New Directions in Measuring Combination HIV Prevention

A think tank series to align measurement of HIV prevention to the Global AIDS Strategy 2021 – 2026

JULY 2022

Contents

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Acknowledgements

Background

New strategy, new directions

The Global AIDS Strategy 2021–2026 includes a high-level target to ensure that by 2025, 95% of people at risk of HIV infection have access to and use appropriate, prioritized, person-centred and effective combination prevention options *(1)*.

The Strategy and its 2025 targets (Annex I) are more focused on key and priority populations, more tailored to individual risks and needs, and more granular in nature. This represents a strategic pivot towards a precision prevention approach.

What is new and different?

▶ The new strategy goes further than any previous global strategy in defining different levels of risk. Prevention targets are sub-divided by risk threshold.

▶ Targets differentiate between having regularly *access* to appropriate health systems or community-led services, and actually *using* certain commodities or services.

▶ For the first time, global targets consider the interactions between different prevention methods, which, together, should contribute to targets.

"The Strategy prioritizes the implementation and scale-up of evidence informed, rights-based, community-led combination prevention packages that are tailored to address the diverse needs, circumstances and preferences of the populations who need effective prevention the most and that can yield the greatest programmatic impact."
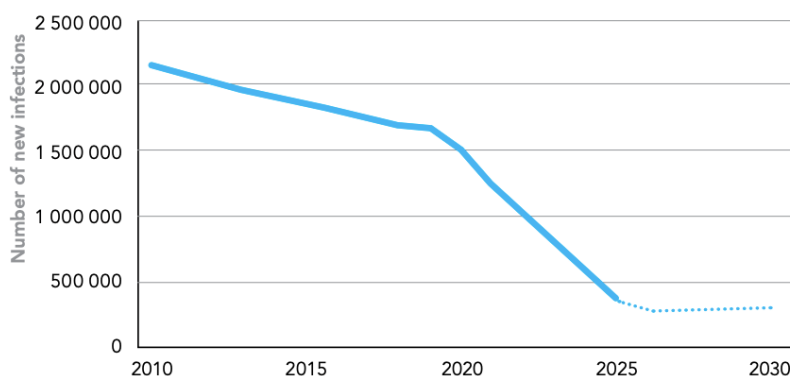
— Global AIDS Strategy 2021–2026

Figure 1. Reaching the 2025 targets will reduce new HIV infections to under 370 000 in 2025

Projected impact of reaching the 2025 targets on new infections

Source: Global AIDS Strategy 2021-2026

Rationale

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The need for new HIV prevention measurement approaches

The new HIV prevention targets in the Global AIDS Strategy 2021–2026 require new measurement approaches. There are several ways in which existing measurement frameworks are no longer fit for purpose.

▶ **Countries do not have, or are not using, accurate population size estimates for all key populations***:* Of the 193 UN members states, in May 2022, 133 (69%) had population size estimates for men who have sex with men, 130 (67%) had for sex workers, 90 (47%) had for people who inject drugs, 77 (40%) had for prisoners, and 52 (27%) had for transgender people *(2)*. Where estimates exist, they are frequently underutilized. There are also large differences in how countries define denominators for prevention. For example, some use all men who have sex with men as denominator, others only a small proportion who are at risk or reachable. Finally, many PSEs are implausibly low. Globally, the aggregated underestimate of men who have sex with men in country size estimates was 18 million *(3)*.

▶ **Denominators for other priority populations, such as young women and men in settings with high HIV incidence, are often only defined at project levels***:* Although a wealth of approaches for risk analysis and assessment are being used in settings with high HIV incidence in Africa, these approaches are more commonly applied at project level for specific districts and population segments like adolescent girls and young women. There is gap in systematically determining who needs prevention among young people and adults with differentiation by sex, age, location and risk and translating this into population size estimates of people at higher risk.

▶ **Programs are not paying enough attention to identifying those at greatest risk of acquiring HIV infection**: Prioritizing key and vulnerable populations may not go far enough to ensure effective HIV prevention programming. Audits of Global Fund grants in Indonesia, Nepal, South Africa and Ukraine found that key population programs are spending significant time and resources reaching people who are not at risk of HIV infection (as indicated by very low positivity in testing) *(4-7)*. In some countries, geographic coverage of programs for adolescent girls and young women was not fully aligned with areas with highest estimated incidence *(8)*.

- ▶ **Countries are not able to (consistently) report on HIV prevention coverage:** In one analysis of global reporting, 29 of 53 (55%) countries were unable to report on key populations prevention coverage (9). Twelve of these countries were unlikely to be able to report even in 2-3 years' time. This is partly a reflection of the complexity of current indicator definitions, and partly a function of data systems' maturity. Where countries do report, indicator definitions often vary, making it difficult to aggregate or compare data at regional or global levels. For adolescent girls and young women, a minimum package is not pre-defined and there is no Global AIDS Monitoring indicator for prevention coverage among this group (10).

