Which Scale Up Strategies/Programmatic Mixes are most Cost-Effective?

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UNAIDS

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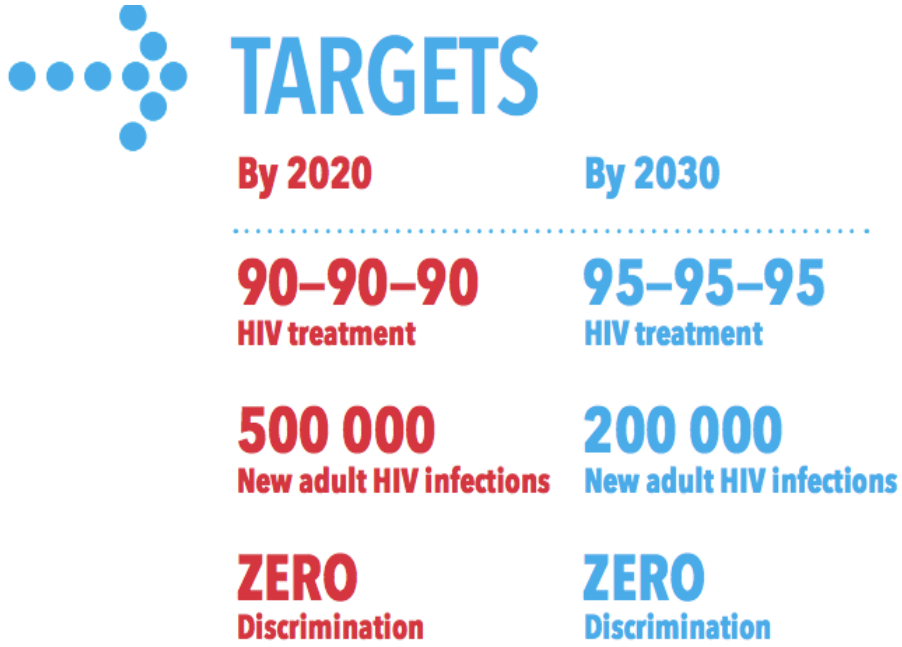
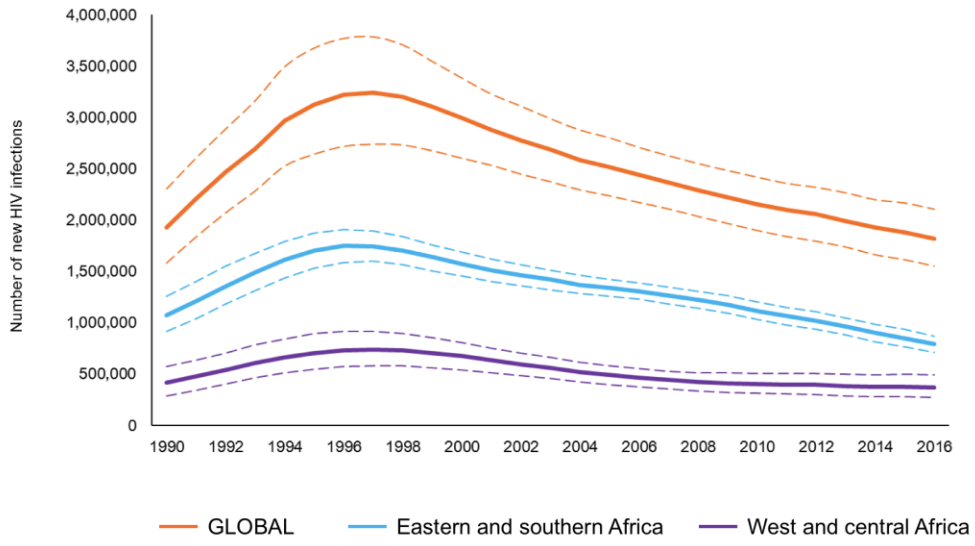
Outline

- Scaling up for Impact
- Critical Point of the Response
- Choices of strategies
- Accelerating Implementation
- Conclusions

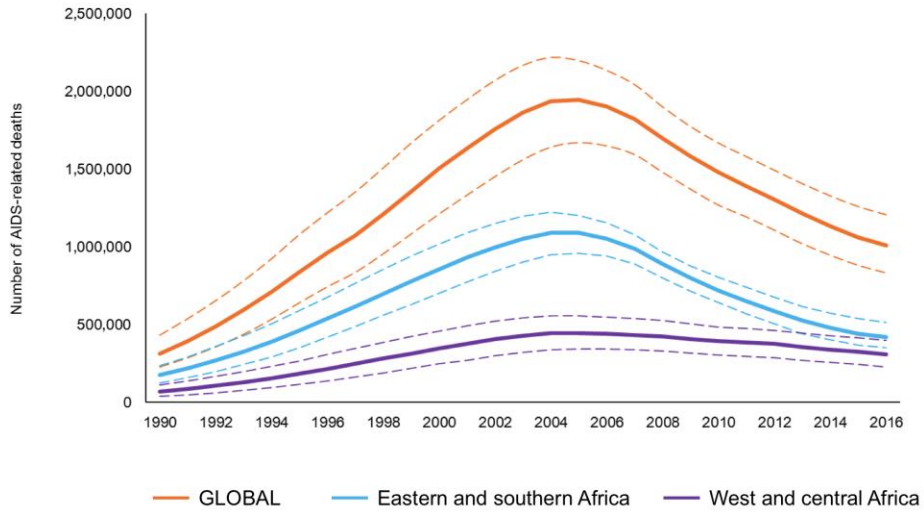


Impact

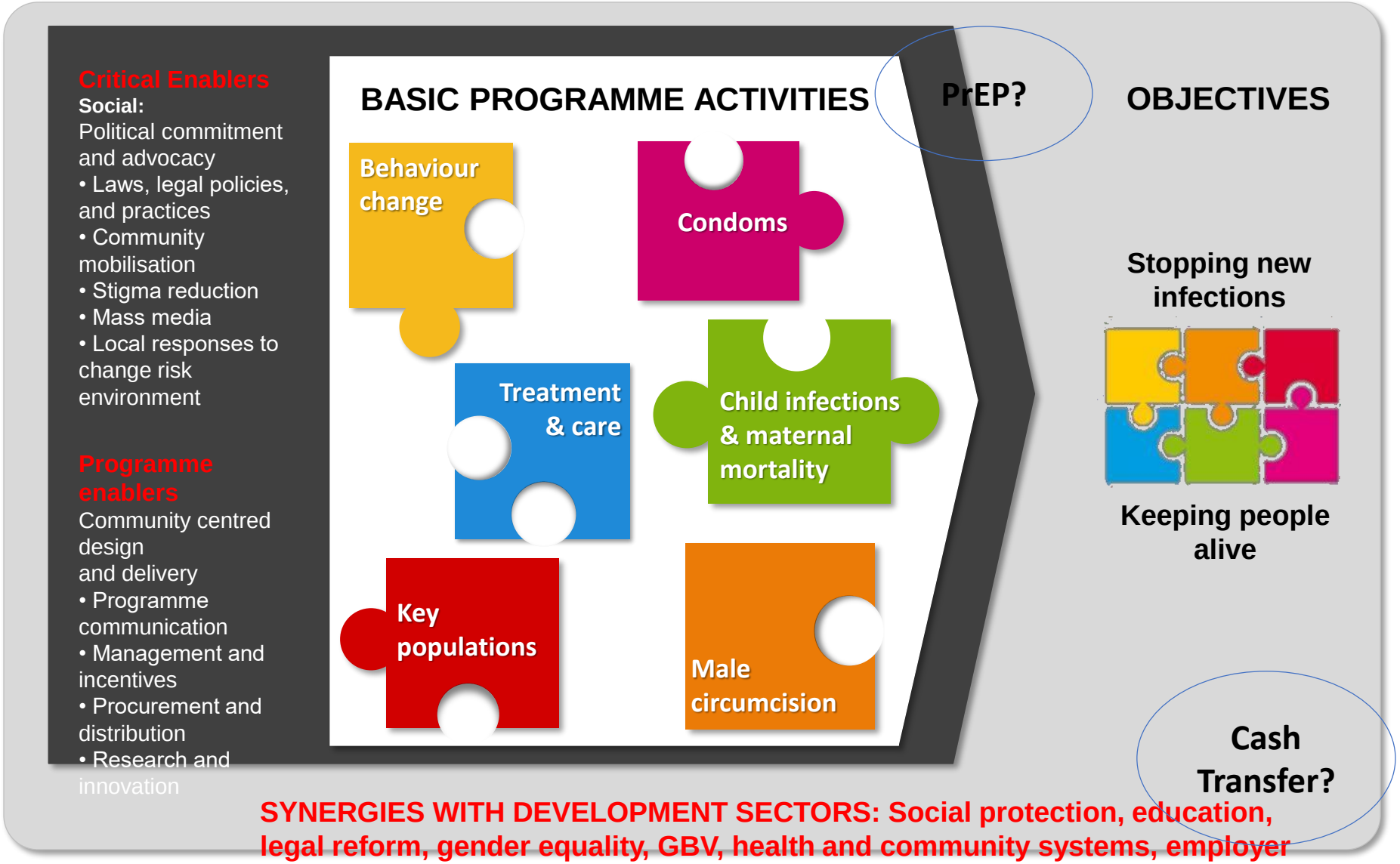
NEW HIV INFECTIONS, 2000–2016



AIDS-RELATED DEATHS, 2000–2016

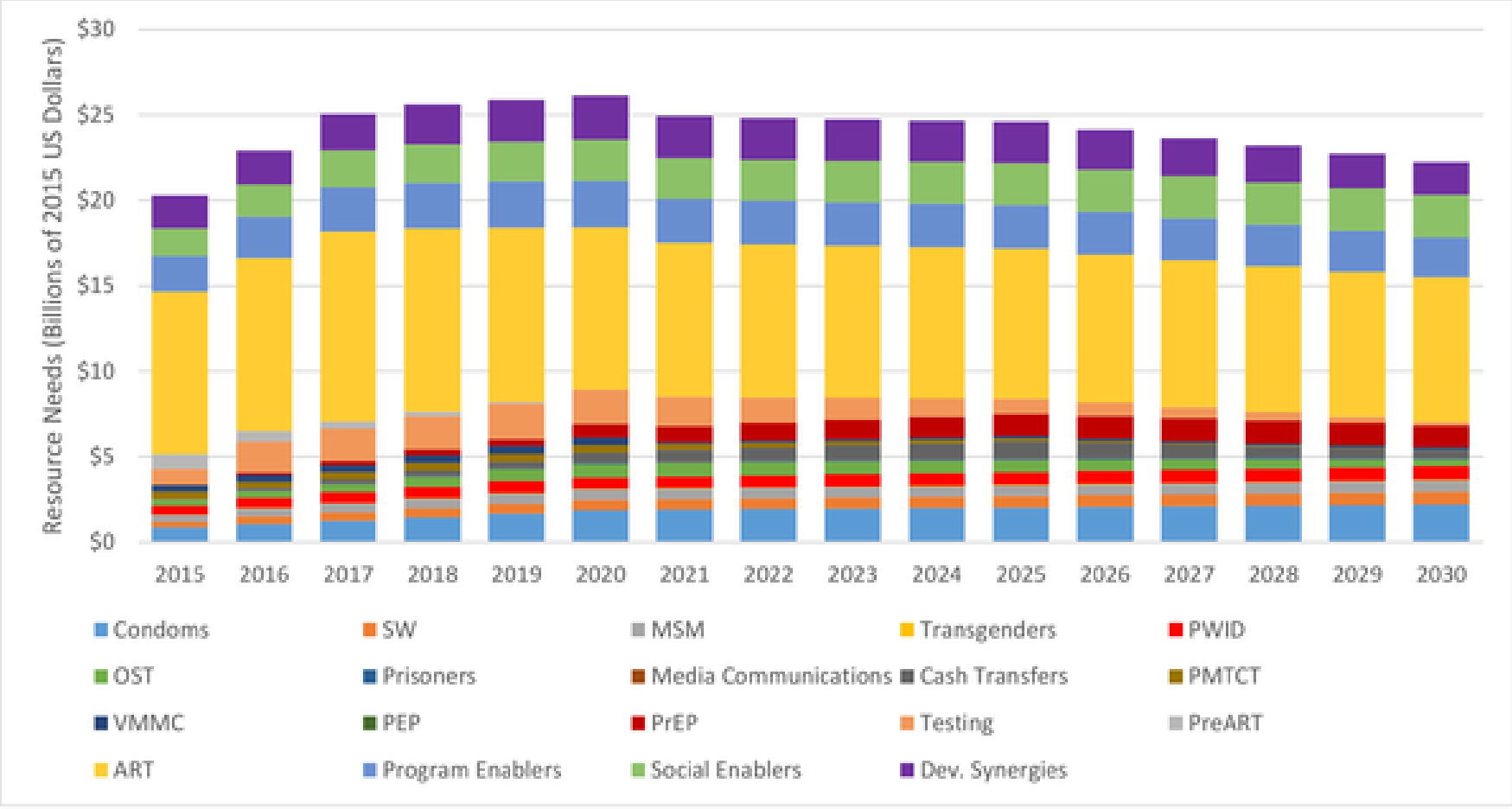


The platform: investing strategically to maximize impact



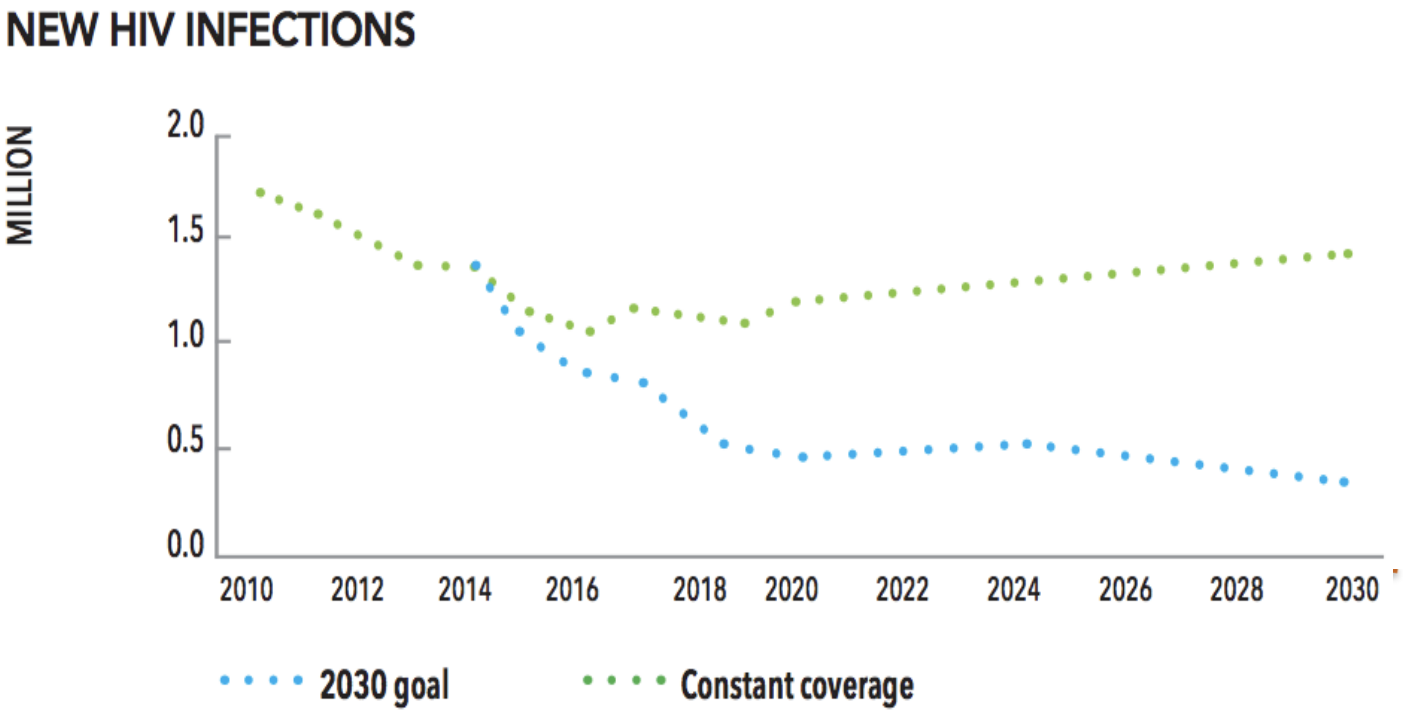
SYNERGIES WITH DEVELOPMENT SECTORS: Social protection, education, legal reform, gender equality, GBV, health and community systems, employer practices

Investment Approach: Combination of Interventions and Resource Needs by Intervention, 2013–2030.



