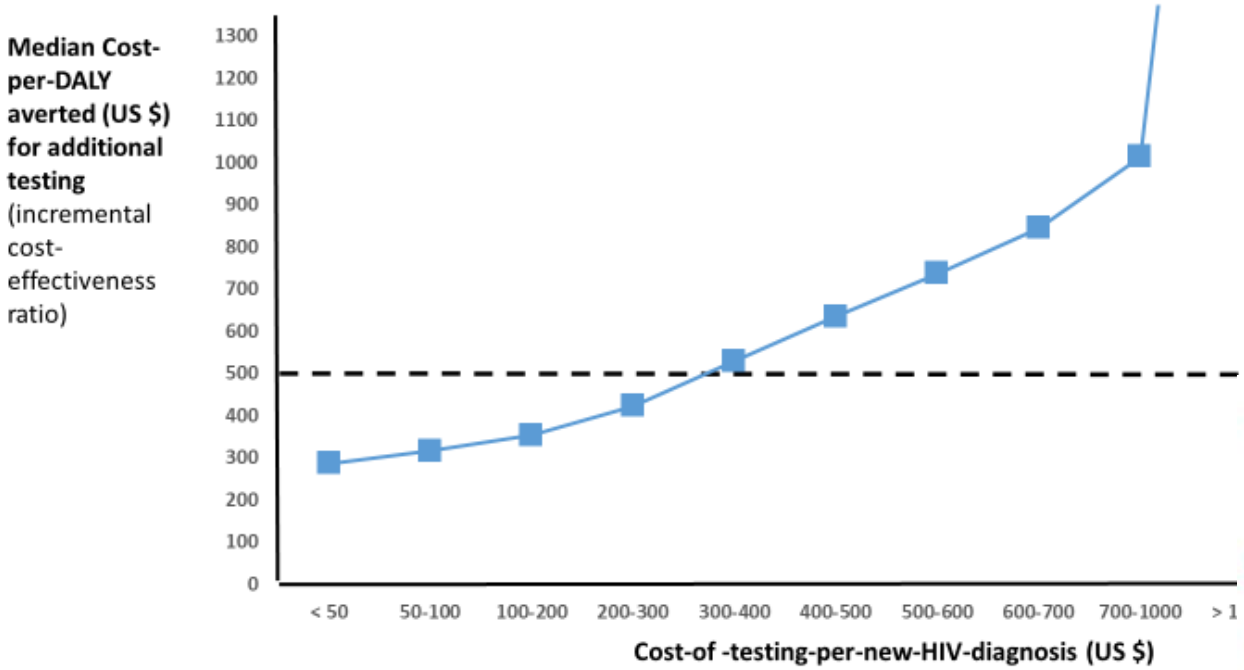
RESULTS: Cost per kit only part of the story



	COMMUNITY	WORKPLACE
Total HIVST costs	*$272,684*	*$57,386*
# HIVST kits distributed	*15,864*	*3,291*
$/kit distributed	*$17.19*	*$17.44*
$/client tested	*$18.77*	*$19.56*
$/client reactive HIVST test	*$526.86*	$497.69
$/client confirmed +	*$556.34*	*$526.10*
$/client initiating ART	*$713.54*	*$685.04*

Cost effectiveness: how to evaluate from intermediate outcomes Phillips & Cambiano 2019

Relationship between cost-of -testing-per-new-HIV-diagnosis and cost per DALY averted for additional testing Over 16,000 setting-scenario - test unit cost combinations



> 50% probability of being cost effective if cost-of-testing-pre-new-HIV-diagnosis < $315; for men only $585

Phillips AN et al. *Journal of the International AIDS Society* 2019, **22**:e25325
http://onlinelibrary.wiley.com/doi/10.1002/jia2.25325/full | https://doi.org/10.1002/jia2.25325

JIAS JOURNAL OF THE INTERNATIONAL AIDS SOCIETY

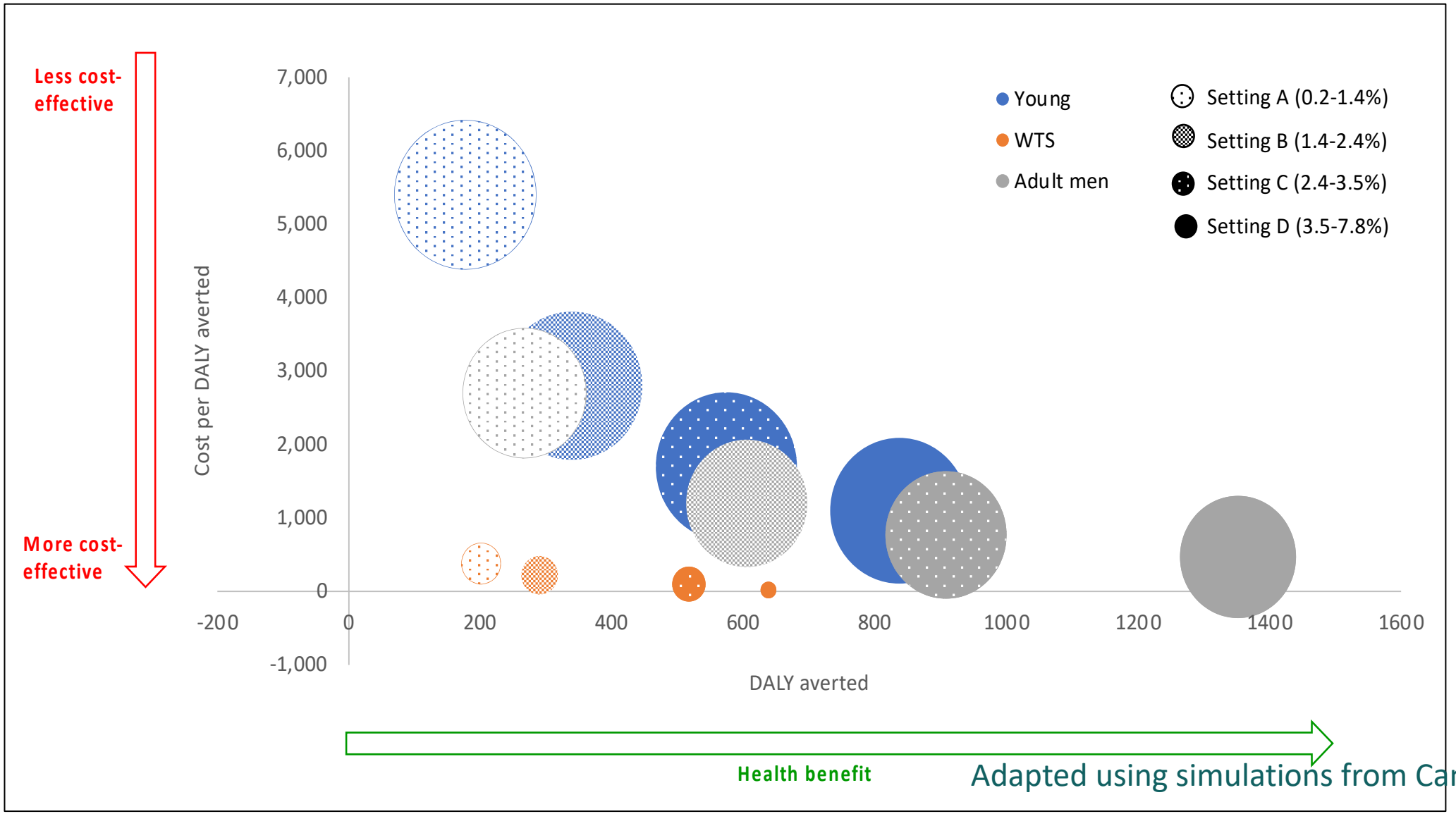
RESEARCH ARTICLE

Cost-per-diagnosis as a metric for monitoring cost-effectiveness of HIV testing programmes in low-income settings in southern Africa: health economic and modelling analysis

Andrew N Phillips[1§], Valentina Cambiano[1], Fumiyo Nakagawa[1], Loveleen Bansi-Matharu[1], David Wilson[2], Ilesh Jani[3], Tsitsi Apollo[4], Mark Sculpher[5], Timothy Hallett[6], Cliff Kerr[2,7], Joep J van Oosterhout[8,9], Jeffrey W Eaton[6], Janne Estill[10,11], Brian Williams[12], Naoko Doi[13], Frances Cowan[14,15], Olivia Keiser[10], Deborah Ford[16], Karin Hatzold[17], Ruanne Barnabas[18], Helen Ayles[19], Gesine Meyer-Rath[20,21], Lisa Nelson[22], Cheryl Johnson[23], Rachel Baggaley[23], Ade Fakoya[24], Andreas Jahn[25] and Paul Revill[5]

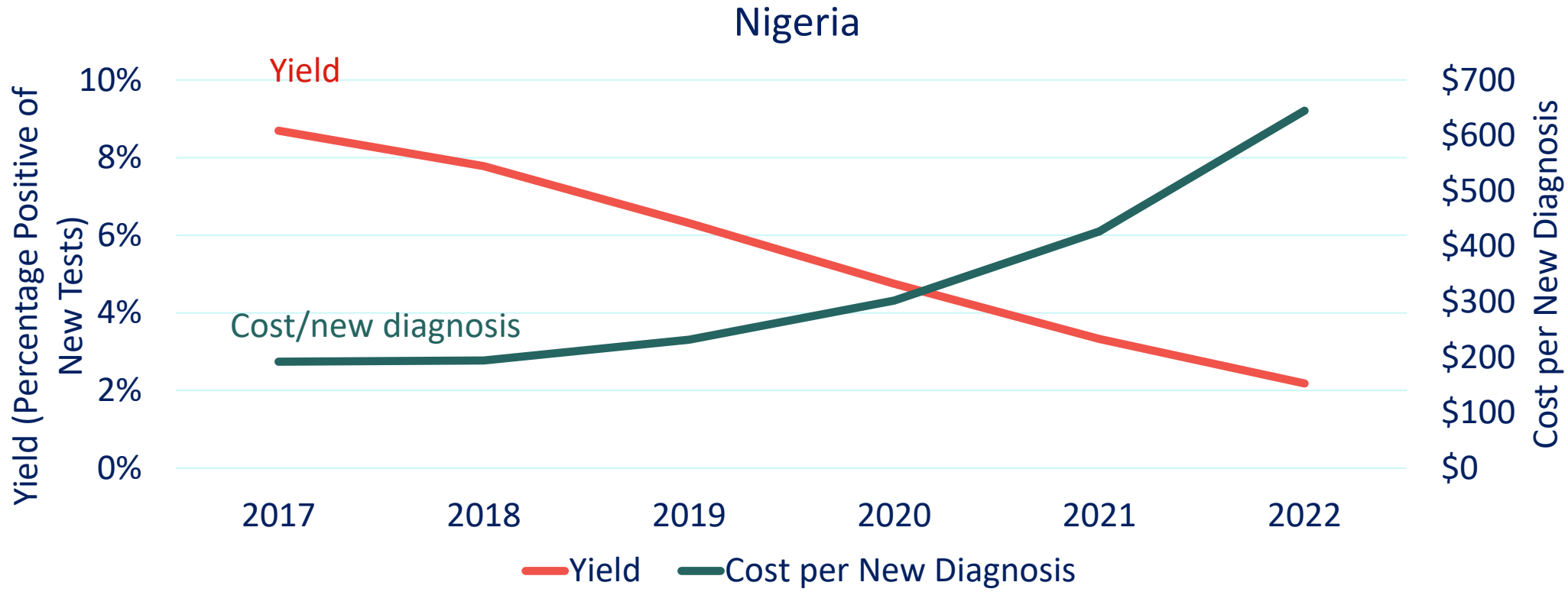
[§]**Corresponding author:** Andrew Phillips, Institute for Global Health, UCL, London (Royal Free Campus, Rowland Hill Street, London NW3 2PF). Tel: +020 7830 2886. (andrew.phillips@ucl.ac.uk)

Cost effectiveness and health gains by different levels of undiagnosed HIV prevalence & across populations Cambiano, 2020



Adapted using simulations from Cambiano et al. JIAS[54]

Cost over time: Yield declines & cost per new diagnosis increases as knowledge approaches 90%



Yield declines as most PLHIV are diagnosed and on ART. At the limit, new diagnoses will represent new infections since most existing infections will already be diagnosed.

