

Optimizing HIV testing through routine use of data: considerations for a status-neutral approach

Maaya Sundaram

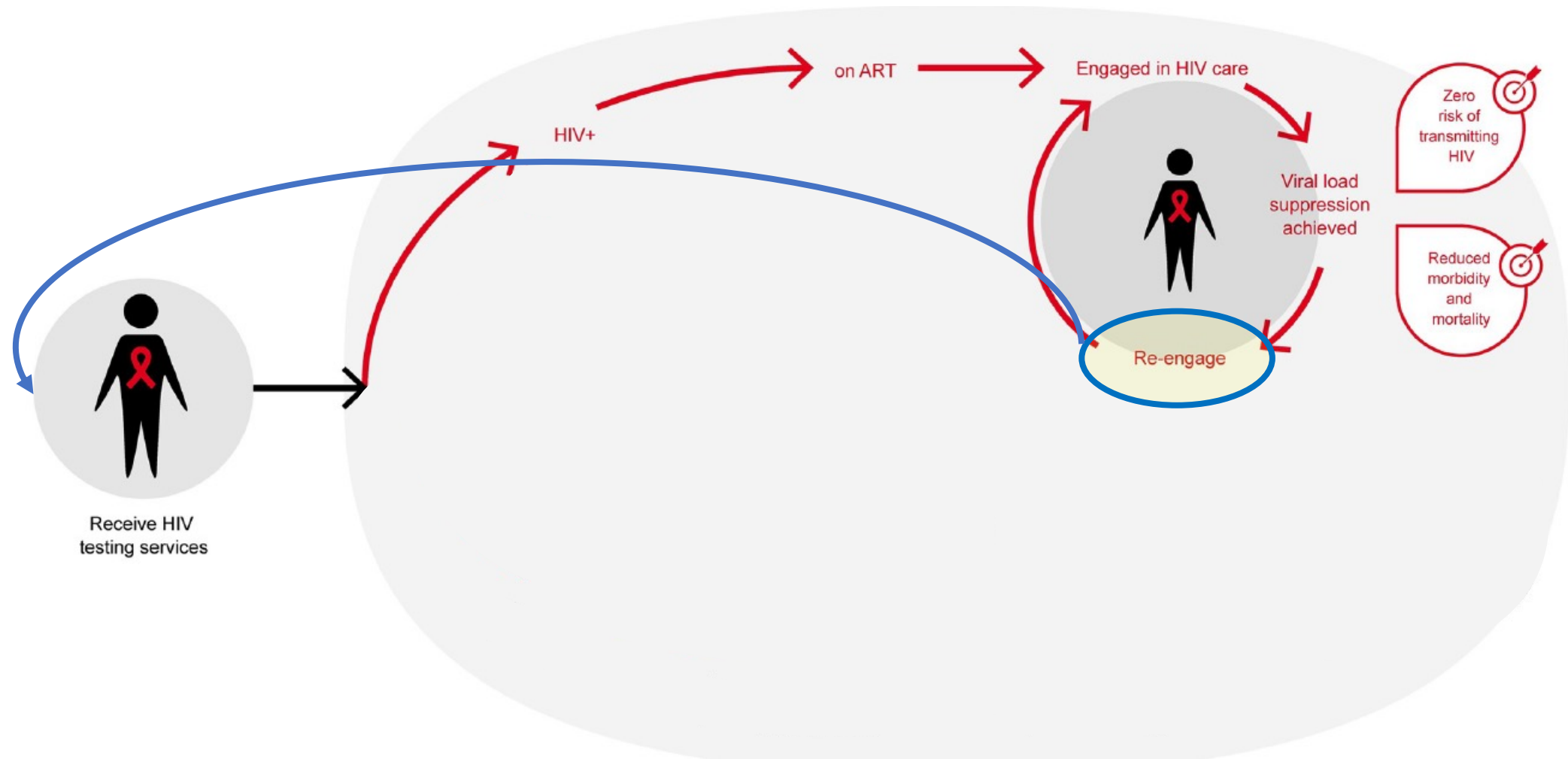
Senior Program Officer, HIV Testing and Prevention
Bill & Melinda Gates Foundation