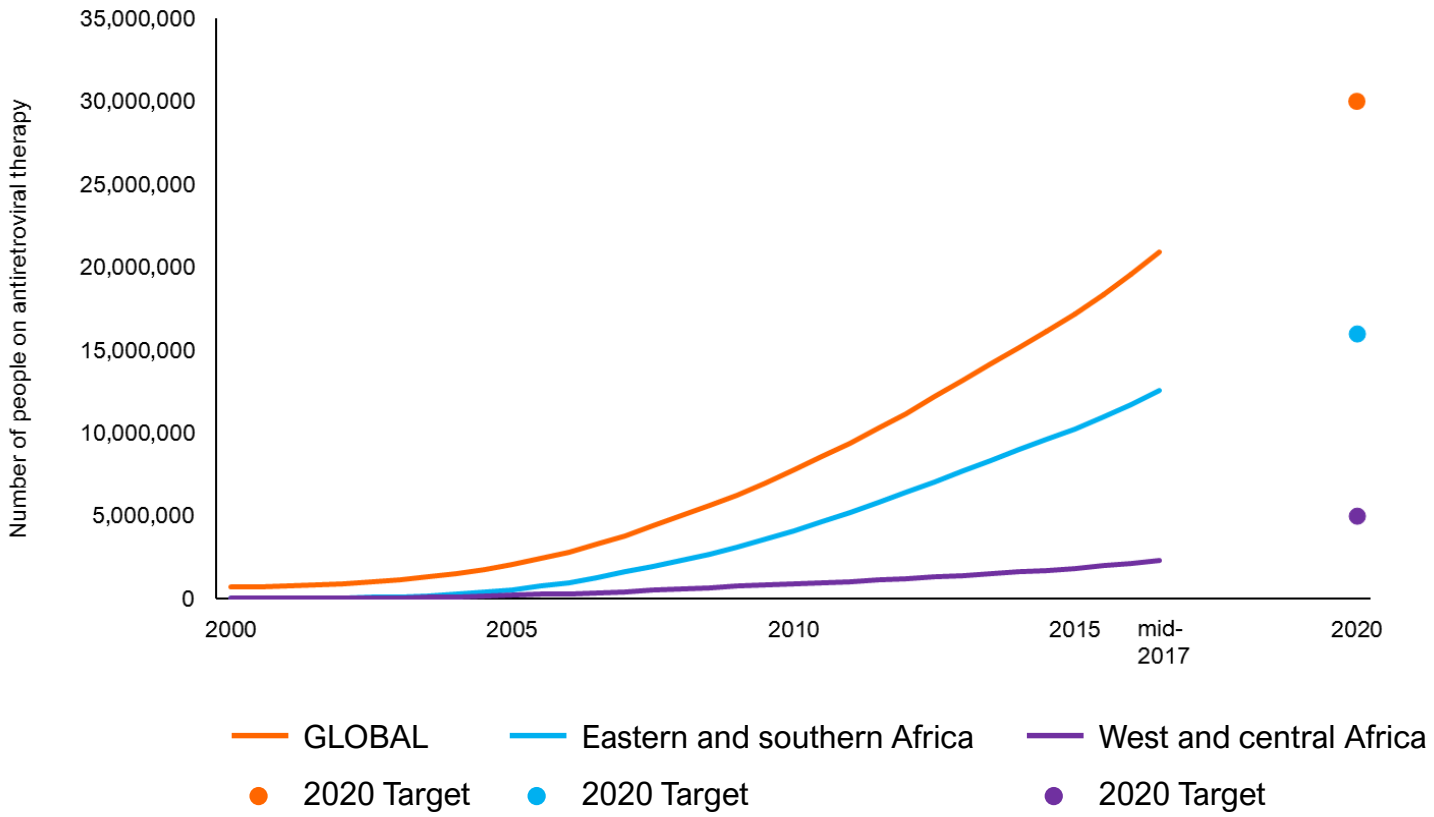
Stover J, Bollinger L, Izazola JA, Loures L, DeLay P, et al. (2016) What Is Required to End the AIDS Epidemic as a Public Health Threat by 2030? The Cost and Impact of the Fast-Track Approach. PLOS ONE 11(5): e0154893. https://doi.org/10.1371/journal.pone.0154893
http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0154893

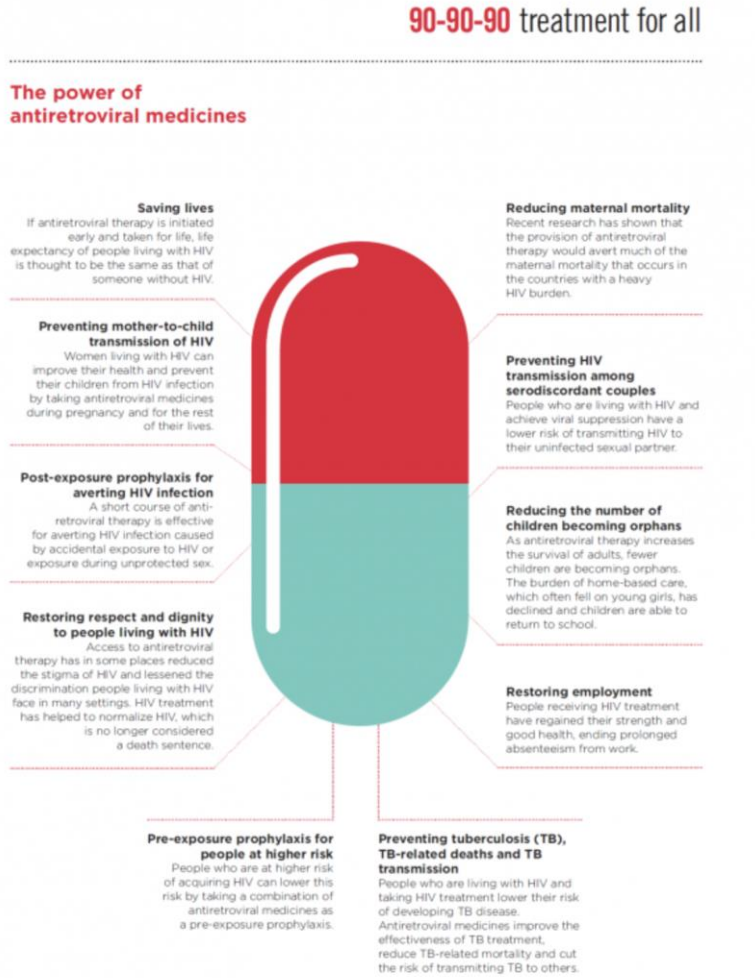
Investing for Impact: Fast Track the Response



Fast-Track: Scale up of all interventions to reach Fast-Track targets by 2020 (90-90-90 for ART, PMTCT, VMMC, condoms, key populations, PrEP, social enabling programs, opioid substitution therapy and cash transfers for girls).

NUMBER OF PEOPLE LIVING WITH HIV ON ANTIRETROVIRAL THERAPY, 2000–mid-2017, AND THE 2020 TARGET





Increasing Evidence on What Works

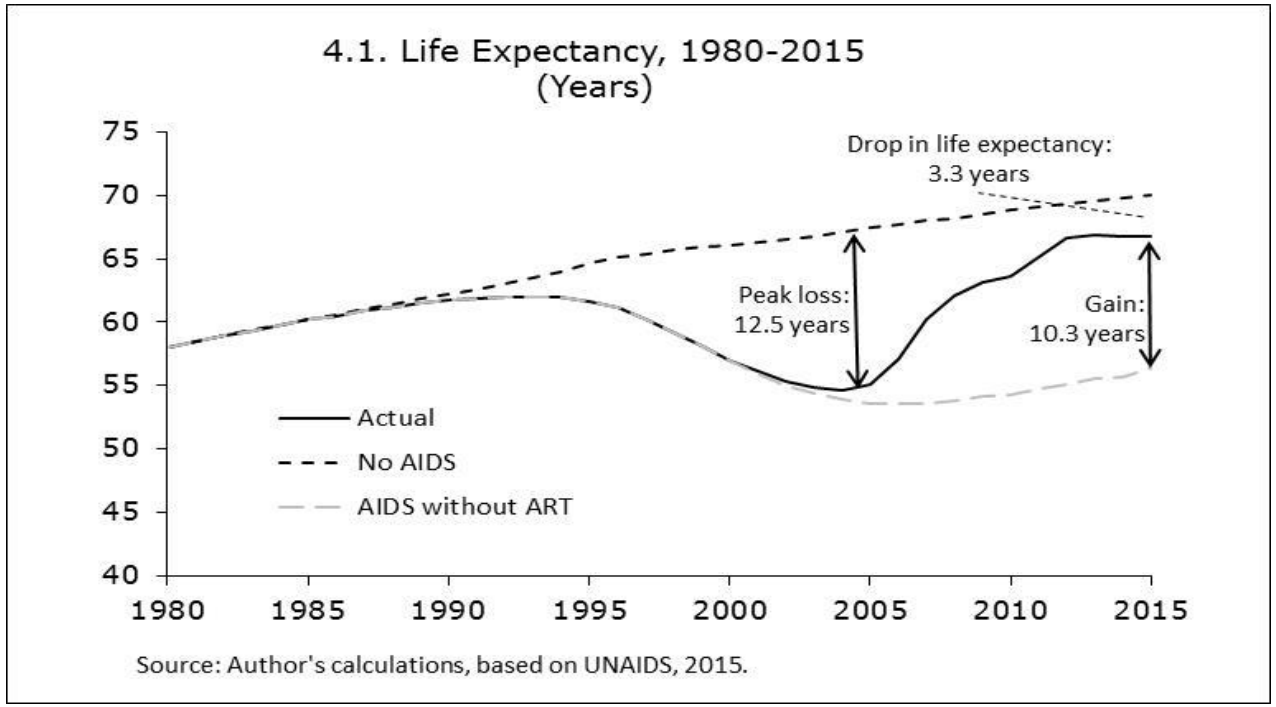
Intervention	Effect	Effect size	Cost
ART:			
• Community adherence	Increase adherence	50% reduction	
• Home-based ART	Increase ART uptake	RR = 2.75	
• Adherence clubs	Reduce drop-outs Increase adherence	HR = 0.43 HR = 0.33	
• CHW promote adherence	Increase adherence	OR = 1.22	
• mHealth	Increase adherence	RR = 0.77	$20/p/y
HTC:			
• Partner testing	Increase uptake	Double	
• Community testing	Increase uptake	Triple	
• Workplace testing	Increase uptake	RR = 2.8	$8-$33 per person
Sex workers: • Community empowerment • Violence prevention	 Increase condom use Increase condom use	 OR = 3.27 OR = 1.49	$80/p/y for community empowerment
PMTCT • Option B+	Reduce MTCT rate	Reduce from 8.6% to 4.9%	
Critical enablers • Cash transfers • Mass media • School AIDS education • Community mobilization	Reduce number of partners Delay sexual debut Increase condom use Delay sexual debut Increase condom use Increase condom use	25% 1 year delay 15% 1 year delay 20% 11%	$2/student/year $5/person/year

2016 Namibia Investment Case: Invest on HIV response for better health

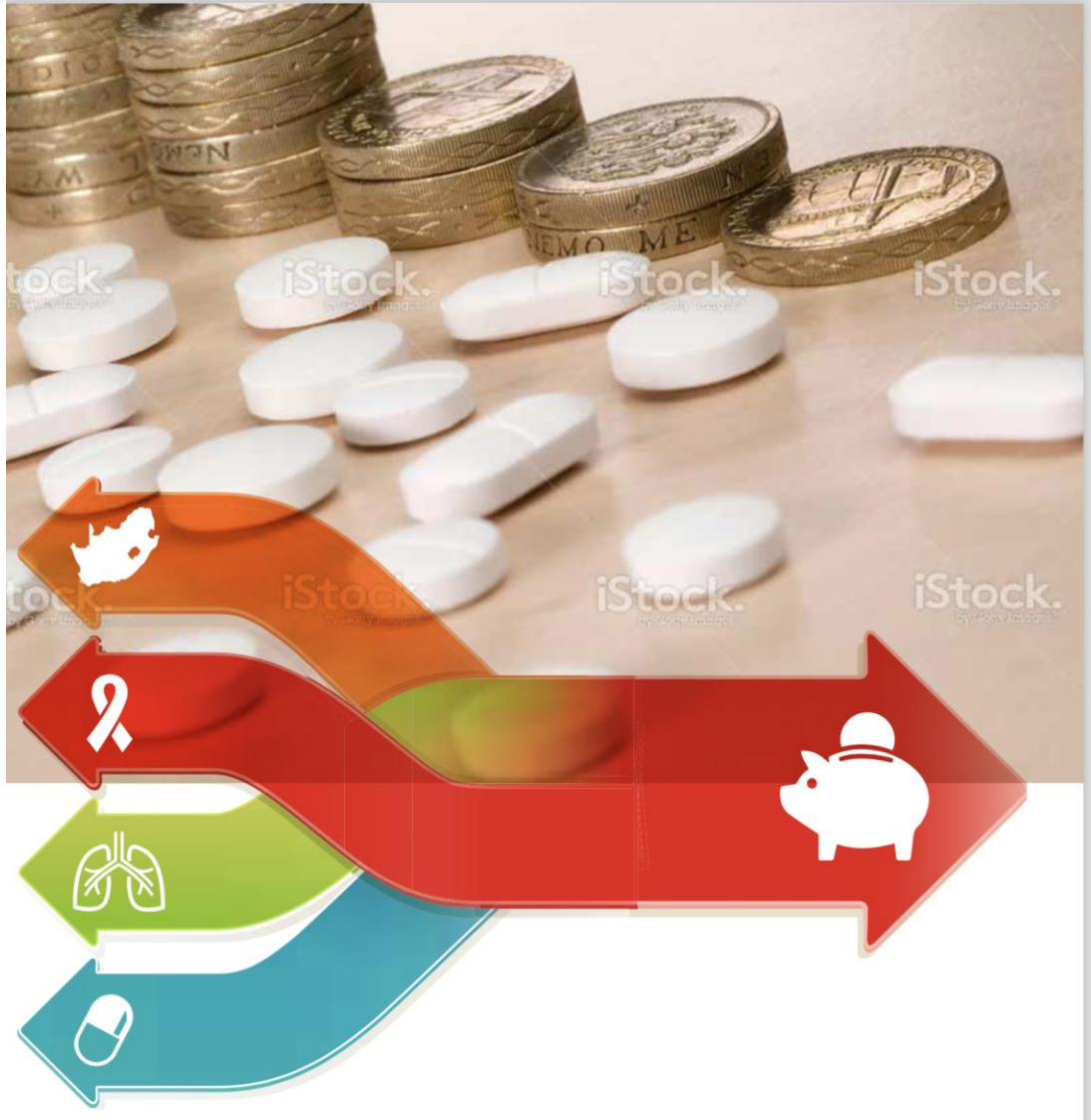
- Investments on HIV response have improved health outcomes

- Cost – Effective: HIV response prevents a death at a cost of about US$ 20,000, or a cost per life year saved at about US$ 1,000 - one-sixth of GDP per capita

- Behavior change and the public ART program has been an investment in social equity: providing access to those who would have not benefited if public investments on HIV response were not made

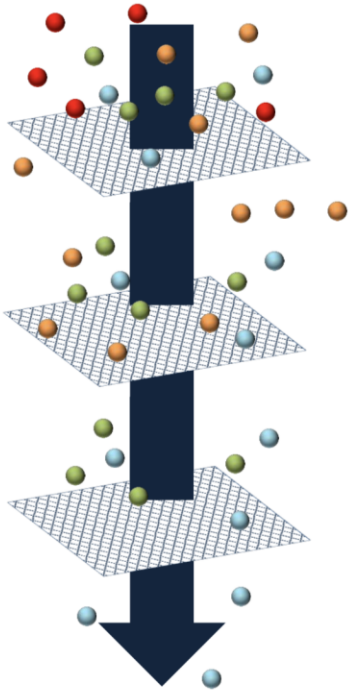


Source: MOH, 2016 Namibia HIV Investment Case



SOUTH AFRICAN HIV AND TB INVESTMENT CASE

REFERENCE REPORT



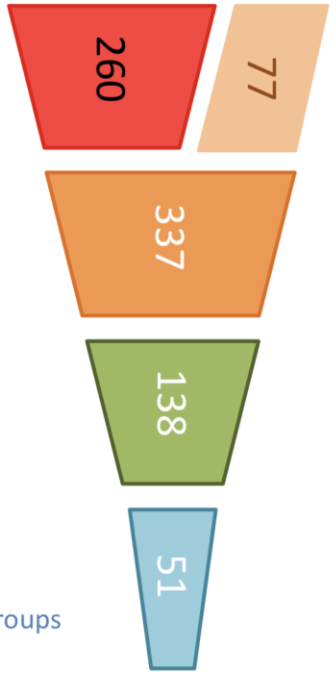
Interventions, efficiency factors, enablers and synergies suggested by stakeholder consultation

Available evidence (working groups)

Good quality of evidence (working groups/ consultants)

Good quality of evidence (modellers); ability to be modelled

- 24 HIV interventions, 3 TB intervention groups
- 9 efficiency factors
- 13 enablers and development synergies



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What combination of interventions will give the highest impact?