Table 1. Differing definitions of HIV prevention coverage for key populations

Agency	When is a key population counted as "reached" with HIV prevention?
UNAIDS	If measured through survey data, a person is counted as reached if they receive at least two of the following in the past three months: condoms an lubricants, prevention counselling, STI testing, or clean injecting equipment. If measured through program data, a person is counted as reached if they receive individual HIV prevention interventions designed fo the intended population. The number of condoms and needles distributed as well as the number of service delivery sites is also factored in *(10)*.
Global Fund	If they receive at least behaviour change interventions, provision of consumables (condoms/lubricants/needles), and information about or referral to services (STI, HIV testing, etc.) *(11)*.
PEPFAR	If they received, were offered, or referred to HIV testing services plus at least one of the following: information, outreach/empowerment, condoms, lubricants, or offer/refer to STI, ART, TB, hepatitis, reproductive health, or OST services. If the person is known to be HIV-positive, the requirement to offer HIV testing services falls away *(12)*.

- ▶ **Current coverage indicators reveal little about how well a program is performing:** Current indicators combine both community and clinical prevention services, which are not delivered through the same parts of the system. Attempts to capture exactly which services were provided may not be feasible in all contexts and not essential for understanding combination prevention coverage, as the use of specific prevention tools can be tracked separately. At the same time, current indicators do not clearly illustrate what the level of coverage is for community outreach and clinical prevention service settings is. The proportion of people engaged through prevention outreach is particularly unclear in current measurement approaches, though these data are important to know how many and who are missed entirely by programs.

- ▶ **Current measurement frameworks largely lack explicit indicators for combination prevention use:** Generally, outcome measures are related to the use of individual interventions (e.g., condoms, PrEP) *(13)*. Few include measures of consistent use. Current outcome measures do not reflect that an individual's prevention needs fluctuate over time. By failing to measure the outcome of combination prevention, countries lack the ability to assess the performance of their prevention programmes and determine if the right populations are being provided the right combination prevention services in order to reach the 95% target.

Table 2. Inclusion of "use" and "consistent use" indicators in current M&E frameworks

Intervention	"Use" indicator in at least one global measurement framework	"Consistent use" indicator in at least one global measurement framework
Pre-exposure prophylaxis	✓	✓
Post-exposure prophylaxis		
Condoms	✓	
Anti-retroviral therapy with viral load suppression (U=U)		
Safe-injecting practices	✓	
Voluntary medical male circumcision	✓	✓

"There is an absence of a defined approach to measuring the quality of HIV prevention services. Known approaches such as community-led monitoring are yet to be adopted at scale in countries."

2021 Thematic Review of Primary Prevention by the Global Fund's Technical Evaluation Reference Group

▶ **There is a high reliance on modelled incidence as the only measure of HIV prevention impact:** Assessing impact at multiple levels is often viewed as too difficult or expensive (14). However, reliance on model analysis—especially where assumptions are untested and input parameters cannot be estimated—can lead to unreliable results in some contexts and opportunities for using other existing data in the context of specific programmes may be missed (15). Specific additional measures of HIV prevention impact building on existing data from programmes or for specific populations can provide additional insights.

▶ **New combination prevention indicators require updated and adapted measurement tools:** Some of the necessary changes to measuring combination HIV prevention likely require the use of nascent methodologies which have yet to achieve widespread use at scale in countries. This need puts the spotlight on long-standing challenges in measurement of prevention outcomes, which were primarily based on costly population-based surveys that are not conducted regularly. Reviews suggest an absence of defined approaches to measuring the quality of HIV prevention in particular *(16)*.

Process

"Thanks for organizing this thought-provoking series. It was wonderful."

"I've really learned a lot during these sessions! Thank you to the team and all the presenters."

"Thanks to you! This is very helpful work to help all of us prioritize and focus investment and attention."

A global think tank series

To help address limitations with current HIV prevention measurement frameworks, the Global HIV Prevention Coalition Secretariat convened a diverse group of global experts and partners for a think tank series. Participants were drawn from UN agencies, ministries of health, national AIDS programmes, funding partners, civil society organizations, key populations networks, academic institutions, and leading expert groups in the Global South.

The purpose was to reframe HIV prevention measurement in the age of differentiated combination prevention, in line with prevention targets in the Global AIDS Strategy 2021–2026.

Five virtual sessions were held in May and June of 2022. The aim was to increase precision, pragmatism, availability, and use of national data. There were a total of 141 unique participants across the five sessions.

① **Session 1** – Defining who needs combination HIV prevention
(11 May 2022, 79 participants)

② **Session 2** – Measuring combination HIV prevention coverage
(12 May 2022, 69 participants)

③ **Session 3** – Measuring combination HIV prevention outcomes
(24 May 2022, 71 participants)

④ **Session 4** – Measuring combination HIV prevention impact
(25 May 2022, 50 participants)

⑤ **Session 5** – Innovations and systems implications
(10 June 2022, 70 participants)

For sessions 1, 2, 3, and 5, a proposition was developed and discussed. Propositions recommended new or revised HIV prevention indicators, new ways of calculating numerators and denominators, new data collection tools and methodologies, and new data use techniques.