From: J. Stover and E. Korenromp and the Goals Testing Model, http://www.goalshivtestingmodel.org/

But HIV testing not only a supply side question

Demand constraints, user preferences and behavioural nudges

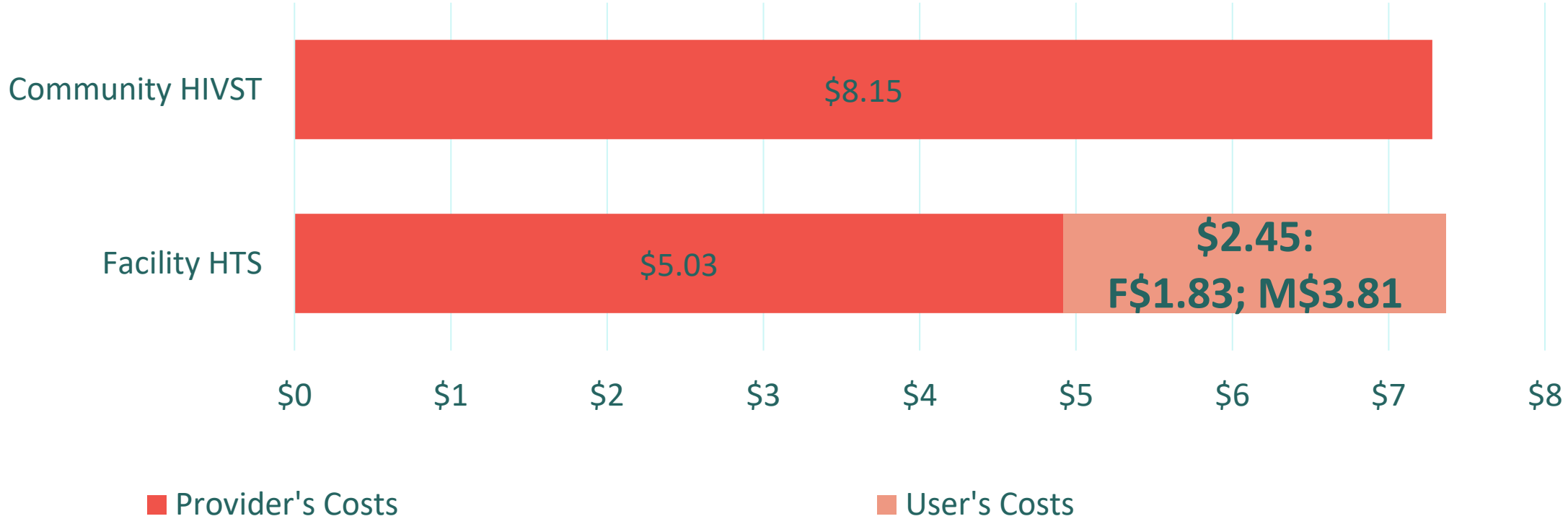
Societal costs: identifying demand constraints

Sande, Aids Care2017

AIDS Care
Psychological and Socio-medical Aspects of AIDS/HIV
ISSN: 0954-0121 (Print) 1360-0451 (Online) Journal homepage: http://www.tandfonline.com/loi/caic20

Costs of accessing HIV testing services among rural Malawi communities

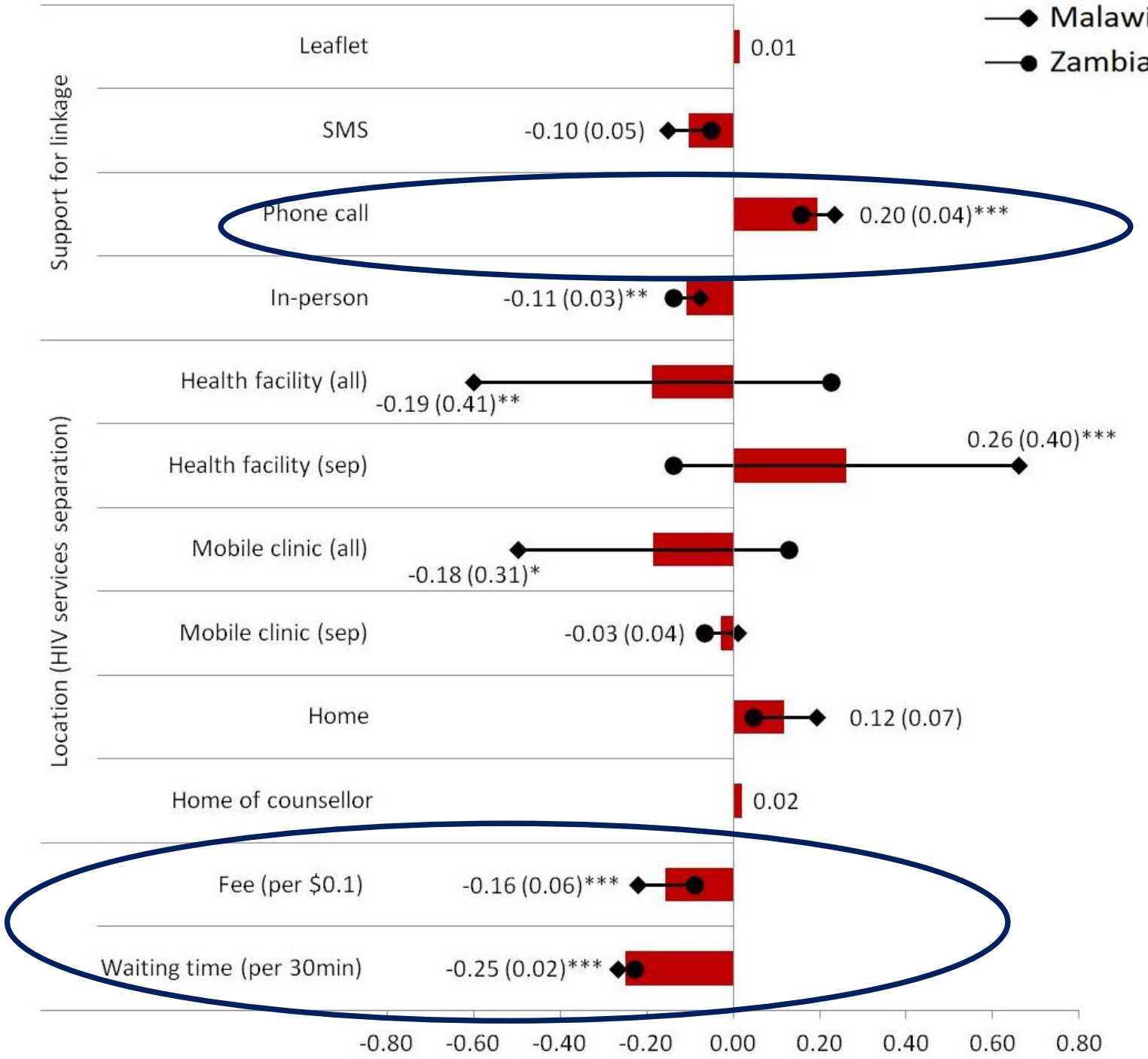
Linda Sande, Hendramoorthy Maheswaran, Collin Mangenah, Lawrence



Supporting Linkage to care after HIVST in Malawi and Zambia – Pooled data analysis

Elbée, AIDS 2018

- Largely consistent preferences for testing across countries
  - **Phone call** preferred post test support
  - **Paying** for confirmatory testing and **waiting times** strong barrier to linkage



Influencing user behaviour: worth it?

Partner distribution in ANC in Malawi, Sande, 2020

Ingredients	SoC	HIVST	HIVST + Incentive
Training	$1.14	$3.50	$4.18
Sensitisation	$0.39	$0.42	$0.39
Other Capital	$0.06	$0.31	$0.26
Management Costs	$2.35	$3.91	$4.74
Supplies	$0.33	$0.33	$0.32
Test Kits	$-	$2.56	$2.56
Uptake Incentives	$-	$-	$10.00
Incentive Administration	$-	$-	$4.32
$/Partner Invite or kit distr.	$4.28	$11.02	$12.45 ex. Incent.
$/Partner tested	$9.68	$12.18 reported	$15.85 ex. Incent.
$/Partner confirmed Positive	$625	$1,131 reported	$700 w incentive
# positive	***9***	*13*	***55***

Conclusions

- Cost per kit distributed for HIVST slightly higher than conventional HTS, but potential to scale up to unreached populations.
- Cost per person diagnosed and linked crucial and not directly correlated w $/kit
- Large economies of scale and
- Changes over time: maturity ↓ but saturation ↑
- High costs associate with getting tested, particularly among adult men
- User fees and waiting time key barrier to testing : can programmes alleviate these?
- Next up cascades of care.

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The Cost and Intermediary Cost Effectiveness of Oral HIV Self-Test Kit Distribution Across Eleven Distribution Models in South Africa

Katleho Matsimela[1], Linda A. Sande[2], Cyprian Mostert[3], Marc d'Elbée[2], Mohammed Majam[4], Jane Phiri[4], Vincent Zishiri[4], Celeste Madondo[5], Stephen Khama[5], Karin Hatzold[6], Cheryl Johnson[7], Thato Chidarikire[8], Fern Terris-Prestholt[2], Gesine Meyer-Rath[1,9]

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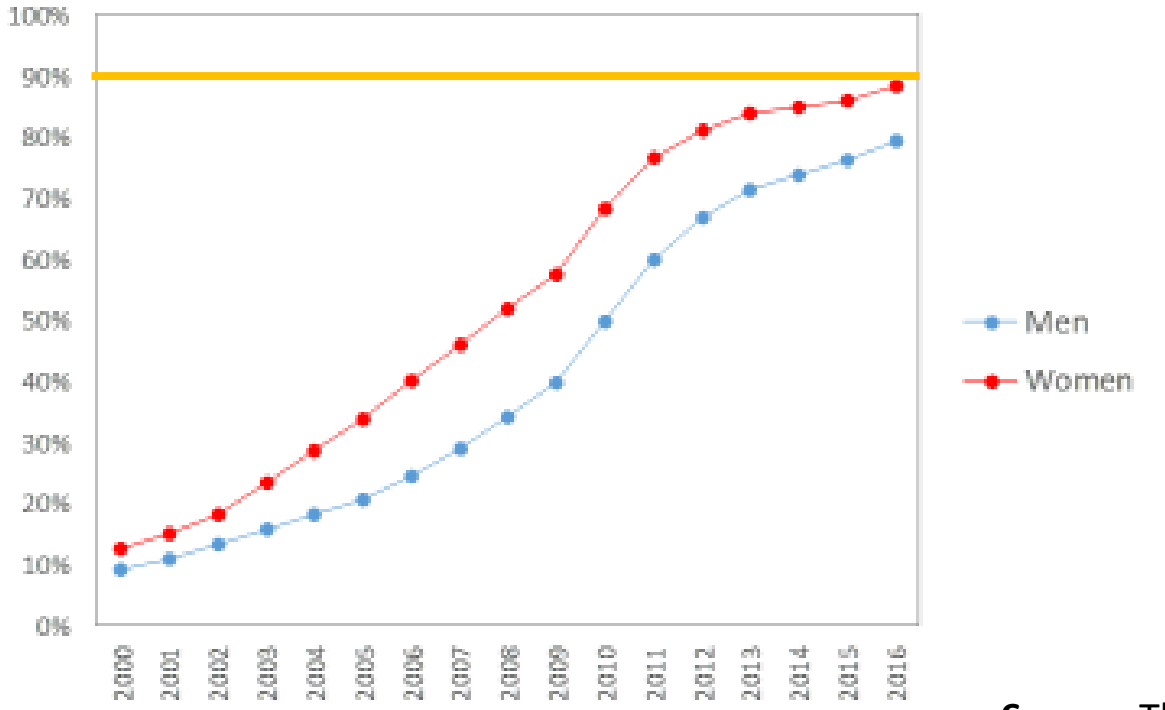
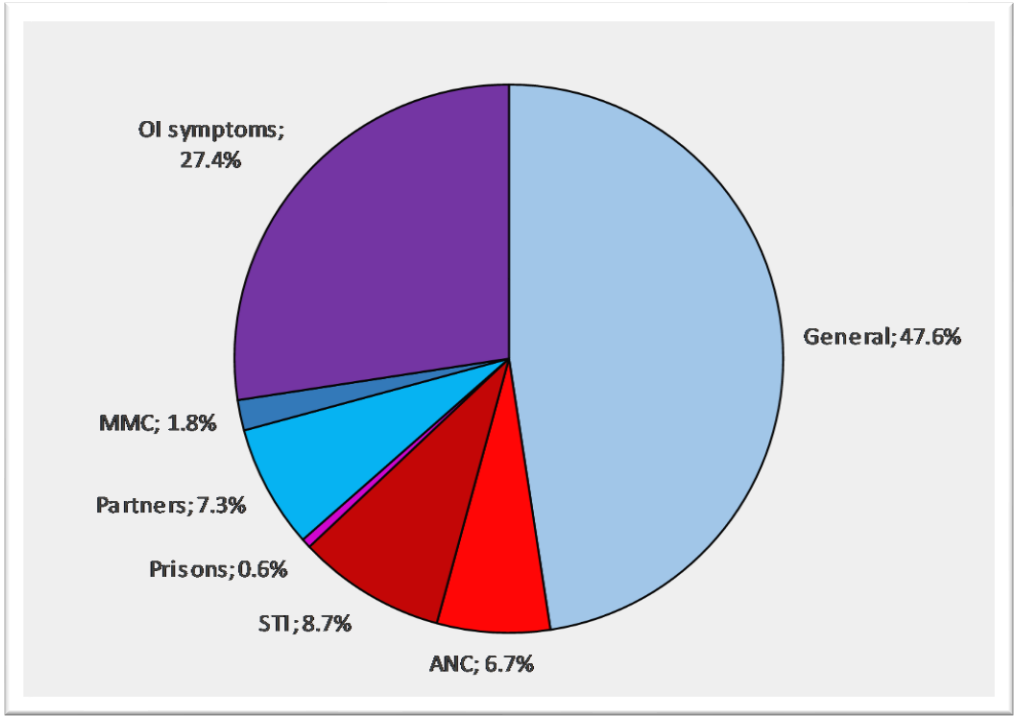
4. Ezintsha, Wits Reproductive Health and HIV Research Institute, University of the Witwatersrand, South Africa
5. Society for Family Health, South Africa
6. Population Sciences International, Johannesburg, South Africa
7. World Health Organization, Switzerland
8. National Department of Health, South Africa
9. Department of Global Health, Boston University, US