South Africa Investment Case: Rigorous Selection of Interventions

Intervention	
Condom availability (90%)	AFFORDABLE UNDER CURRENT BUDGET
MMC (90%)	
SBCC campaign 1 (90%)	
MMC age group targeting	
Testing at 6 weeks (90%)	Budget in 2016/17
ART at current guidelines (85%)	ZAR 21.7 billion
PMTCT B+ (60%)	
HCT (90%)	
SBCC campaign 3 (90%)	90/90/90 TARGETS
Universal test and treat (90%)	

Critical enablers

- Community-based **GBV intervention** (SASA!)
- **HIV prevention for alcohol and drug users**
- **Alcohol counselling** in STI clinics
- **Parental monitoring**
- **School feeding**
- **Positive parenting**
- **Teacher support**

Synergies

- **Pharmacovigilance**
- **Supply chain reforms**
- Supporting **orphan girls** to stay in school
- **School based HIV/STI risk reduction**
- State-provided **child-focused cash transfers**
- **Vocational training** for adolescent girls

Enablers that are part of baseline

- **NIMART** (80% coverage by 2016/17)
- **Defaulter tracers, SMS systems**
- **Community mobilisation/ demand creation** for almost all interventions (MMC, HCT, PrEP, microbicides)
- Included **SBCC** as interventions

ART efficiency factors

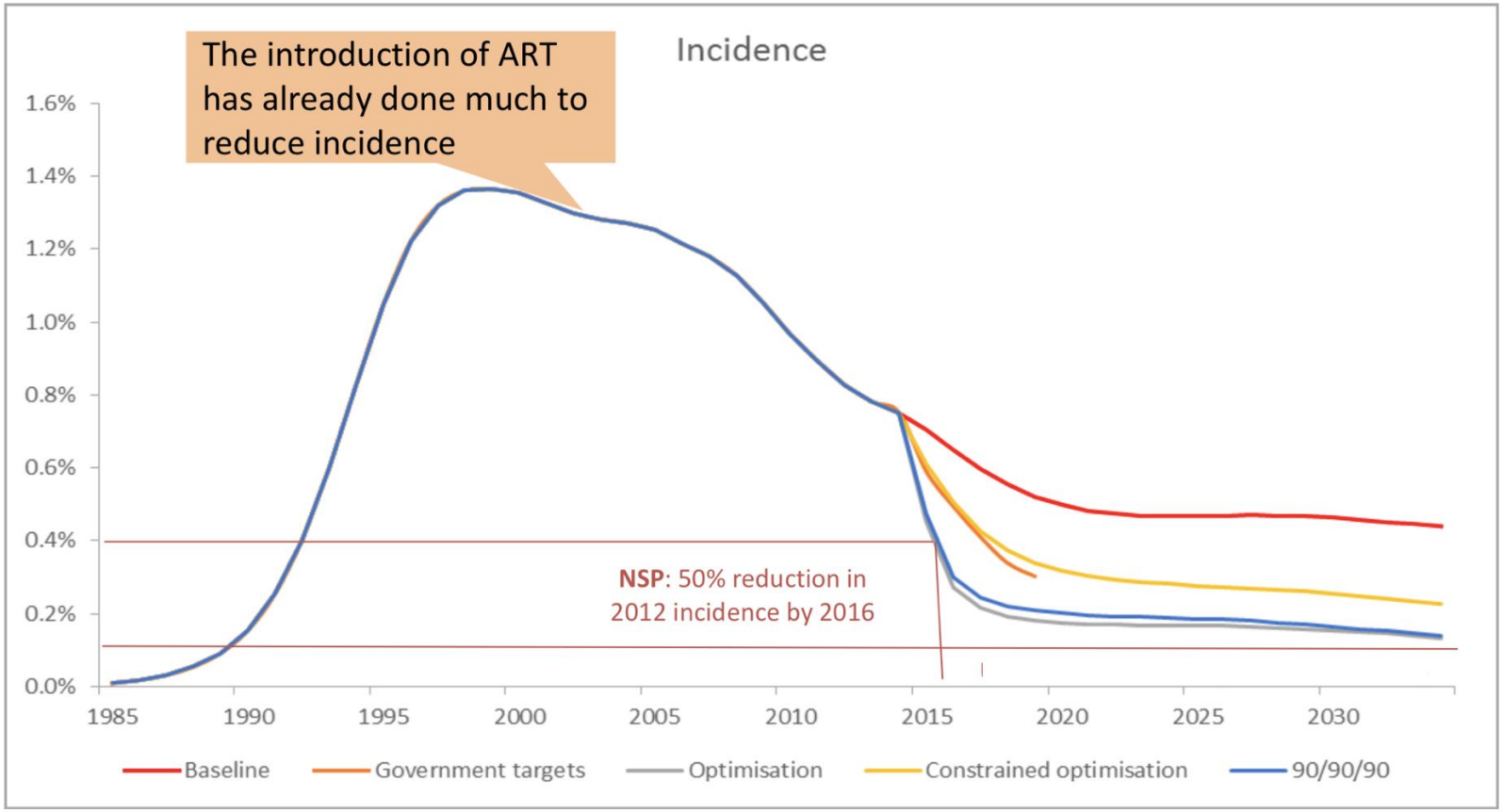
- Adherence clubs
- Home-based ART
- Point-of-care CD4
- GP down referral
- Community-based adherence supporters

HCT efficiency factors

- Mobile HCT
- Home-based HCT
- Workplace HCT
- PICT
- HCT invitations to pregnancy partners

Source: South Africa HIV and TB Investment Case

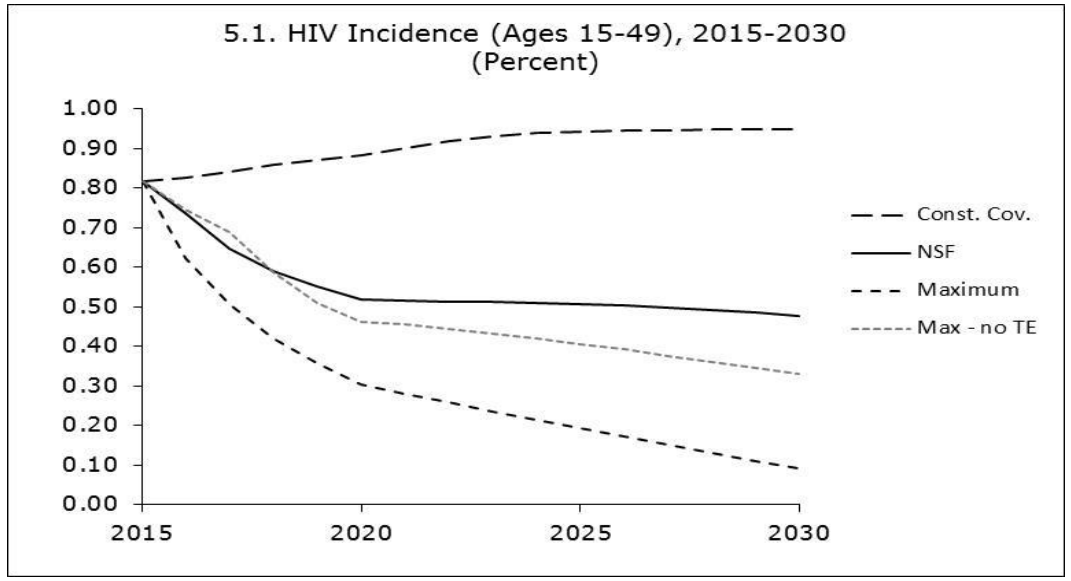
South Africa HIV and TB Investment Case, 2016

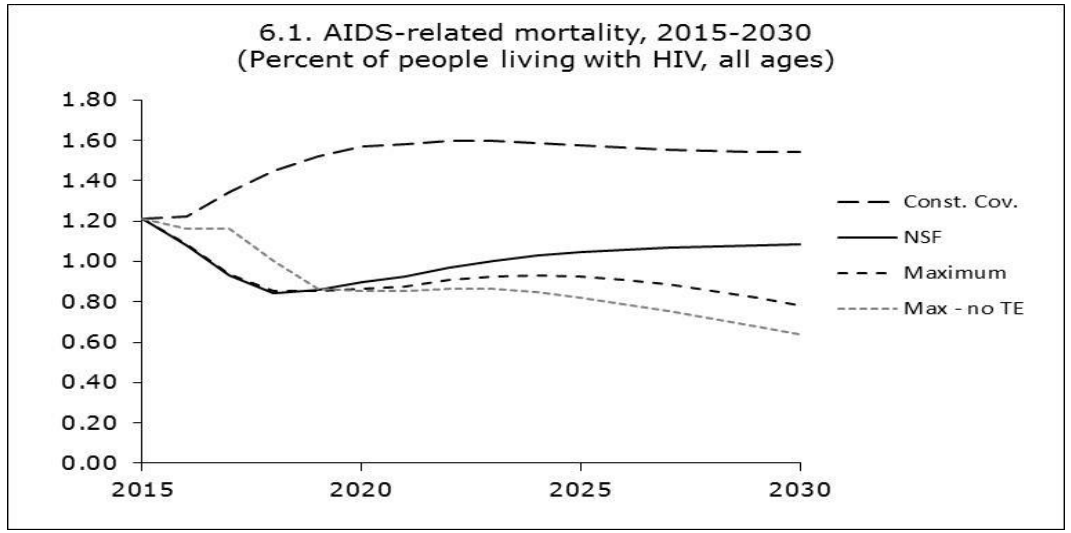


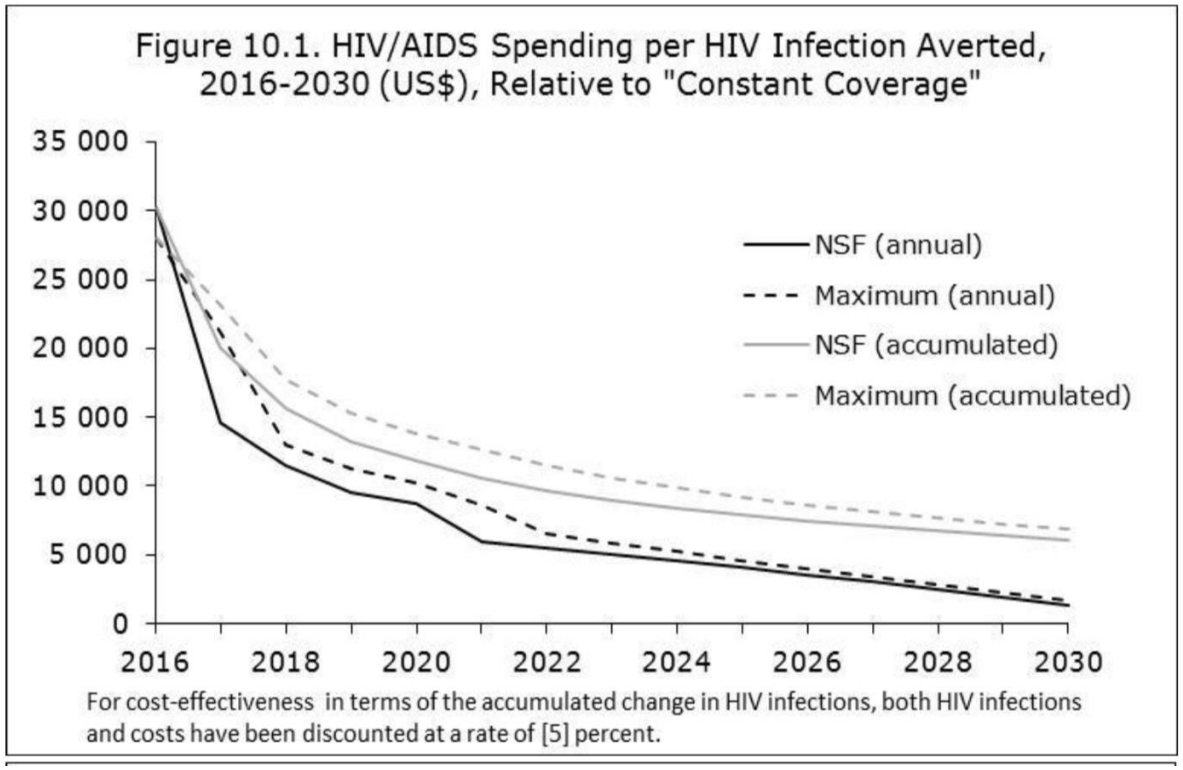
Government Policy is already efficient but it can be improved:

- Increase condom availability
- Increase access to male medical circumcision
- Implement social behavior change as part of the program interventions
- Increase HIV testing uptake for adolescent
- Use the money saved to scale up ART

Impact on HIV Epidemic: 2016 Namibia Investment Case

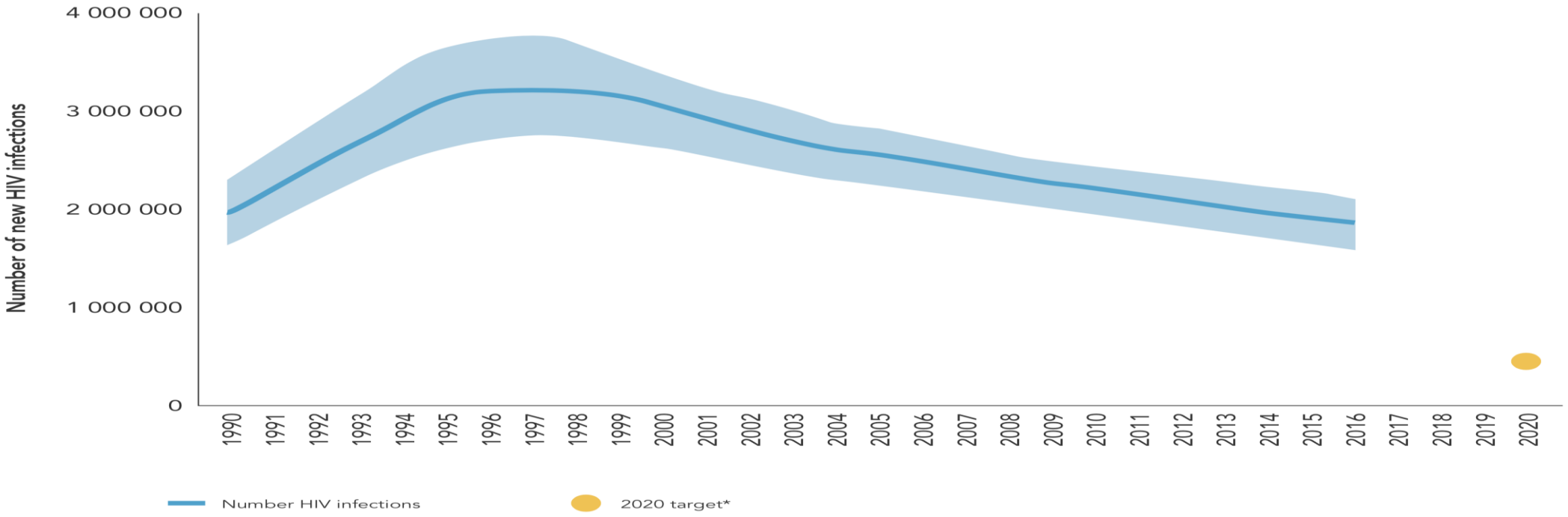






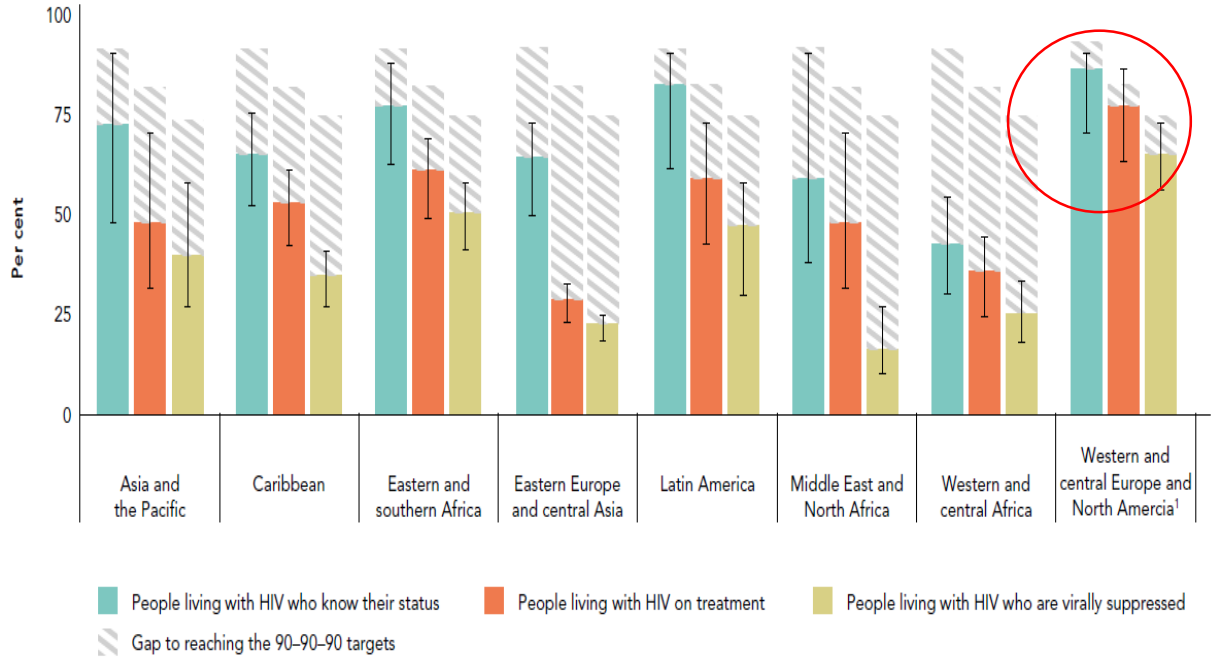
Critical Point of the Response

REDUCTIONS IN NEW INFECTIONS ARE OFF TARGET



Source: UNAIDS 2017 estimates

TREATMENT CASCADE PROGRESS VARIES AMONG REGIONS



KNOWLEDGE OF HIV STATUS, TREATMENT COVERAGE AND VIRAL LOAD SUPPRESSION, BY REGION, 2016

Comparison of HIV testing and treatment cascades by region reveals different patterns of progress. Western and central Europe and North America are approaching global targets. Latin America and eastern and southern Africa show high levels of achievement across the cascade. Eastern Europe and central Asia, the Middle East and North Africa, and western and central Africa are clearly on track.

Source: UNAIDS special analysis, 2017; see annex on methods for more details.

[1] Cascade for the western and central Europe and North America region is for 2015.

SLOWING SCALE-UP OF PAEDIATRIC TREATMENT

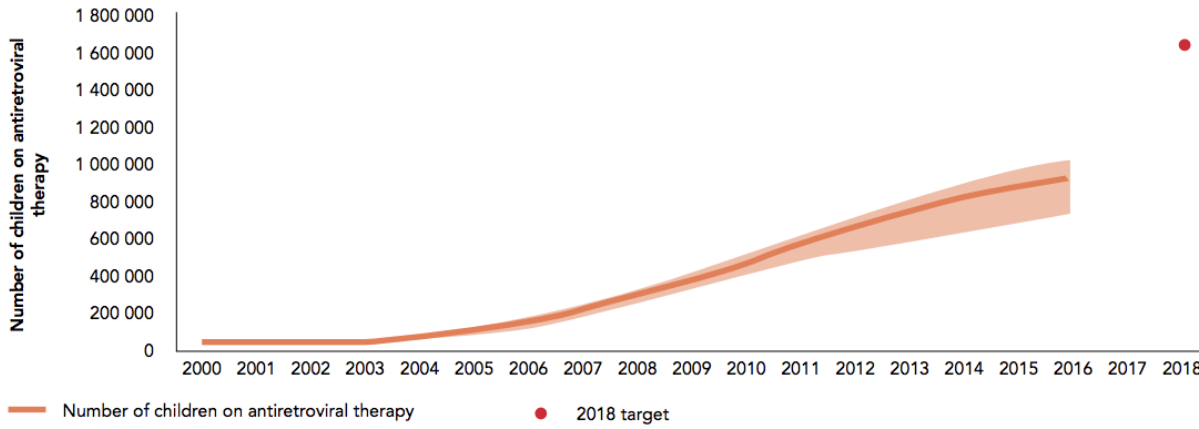


FIGURE 3.13. NUMBER OF CHILDREN AGED 0–14 YEARS ACCESSING ANTIRETROVIRAL THERAPY, GLOBAL, 2000–2016 PLUS 2018 TARGET

Source: UNAIDS 2017 estimates. Global AIDS Monitoring, 2017.