Leveraging DSD Strategies to Optimize HIV Testing and Linkage Services

March 13-16, 2023 | Nairobi, Kenya



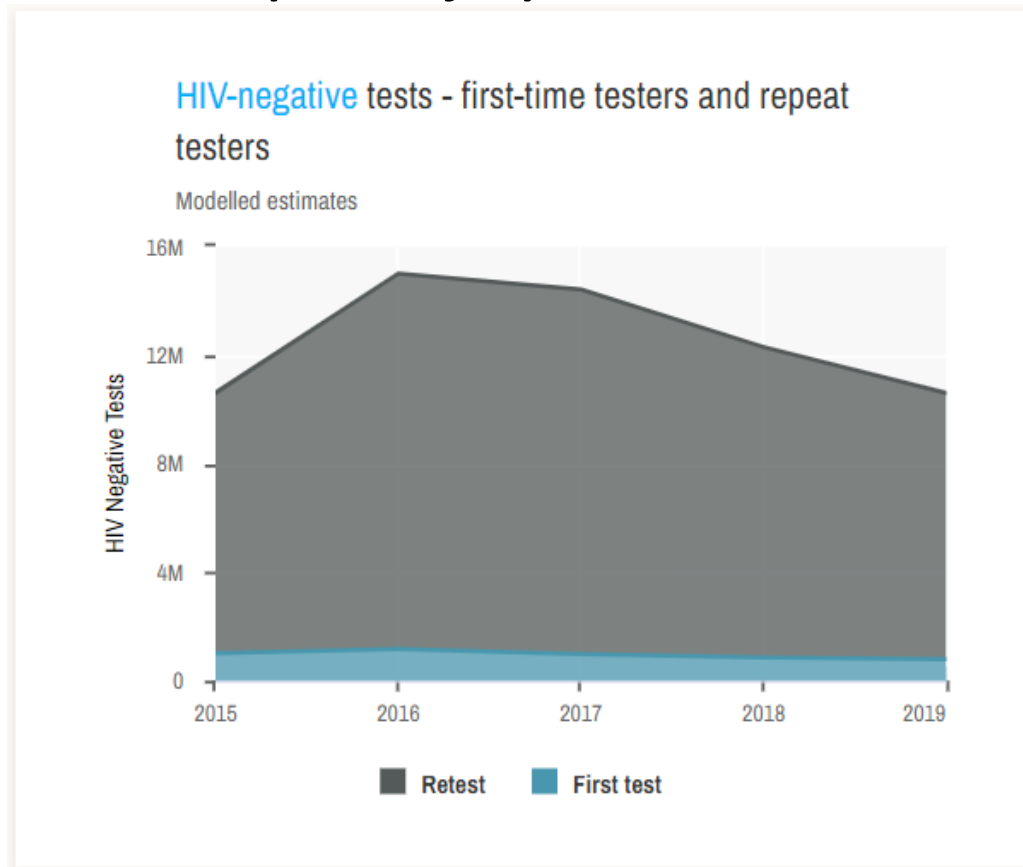
The future of testing: a status-neutral approach



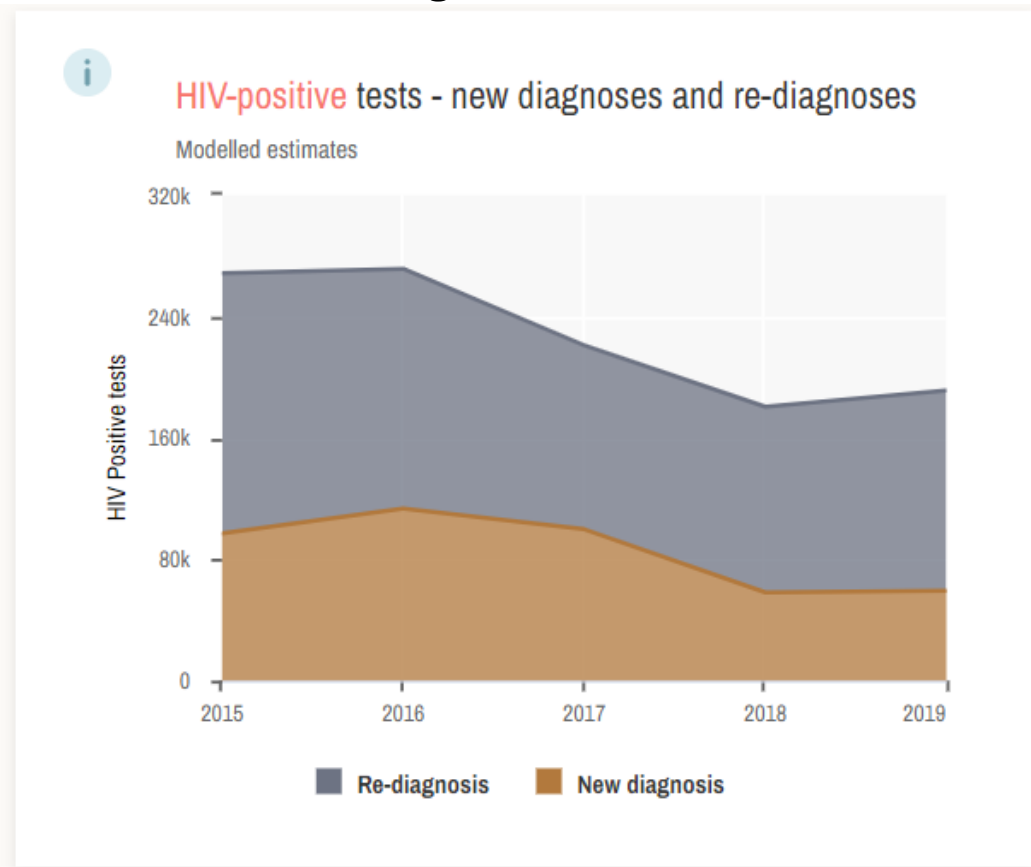
Source: Grimsrud, etc, Plos Med 2023 <https://doi.org/10.1371/journal.pmed.1004182>

Considerations for the status neutral approach: prevention and re-diagnosis (example: Kenya)

Majority of HIV- tests are repeat testers which is important for prevention . . .



Substantial proportion of HIV+ tests are known HIV+ re-diagnoses . . .