The propositions will inform updates to Global AIDS Monitoring guidance and practice, measurement frameworks of major funding partners such as the Global Fund, and survey tools such as Demographic and Health Surveys (DHS), Population-based HIV Impact Assessments (PHIA), Integrated Bio-Behavioural Surveillance (IBBS), among others.

Propositions

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Proposition 1

Defining who needs combination HIV prevention

The first step is to determine the total population size estimate. Ideally, countries should have up-to-date, nationally-validated key population size estimates generated from empirical methods and sound statistical concepts *(3)*.

Where population size estimates are outdated or do not exist, global or regional averages may be used. For men who have sex with men, for example, this should be at least 1% of the total adult male population *(3)*. In resource constrained settings, low-cost methodologies that generate informal population size estimates may be used *(18-19)*. Where possible, multiple sources should be triangulated for greater certainty. Plausible population size estimates should be mandatory in the development of all national strategic plans, prevention roadmaps as well as funding requests/country operational plans for major donors.

The second step is to move from total key population and priority population sizes to a risk-focused denominator for prevention programs. Behavioural data should be available in IBBS, PHIA, or DHS surveys. The following approach is proposed:

For combination prevention programs (community outreach), define denominators as follows 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) for regular outreach. In most areas globally, these levels will only be reached among key populations.

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. In some areas of eastern and southern Africa, HIV incidence exceeds 1 per 100 persons in all sexually active women and men in certain age bands and regular outreach should be provided to all sexually active adults in these few settings.

Defining Adolescent Girls and Young Women at Risk Siaya District, Kenya

In Siaya district in Kenya, there are a total of 98,048 adolescent girls and young women aged 15-24 years. However, only 42,899 of them are 'at risk' of HIV infection (see red box). When overlaying data on HIV incidence, one can see that 13,942 (5569 + 7250 + 436 + 687) are classified as high risk according to the Global AIDS Strategy (incidence of 1-3%) and 28,957 (22011 + 6946) are classified as moderate risk (0.3–<1%). There are no people in the low incidence category (<0.3% incidence) apart from those who are not sexually active and there a no current risk.

	No sex	One co-habiting partner	Non-regular partner(s)	Selling sex	Living with HIV	Total
Population sizes (DHS survey data)						
15-19 years	39604	5569	7250	436	2813	55672
20-24 years	9063	22011	6946	687	3369	42376
Total	48667	27580	14196	1123	6182	98048
HIV incidence rate (modelled)						
15-19 years	0.00	1.54	2.64	13.84	0.00	0.64
20-24 years	0.00	0.55	0.94	4.92	0.00	0.57

Source: Birdthistle, I, Risher, K. Estimating the Size of the Priority Populations of AGYW in Settings with High HIV Incidence. Think Tank Presentation 11/May/2022.

For pre-exposure prophylaxis (PrEP), apply the risk differentiation as defined in the Global AIDS Strategy and as further elaborated in available tools. Where data is available on the number of recent partners and risky acts, use the Minimum Behaviours Calculator to determine the denominator *(20)*. Where this data is not available, use the following as the denominator:

- For key populations apply the thresholds in the Global AIDS Strategy
- For other young people and adults also apply the thresholds in the Global AIDS Strategy and for further nuancing use disaggregated estimates by age, sex, location, and behaviour

Other methodologies are emerging but require further discussion. These include 'market segmentation' approaches, prioritizing sub-populations and tailoring HIV prevention packages based on qualitative data on the beliefs, attitudes, influences, habits and feelings of a population sample *(21)*. Finding young people at higher risk countries will typically also use other socio-demographic information such as level of education, orphan hood, presence in specific venues (e.g., mining areas, bars, etc.). These may be practical ways to identify the prioritized sub-populations, programmatically.

Proposition 2

Measuring combination HIV prevention coverage

Measuring outreach coverage

To operationalize the target in the Global AIDS Strategy to ensure that 90% of key populations have regular access to appropriate health system or community-led services, countries should measure:

The percentage of (at-risk) individuals who received peer education or other outreach support in a community setting during defined reporting period

Numerator: total number of unique individuals receiving any peer education or other outreach support on HIV prevention in a community setting during defined reporting period
Denominator: total number of at-risk individuals in the given population
Disaggregation: by population (MSM, TG, SW, PWID, prisoners, young people); by intensity (one contact vs. regular contact)

This indicator may be most appropriate for key population prevention programs, but may also be useful to measure program coverage for adolescents and young people. For key populations, outreach should be defined as contact with a peer educator or outreach worker. For young people, outreach should be defined as contact with community-based or peer outreach workers as well as enrolment in a curriculum-based prevention intervention (e.g., Stepping Stones).

To provide a measure of program intensity, disaggregation should include: (a) those reached at least once by the program during the reporting period (i.e., one contact in the past 12 months), and (b) those reached regularly (e.g., monthly or quarterly contact). Virtual outreach may also be counted.