TREATMENT COVERAGE LOWER AMONG MEN

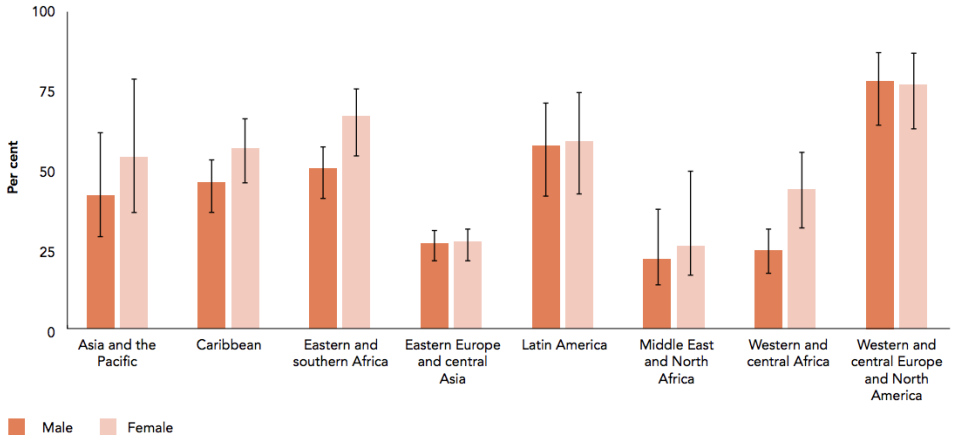
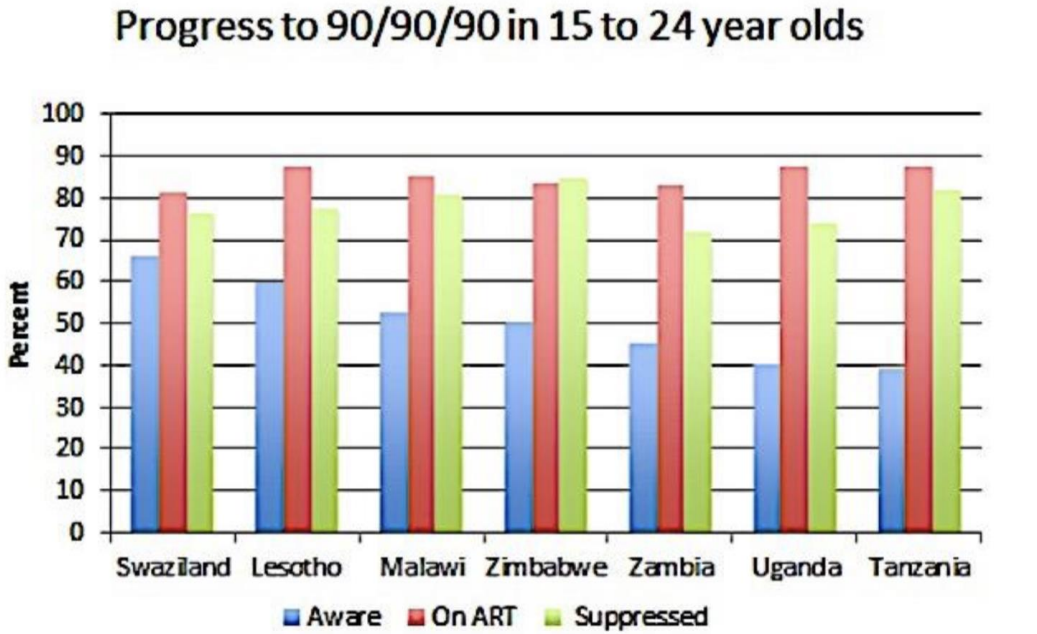


FIGURE 3.17. ANTIRETROVIRAL THERAPY COVERAGE AMONG ADULTS LIVING WITH HIV AGED 15 YEARS AND OLDER, BY SEX, BY REGION, 2016

Source: Global AIDS Monitoring, 2017. UNAIDS 2017 estimates.

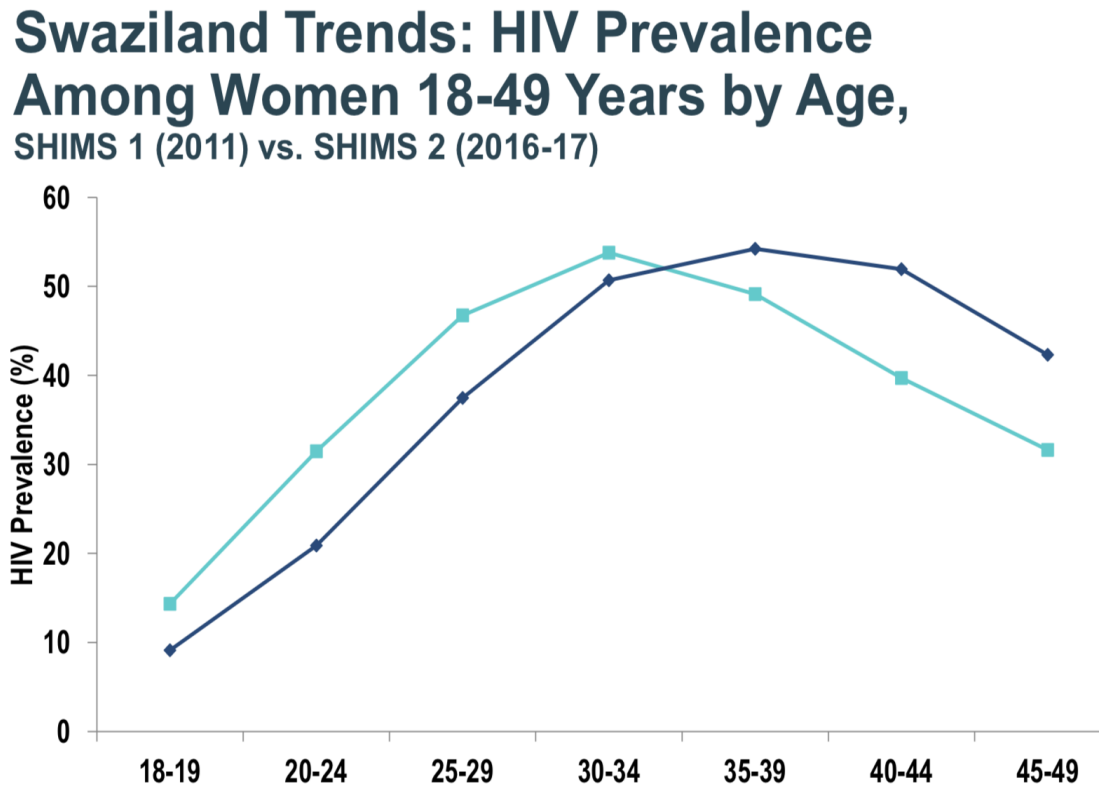
Focus on Young People



Note: Results based on self-report of HIV awareness and ART status (plus ARV testing in Malawi and Zambia), and on viral load testing.

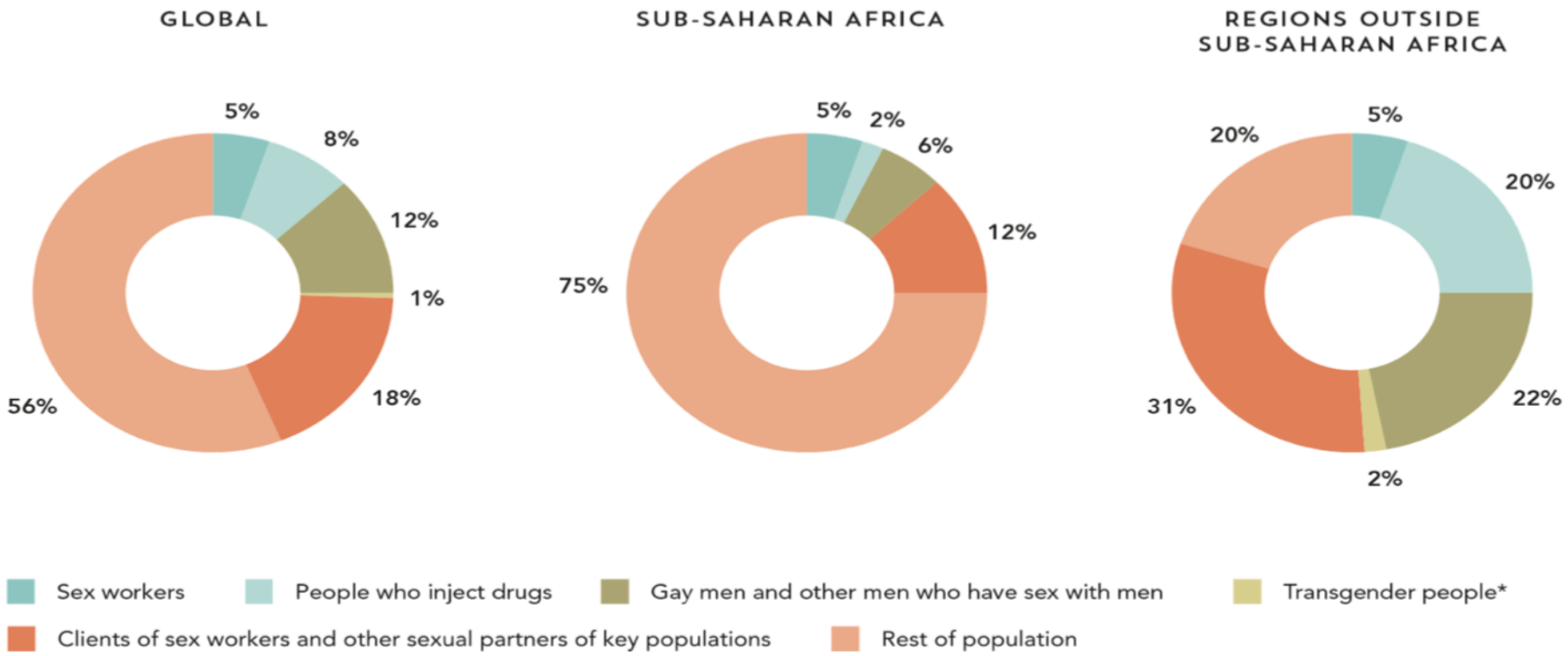
Source: PEPFAR PHIA

Adolescent Girls and Young Women



Source: Swaziland PHIA

Key Populations



DISTRIBUTION OF NEW HIV INFECTIONS, BY POPULATION, GLOBAL, SUB-SAHARAN AFRICA AND COUNTRIES OUTSIDE OF SUB-SAHARAN AFRICA, 2015

Source: UNAIDS special analysis, 2017.

*Only reflects Asia and the Pacific, Latin America and Caribbean regions.

Stigma

- A major barrier to access services across countries
- Key Elements of stigma identified along the prevention and the treatment cascade
- Stigma in the healthcare setting is pervasive

Scaling up for Impact?

- We are at a critical point of the response – a people centred approach
- The Investment Approach application is relevant: it is a combination of programme package with interventions that address barriers that will have the highest impact
- Data: Mapping the gaps will require granular analysis of who is left behind, why is left behind
- Geography and Population: young people, key populations, men
- Combination of interventions that will give the highest impact for that particular gap to be developed and implemented with communities
- Accelerate Quality Implementation: policies that remove barriers to services, resources and adapt quickly to epidemic dynamic and response

Combination prevention- targets for 5 pillars by 2020

1. Young women and adolescent girls and their male partners
2. Key populations
3. Condoms
4. Voluntary medical male circumcision
5. Pre-exposure prophylaxis

VMMC

- **Cost-effective**
- **Targeted to young men**
- **14 countries**

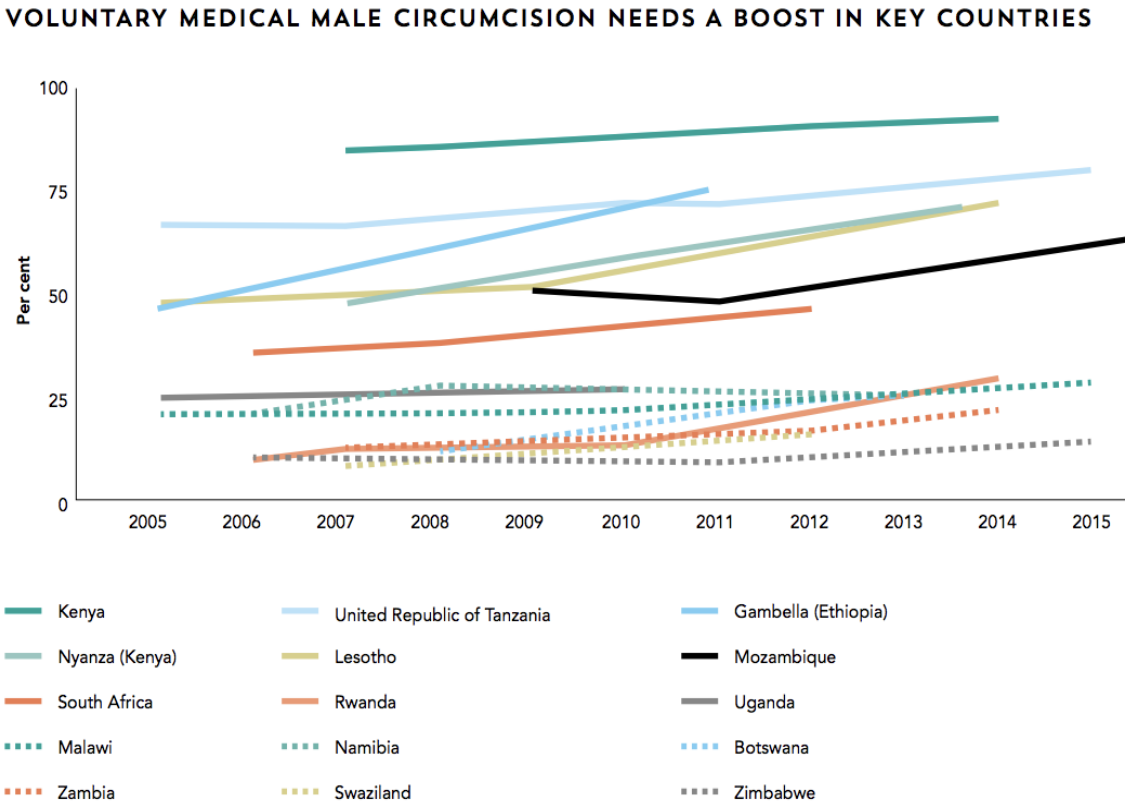
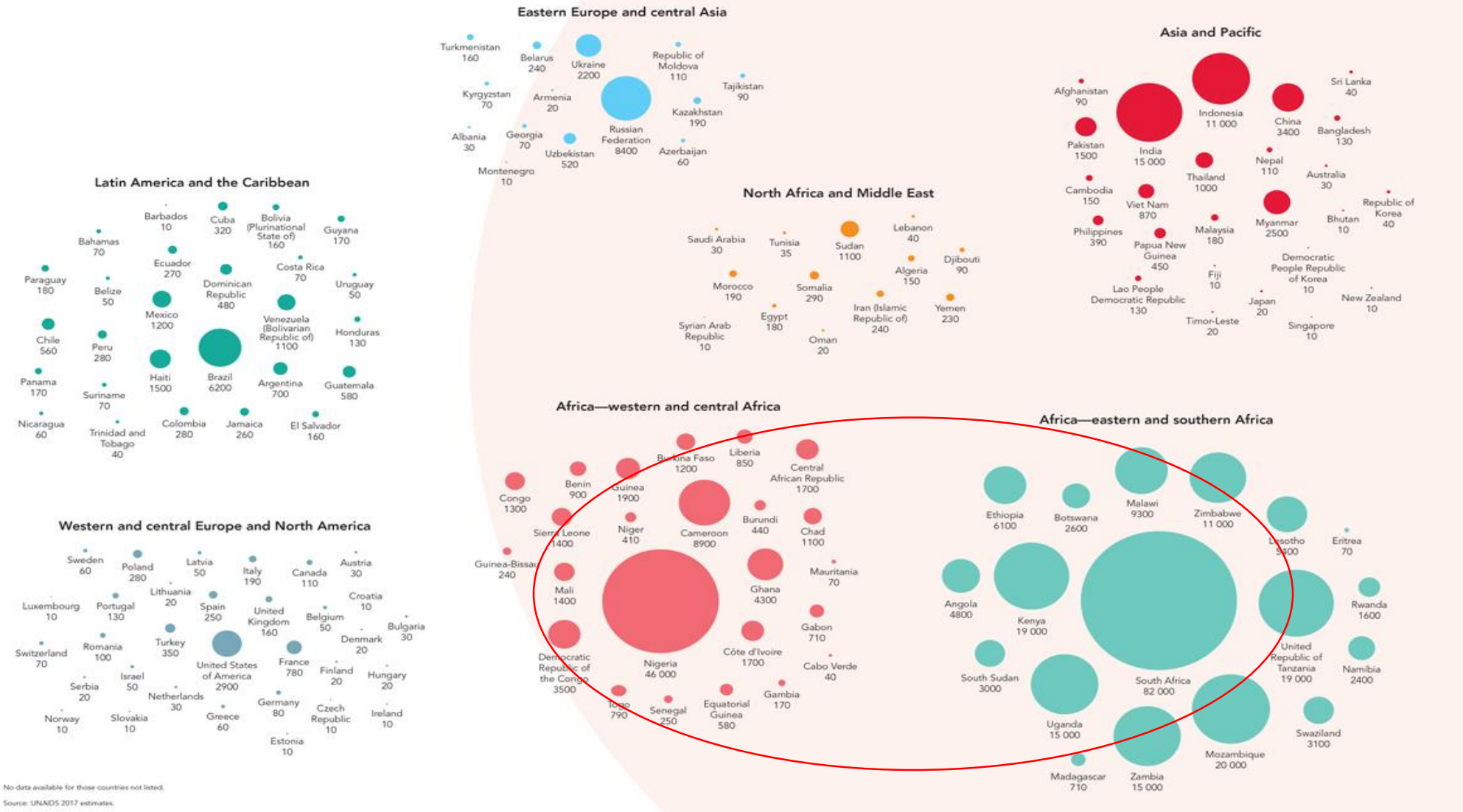