Source: WHO HTS Dashboard

Prevention Pillars

Fewer than 370,000
new HIV infections per year by 2025

95% of people at risk of HIV have equitable access to and use appropriate, prioritized, person-centred and effective combination prevention options

1

Key populations

Combination prevention and harm reduction packages for and with

Sex workers
Gay men and other men who have sex with men
People who inject drugs
Transgender people
Prisoners

2

Adolescent girls and young women

Combination prevention packages in settings with high HIV incidence

(based on differentiated, layered packages)

3

Adolescent boys and men

Combination prevention packages in settings with high HIV incidence

(including voluntary medical male circumcision and promoting access to testing and treatment)

4

Condom programming

Promotion and distribution of male and female condoms as well as lubricants

5

ARV-based prevention

Pre-exposure prophylaxis, post-exposure prophylaxis, treatment as prevention including for elimination of vertical transmission

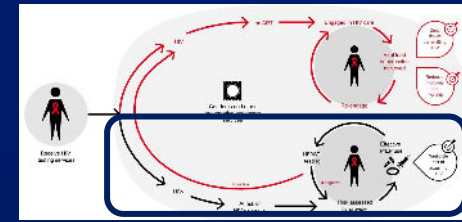
Access through

Community-based and community-led outreach, health facilities including sexual and reproductive health services, schools, private sector, virtual platforms and other innovations

Foundations, societal and service enablers and addressing underlying inequalities

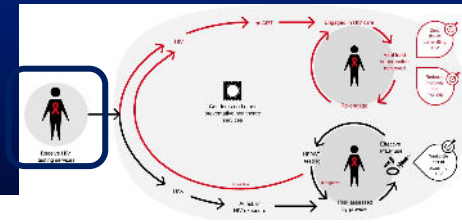
Sexual and reproductive health and rights Gender equality Ending stigma and discrimination

Conducive policies and environment Multisectoral, integrated & differentiated approach Sustained investment in HIV prevention



Highlights complementarity and interaction between primary HIV prevention, testing, treatment and the prevention of vertical transmission of HIV

Defining Who Needs Prevention



STEP

1

DETERMINE TOTAL POPULATION SIZE ESTIMATE

- Countries should have **up-to-date, nationally validated key population size estimates generated from empirical methods** and sound statistical concepts.
- Where PSEs are outdated or do not exist, global or regional averages may be used to benchmark. For MSM, this should be **at least 1%** of the total adult male population ([WHO & UNAIDS, 2020](#)).
- In resource constrained settings, **low-cost methodologies that generate reliable PSEs** need to be developed and used.
- Where possible, **multiple sources** should be triangulated for greater certainty.
- **Plausible PSEs should be mandatory** in the development of all national strategic plans, prevention roadmaps as well as funding requests/country operational plans for major donors.

STEP

2

CALCULATE A RISK-FOCUSED DENOMINATOR

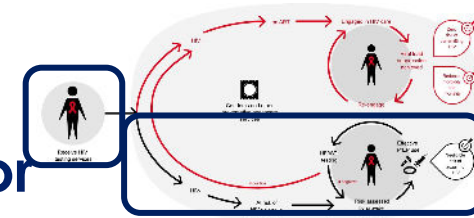
For key populations:

- Men who have sex with men with a non-regular partner
- All transgender women
- All sex workers
- All people who inject drugs
- All prisoners

For other young people and adults:

- Use sub-national HIV incidence estimates disaggregated by age, sex, location and risk. The denominator for regular community outreach should be **populations with high HIV incidence** (globally defined as more than 1 per 100 person years).
- In parts of sub-Saharan Africa this level is also reached among people with non-regular partner(s), people who have transactional sex or another sexually transmitted infection.

Declining incidence requires more disaggregated data for precision prevention delivery (example: Malawi, AGYW)