Peer education and other outreach support may include behavioural elements like counselling on prevention options, structural elements like counselling on violence and referral for legal support or biomedical elements like distribution of condoms or needles and referral to specific prevention services. However, it is not important that countries track through this indicator which specific services are offered and when. What is critical is to understand the existence/strength of trusted access platforms which create an entry point to combination prevention services. In other words, we measure whether the interaction took place and combination prevention options were on offer. The intention of this indicator is not to measure, which options were actually provided. This can be counted separately for the specific types of activities. This indicator helps understand who is reached with any programme and even more importantly helps understand what proportion of the estimated population in need is not reached with any programme

This indicator can be measured through cohort tracking and does not require a national unique identifier code.

Measuring service coverage

Then, countries should measure the access to clinical services. Countries may wish to track referrals at a programmatic level. The indicator proposed:

The percentage of (at-risk) individuals who received prevention services in a clinical setting during defined reporting period

Numerator: total number of unique individuals receiving any clinical HIV prevention service during defined reporting period (including condoms, lubricants, needles, syringes, STI diagnosis and treatment, PrEP, PEP, opioid substitution treatment, HIV testing services followed by prevention counselling)

Denominator: total number of at-risk individuals currently accessing service, registered at the beginning of the defined reporting period, or registering during this period

Disaggregation: by population (MSM, TG, SW, PWID, prisoners, young people); by intensity (one service vs. regular service); by type of provider (public services, key population-led organization, NGOs, or other entities).

As with outreach coverage, this indicator should be disaggregated by intensity, capturing those who received a clinical service at least once in the reporting period, as well as those who received such services regularly.

In addition to this new proposed indicator on general coverage of clinical prevention services, countries should also continue to track coverage of specific interventions (e.g., PrEP initiations, STI screening and treatment, etc.). As with outreach, this service indicator is focused on tracking who accesses clinical prevention services and who does not.

Where surveys are used to measure coverage of outreach and clinical prevention services, the people accessing both outreach and clinical services can be determined.

Measuring Coverage of Virtual HIV Prevention Programs TABS Campaign, Jamaica
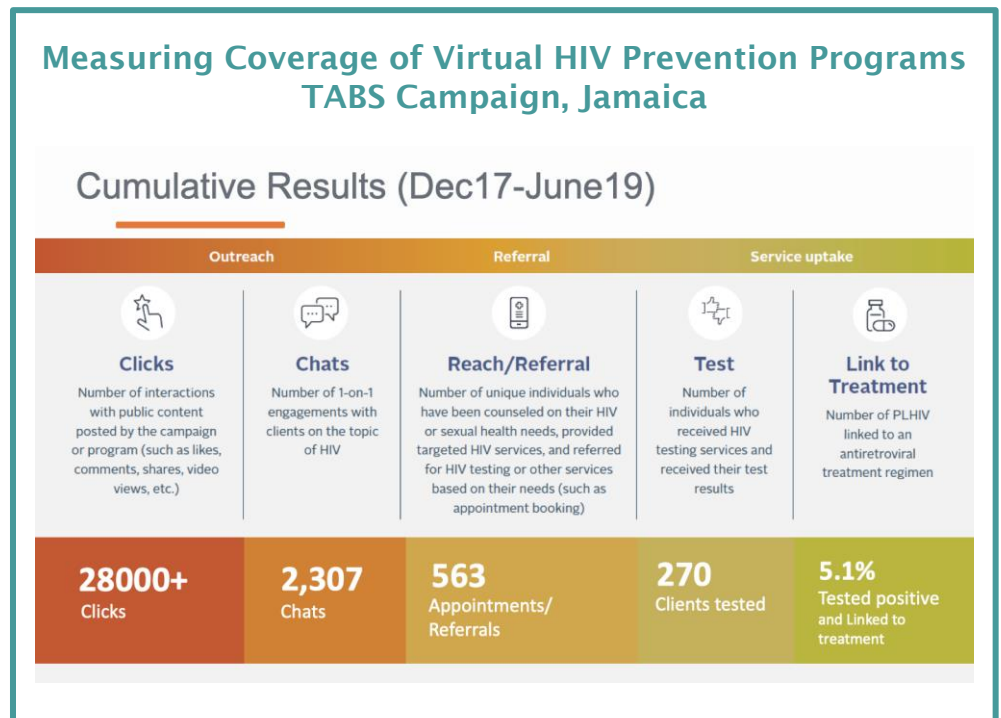
Source: Persaud, N. Measuring Reach and Coverage of Virtual HIV Prevention Interventions. Think Tank Session Presentation. 12/May/2022.

Proposition 3

Measuring combination HIV prevention outcomes

Prevention outcome measures require the *use* (and/or consistent use) of evidence-based prevention interventions appropriate for the targeted individual or the individual's population group. The Global AIDS Strategy targets call for 95% Condoms/lubricant use at last sex by those not taking PrEP with a non-regular partner whose HIV viral load status is not known to be undetectable (includes those who are known to be HIV-negative). This implies that the 95% target for sexual transmission includes use of at least one of the following elements:

▶ Condoms (and lubricants as required)
▶ PrEP (in the form of oral pills, vaginal ring or long-acting injectable)
▶ An HIV-positive partner is on HIV treatment and virally suppressed
▶ A partner is HIV negative

NB: for injection-related transmission, the use of clean needles and syringes should substitute condom use.