HIV SELF-TESTING AFRICA INITIATIVE

Background

- South Africa has reached the first UNAIDS 90-90-90 on average, but gaps among men and young people remain
- Most testing to date facility-based HTS





Source: Thembisa (South African HIV transmission model)

Aim

To provide evidence for governments making decisions regarding the further scale up of self-testing after the end of the STAR initiative

→ How much does HIVST cost compared to other testing?

→If it is more expensive, is it worth it?

→ What are the most efficient and cost effective HIVST distribution models?

Methods: Cost analysis

- Same methods as 5 other countries (STAR Phase I)
- Economic costs of distribution evaluated from the provider's perspective from April 2018 to March 2019 (July 2018 to June 2019)
- Top-down costing plus detailed expenditure analysis and on-site time in motion analysis (in integrated models)
  - Continuous consultations with implementing staff and team managers
- Cost items categorized as:
  - ***Capital cost*** – start-up training, building & storage, sensitization, equipment and vehicles
- ***Recurrent items*** – personnel, test kits, other supplies, transportation, building operations & maintenance and mHealth
- Excluded study costs not relevant to routine implementation

Methods: Outcomes

- Outcomes based on survey of 7% of kit recipients
  - Uptake
  - Yield (screening positivity)
  - Linkage to confirmatory testing
  - ART initiation
- Estimated intermediate cost-effectiveness:
  - total costs, cost per test kit distributed
  - cost per client with reactive HIVST test
  - cost per client confirmed positive
  - cost per client initiating ART

Models included

1. Facility distribution models:

- **Horizontal PHC (ANC)**:

  pregnant women, secondary only; clinic's own HCT counsellors

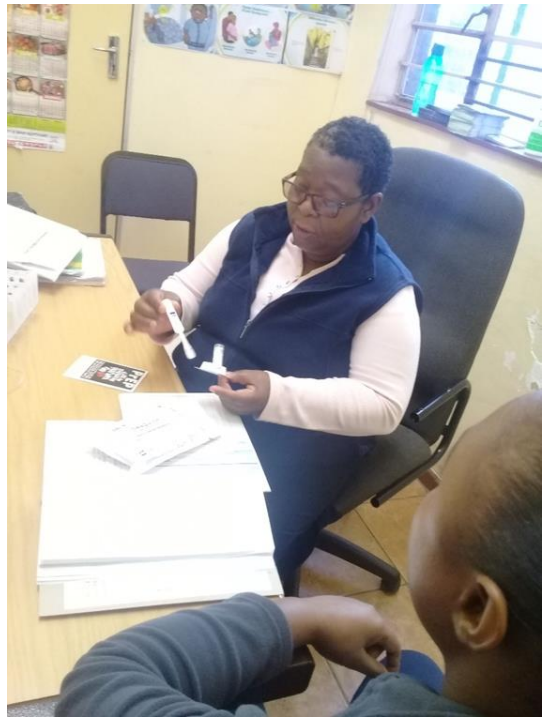
- **Horizontal PHC (Index)**:

  known PLHIV, secondary only; clinic's own HCT counsellors

- **Vertical PHC**:

  any client, primary only; on-site only; stand-alone distribution agents

Horizontal PHC (Index)



Models included

2. Community distribution models:

- **Fixed point:** busy thoroughfares, primary + secondary; on site and off; HCT on site
- **Transport hub:** busy taxi ranks etc, primary; off site only
- **Flexible community model:** all over the place, primary + secondary

Fixed point

Models included

2. Community distribution models:

- **Sex worker network:** to peers, secondary only; integrated into existing FSW programme
- **Key populations**: to FSW and truckers, primary + secondary; not integrated
- **Mobile integration:** alongside mobile HCT, primary + secondary; on site and off; HCT on site

Mobile integration

Models included

3. Workplace distribution models:

- **Workplace (direct)**: large and small workplaces; primary + secondary; same distributing staff as other models
- **Workplace (third party)**: large and small workplaces; primary + secondary; third party distributors

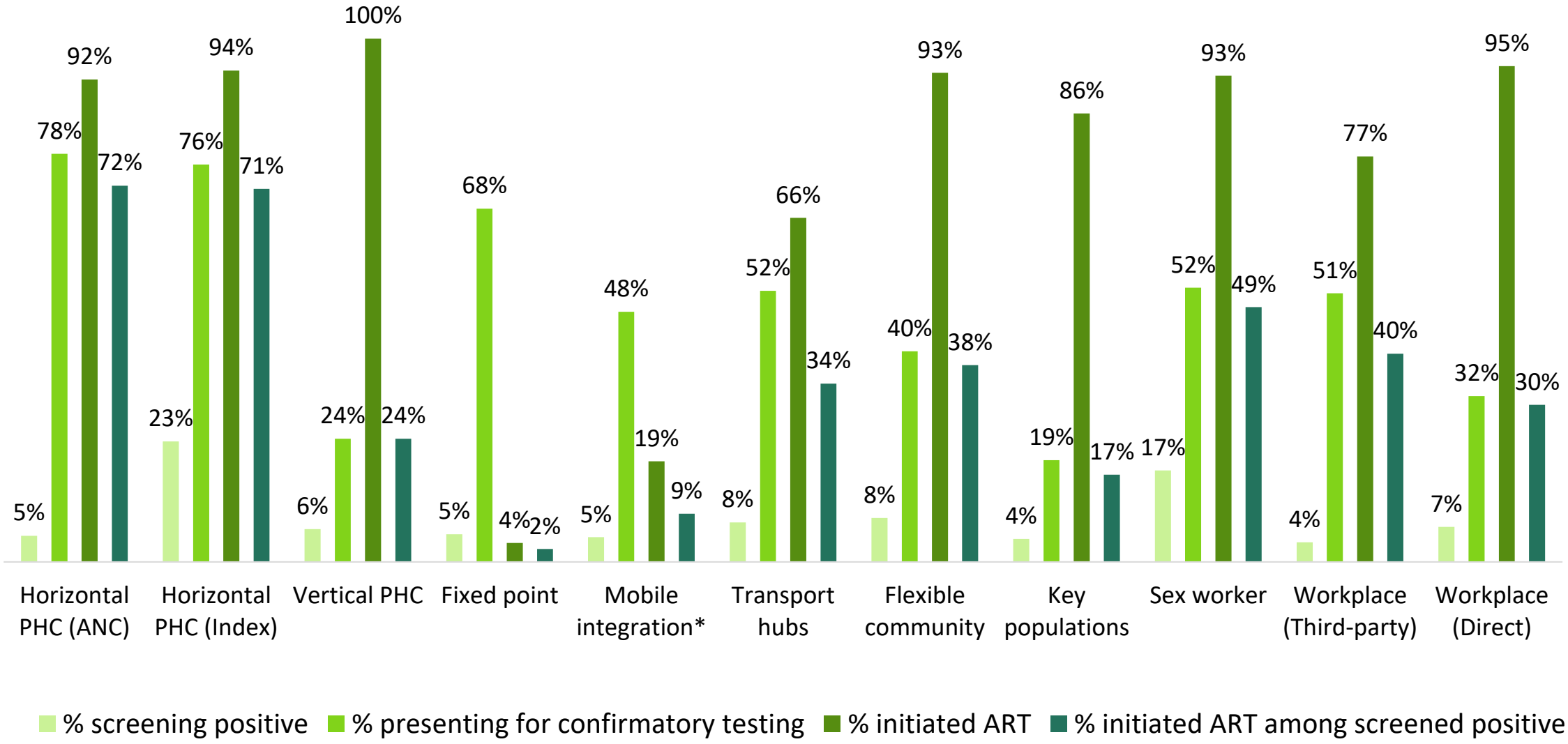
Workplace (third party)

Results: Outcomes

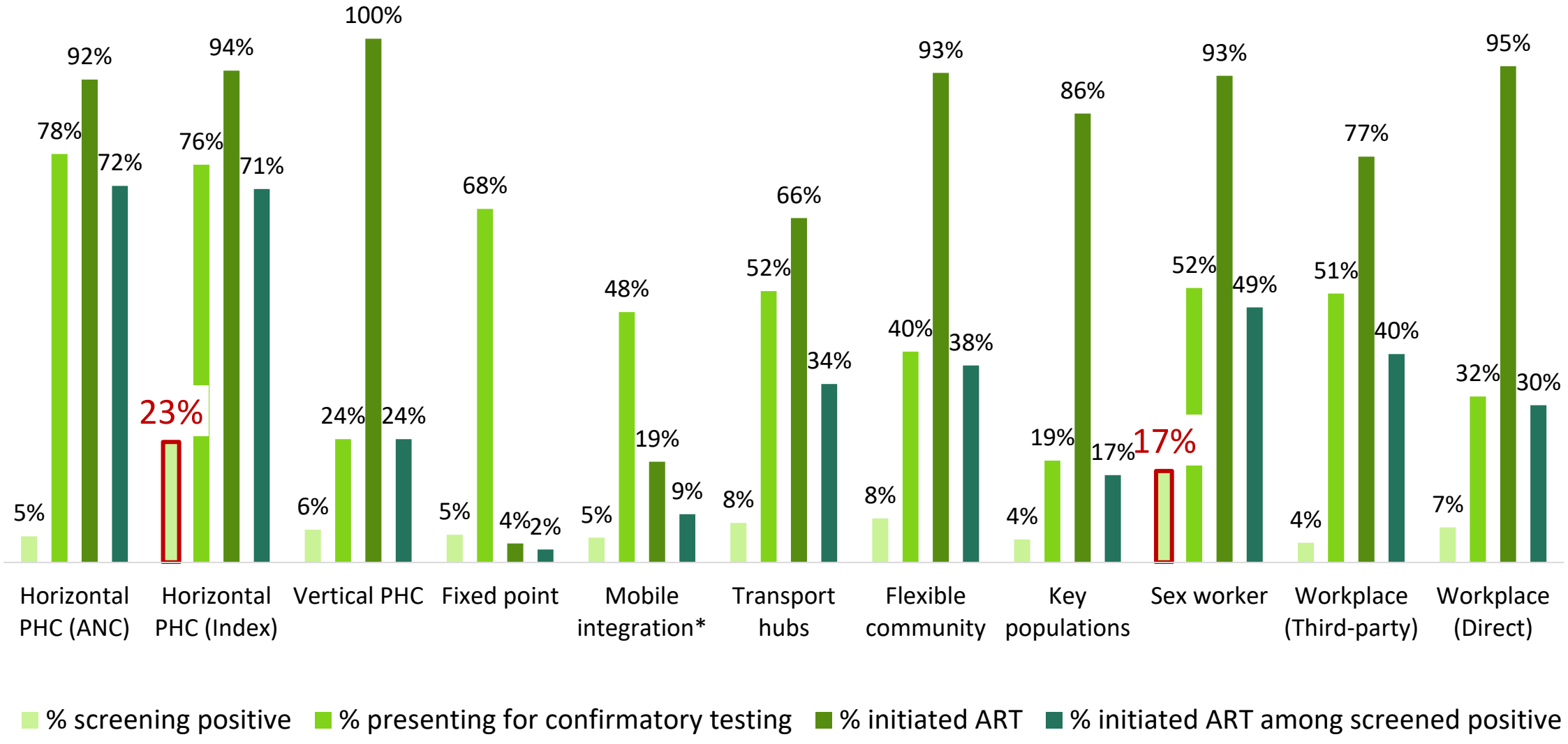
Kits distributed by model

Model	Number of HIVST kits distributed	% of total HIVST kits distributed
Horizontal PHC (ANC)	5,452	0.9%
Horizontal PHC (Index)	3,830	0.6%
Vertical PHC	6,549	1.1%
Fixed point	103,120	17%
Mobile integration	2,173	0.4%
Transport hubs	163,404	27%
Flexible community	43,034	7%
Key populations	16,069	3%
Sex worker	12,218	2%
Workplace (Third party)	211,453	35%
Workplace (Direct)	44,032	7%