Demographic:
age, sex

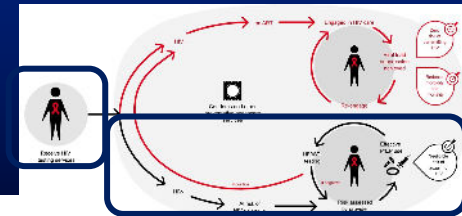
Geographic:
sub-national

Risk:
Behavioral

area_name	Population sizes by behaviour (F15-24)					Estimated new HIV infections					Estimated HIV incidence rates					
	No sex	Regular partner	Non-regular	YWKPs	All F15-24	F15-24LHV	No sex	Regular partner	Non-regular	YWKPs	All F15-24	No sex	Regular partner	Non-regular	YWKPs	All F15-24
Chitipa	12642	12450	3801	342	29530	295	0	12	5	5	23	0	0.10	0.14	1.51	0.08
Karonga	18689	20663	7038	995	48308	922	0	31	15	22	67	0	0.15	0.21	2.18	0.14
Nkhatabay	15761	11419	8024	877	36869	788	0	19	19	21	59	0	0.17	0.24	2.41	0.16
Rumphi	12158	11285	4604	590	29061	423	0	14	8	11	33	0	0.12	0.18	1.82	0.12
Mzimba North	14187	14183	4823	437	34129	499	0	20	10	9	39	0	0.14	0.20	2.10	0.11
Mzimba South	34569	30956	14097	1117	81706	968	0	36	24	20	80	0	0.12	0.17	1.75	0.10
Likoma	713	509	509	23	1798	44	0	1	1	1	3	0	0.19	0.28	2.74	0.17
Mzuzu City	15866	11962	6054	953	35959	1123	0	34	26	25	85	0	0.28	0.43	2.63	0.24
Kasungu	41920	46808	14884	793	105462	1057	0	48	22	12	82	0	0.10	0.15	1.57	0.08
Nkhotakota	19905	18944	9552	657	49829	771	0	26	19	13	58	0	0.14	0.19	2.02	0.12
Ntchisi	17340	16935	5386	708	40209	271	0	11	5	4	21	0	0.07	0.10	1.54	0.05
Dowa	42622	40279	12632	705	96942	703	0	31	15	13	59	0	0.08	0.12	1.78	0.06
Salima	22836	23442	12819	729	60861	1036	0	32	25	15	72	0	0.14	0.20	2.04	0.12
Lilongwe	76207	88597	33134	2639	202661	2084	0	82	43	36	161	0	0.09	0.13	1.37	0.08
Mchinji	25685	33162	13295	876	73934	915	0	37	20	14	71	0	0.11	0.15	1.62	0.10
Dedza	42080	39581	19374	1083	103147	1030	0	39	28	16	82	0	0.10	0.14	1.47	0.08
Ntcheu	32630	27327	20532	1311	83382	1581	0	41	44	28	113	0	0.15	0.21	2.17	0.14
Lilongwe City	50939	49796	33789	3243	142604	4838	0	141	140	83	364	0	0.28	0.42	2.56	0.26
Mangochi	50253	53374	36315	4967	148892	3983	0	80	73	103	256	0	0.15	0.20	2.06	0.18
Machinga	26758	41324	21708	2064	93739	1884	0	54	37	37	128	0	0.13	0.17	1.79	0.14
Zomba	26208	36729	23341	3092	92628	3257	0	79	67	58	204	0	0.21	0.29	1.86	0.23
Mulanje	23144	30089	26600	2455	86104	3816	0	78	93	55	225	0	0.26	0.35	2.24	0.27
Phalombe	15745	22639	11224	1155	52831	2069	0	56	38	25	119	0	0.25	0.34	2.18	0.23
Balaka	19057	19569	14460	1262	56146	1798	0	47	49	27	122	0	0.24	0.34	2.14	0.22
Zomba City	5409	4793	3671	373	15051	806	0	19	22	14	54	0	0.40	0.59	3.64	0.38
Chiradzulu	14855	13972	11546	905	43405	2127	0	48	56	28	131	0	0.34	0.48	3.07	0.32
Blantyre	22169	19885	14359	982	59460	2066	0	60	63	27	151	0	0.30	0.44	2.78	0.26
Mwanza	6495	6443	4171	246	17740	386	0	12	11	6	29	0	0.18	0.26	2.61	0.17
Thyolo	30268	29778	23265	2304	89791	4177	0	90	98	62	250	0	0.30	0.42	2.70	0.29
Chikwawa	24598	28446	12203	2284	69653	2122	0	59	35	42	136	0	0.21	0.29	1.85	0.20
Nsanje	12847	12917	8935	650	36506	1157	0	29	29	13	72	0	0.23	0.32	2.06	0.20
Neno	6460	6919	3372	208	17364	405	0	13	9	6	28	0	0.19	0.27	2.74	0.16
Blantyre City	40612	35100	27270	1758	109523	4782	0	129	149	59	336	0	0.37	0.55	3.35	0.32



Define differentiated packages of prevention based on population segments

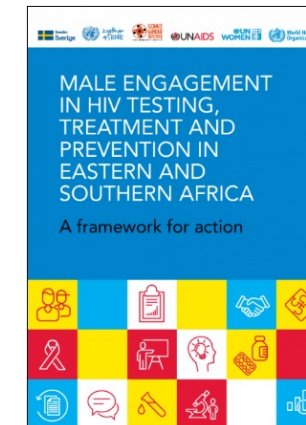
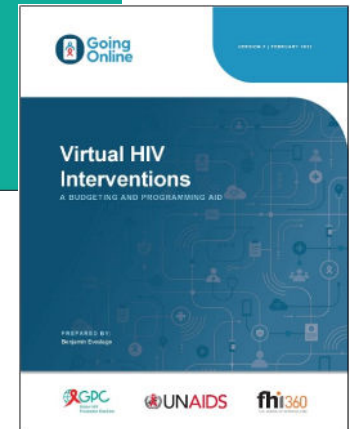
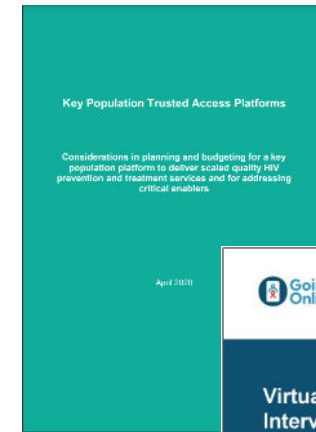
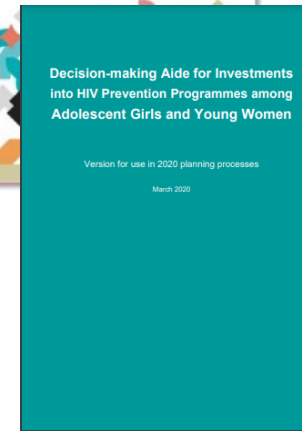