It is proposed that these elements form the core of a combination HIV prevention utilization indicator. This indicator should be included in population-based surveys in a similar way as modern contraceptive prevalence is measured ('Did you use any of the following prevention methods?').

The proposed HIV combination prevention outcome indicator is split into two parts, Part A ("use") for use during most recent risk event and Part B ("consistent use") for use during all risk events from the last three months.

> "I approve of the proposal to ask whether people are using either condoms or PrEP at last risk event and consistently. However, knowledge of a partner as HIV-negative or virally suppressed will not be reliable due to various reporting biases"

▶ **Part A (Prevention use at last risk event):** *Percent of a defined population who used a highly effective HIV prevention method, during the* <u>most recent risk event</u>

▶ **Part B (Consistent prevention use in the last 3 months):** *Percent of a defined population who used a highly effective HIV prevention method during* <u>every risk event of the last 3 months</u>.

Disaggregation*: Key populations (FSW, TG women, MSM, Prisoners, PWID, young people and adults in high-incidence geographic areas); other populations as defined in the Global AIDS Strategy.*
Note: Countries may use different time periods.

Methods included in the numerator indicator: Use of prevention methods will be reported by people living with HIV (U=U), by seronegative individuals (PrEP), and regardless of HIV status (condoms and clean needles).

Other elements of combination prevention that are included in the global targets should continue to be measured separately including PEP, VMMC, OST, economic empowerment, and STI service use. Additional analyses can illustrate level of combined use of various effective interventions, but they would not be directly included in the main aggregated indicator for reaching the 95% target. The same applies to changes in sexual and injecting behaviours. They should continue to be measured and trends analysed, but not included in the aggregated main indicator for global reporting. Countries are also encouraged to continue tracking outcome indicators for structural elements that are prevention-related, such as intimate partner

violence, school enrolment, teenage pregnancy, discriminatory attitudes, etc. These can be interpreted in conjunction with the new proposed indicator(s) on combination use of highly effective prevention options.

Net Use of Different Combination HIV Prevention Options
Australian Gay Community Periodic Surveys
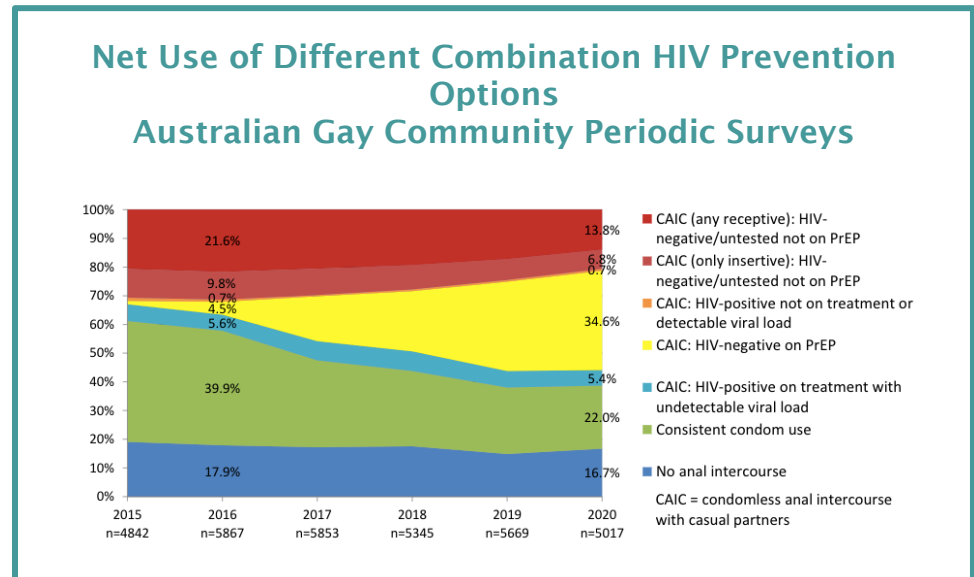
Source: Martin, H. Net prevention coverage in the Australian Gay Community Periodic Surveys. Think Tank Session Presentation 24/May/2022.

These indicators should be measured and reported annually for the mentioned key and priority populations identified in the country's prevention strategy. With current survey schedules, annual reporting is not possible and new approaches to measurement need to be explored (covered in Proposition 5). The indicator should also be considered for future iterations of annual Global AIDS Monitoring. Countries are encouraged to disaggregate these indicators internally for all high-priority geographies (although not for global reporting).

The Global HIV Prevention Coalition proposes two levels of reporting – i) annual reporting for key populations and other priority populations identified in the country's prevention strategy using nimble, low-burden, survey-based approaches to measuring combination prevention outcomes and ii) reporting of the same indicator and populations using rigorous, population-based surveys at least every three to five years via DHS, IBBS, PHIA or other similar methodology.