FIGURE 5.5. PREVALENCE OF MALE CIRCUMCISION (AGED 15–49), 14 PRIORITY COUNTRIES, 2005–2015

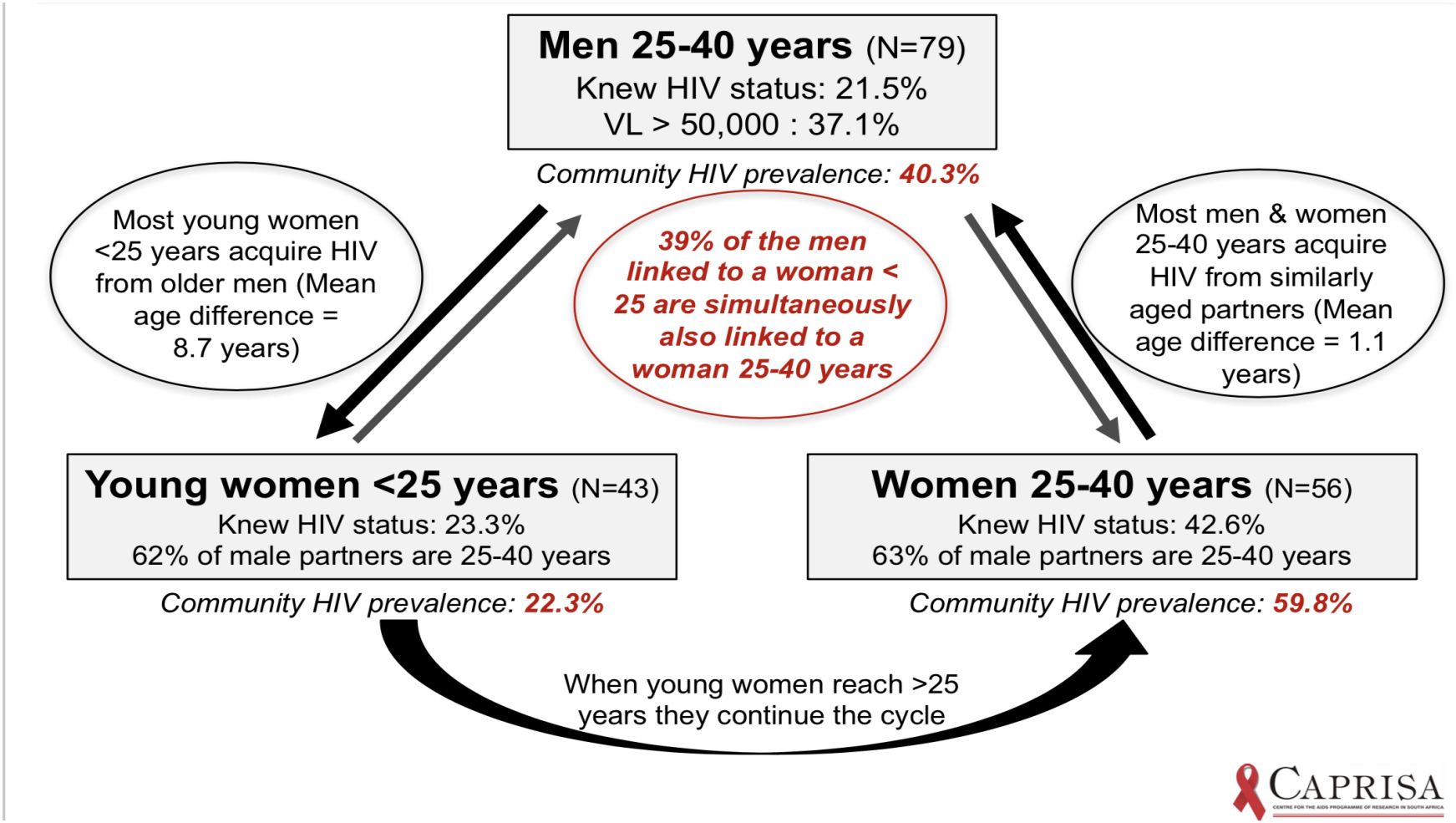
Source: Population-based surveys, 2005–2015.

350,000 New Infections among girls & young women, 15-24 years, in 2015

More than two/third occur in Eastern and Southern Afirca



A response targeted to the cycle of transmission

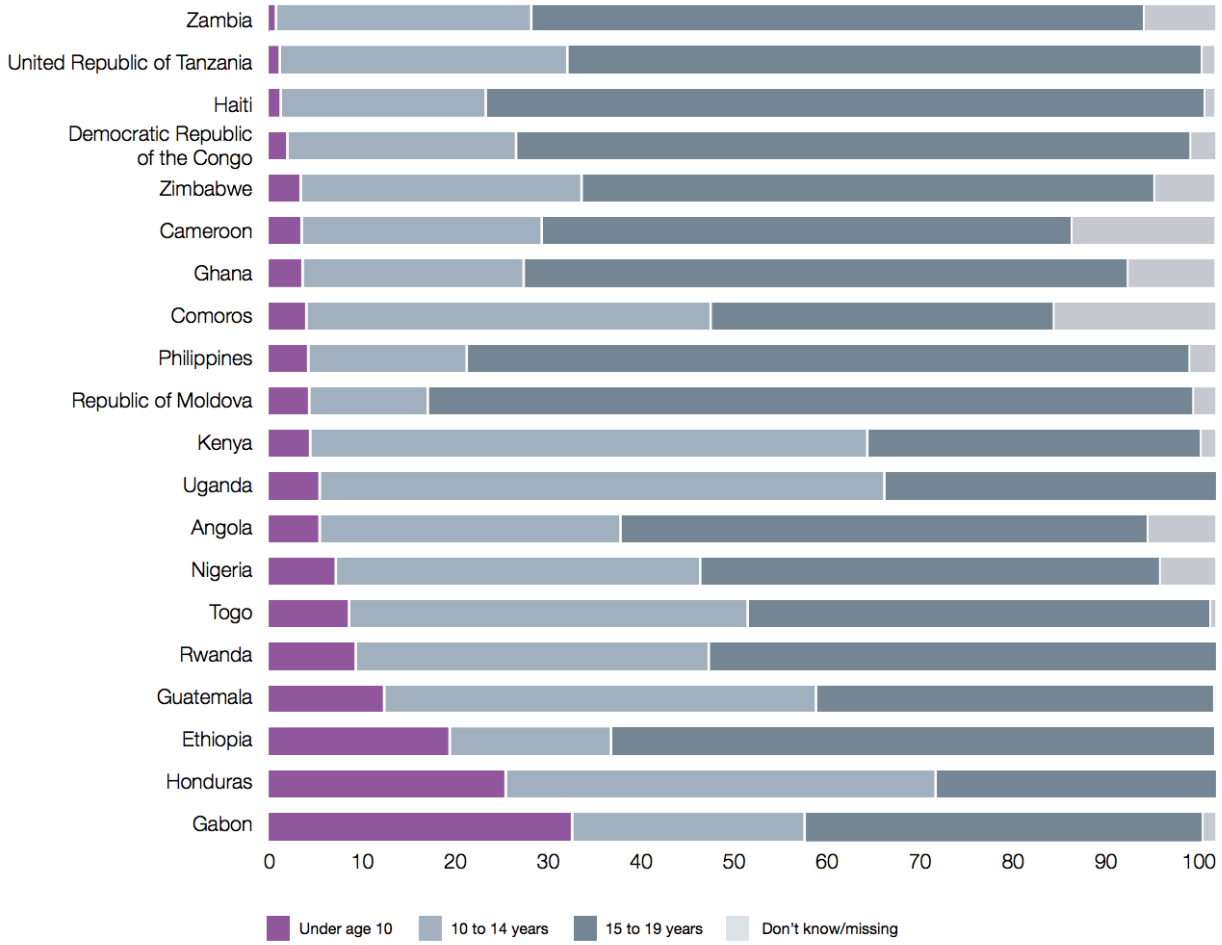


CAPRISA
CENTRE FOR THE AIDS PROGRAMME OF RESEARCH IN SOUTH AFRICA

Empower the young women and girls

- Early sexual debut and sexual violence are associated with each other and with risk for HIV
- Address Gender-based violence
- Education has positive impact

15 million adolescent girls have experienced sexual violence



Percentage distribution of girls aged 15 to 19 years who ever experienced forced sex, by age at first incident

Notes: These data need to be interpreted with caution since there are significant proportions of girls who could not recall the exact age at which they first experienced forced sex and of missing data overall in many countries. Only those countries where the proportion of 'don't know/missing' was less than 20% are included in the chart. Data for Comoros, Ethiopia and Kenya are based on 25 to 49 unweighted cases.

Source: UNICEF global databases, 2017, based on DHS, 2005–2016.

Community-mobilization approaches work

- SASA! - "NOW" – Kampala, Uganda

Community mobilization intervention to reduce:

- attitudes towards gender roles and norms
- levels of intimate-partner violence (IPV)
- HIV-related behaviours
- community responses to violence against women.

- The primary trial outcome: experience of physical IPV with an estimated 1201 cases averted (90 % CI: 97–2307 cases averted).

- The estimated cost per case of past year IPV averted was US$460.

Source: Strive Consortium

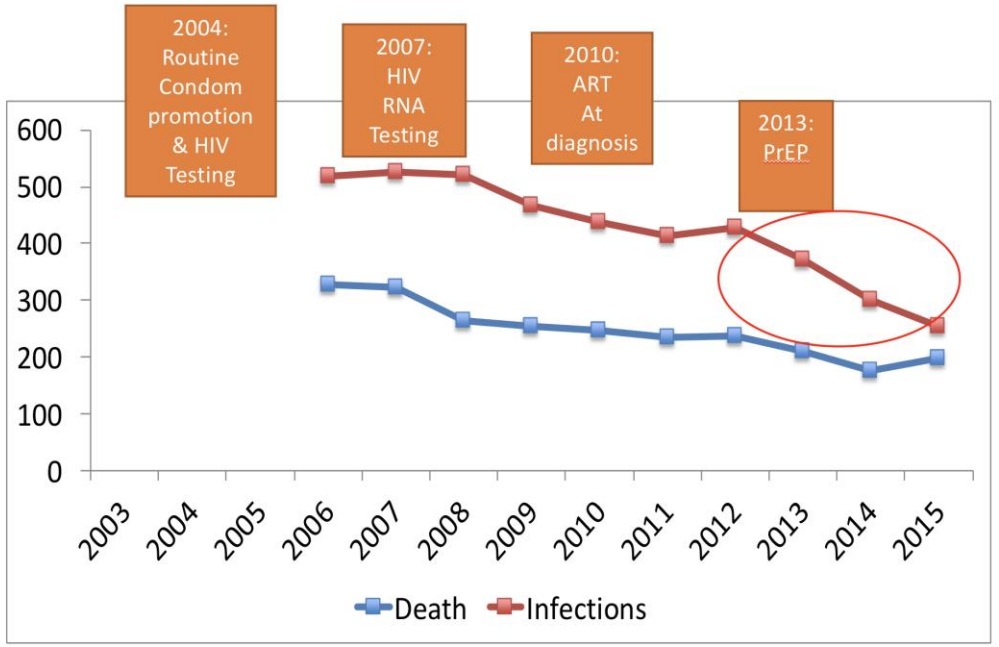
Source: Michaels-Igbokwe, C. 2016

PrEP

- **Targeted** : Since 2015, PrEP is recommended by the WHO for populations at 'substantial risk' of HIV
- From efficacy trials to implementation requires to adapt interventions

STUDY AND POPULATION	PROTECTIVE EFFECT OF PREP–ALL STUDY PARTICIPANTS	PROTECTIVE EFFECT AMONG PARTICIPANTS WITH HIGHER ADHERENCE
Heterosexual men and women (Partners PrEP[5]; TDF-2 study[6]): Botswana, Kenya and Uganda	62% – 76%	Up to 90%
Gay men and other men who have sex with men (iPrEX study[7]): Brazil, Ecuador, Peru, South Africa, Thailand and the United States	44%	90%
People who inject drugs (Bangkok Tenofovir Study[8])	49%	75%
FEM-PrEP[9]: heterosexual women in Kenya, South Africa and the United Republic of Tanzania	<30% adherence, no effect	<30% adherence, no effect
VOICE[10] heterosexual women in South Africa, Uganda and Zimbabwe	<30% adherence, no effect	<30% adherence, no effect

Declining Epidemic Trends in San Francisco: likely PrEP contribution

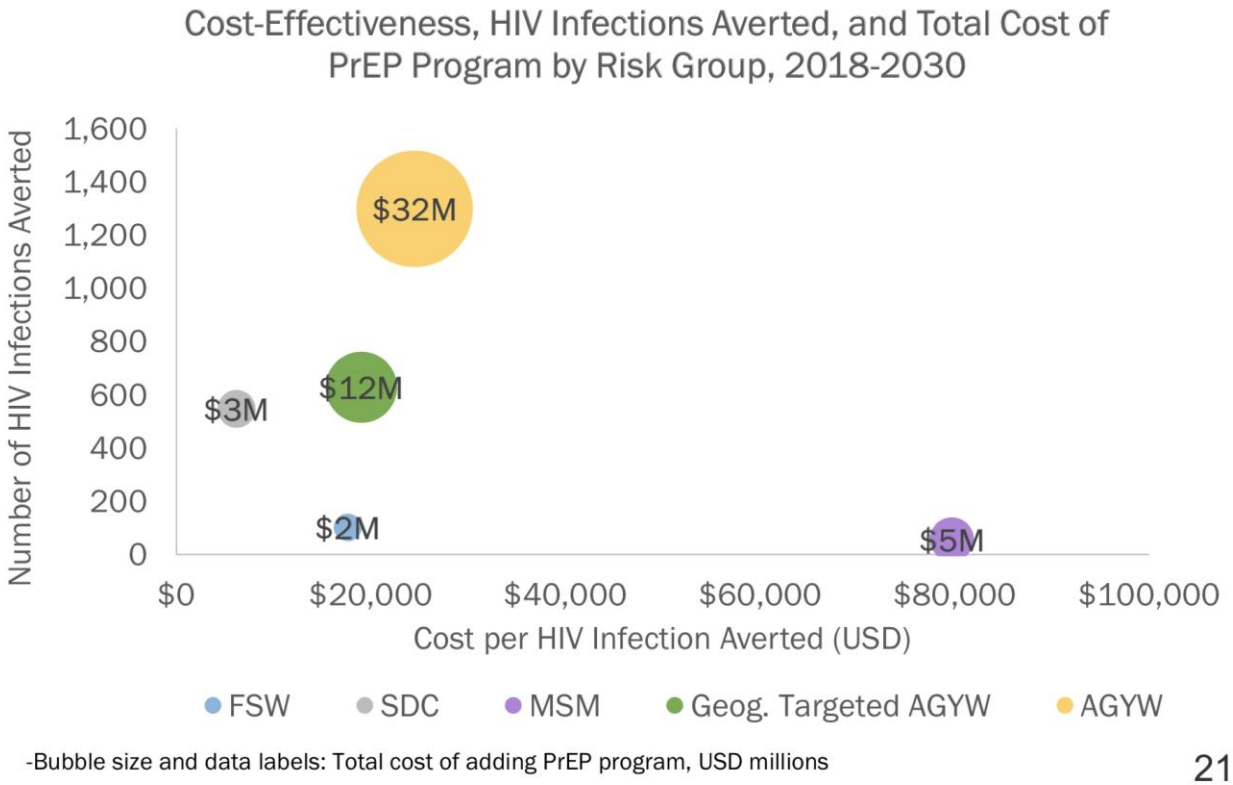


Adapted from SF DPH, HIV Epidemiology Annual Report, 2016

The number of people using PrEP to prevent HIV is now thought to have risen to around 120 000 people, the majority in the United States of America.