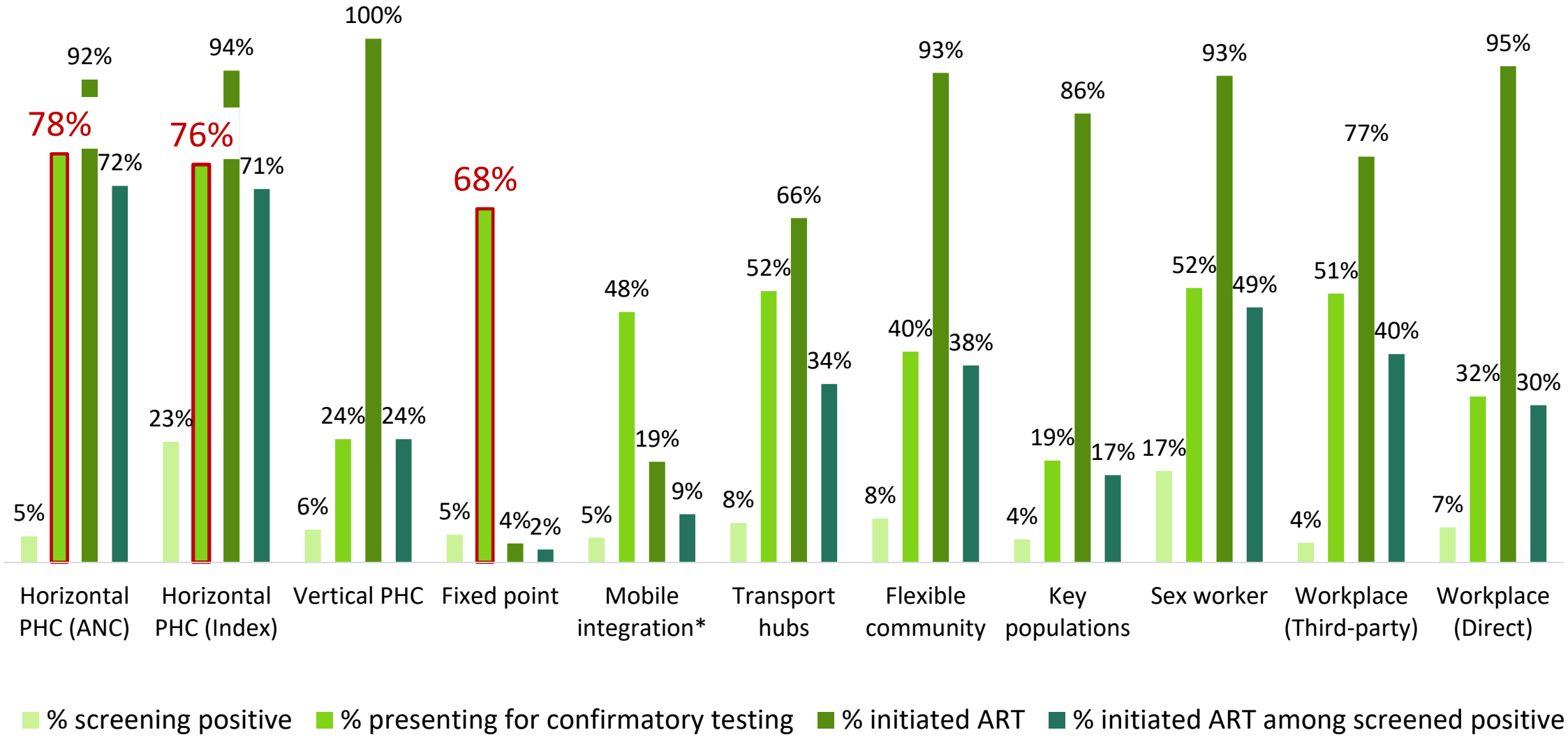
Care cascade by model



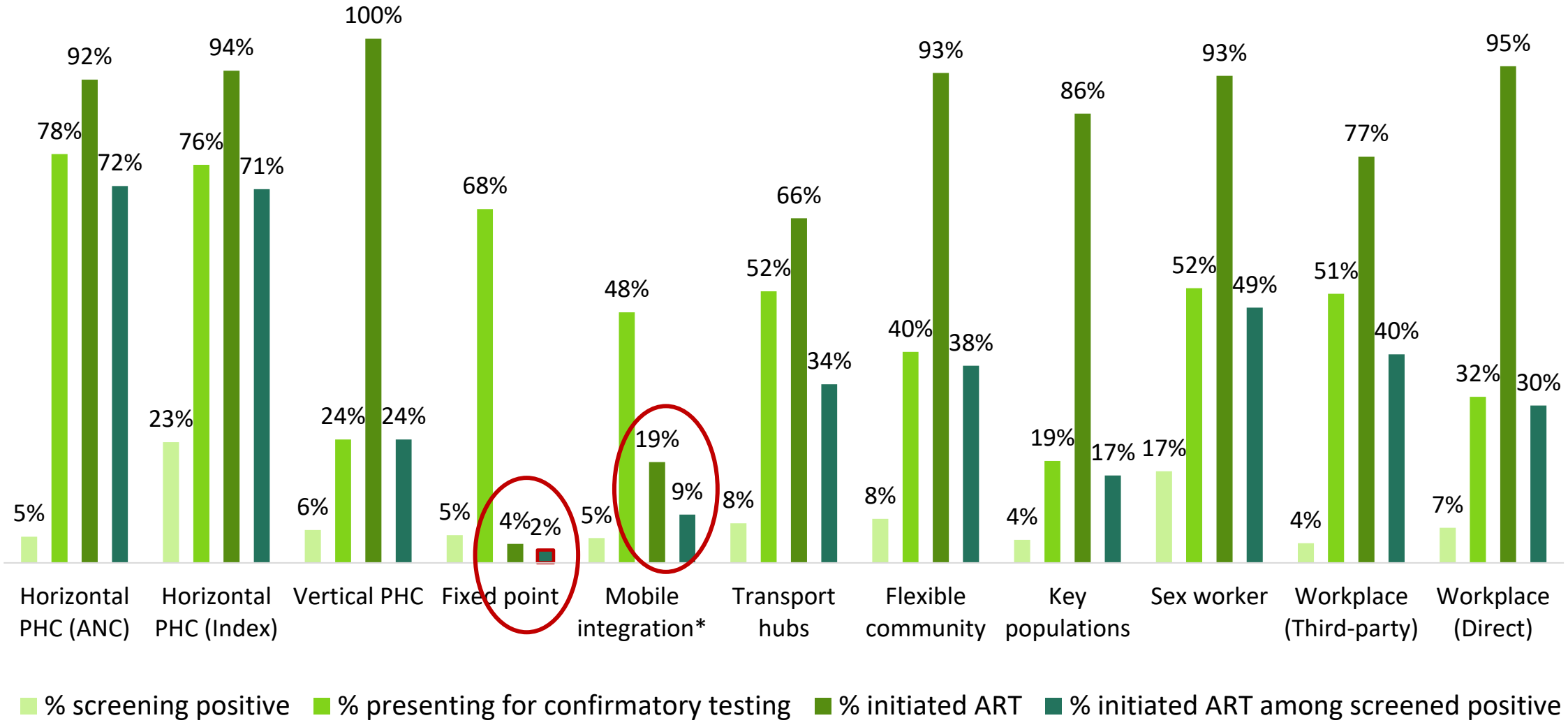
Care cascade by model



Care cascade by model

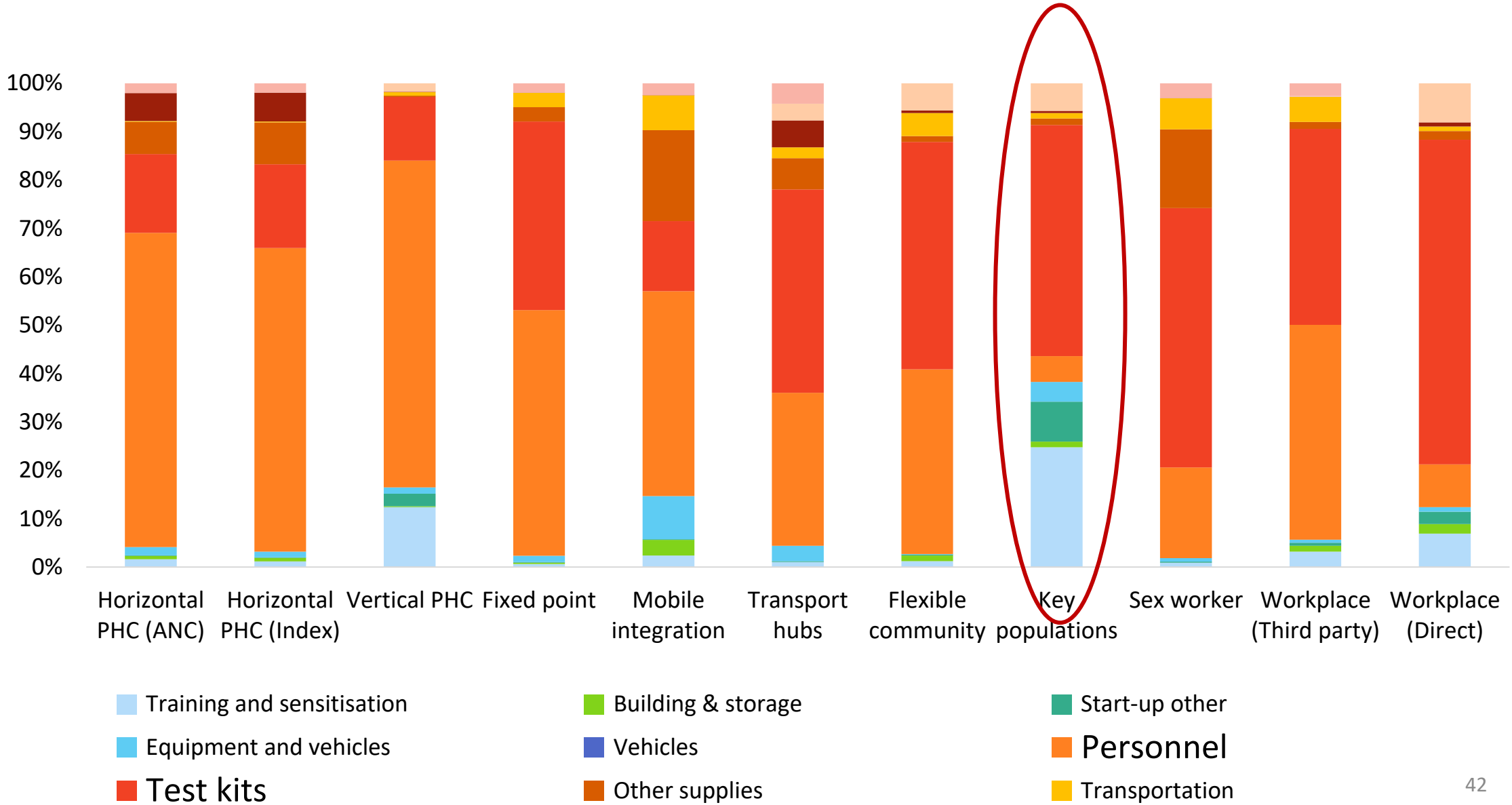


Care cascade by model

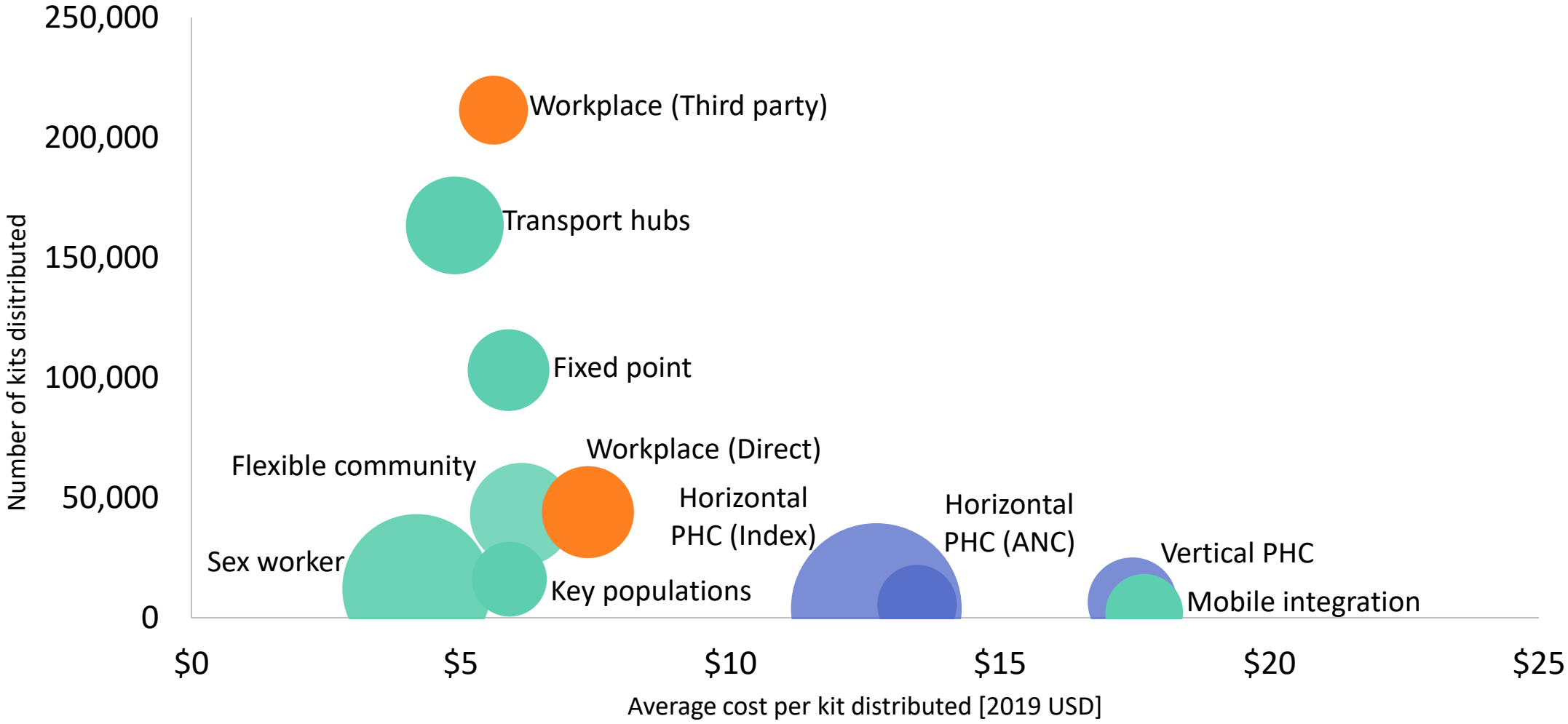


Results: Costs

Distribution of total costs into categories



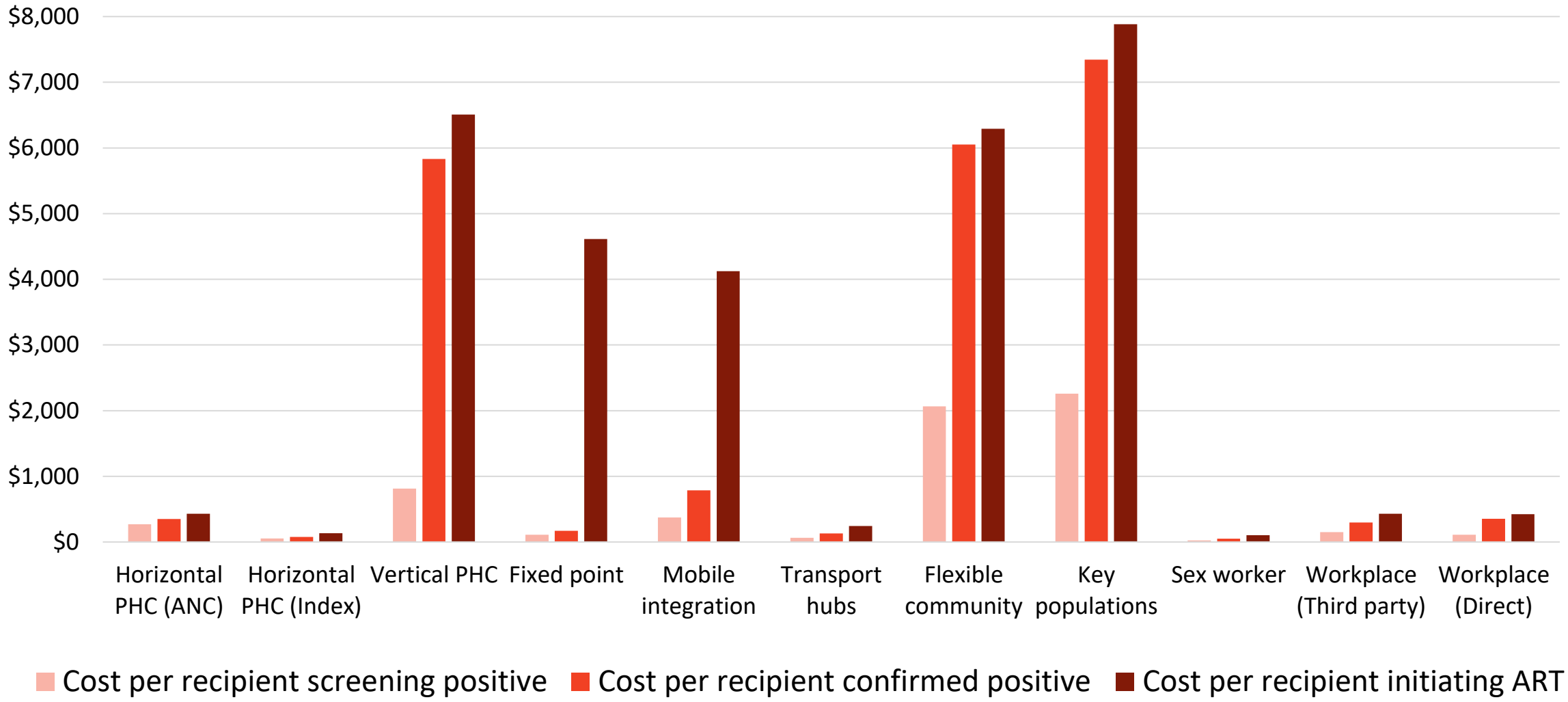
Distribution volume, average cost and yield



Facility models are marked blue, community models, teal, and workplace models, orange. Bubble size represents yield

Results: Intermediary cost-effectiveness

Cost per outcome



Ranking of models by outcome

Number of kits distributed	Cost per test kit distributed	Cost per recipient screening positive	Cost per recipient confirmed positive	Cost per recipient initiating ART
Workplace (Third party)	Sex worker	Sex worker	Sex worker	Sex worker
Transport hubs	Transport hubs	Horizontal PHC (Index)	Horizontal PHC (Index)	Horizontal PHC (Index)
Fixed point	Workplace (Third party)	Transport hubs	Transport hubs	Transport hubs
Workplace (Direct)	Fixed point	Workplace (Direct)	Fixed point	Workplace (Direct)
Flexible community	Key populations	Fixed point	Workplace (Third party)	Horizontal PHC (ANC)
Key populations	Flexible community	Workplace (Third party)	Horizontal PHC (ANC)	Workplace (Third party)
Sex worker	Workplace (Direct)	Horizontal PHC (ANC)	Workplace (Direct)	Mobile integration
Vertical PHC	Horizontal PHC (Index)	Mobile integration	Mobile integration	Fixed point
Horizontal PHC (ANC)	Horizontal PHC (ANC)	Vertical PHC	Vertical PHC	Flexible community
Horizontal PHC (Index)	Mobile integration	Flexible community	Flexible community	Vertical PHC
Mobile integration	Vertical PHC	Key populations	Key populations	Key populations

- **Sex worker network model most cost-effective, key population model least cost-effective of all models**
- **Facility models**: horizontal models cheaper than vertical
- **Workplace models**: yield and ART initiation higher in direct model, testing uptake higher in third party

Limitations

- Implementation was managed by a non-governmental initiative →both costs and outcomes might change once HIVST becomes part of routine care
- Outcomes based on phone surveys of recipients subject to a number of biases, including social desirability → overestimated uptake, underestimated positivity
- Did not differentiate between primary and secondary distribution → probably offering both is the best way to fulfil demand anyway
- Used intermediary outcomes particular to HIVST only → analysis does not help with decision on whether to invest more in HIVST, only which models