PART I. Complementary action for adolescent girls and young women in all locations			
<ul style="list-style-type: none"> Access to primary and secondary education Universal introduction of comprehensive sexuality education (CSE) and school health programmes Out of school CSE Social support and economic empowerment of vulnerable adolescents 			
<ul style="list-style-type: none"> Access to (integrated) sexual and reproductive health (including family planning, GBV, cervical cancer screening, HPV vaccine and other STI services) and rights including legal and policy support Youth-friendly health systems (including trained providers, conducive hours ...) 			
<ul style="list-style-type: none"> HIV testing and treatment services, PEP, prevention of vertical transmission of HIV as part of maternal health Action to address HIV related rights, stigma and discrimination 			
<ul style="list-style-type: none"> Male & female condoms and lubricants, VMMC for men (in relevant priority countries), basic national HIV information (prevention and treatment), risk reduction communications including new & social media Comprehensive HIV prevention programmes for key populations (including AGYW within key populations) 			
PART II. HIV prevention packages for adolescent girls and young women in high, very high and extremely high incidence locations.			
Local HIV incidence (new HIV infections among young women 15-24/100 person years)	High (0.3-1.0)	Very high (1.00-2.0)	Extremely high (2.0+)
Health sector platforms (facilities, service delivery points)			
HIV/STI risk assessment/profile	Routine offer	Routine offer	Routine offer
HIV risk reduction counselling & testing	Routine offer	Routine offer	Routine offer
Active provider-initiated condom and lubricant distribution & promotion	Routine offer	Routine offer	Routine offer
STI diagnosis (including as indicator for HIV risk) and treatment	Other funding	All sites, AGYW at high risk	Routine offer
HIV&STI service integration into FP [separate guide under development]	Selected sites, focused offer	All sites, AGYW at high risk	Routine offer
Male partner testing (invitation letter + self-test) + ART referral	Selected sites, focused offer	All sites, AGYW at high risk	Routine offer
PrEP services	Selected sites, focused offer	All sites, focused offer	Routine offer (for sexually active)
Education platforms (schools, universities)			
Dedicated school-based HIV prevention campaigns (knowledge, risk perception, methods, skills, GBV) linked to services	Selected schools & tertiary institutions	All schools & tertiary institutions	All schools & tertiary institutions
Accelerated introduction of comprehensive sexuality education	Other funding	Selected schools & tertiary institutions	All schools & tertiary institutions
Community platforms (NGOs, CSOs)			
Community mobilization around basic HIV prevention knowledge, risk perception and related social norms	Selected communities	All communities	All communities
Community-based demand generation and outreach HIV prevention services (incl. condoms, self-testing, referrals ...)	All AGYW and men 20-39 at high risk	All AGYW and men 20-39	All AGYW and men 20-39
Active PrEP demand generation	AGYW part of key populations	All AGYW at high risk	Community-wide
Structured interpersonal communication outreach (e.g. SASA! etc.)	Selected communities	Selected communities	All communities
Cash transfers, incentives, economic empowerment	Other funding	Other funding	Vulnerable AGYW at high risk
Social asset-building, safe spaces, parenting programmes, mentoring	Other funding	Other funding	Vulnerable AGYW at high risk
Keep girls in-school / education assistance	Other funding	Other funding	Vulnerable AGYW at high risk
Cross-cutting and management			
Local AIDS Office leads regular review & problem-solving	Recommended	Recommended	Recommended
Full-time AGYW lead within local AIDS Office	Optional	Recommended	Recommended
Indicative cost (per year on average per AGYW aged 15-29 living in the location)	5-20 USD	15-50 USD	40-100 USD

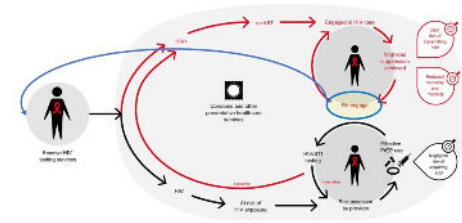
HTS should be routinely offered in all incidence settings, but . . .

Prevention packages provided (linked following HIV-test) need to be differentiated based on population needs and defined packages

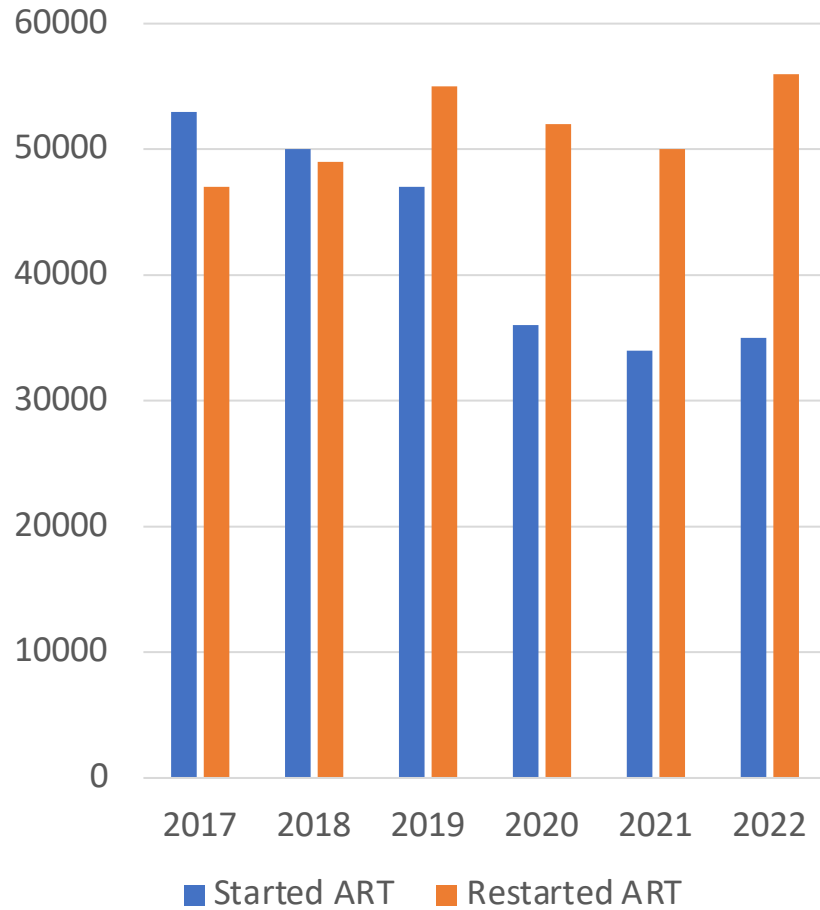
Consider differentiated needs and prevention packages for HTS linkage for all populations . . .