PrEP

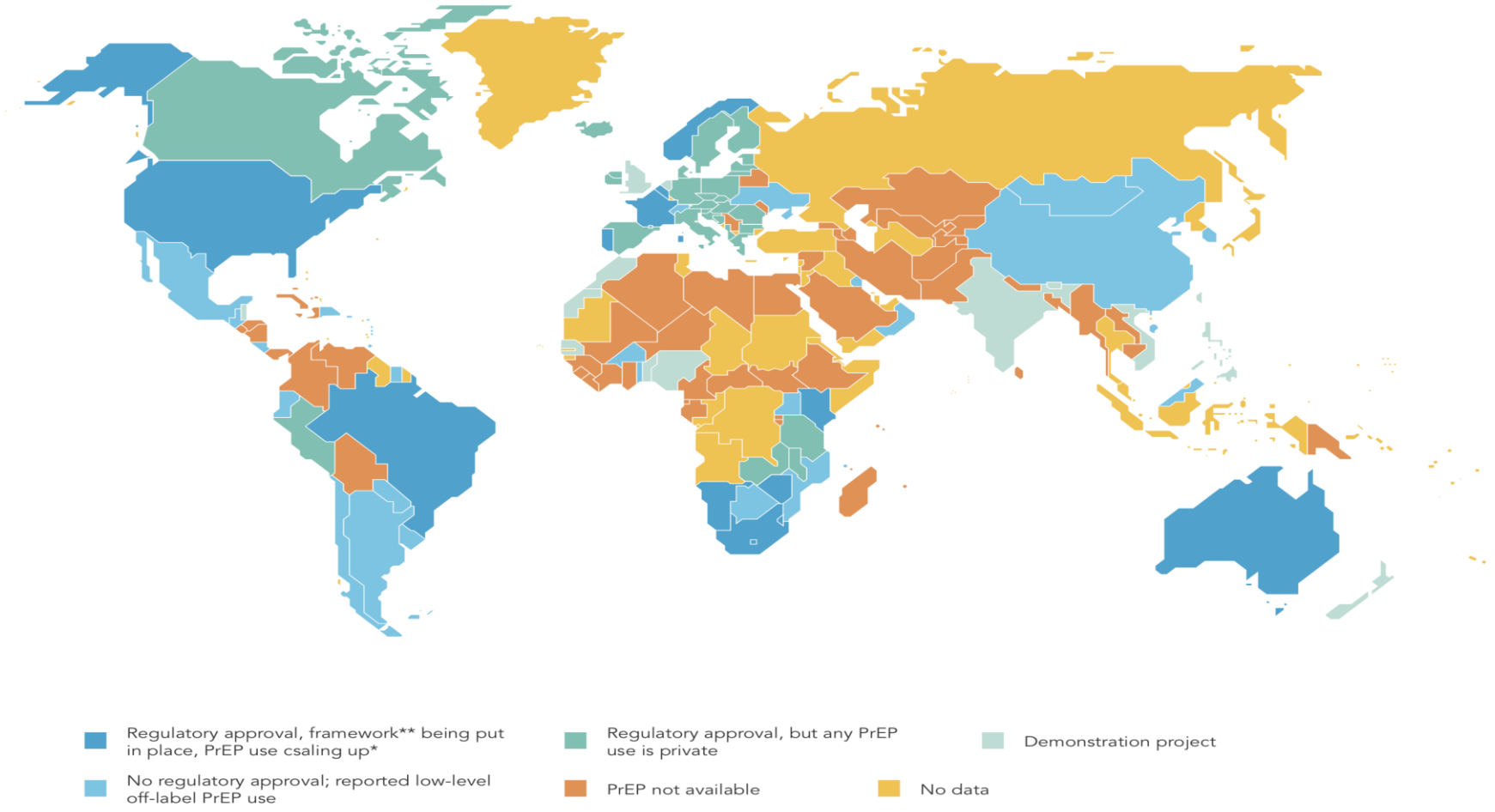
- Rolling out oral PrEP progressively to broader sub-populations based on risk and geography affect the impact, cost-effectiveness, and total cost of the programme
- The impact, cost, and cost-effectiveness vary by risk group (FSW, SDCs, MSM, PWID. AGYW, AM)
- Varying unit cost of oral PrEP by risk group affect the impact and cost-effectiveness of oral PrEP
- Level of adherence by risk group would affect the impact and CEA of oral PrEP



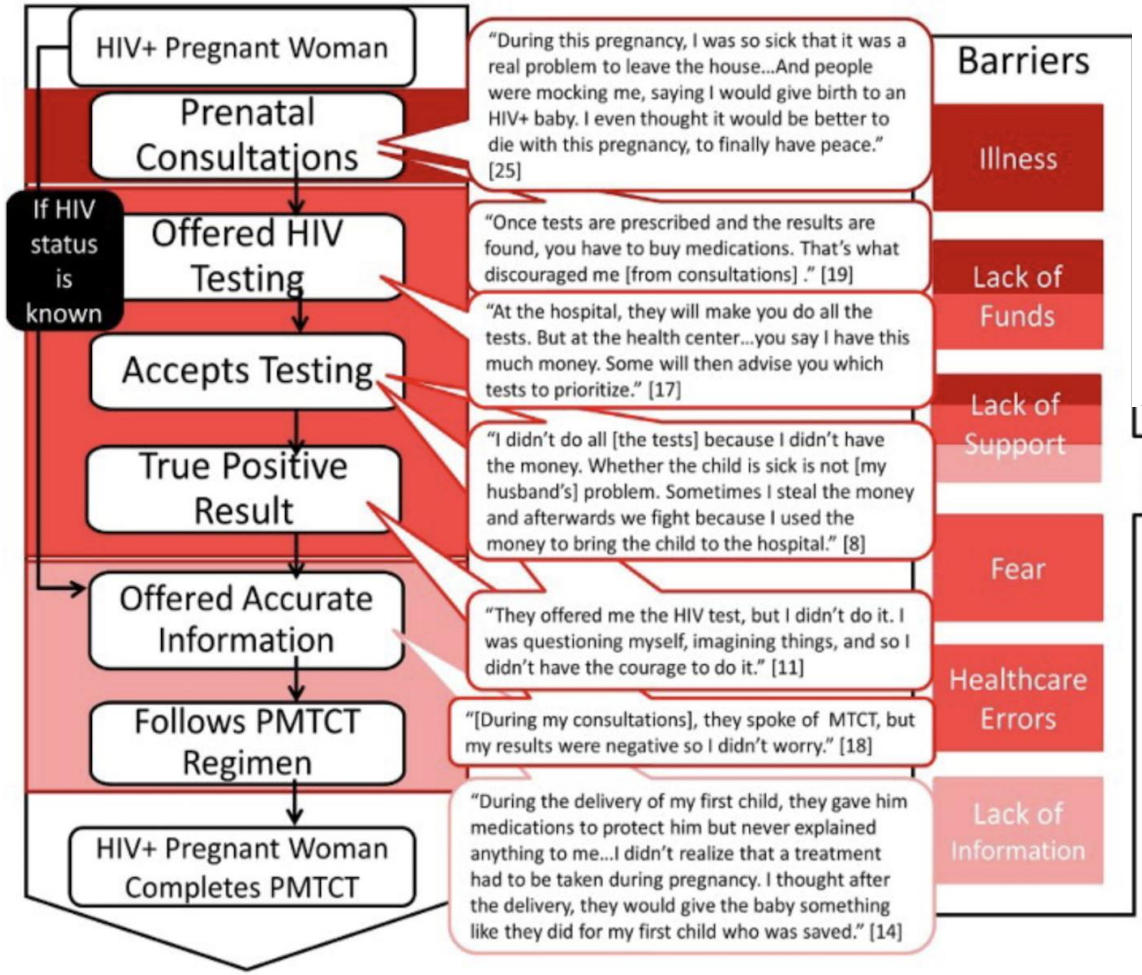
Illustrative Modelling in a high prevalence country – assume that the country achieves 90-90-90

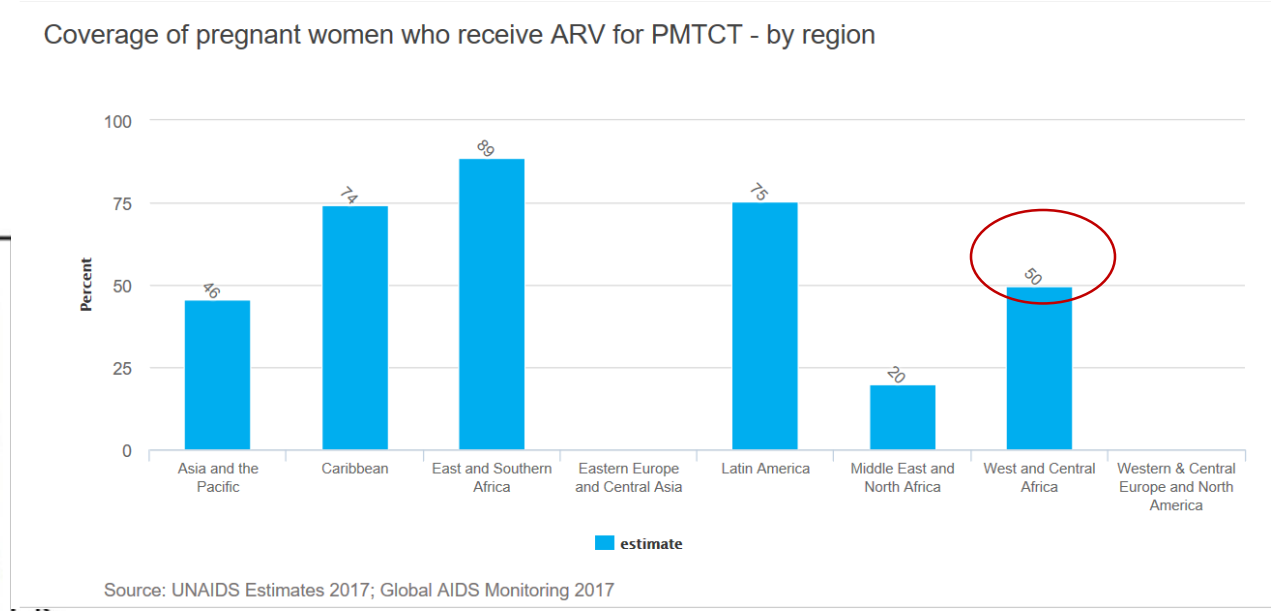
Source: HP+/Project SOAROral PrEP Modeling, January 2018

Policies: Availability of pre-exposure prophylaxis, by country, 2017

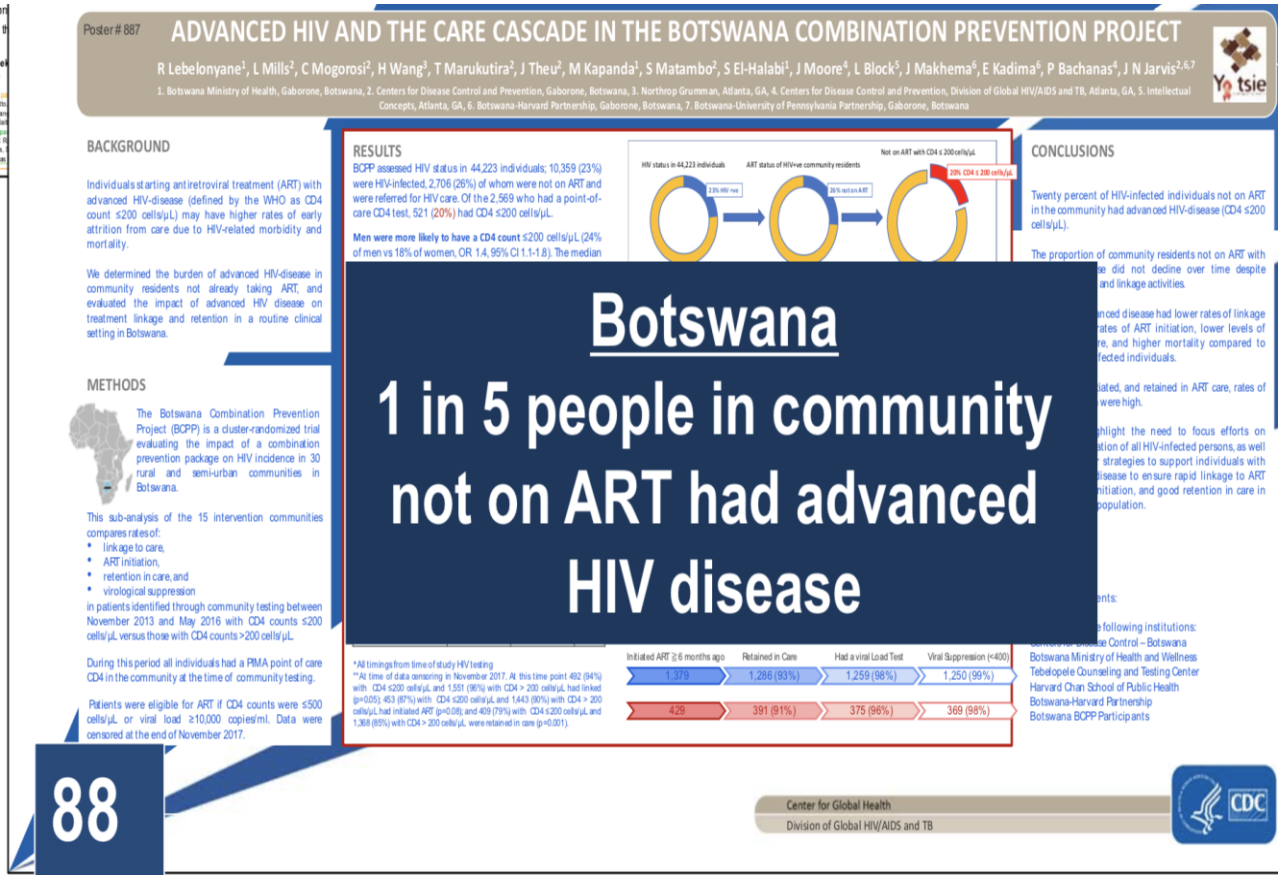


Policies Matter: The negative Impact of User Fees





Testing – achieving the first ’90



THE HIV TESTING AND TREATMENT CASCADE

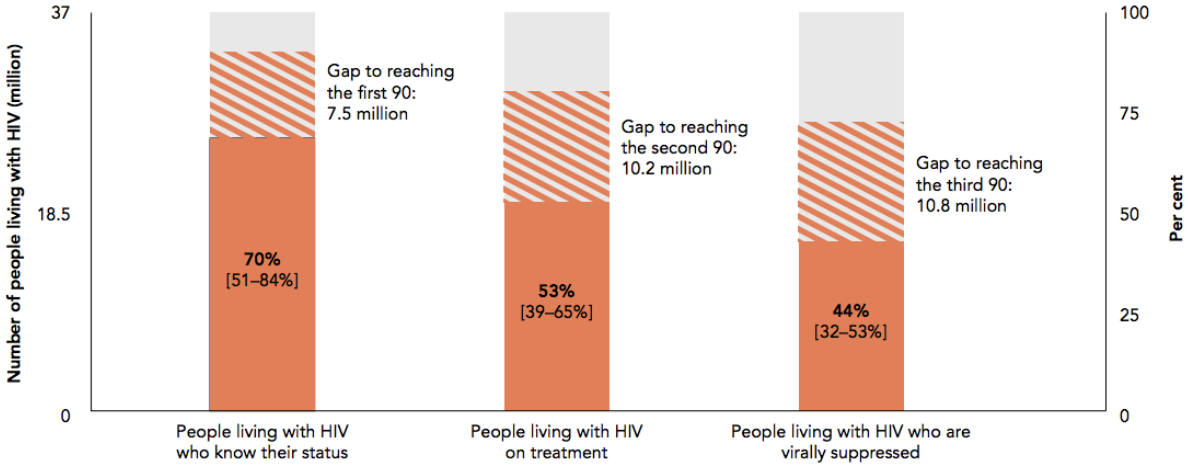


FIGURE 3.4. KNOWLEDGE OF HIV STATUS, TREATMENT COVERAGE AND VIRAL LOAD SUPPRESSION, GLOBAL, 2016

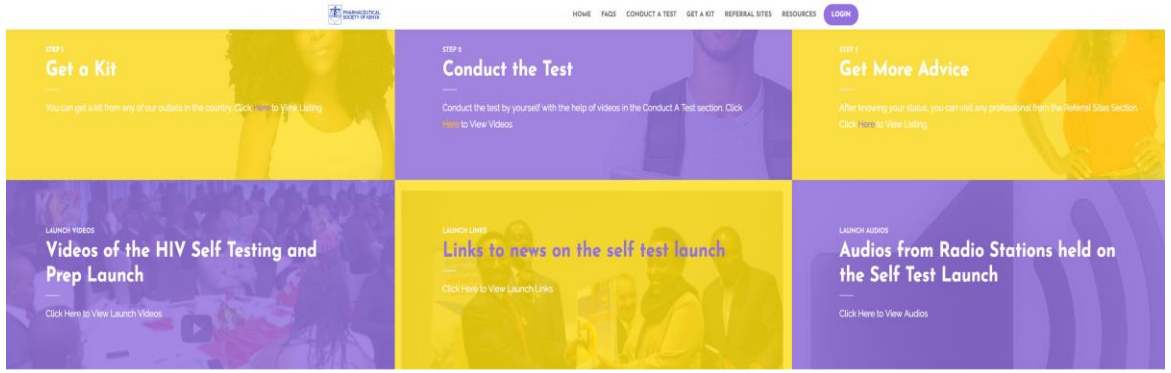
Source: UNAIDS special analysis, 2017; see annex on methods for more details.

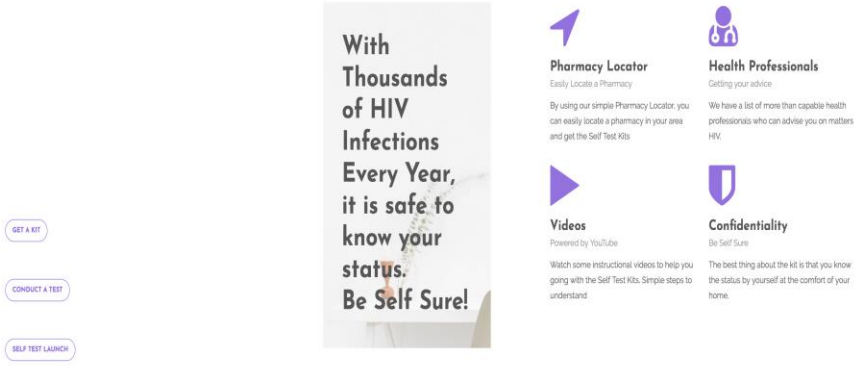
Testing – achieving the first '90

- Several testing modalities that need to be targeted/selected and implemented driven by specific epidemiology and barriers to access – who is not tested
- Traditionally fragmented HTC models vs an integrated HTS model
- Ensure quality rapid HIV testing service delivery with accurate results
- Develop tools to support testing for partners and family of index patients
- Testing for key populations is part of the package tailored to their needs
- Explore innovative approaches for reaching young people, and men with HIV self-testing, multi-disease campaigns, and targeting male-friendly venues

Linkages: HIV self-testing and PrEP

Be Self Sure - Kenya





Kenya launches self-test kit and PrEP

Effect of HIV self-testing on sexual partner numbers for Zambian female sex workers*

- No effect (increase or decrease) on condom use.
- Evidence was based on self-report, but findings similar to previous findings that HIVST does not increase sexual risk behaviours
- Suggests that HIVST may have additional benefits – esp with regular partners.