Conclusions

- Distribution models varied widely along four characteristics: distribution volume; yield; linkage to care; and cost
- **Distribution volume:** highest in models that targeted public spaces with high footfall (fixed point and transport hub distribution), followed by workplace models
- **Yield**, or screening positivity, was highest in the models targeting sex worker networks and partners of known HIV positives (index testing)
- **Linkage**
  - **to confirmatory testing**: highest in models that offered HTC on site
  - **to ART initiation**: highest in models that were situated within a facility

Conclusions

- The workplace, transport hub or fixed point models are **best for distributing the largest number of kits**.
- The transport hubs and workplace models as well as the sex worker model **distribute kits in the most efficient and least costly way**.
- If the aim is to distribute kits in a way that **finds the most HIV positive people most cheaply**, secondary distribution via index cases at facility as well as sex worker network distribution are most efficient
- **Average costs per kit distributed comparable** to cost of community-based HIVT distribution in Malawi, Zambia and Zimbabwe ($8.91 to $17.70)[1,2]
- **Cost per person confirmed positive** ($52 to $7,345) **way higher than cost per positive HIV test of rapid-test based modalities** ($4.74 to $17.89 in 2016 USD) → need modelling of cost per additional PLHIV found positive[3]

[1] Maheswaran et al., BMC Med 2016

[2] Mangenah JIAS 2019

[3] Johnson et al, Sci. Rep 2019

Next steps

- Model full cost effectiveness using Thembisa
  - Replacement effects between HIVST and other testing
  - Cost per additional person found positive
  - Cost per life year saved, taking into account full impact on programme

→ allows government to compare cost-effectiveness of HST against other HTS modalities and other HIV and health interventions

Thanks to…

- National Department of Health
- staff and patients of the clinics and distribution teams involved
- staff at the Wits Reproductive Health Institute (Wits RHI), Society for Family Health, and Population Services International
- Vinolia Ntjikelane, Nonhlanhla Tshabalala and Clive Ramushu for stellar assistance with the data collection for the time and motion study and the cost analysis overall

This analysis was funded through the grant “Enhancing the evidence-base of HIV self-testing for young men” (BMGF OPP1189095) to Ezintsha, a division of Wits RHI, and HE^{2}RO.