HTS and re-diagnosis

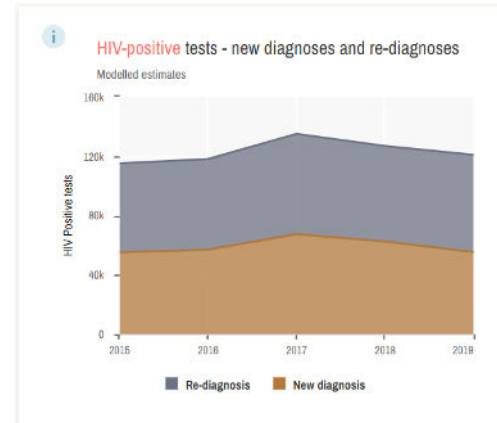


Western Cape, SA ART Experience

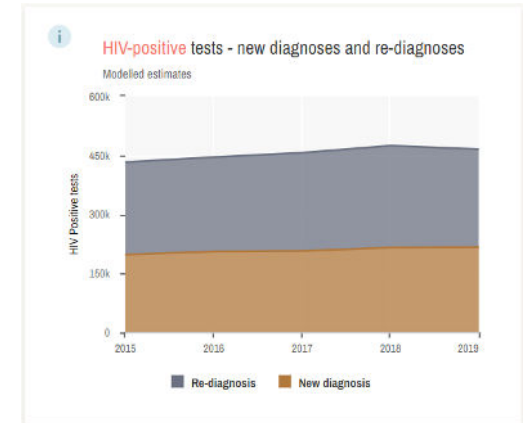


Source: Euvrard, CROI 2023

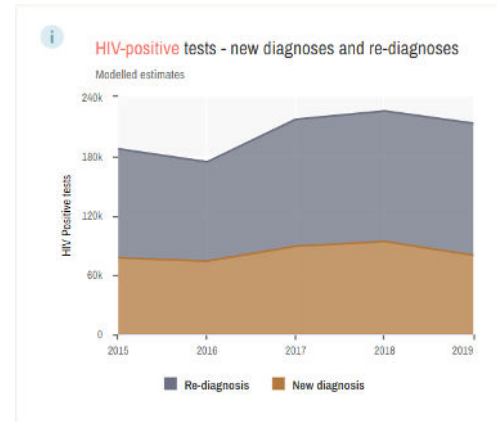
Malawi



Mozambique

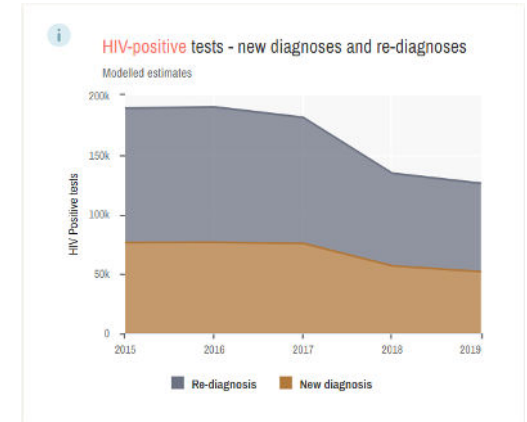


Zambia

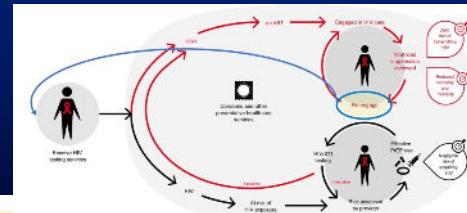


Source: WHO HTS Dashboard

Zimbabwe

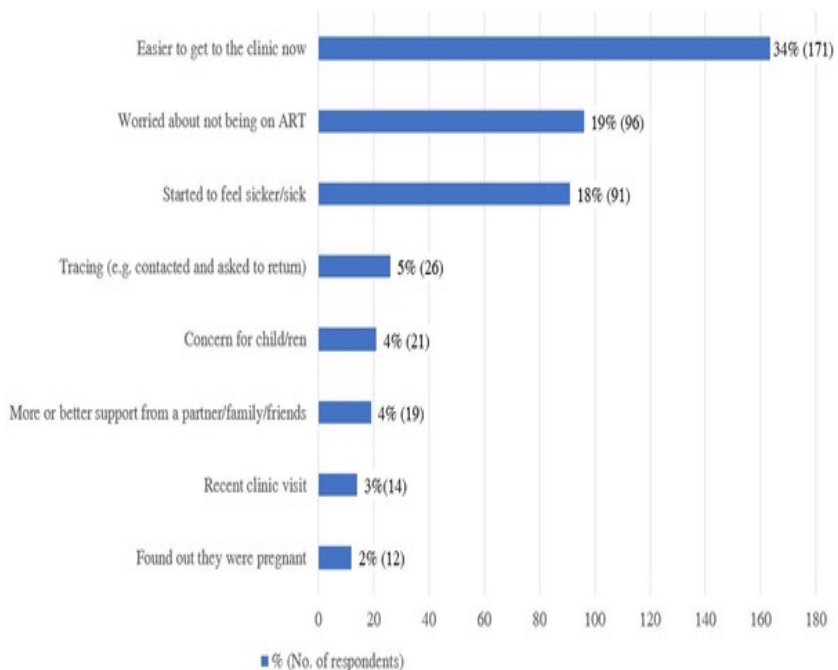


Considerations for those re-engaging through HTS



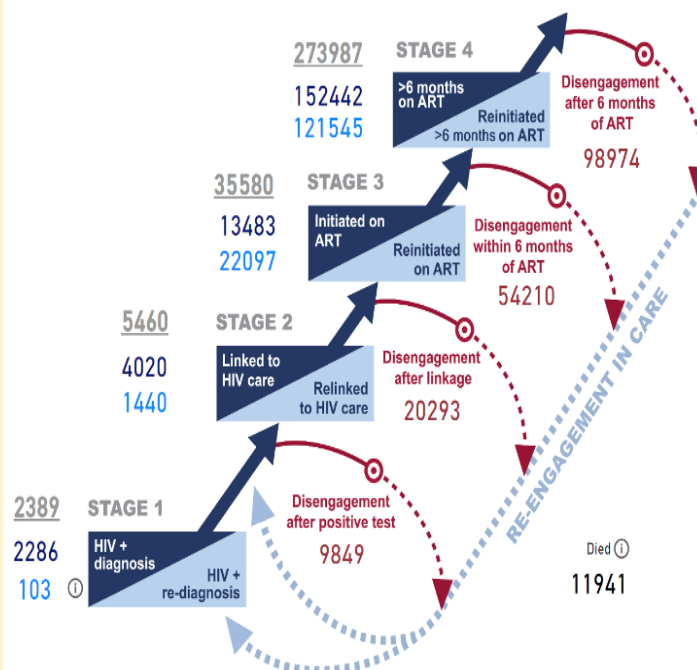
Increased insights into those re-diagnosing and shifting the paradigm to welcome them back based on their needs is critical to the success of the status-neutral approach.