*Oldenburg et al.2018. *(Katz 2015; Jamil 2017;Wang 2017)*

Better testing in ANC - & maybe reaching out men?

Female HIV acquisition per sex act is elevated in late pregnancy/postpartum

Relative risk of HIV acquisition	Base Model*		Adjusted Model**	
Reproductive Stage	RR (95% CI)	p-value	RR (95% CI)	p-value
Non-pregnant / postpartum	1.00	--	1.00	--
Early pregnancy through postpartum	4.97 (2.95, 8.38)	<0.001	2.76 (1.58, 4.81)	<0.001
Early pregnancy	3.20 (1.24, 8.25)	0.02	2.07 (0.78, 5.49)	0.14
Late pregnancy	5.54 (2.62, 11.69)	<0.001	2.82 (1.29, 6.15)	0.01
Postpartum	7.80 (3.04, 20.02)	<0.001	3.97 (1.50, 10.51)	0.01

*Adjusted for condom use, reproductive stage
**Adjusted for condom use, reproductive stage female age, active PrEP use, HIV RNA of

UNIVERSITY OF WASHINGTON

Heffron et al Partners in Prevention HSV/HIV Transmission Study abstract #

Repeat HIV testing during pregnancy in Kenya: an economic evaluation

Rogers et al abstract #1147

- Late pregnancy repeat HIV testing cost effective in Kenyan $1,098/QALY - 757 averted perinatal HIV transmissions and 208 reduced maternal and child deaths.
- Model did not consider potential horizontal HIV transmissions averted, use of additional interventions during labour to reduce transmission. These omissions possibly rendered estimates conservative.

In higher incidence settings greater benefit likely

Community-based approaches work

Impact of community-based HIVST distribution on demand for ART in Zimbabwe

Data from 144 ART clinics

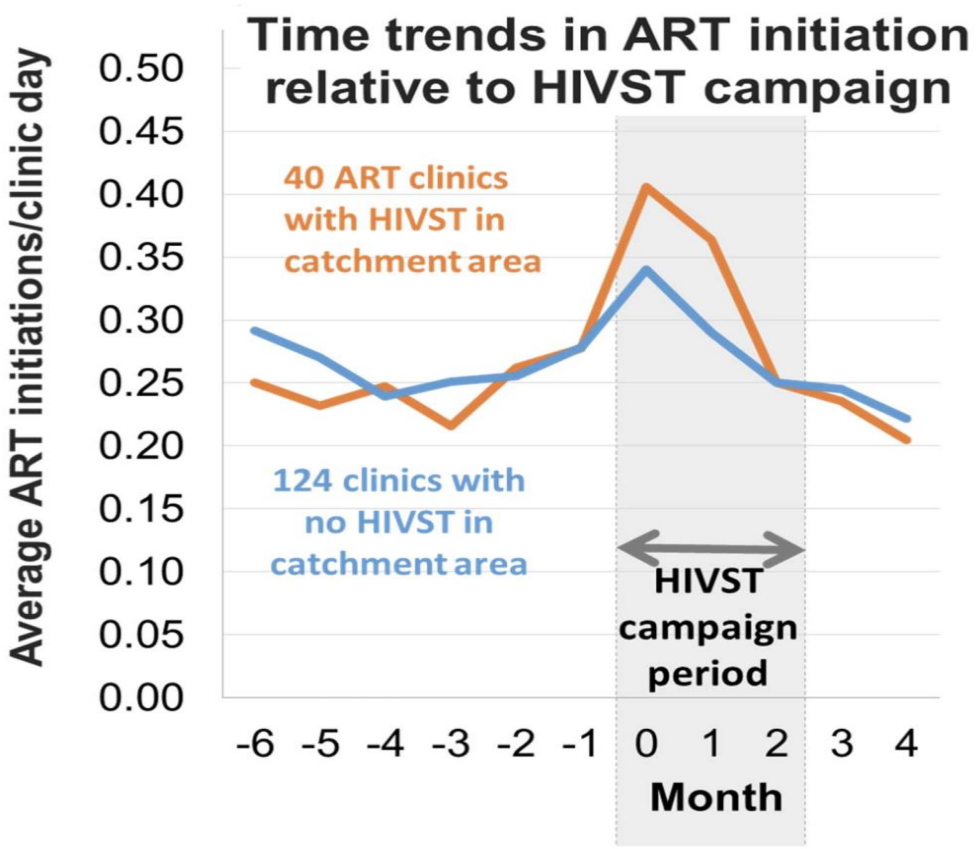
- 40 serving the 38 HIVST communities (3,138 initiations)
- 124 comparison (9,670 initiations)

Difference-in-differences in rate of ART initiation by HIVST in catchment area

During HIVST: **Adj. RR 1.27 (1.14-1.43)**

After HIVST: **Adj. RR 1.00 (0.87-1.15)**

Sibanda et al abstract #150LB



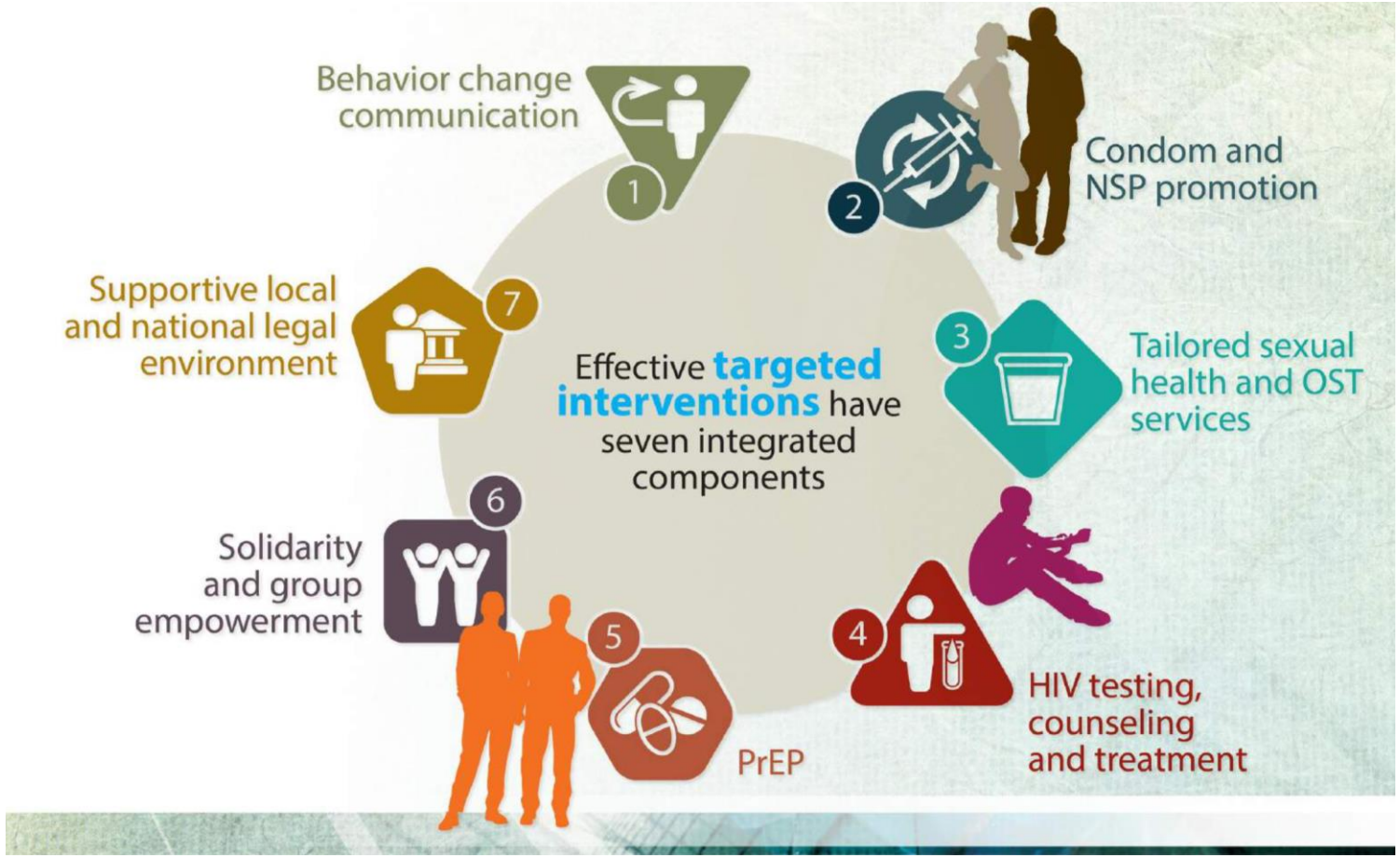
Key Populations

Proven Approaches for Key Populations

Target by 2020
90% Access to Tailored Prevention and Treatment Services

Acceptability of services is a key element for effectiveness innovative,

Tailored, **community-led approaches**



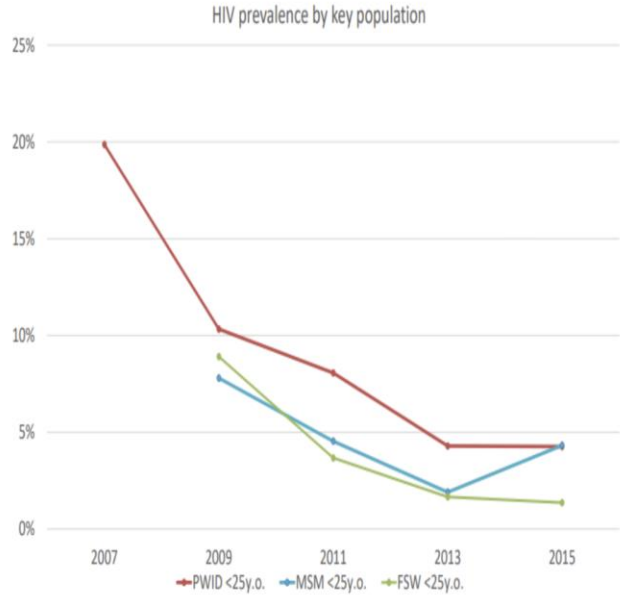
Scale Matters

National trends in HIV prevalence in 3 KP in Ukraine

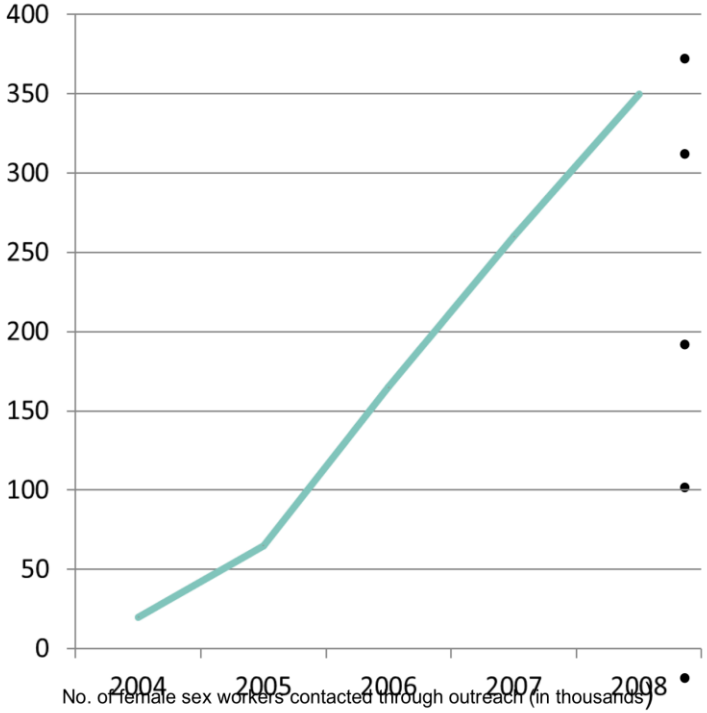
Pooled analysis of 4 nationally-representative IBBS surveys→ confirmed the decreasing trend in HIV prevalence in PWID and FSW, suggesting:

- ↓PWID HIV due to "massive harm reduction program" supported by GF covering >60% of est PWID nationally
- ↓ in FSW HIV also due to prevention coverage
- recent increase in MSM, esp younger subgroup, may indicate a new wave of non-injection related transmission

Dumchev et al. abstract #929



Systematic scale up: India Sex Worker program



- National leadership
- More than 150 implementing Community Based Organizations
- Supportive monthly supervision and mentoring;
- Intensive 3-days onsite visits each month to review implementation
- Quarterly grading of implementers

PrEP and early ART for female sex workers in South Africa

PrEP for HIV-negative SWs; early ART for HIV-positive SWs.

- 947 SWs seen in clinic → 692 were HIV tested → HIV prevalence 49%.
- Among those returning to clinic after testing and confirmed clinical eligibility
  - 98% took PrEP (219/224) – 22% seen at 12m
  - 94% (139/148) early ART - 60% seen at 12m
- Little change in consistent condom use or # sex partners (high levels condom use with clients; low use with main partners)
- No seroconversions on PrEP; 7 virological failures on early ART
- Total cost of service delivery $126 for PrEP and $406 for early ART per person-year

TREAT ALL

High Coverage of ART Associated with Decline in Risk of HIV Acquisition in Rural KwaZulu-Natal, South Africa

Frank Tanser,[1*] Till Bärnighausen,[1,2] Erofili Grapsa,[1] Jaffer Zaidi,[1] Marie-Louise Newell[1,3]

Science

THE LANCET
Global Health

Use of antiretroviral therapy in households and risk of HIV acquisition in rural KwaZulu-Natal, South Africa, 2004–12: a prospective cohort study

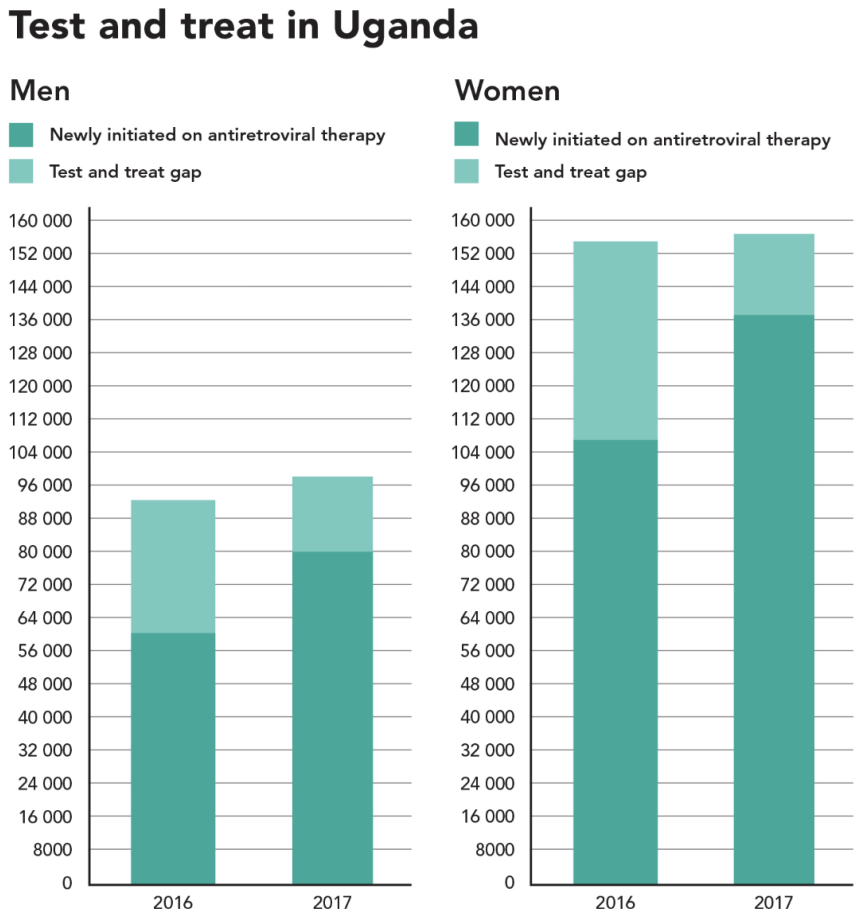
Alain Vandormael, Marie-Louise Newell, Till Bärnighausen, Frank Tanser