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Using HIV self-testing to increase the affordability of community-based HIV testing services: A longitudinal analysis in Lesotho

Marc d'Elbée – Research fellow
Centre for Health Economics in London
London School of Hygiene and Tropical Medicine

STAR Webinar 6/6
HIV costing, cost-effectiveness and impact modelling
Thursday 22nd October 2020

Background

- Lesotho has the second highest HIV burden in the world:
  - Prevalence of 25.6%
  - Annual incidence of 1.1% among adults (LePHIA, 2019)

- Lesotho MoH added HIV self-testing (HIVST) to the national HTS strategy in 2017

- Population Services International community-based HTS programme is the largest in Lesotho with mobile outreach and index testing activities in five priority districts (Maseru, Leribe, Berea, Mafeteng, Mohale's Hoek)

- The objectives of this study were:
  - To estimate over two years the full costs of the HTS programme and the full and incremental costs of adding HIVST
  - To compare costs for HIV-positive case finding before and after integration of HIVST in order to investigate potential efficiency gains from the addition of self-testing and from continuous programme development

Methods

- Data collection on provider's costs and programmatic outcomes between May 2017 and April 2019 (**Figure 1**).
- 3 periods:
  - Period 1 - **HTS only (before introduction of HIVST)**
  - Period 2 - **HTS and HIVST**
  - Period 3 - **HTS and HIVST with individual HIVST booths on-site**

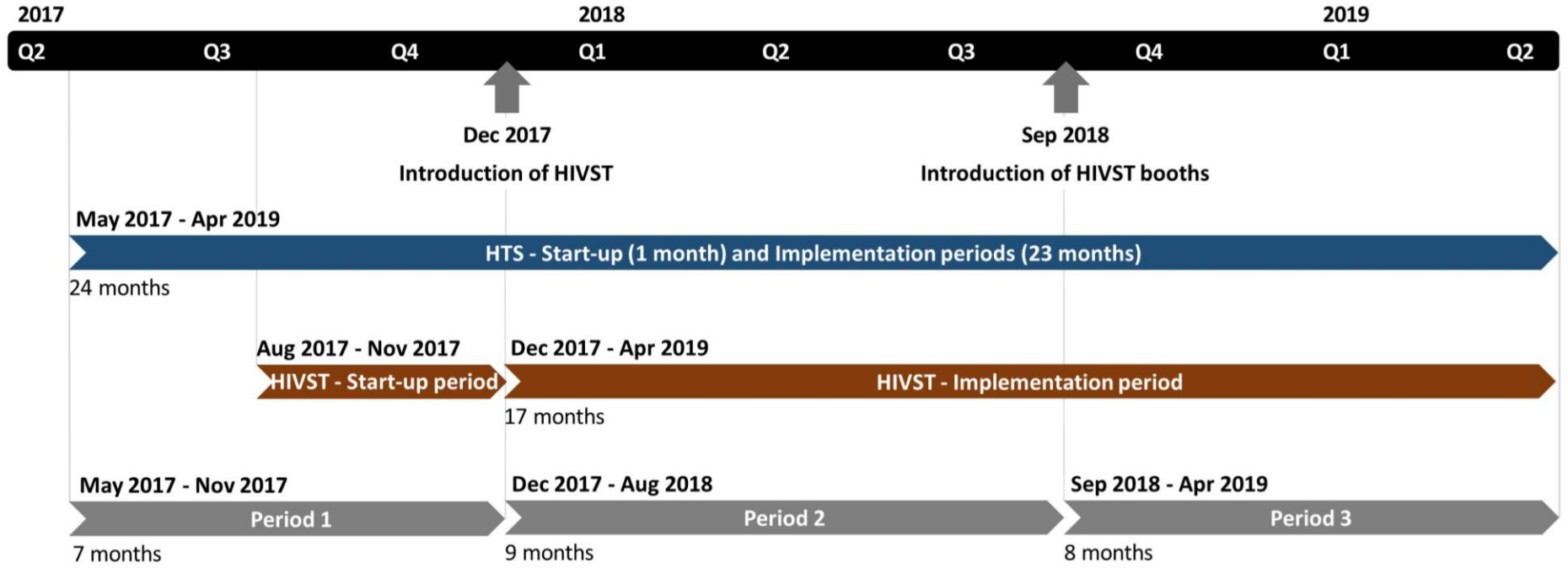


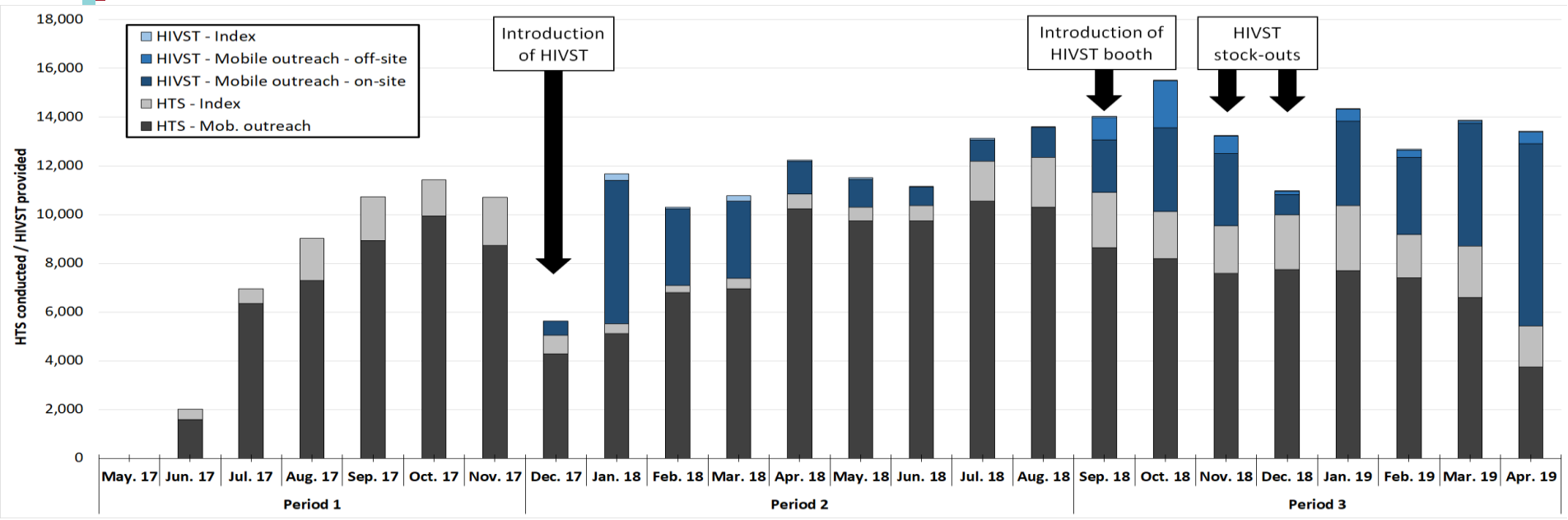
Figure 1. Timelines of the community-based HIV testing services and major changes in strategy

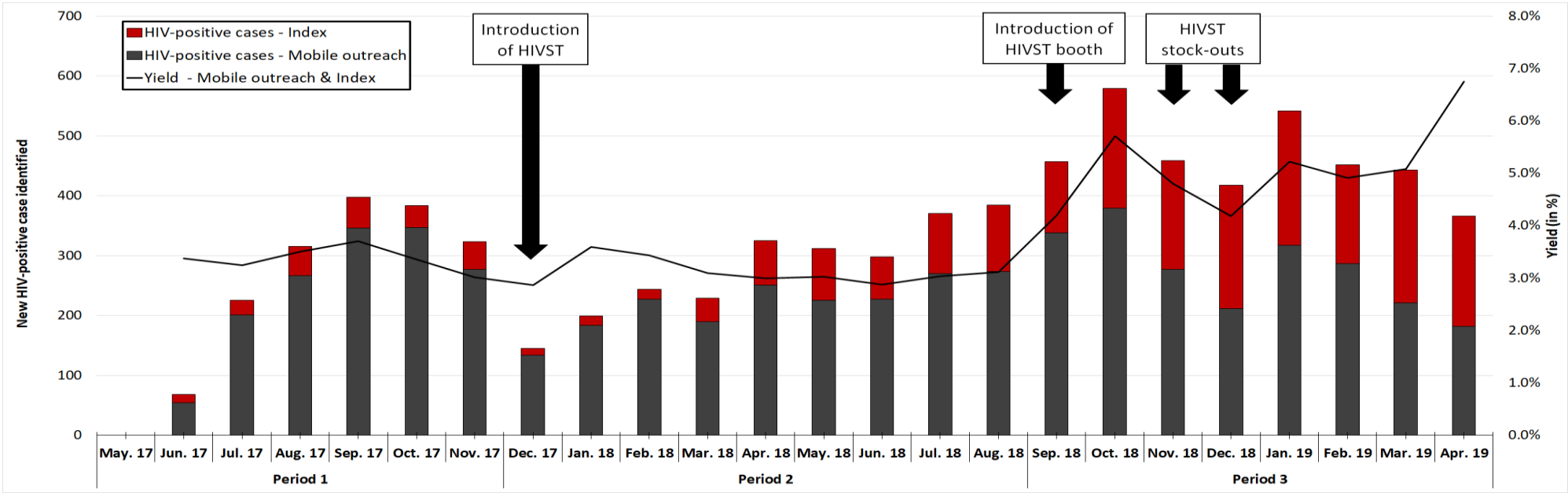
Methods

HTS mobile outreach with individual self-testing booths Maseru – Oct. 2018

- **Top-down costing** for each implementation period:
  - Full HTS costs
  - Full HIVST costs and incremental costs of adding HIVST onto HTS
  - Cost per HIV positive case identified (including both HTS and HIVST costs)
- **Bottom-up costing** through site observations and interviews with senior staff to estimate economic costs and collect allocation factors
- **A time and motion study** to observe staff providing both HTS and HIVST services:
  - Allocate personnel costs based on the daily time spent on each activity
  - Estimate provider's indirect time i.e. staff time spent not seeing any clients (e.g. travel time and administrative work)
  - In incremental HIVST costing analysis, providers' indirect time is allocated fully to conventional HTS, while in the full HIVST cost analysis, indirect time is shared between HTS and HIVST
- **Univariate sensitivity and scenario analyses** to assess the impact of key cost assumptions on the average incremental costs per HIVST kit distributed and costs per HIV-positive case identified for the latest costs data (period 3)

Results - HTS and HIVST outcome data May 2017 – Apr. 2019





Results – HTS and HIVST cost analysis

- Main drivers of costs are:
  - Personnel costs at headquarters & in the field,
  - Testing supplies,
  - Vehicle operation and maintenance
- Wide variation between HIVST full/incr. costs
- Difference between HIVST full/incr. costs is driven by indirect personnel cost allocation

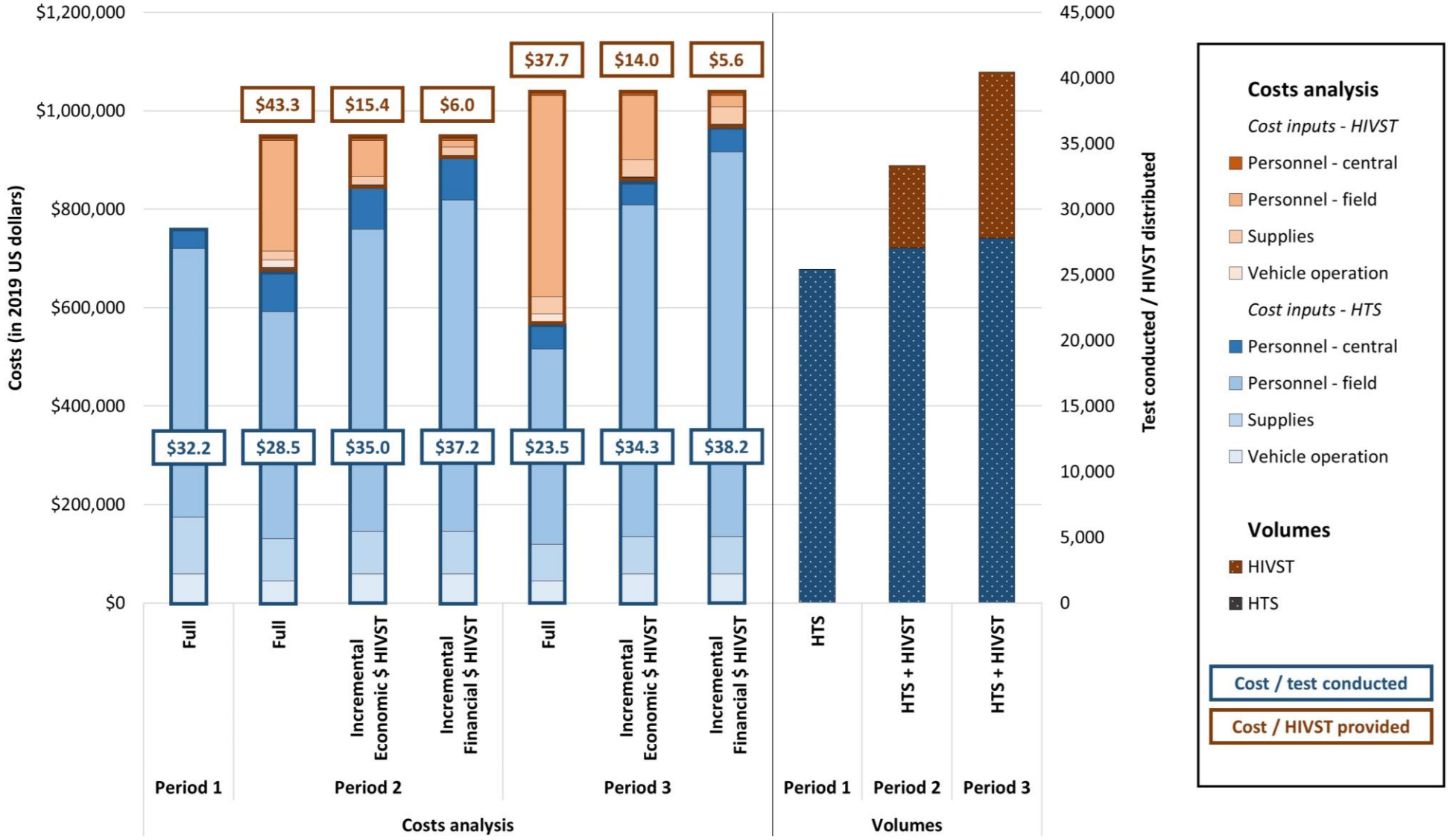


Figure 3. HTS and HIVST costs drivers, average costs and volumes per analysis period (2019 US$)