The approach has the following characteristics:

▶ Strongly encourages the utilization of a focused set of appropriate services or interventions for the population and geography *(23)*
▶ Annual reporting using surveys with less rigorous sampling, but with strong country understanding of limitations of the methods
▶ Country chooses from menu of options – small area survey, IBBS Light, Polling Booth Surveys *(24)*, virtual or online methods, or other options to be identified; further detail regarding these options can be found in Proposition 5: Innovations and System Requirements
▶ Countries are encouraged to maintain consistency in geography and populations for comparability over time
▶ Sampling should consider the size of the population, but specific statistical parameters will not be required for reporting
▶ Confidentiality of respondents' personal information must be guaranteed in all methods

Proposition 4

Measuring combination HIV prevention impact

While no specific proposition was developed for measuring prevention impact, experts recommended the following during the think tank session:

- ▶ Ongoing national and sub-national incidence estimation needs to continue, as well as existing population-based surveys which include HIV biomarkers.

- ▶ Use existing data where possible to understand impact of programmes on new infections.

- ▶ Different options are available; however, cost is an important consideration. Some of the proposed methods include *(22)*:
    - o Repeat prevalence surveys
    - o Repeat testing
    - o CD4-based analysis
    - o Recency testing
    - o Phylogenetics
    - o Mathematical modelling

- ▶ Expanding conceptualizations of prevention impact to go beyond incidence (i.e., results chain from coverage to outcome and impact)

- ▶ Using qualitative methods, such as interviewing newly-diagnosed people to ask them about their contact with prevention programs, experience with services, etc. This was considered novel and exciting by the group and referred to as a "prevention failure analysis" approach.

Estimating HIV Incidence Among Sex Workers Using "Sisters With A Voice" Programme Data Zimbabwe

Data	Routinely collected HIV test data from Sisters clinic visits between 2009-2019
Methods	Linked individual test records Eligible if >1 HIV test at a Sisters clinic - first test HIV-negative Entry: first HIV test at a Sisters clinic - Exit: first HIV+ test or last HIV- test Additional eligibility criteria: Self-report HIV-negative & HIV+ tests Last HIV test >1month after first HIV test Last date of first HIV-negative test before 2018 Date of seroconversion: Midpoint, random, 2-weeks before HIV+, 2-weeks after HIV- test
Findings	2009-2019: 7,537 women, 22,227 HIV tests, 11,974 person-years 365 women seroconverted (2009–2019) 2009-2013: 9.8/100 person years (7.1-15.9) & 4.7/100 person years (2.9-8.0) 2009-2019: 3.9/100 person years (3.5-4.2)
Strengths	National estimates with long-term follow up
Limitations	Only includes women who voluntarily visit a Sisters clinic Irregular testing intervals, return rates, seroconversion intervals

Source: Cowan, F. Measuring combination prevention impact as part of a key population programme among female sex workers in Zimbabwe. Think Tank Session presentation 25/May/2022.

Proposition 5

Innovations and systems implications

Proposition V recommends a two-part approach to monitoring and reporting HIV combination prevention outcomes. It seeks to balance rigor with the need for practical, low-cost, and scalable methods appropriate for countries from a range of income levels.

Part I: Utilize programme and/or rapid survey methods to determine programme outcomes annually for high priority geographies and populations as defined in the country's HIV prevention strategy

Countries are encouraged to measure outcomes on an annual basis using one of the nimble survey methodologies or programme approaches in Table 3. It is important to note the limitations of each approach as well as the most appropriate context for their deployment. Guidance on these methods should be developed which provides sampling considerations, the most appropriate applications, and known limitations.

Table 3. Low(er) cost methods and tools for measuring HIV prevention outcomes

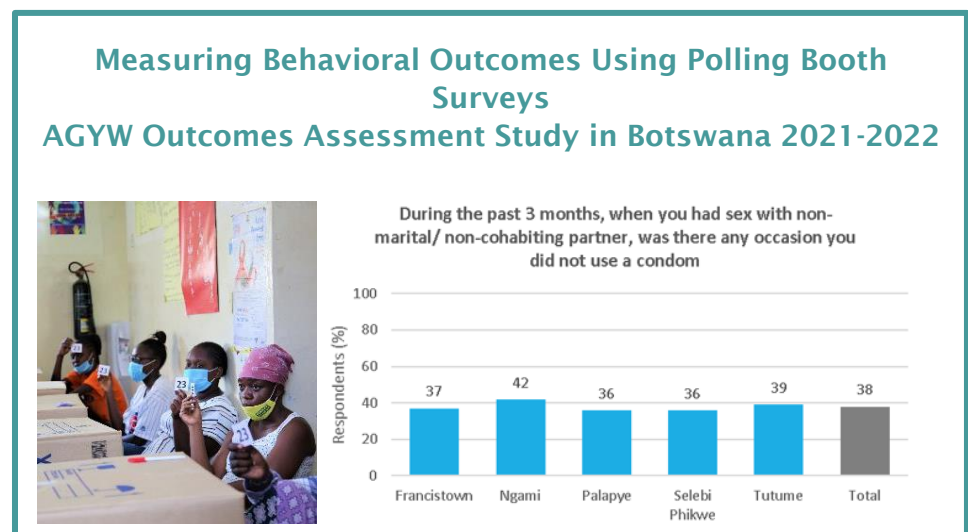| Method	Description and context
Polling booth survey	Anonymous group interview methodology used to gather sensitive sexual, behavioural, and structural outcomes from participants. Can reduce social desirability bias which is often a limitation in HIV-related surveys *(25)*. Useful when surveying sex workers, people who inject drugs, or other highly stigmatized or criminalized populations.
Small area survey	Venue-based surveys of key populations in a restricted geographic area. Requires knowledge and mapping of locations where key populations can be found and when they are expected to be there.
BBS Light survey	Simple, rapid surveys conducted primarily among key populations usually implemented in service delivery sites utilized by the population of interest. Sampling is typically consecutive enrolment of service participants bundled with snowballing methods. Newly-recruited participants must come to the site for services and survey participation. Can be executed by an individual interviewer or using technology (e.g., tablet used by the participant).
Computer-assisted, virtual, or online survey	Scalable surveys using a limited universe of participants (e.g., programmes or in partnership with telecommunications companies) or through web-based advertisements. Depending on the approach, can reduce social desirability bias. Targeting specific populations may be a challenge.
Individual data systems such as DHIS2 tracker	Utilizes individual or case-based data systems (e.g., DHIS2 KP Tracker) that link self-reported sexual behaviour and use of biomedical services during risk events to an individual over time. Allows for rich analysis of individual level data. Typically requires use of unique identifier codes.