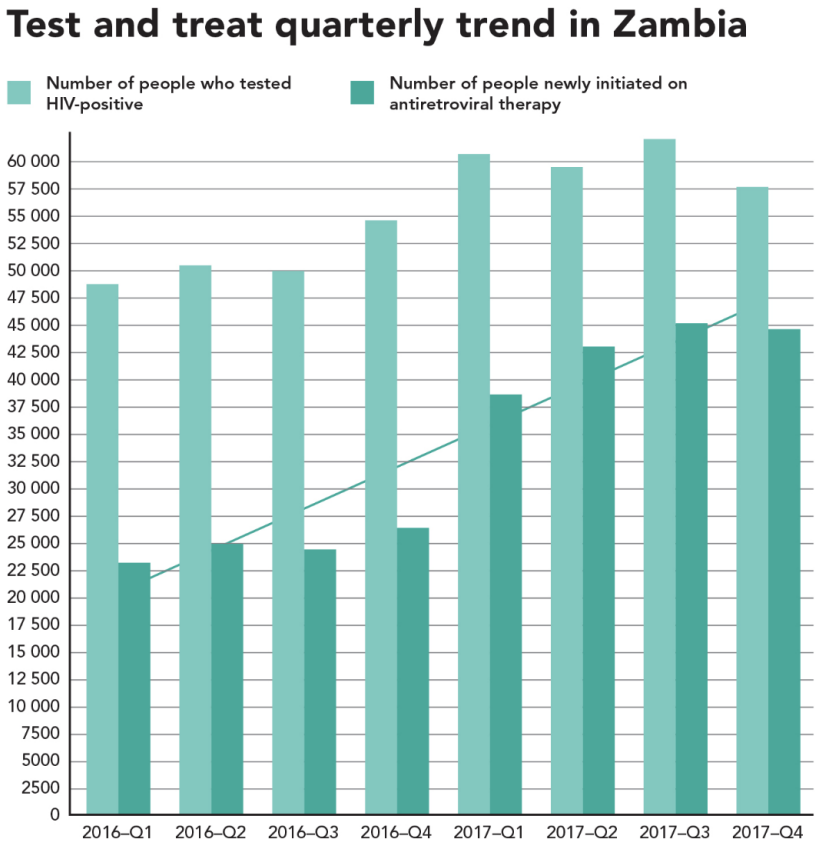
Antiretroviral Therapy to Prevent HIV Acquisition in Serodiscordant Couples in a Hyperendemic Community in Rural South Africa

Catherine E. Oldenburg, Till Bärnighausen, Frank Tanser, Collins C. Iwuji, Victor De Gruttola, George R. Seage, III, Matthew J. Mimiaga, Kenneth H. Mayer, Deenan Pillay, Guy Harling

Clinical Infectious Diseases

Test and Treat all



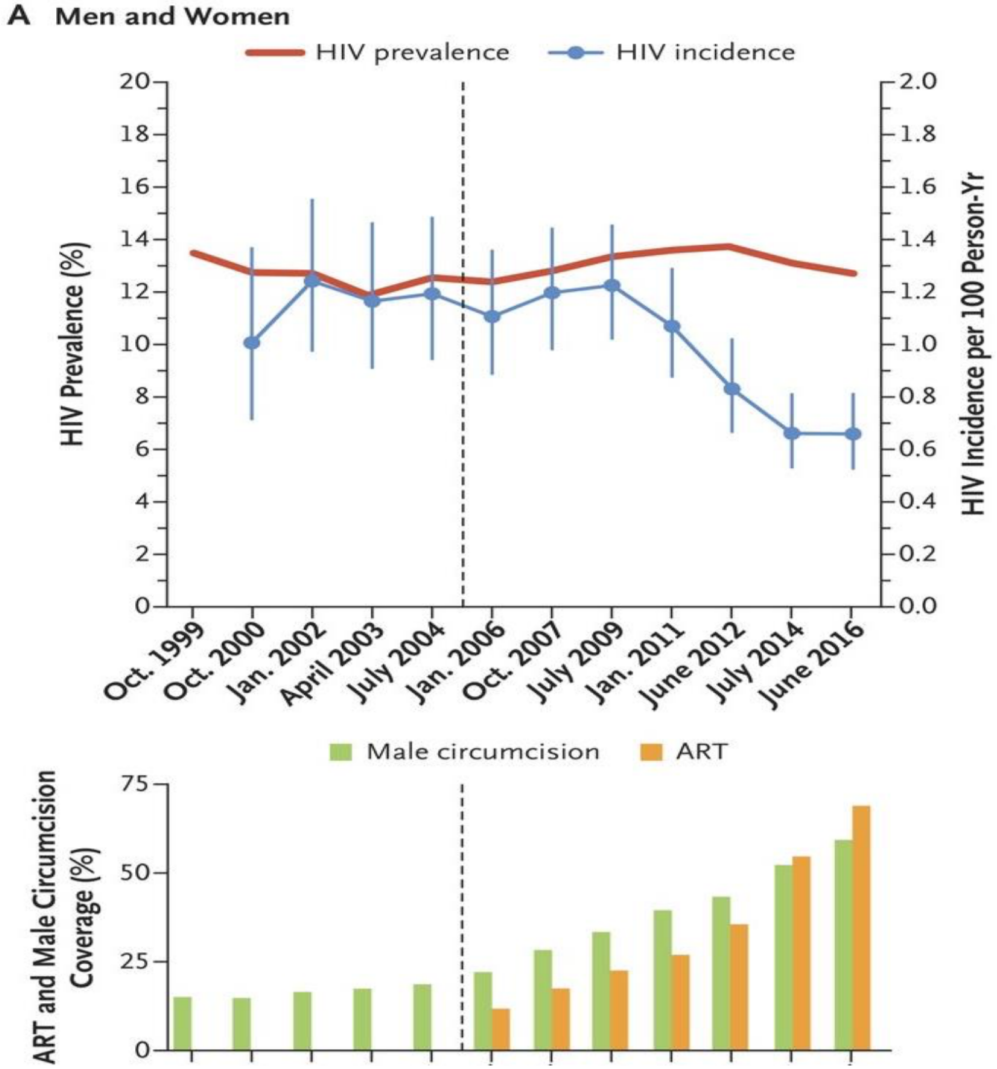


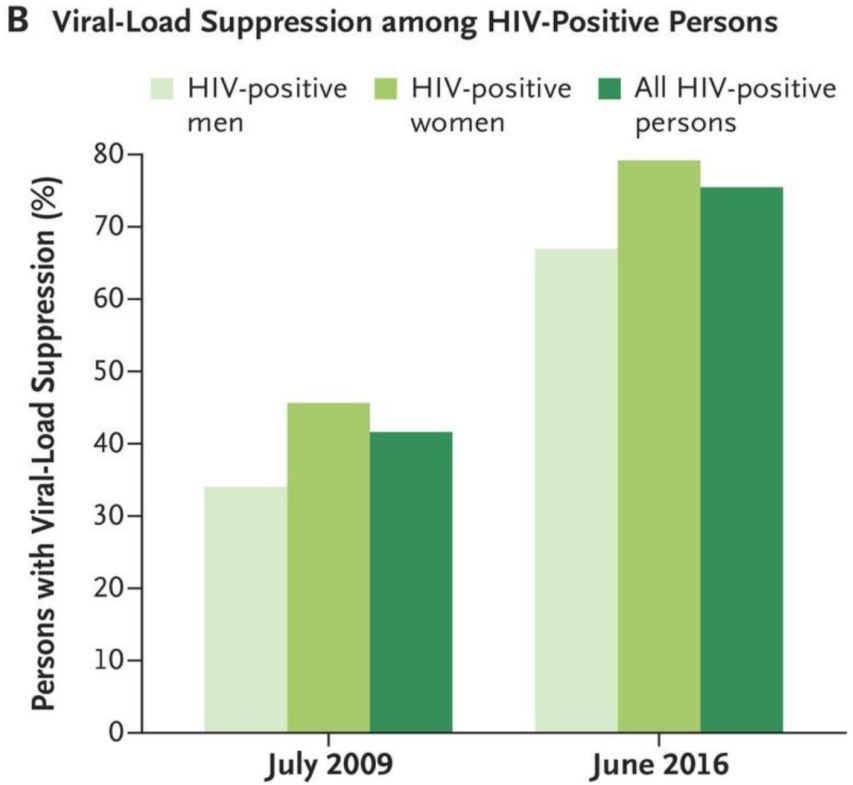
the number of people newly initiating HIV treatment increase from 23 000 in the first quarter of 2016 to 45 000 in the final quarter of 2017

Source: ww.unaids.org

Combination of Interventions will make the greater impact

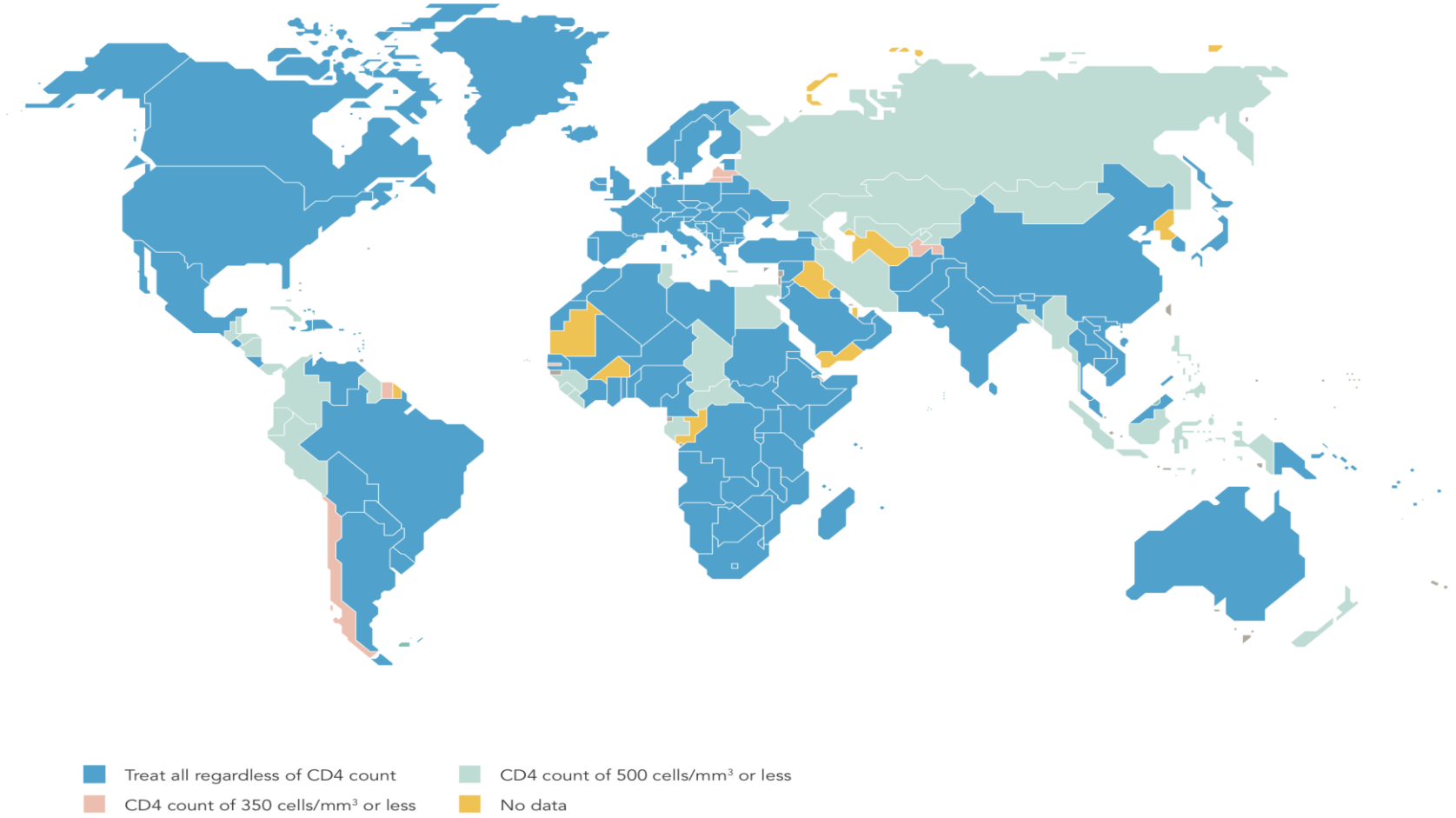
HIV Incidence and Prevalence in the Rakai Community Cohort Study, 1999–2016





Grabowski MK et al. N Engl J Med 2017;377:2154-2166.

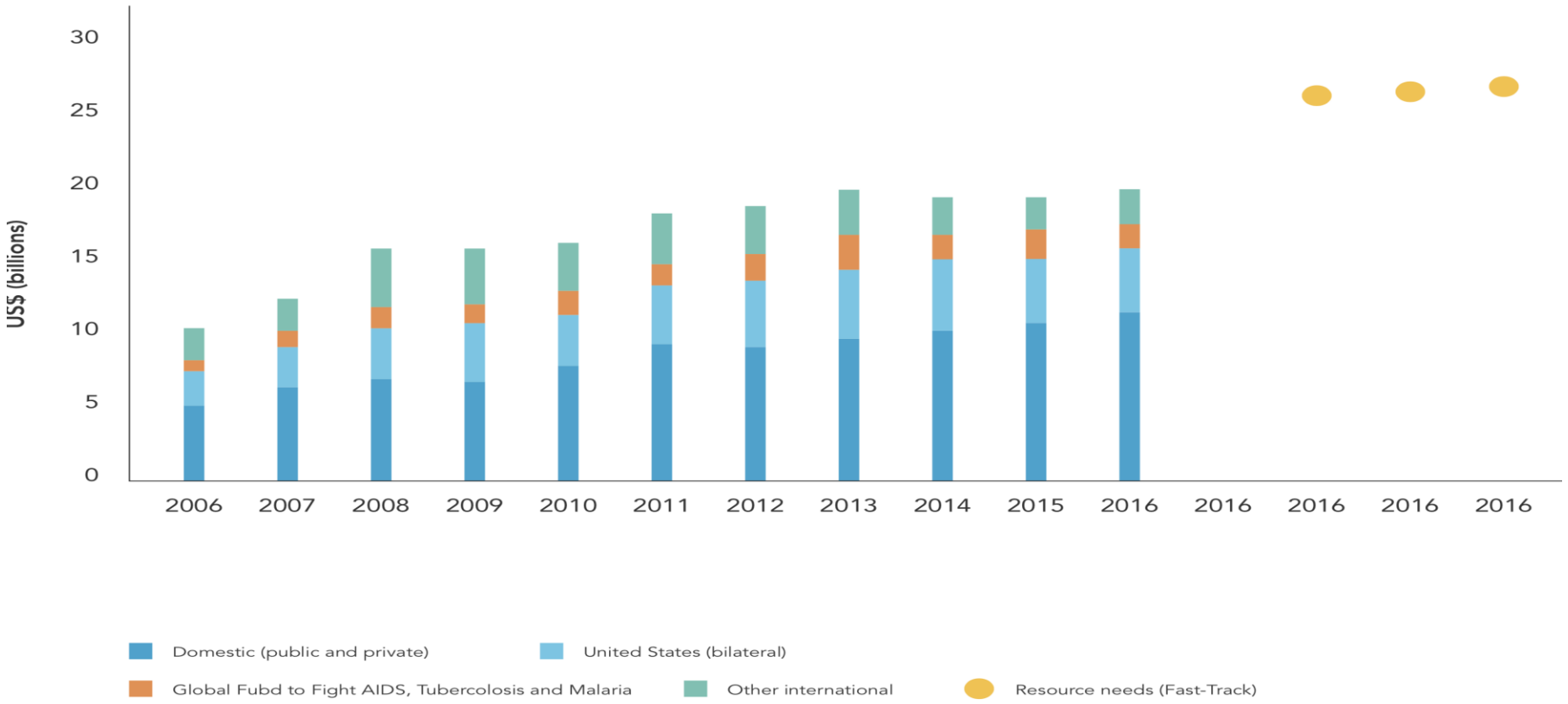
Countries adopting the Treat All Policy



Human Rights

- The cornerstone of removing legal barriers
- Important and essential at any context of the epidemic
- Broad options to explore the legal barriers (human right assessment) and tools to address in a tailored way adapted to country context

Resource Availability Falling Short of Needs



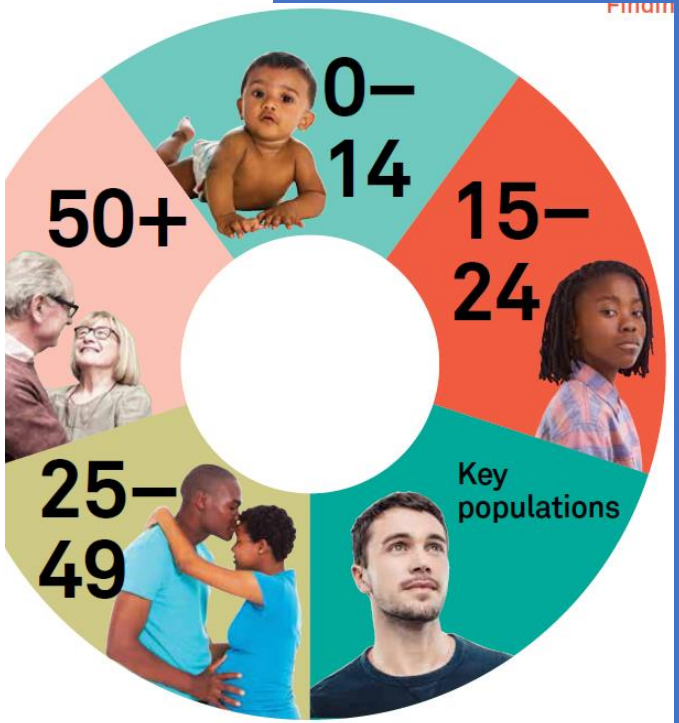
Source: UNAIDS

Investing for Impact

- We are at a critical point and smart investments and rapid quality implementation are urgently needed
- Adult new infections declining too slowly

- Investment Approach: a combination of programme interventions combined with those that address the barriers, in particular stigma and human rights, delivered in partnership with communities

- Data and targeted combination of interventions + treat all
- Accelerate implementation: from pilots to scale
- The core policies are adopted quick and continuously evolving
- The response should be dynamic and leverage synergies at multiple level synergistically on multiple levels – individual, family and society
- Flexible – adapts to changing epidemic patterns and can rapidly deploy innovations



Invest for a People Centered Approach

Accelerate Scaled focused Prevention and Treat All

Leave no one Behind

Use real-time data to adapt quickly

Invest resources to fast track the response