Reasons for returning to care % (No. of respondents)



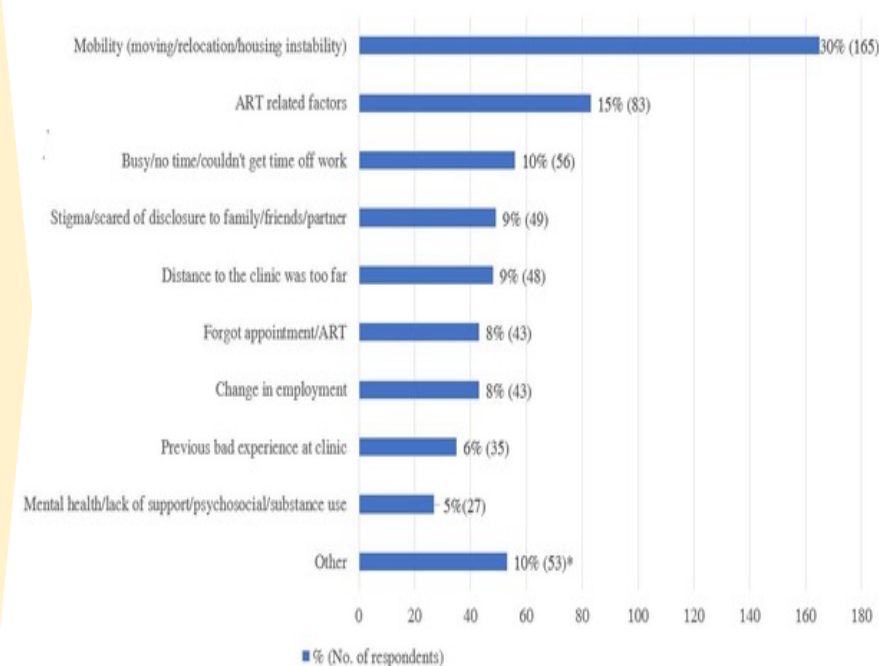
Source: Bisnauth, et al Plos One
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0256540>

Dynamic Treatment Cascade



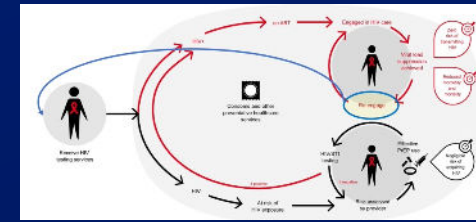
Source: Euvrard, CROI 2023 and Ehrenkranz, et al

Reasons for stopping ART % (No. of respondents)



Source: Bisnauth, et al Plos One
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0256540>

Capture these data to better provide patient-centered services, inform quantification, and improve routine program monitoring