Countries should understand and document the limitations of their selected methodology. They are encouraged to use consistent methods for comparability over time, including priority populations and geographies as defined in their HIV prevention strategies. Although a minimum level of statistical rigor will not be required, countries are also strongly encouraged to understand and document the limitations of their selected approach due to sampling and other methodological weaknesses. Countries should include details of known limitations when reporting this indicator through global frameworks such as the Global AIDS Monitoring process.

Part II: Adapt existing household and population surveys to measure combination prevention outcomes at a national level at least every five years

Population surveys such as DHS, IBBS, and PHIA are widely used by countries in the HIV response. Although countries typically adapt these surveys to their own specific needs, some components of the proposed prevention use measure may already be captured using the standard questionnaire (e.g., condom use during last sexual intercourse). The approach recommends the development of questions to collect data elements required to report the combination prevention outcome measure. Standard national reporting from population surveys should allow for analysis of prevention outcomes using the indicator definition discussed further in Proposition 3: Measuring combination HIV prevention outcomes.

Finally, the approach supports the call for rapid adoption of quality monitoring methods such as community-led monitoring (CLM) to enrich programme understanding of prevention outcome measures. Although CLM approaches are already included in global programme policies and guidance, they have not yet been adopted by countries at scale (26-27) or have not covered prevention in detail. Therefore, in all places where key and vulnerable populations identify community-led monitoring of prevention programs as a priority, the same should be developed and implemented with the support of partners.

Measuring Behavioral Outcomes Using Polling Booth Surveys
AGYW Outcomes Assessment Study in Botswana 2021-2022

Source: Emmanuel, F., Migot, M., Measuring Behavioural Outcomes using Polling Booth Surveys. Think Tank Session Presentation 10/June/2022.

Feedback

During the five-part think tank series, there was lively discussion and debate about the propositions. The following are some of the major themes raised by participants:

"With limited money, how do we get layering and data systems ready? We must reduce the reporting burden on countries."

▶ **Quality standards:** There is a need for standards on outreach and clinical service, especially outreach. We need to look at sufficiency of commodities as a quality measure.

▶ **Sampling bias:** The 'fast' and 'nimble' data collection methods described in Proposition V seem very useful as operations research to identify problems in program implementation. However, their use should be very clear. They are convenience sampling methods, so the findings, estimates, and indicators obtained should not be compared to those obtained from population surveys. It is also important to balance the need to collect prevention data from those who are not found in program service settings.

▶ **Data use:** Countries and programmes do not fully exploit their existing data. More insights can be harvested from existing data. Investments in learning activities tend to be a remarkably small proportion of overall investments in health programmes and systems—if they are included at all. Separate funding sources are often needed. Partnering with external research teams can bring greater objectivity. Greater capacity within programmes to analyze and interpret data would also help.

▶ **Privacy and confidentiality:** With all measurement approaches, the privacy and confidentiality of personal data must be ensured, especially for criminalized and/or highly-stigmatized populations.

▶ **Prevention failure analysis:** One option is to focus on recently infected (or diagnosed) individuals who have been "failed" by the prevention system. They can interview them individually to understand the interactions they have had, or not had, with different prevention interventions and their intensity (either as a simple series or as a formal case-control study). If there are too many cases, countries may sample. This moves away from large surveys and focuses on those who were at greatest risk (i.e., those recently infected).

▶ **Community leadership:** Communities of people living with HIV, and key and vulnerable populations, need to be in the driver's seat in designing simplified systems and tools at the local level, and when interpreting the data and use it for local decision making. There must not be an overemphasis on numbers; capturing qualitative issues are equally important.