Results – Cost per HIV-positive case finding

- Costs per HIV-positive case identified (**Table 1**):
  - Increased between period 1 (US$956) and period 2 (US$1,249)
  - Dropped in period 3 (US$813) when booths allowed onsite self-testing and immediate confirmatory testing

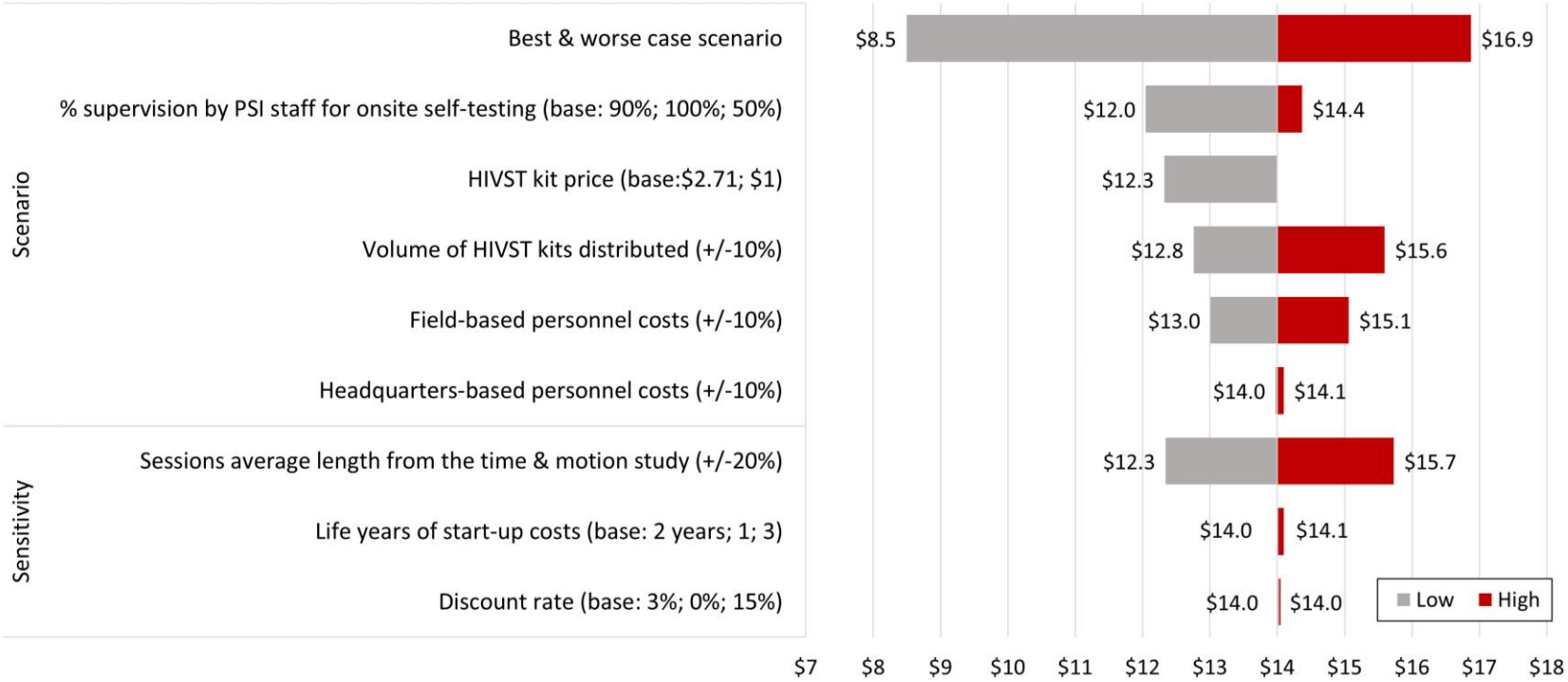
	Period 1	Period 2	Period 3
Total costs (HTS and HIVST services)	$819,640	$1,043,448	$1,131,003
HIV-positive cases identified	858	836	1392
Yield (%)	3.4	3.1	5.0
Cost per HIV-positive case identified	**$956**	**$1,249**	**$813**

Table 1. Quarterly averages of costs per HIV-positive case identified by period (2019 US$)

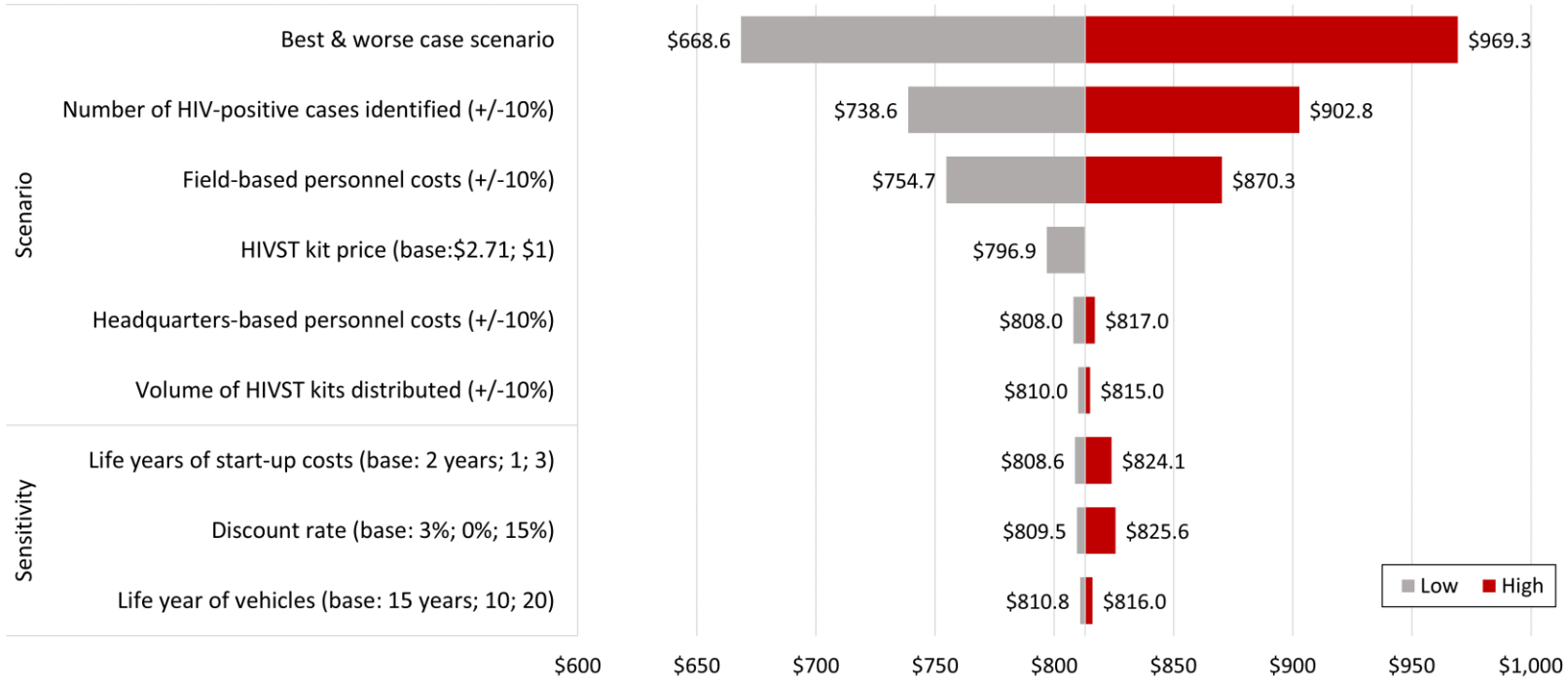
- Increase of HIV-positive case finding, and yield is driven by an increase of index testing activities, thanks to the addition of self-testing booths in period 3, allowing more staff to conduct index testing instead of being mobilized at the mobile outreach

Results - Sensitivity and scenario analyses

Costs per HIVST kit distributed (2019 US dollars)



Costs per HIV-positive case identified (2019 US dollars)



Conclusions

- Integration of HIVST improved the HTS programme efficiency as defined by increased rates of HIV positive case finding which is a great achievement in the current HIV testing landscape
- Budgeting of community-based HIVST interventions using incremental costs risks to underestimate needs if the HTS programme is not running well
- The reporting of both full and incremental cost estimates can increase transparency for use of costing data in priority setting, budgeting and financial planning for scale-up

Thank you for joining today! Any questions?

Acknowledgements:

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- **All partners**
- **Study participants**

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AIDS journal (Sept. 2020):

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CHIL Centre for Health Economics in London

WEBINAR 6/6

HIV Costing, Cost-Effectiveness and Impact Modeling

Thursday 22 October 2020
9am EST/ 3pm CAT

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HIVST at what price? HIVST pricing experiment in Zimbabwe

Harsha Thirumurthy, PhD
Associate Professor of Medical Ethics and Health Policy
Associate Director, CHIBE

October 2020

CHIBE

Penn
University of Pennsylvania

Background

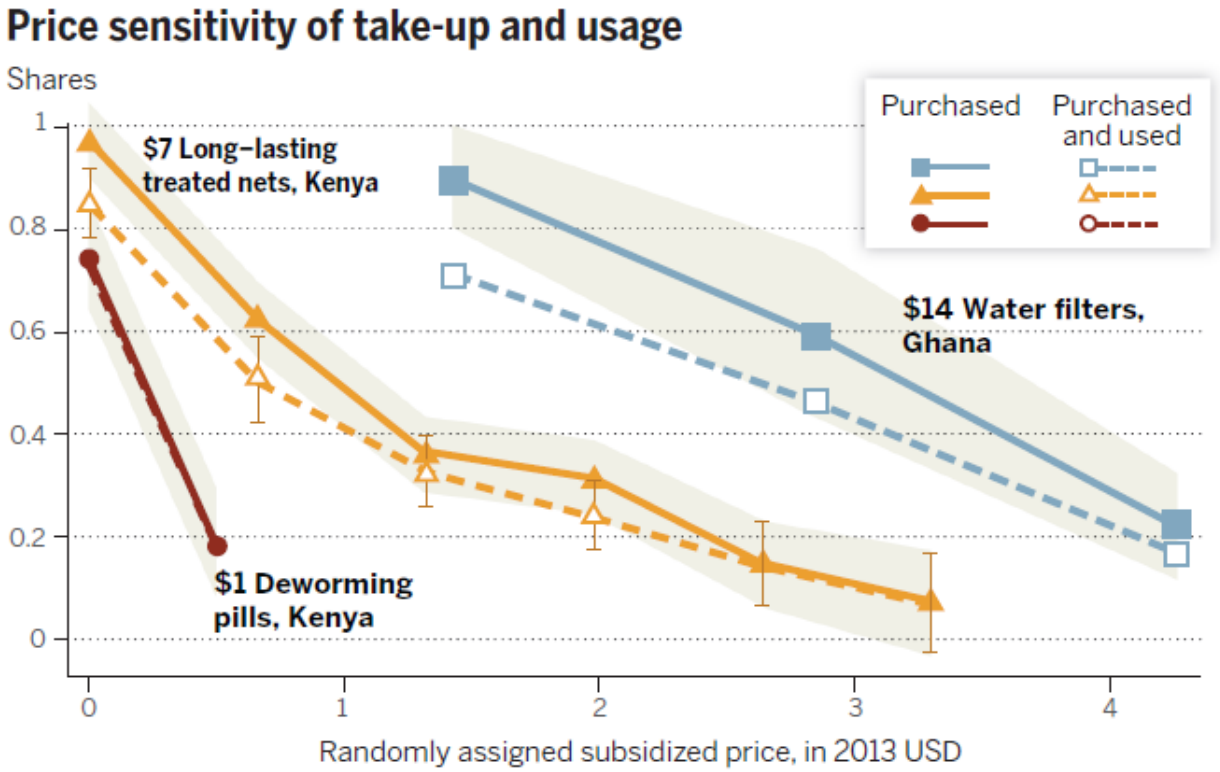

Fig. 1. Price sensitivity of take-up and usage. Usage of water filters was measured after 1 month (*2*). Usage of bednets was measured after 1 year (*3*). Usage of deworming pills is identical to take-up because the pills were placed in children's mouths by teachers (*5*). Shaded areas correspond to 95% confidence intervals for purchase rates. For purchase and usage of bednets, 95% confidence intervals are indicated with capped bars.