HIV testing		
HTS.1 ●	People living with HIV who know their HIV status (first 95)	Number and % of people living with HIV who know their HIV status
HTS.2	HTS test volume and positivity	Number of HIV tests performed (volume) and the % of HIV-positive results returned to people (positivity)
HTS.3 (NEW) ●	Individuals testing positive for HIV	% testing positive among people who received an HIV test in the reporting period
HTS.4 ●	Linkage to ART	% of people newly diagnosed with HIV initiated on ART
HTS.5	HTS partner services	Number of people who were identified and tested using partner services and who received their results
HTS.6	HIVST distribution	Total number of HIV self-test (HIVST) kits distributed during the reporting period
HTS.7 (NEW)	HTS linkage to prevention	Among those testing HIV-negative and identified as being at elevated risk for HIV acquisition, % of people who receive an HIV prevention intervention within defined period
HTS.8 (NEW)	HIV retesting coverage	% of people testing HIV-negative who tested again within a defined period after their previous test

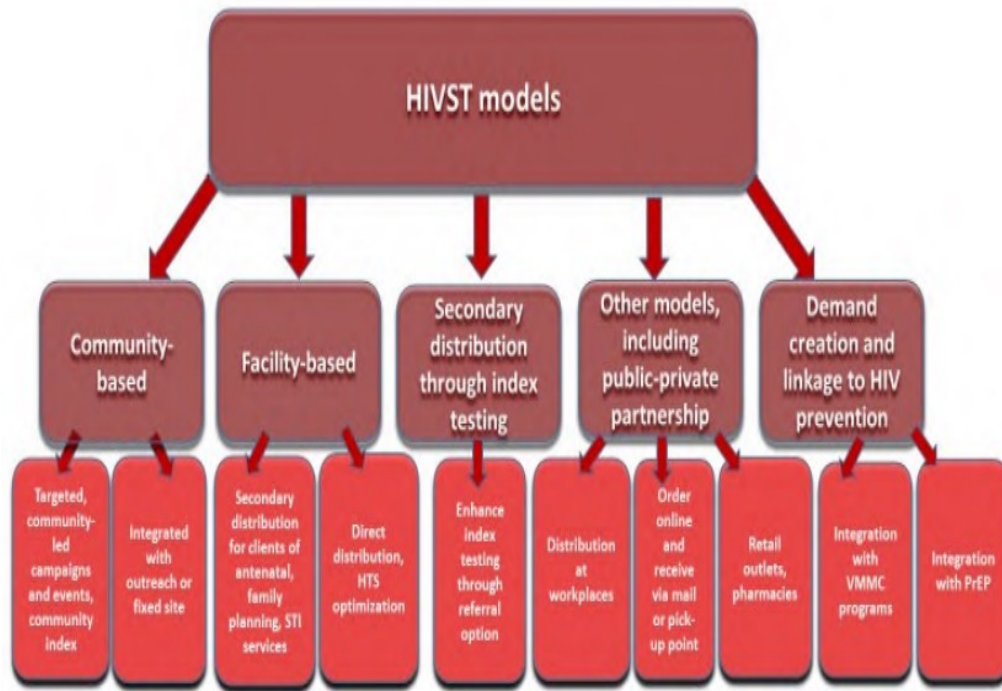
New indicators for prevention are useful but require careful consideration for denominators and measuring linkage vs referral.

Some countries capture data on re-engagement in care but need to standardize and ensure differentiated program approach

Source: WHO Consolidated Guidelines on person-centred HIV strategic information: strengthening routine data for impact

CQUIN Differentiated Testing & Linkage Meeting | March 13-16, 2023

Last but to least . . realize the full potential of HIVST!

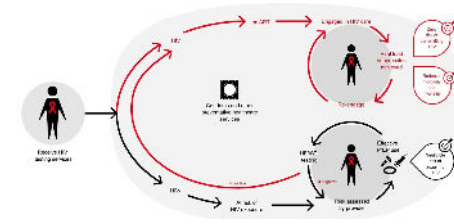


- Increasing access through greater use of HIVST within core (facility-based) and prioritized testing approaches (index testing, social-network testing, secondary distribution and partner approaches and other focused private sector and community testing approaches)
- Addressing age of consent barriers that limit use of HIVST by adolescents
- Expanding effective and acceptable HIVST distribution approaches to reach undertested populations and those who would benefit from simplified access to regular testing
- Increasing population-level HIVST literacy towards broader self-testing and self-care literacy
- Increasing use for status monitoring among PrEP users to facilitate differentiated PrEP service delivery models
- Invest in simplified data collection for HIVST such as triangulation methods

Source: [HIVST Quick reference guide](#)

Source: QUOTED - Grimsrud, etc, Plos Med 2023 <https://doi.org/10.1371/journal.pmed.1004182>

Conclusions



- ✓ Know the epidemic and understand variability to inform linkage to prevention (and all of Celine's conclusions! 😊)
- ✓ Define clear differentiated packages for linkage (e.g. prevention or re-engagement/welcome back)
- ✓ Leverage and expand HIVST as well as demand for HTS through literacy and self-care
- ✓ Consider what is needed to achieve the paradigm shift:
 - ✓ Balance efficiency and effectiveness!
 - ✓ change in incentive structures,
 - ✓ analytic capacity building at sub-national levels,
 - ✓ new and innovative differentiated models for prevention and re-engagement,
 - ✓ improved metrics for success (beyond yield) and indicators to for routine measurement

Thank you!