- Demand for health products & services is highly sensitive to price in low- and middle-income countries
- Even small increases in prices lead to substantial decline in demand

Dupas *Science* 2014

Center for Health Incentives & Behavioral Economics

Multiple methods to assess demand for HIVST

- **Stated willingness to pay**
  - Median US$1 among pregnant women in Kisumu, Kenya following HIVST intervention (Thirumurthy *JAIDS* 2018)
- **Discrete choice experiments**
  - Price is significant predictor of (hypothetical) choice (Sibanda *JIAS* 2019)
- **Revealed preference**
  - 35% HST uptake among pharmacy clients offered self-tests for US$1; 84% among those seeking HIV testing (Mugo PLOS One 2017)
- **Price experiments**

Objectives

- Experimentally assess demand for oral fluid self-tests in Zimbabwe
- Examine the role of multiple factors that may influence demand
  - Price
  - Distribution strategy
  - Marketing factors (promotional messages)
- Examine demand in priority populations

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Original Investigation | Infectious Diseases

Effect of Prices, Distribution Strategies, and Marketing on Demand for HIV Self-testing in Zimbabwe

A Randomized Clinical Trial

Wei Chang, MSW, MPH; Primrose Matambanadzo, MPH; Albert Takaruza, BSc; Karin Hatzold, MD, MPH; Frances M. Cowan, MD; Euphemia Sibanda, PhD; Harsha Thirumurthy, PhD

Chang *JAMA Network Open* 2019

Methods

- Randomized trial with factorial design
  - Conducted Feb–April 2018 in urban & rural communities near Harare
  - 4,000 randomly selected households (index participant at home)
- Randomized HIVST offer
  - Price (free, $0.50, $1, $2, $3)
  - Distribution strategy (clinics vs. pharmacies; retail stores vs. CHWs)
  - Marketing factors (messages emphasizing benefits of HIVST)
- Primary outcome: Self-test purchase (distributor records)

Results

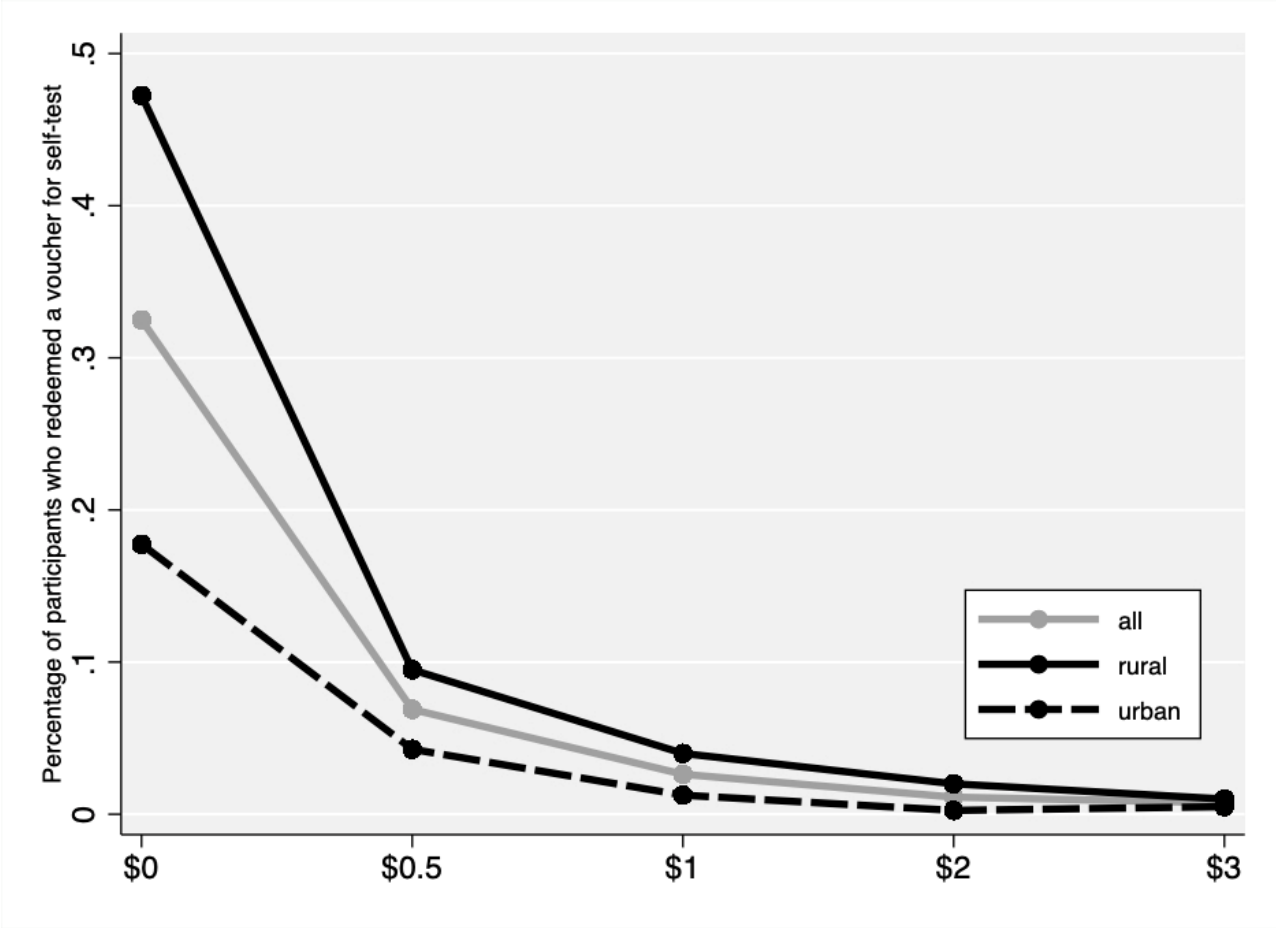
Table 1. Participant Characteristics

Variable	No. of Participants	No. (%) Full Sample
No.	3996	3996
Age, mean (SD), y	3996	35.1 (14.7)
Monthly income, median (IQR), US $	1951	60.0 (20.0-150.0)
Female	3996	2841 (71.1)
Married	3909	2568 (65.7)
Educational level	3996	
No or some primary schooling		409 (10.2)
Completed primary schooling		419 (10.5)
Some secondary schooling		857 (21.4)
Completed O level		1971 (49.3)
Completed A level or higher		340 (8.5)
Site	3996	
Rural		2000 (50.1)
Urban		1996 (49.9)
Ever been tested for HIV	3960	3237 (81.7)
Tested in the past 12 mo	3996	1813 (45.4)
Had HIV-positive result in most recent HIV test	3156	259 (8.2)
Have a regular sexual partner	3996	2836 (71.0)
Partner ever been tested for HIV	2484	2128 (85.7)
Partner had HIV-positive result in most recent HIV test	2058	155 (7.5)
Age at first sexual intercourse, median (IQR), y	2528	20.0 (18.0-22.0)
No. of partners in past mo	3557	
0		1333 (37.5)
1		2046 (57.5)
>1		178 (5.0)
Always used condom in past month (among those with ≥1 partner)	2250	1948 (86.6)

Average age 35 years and 71% female

45% had tested in past 12 months

Effects of prices on HIVST uptake



- 32% obtained self-tests at $0
- Lower uptake in rural areas
- Compared to $0, significantly lower demand at all prices >$0 (unadjusted OR 0.05; 95% CI 0.04-0.07)
- Demand more sensitive to price in rural areas
- No difference by gender and no evidence of better targeting at higher prices

What else influences demand?

Table 3. Demand for HIV Self-testing by Distribution Strategy and Promotional Message

Groups	No. of Participants	Obtained Self-test, No. (%)	AOR (95% CI)[a]	
			Adjusted for Price	Adjusted for Price and Sex
Group by distribution strategy				
Rural				
CHW	1000	138 (14.0)	1 [Reference]	1 [Reference]
Retail store	1000	117 (11.7)	0.77 (0.56-1.05)	0.77 (0.57-1.05)
Urban				
Clinic	997	28 (2.9)	1 [Reference]	1 [Reference]
Pharmacy	999	68 (6.8)	2.78 (1.74-4.45)	2.79 (1.74-4.48)
Group by promotional method				
No message	998	102 (10.2)	1 [Reference]	1 [Reference]
Privacy alone[b]	999	85 (8.5)	0.78 (0.56-1.09)	0.79 (0.56-1.11)
Early treatment alone[c]	999	84 (8.4)	0.77 (0.55-1.07)	0.77 (0.55-1.08)
Privacy and early treatment[b,c]	1000	80 (8.0)	0.72 (0.51-1.01)	0.74 (0.53-1.04)

- In urban areas, significantly higher demand with distribution at pharmacies rather than clinics
- In rural areas, some evidence of lower demand at retail outlets compared to CHWs
- Promotional messages had no significant effect

Conclusions

- Free distribution is essential for achieving high testing uptake
- Limited evidence that higher prices are better at screening in non-testers
- Retail outlets important in urban areas; CHWs in rural areas
- Promoting uptake among non-testers requires additional interventions beyond free distribution alone

Acknowledgements

Wei Chang
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Albert Takaruza
Karin Hatzold
Frances M. Cowan
Euphemia Sibanda

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NEXT STEPS IN THE ECONOMICS OF HIVST

- Special issues on STAR Research in preparation
- ATLAS: Economic evaluation of HIVST introduction in West Africa among Key pops
- Scale up cost projections methods: for use in planning and modelling
- Lessons for Economics of Covid-19 diagnostics;
- Lessons for other Self-care diagnostics
- *Remember,* to reach last few cases and to have large impact, large scale screening be needed, costs will be higher but much potential for integrated screening programmes.

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Thank you! Merci !

WEBINAR

Considerations for HIVST in the Context of COVID-19

Tuesday 23 June 2020
9 am EST/ 3pm UTC

WEBINAR #2

Strategic leveraging of HIVST in the COVID-19 pandemic, reaching key and vulnerable populations

Tuesday 30 June 2020
9 am EST/ 3pm UTC

WEBINAR

HIV Self-Testing: Where Are We with Policy, HIV Self-Test Kit Regulation and Registration and Safety Monitoring

Thursday 09 July 2020
11am EST/ 5pm UTC

WEBINAR 2/6

HIVST for Key Populations

Thursday 13 August 2020
9am EST/ 3pm UTC

WEBINAR 3/6

HOW TO DELIVER HIVST IN A SUSTAINABLE MANNER TO INCREASE TESTING COVERAGE AMONG PRIORITY POPULATIONS

Thursday 27 August 2020
9am EST/ 3pm UTC

WEBINAR 4/6

Self-testing scale up and health systems: integrating HIVST distribution into health systems, M&E, HIVST commodity quantification and forecasting and PSM

Thursday 17 September 2020
9am EST/ 3pm UTC

WEBINAR 5/6

Demand Creation and Communications, Community Engagement and Community Based Monitoring

Thursday 1 October 2020
9am EST/ 3pm UTC

WEBINAR

HIV SELF-TESTING PRODUCTS, TECHNICAL UPDATES ON CLINICAL PERFORMANCE, USABILITY AND ACCEPTABILITY IN PROGRAM IMPLEMENTATION

Thursday 15 October 2020
8am EST/ 2pm UTC

WEBINAR 6/6

HIV Costing, Cost-Effectiveness and Impact Modeling

Thursday 22 October 2020
9am EST/ 3pm CAT