Challenges

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There are some known challenges with the propositions presented during the think tank series.

> *"Other outcomes like late diagnosis are important measures. A challenge is CD4 testing availability is decreasing."*

▸ **Known challenges with defining those in need of prevention**
   o Program data or informal population size estimate methods can lead to bias (i.e., only counting those who are already visible or engaged in services).
   o Most risk segmentation methodologies rely on the availability of infrequent behavioural survey data (e.g., IBBS).
   o Finding and reaching specific sub-populations based on behavioural risks is complex programmatically.

▸ **Known challenges with measuring prevention coverage**
   o People reached with virtual outreach may be anonymous, especially in places where key populations are criminalized. This adds a layer of complexity to cohort tracking and deduplication of contacts.
   o Analysis of two separate program data sets (outreach and service uptake) can only be considered ecologically. Only countries with unique identifiers or surveys could truly aggregate both parts of the indicator.

▸ **Known challenges with measuring prevention outcomes**
   o Self-reported use of prevention interventions, especially for methods like viral load suppression, has some challenges, even for rigorous survey methods *(28)*.
   o Prevention interventions target both seropositive and seronegative populations. Surveys will need to target both populations with differentiated questions.

▸ **Known challenges with measuring prevention impact**
   o Some of the methods for estimating HIV incidence are very costly to implement.
   o Although deriving HIV incidence estimates from specific programmes is possible, this data will only provide data on people reached by the programme.

▸ **Known challenges with systems modifications**
   o Many—or even most—countries are not currently using routine programmatic survey methods and may not possess the capacity and resources to implement them.
   o Nimble survey methods have limited generalizability and are not comparable with population surveys.
   o Population survey experts have noted challenges in identifying sufficient samples for some populations in low-prevalence environments.

Actions

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"Thank you for these sessions. I think that the population size estimate work, and support on implementing the nimble prevention outcomes methodologies, would be very helpful to prioritize in the next steps"

Table 4. Next steps and entity responsible for leadership/action

Action	Entity Responsible
Develop a simple one-page table for countries to summarize their denominators of prevention programmes for key and priority populations	Core team, GPC/UNAIDS
Develop and circulate fully-revised definitions of prevention coverage (outreach and clinical) for key populations and high incidence locations (young women and men) – update GAM if there is consensus	Core team, Global Fund, PEPFAR, MTAG, GAM
Develop and consult on a fully-defined combination prevention service use indicator definition for population-based surveys	Core team; DHS, PHIA & IBBS development teams)
Explore applying a basic impact analysis approach in few settings, e.g., repeat testing followed by "prevention failure analysis"	Core team, Global Fund/PEPFAR programme implementers
Prepare communication and/or guidance to countries on feasible outcome monitoring options	Core team, GPC, Global Fund
Identify a series of pilot countries for testing programme and rapid survey methods for reporting prevention outcomes	Global Fund, UNAIDS

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Annexes

Annex 1. Global HIV prevention targets

Annex 11. Meeting folder (https://unaids.sharepoint.com/:f:/s/FSSSA/EkHCvmm_tgZOr K7JCRdtsuYBjbQLxLh5zUL_a2UsooKIlw?e=SmNaJ2)

The meeting folder contains:

Full-text propositions
Proposition 1 — Defining who needs combination HIV prevention
Proposition 2 — Measuring combination HIV prevention coverage
Proposition 3 — Measuring combination HIV prevention outcomes
Proposition 4 — Measuring combination HIV prevention impact
Proposition 5 — Innovations and systems implications

Session agendas
Session 1 — Defining who needs combination HIV prevention
Session 2 — Measuring combination HIV prevention coverage
Session 3 — Measuring combination HIV prevention outcomes
Session 4 — Measuring combination HIV prevention impact
Session 5 — Innovations and systems implications

Presentations
Presentations — Defining who needs combination HIV prevention
Presentations — Measuring combination HIV prevention coverage
Presentations — Measuring combination HIV prevention outcomes
Presentations — Measuring combination HIV prevention impact
Presentations — Innovations and systems implications

Annex I

Detailed HIV prevention targets in the Global AIDS Strategy 2021-2026 (*1*)

The Global AIDS Strategy 2021-2026 demands achievement of ambitious targets in all populations and settings. To develop the targets for 2025, UNAIDS worked with partners to review available evidence, including modelling to ascertain the specific actions needed to make the 2030 goal possible. As in prior target-setting exercises, this latest process used an investment framework to identify the level and allocation of resources required for achievement of the targets. A technical consultation on prevention targets was held involving experts and stakeholders to review evidence and determine what is currently working and needs to be continued, what is not working and needs to be changed, and which key gaps in the response need to be addressed. Detailed prevention targets were set for key populations (Table A1) and young people and adults (Table A2). Both sets of targets are differentiated by the level of risk and based on the principle that higher coverage and more comprehensive services should be provided where risk is higher.

Prevention targets for key populations were defined along the following lines:
- Specific targets were set for all five key populations for all programme areas.
- Within key populations, PrEP targets are further disaggregated by three risk categories.
- Risk categories for PrEP targets are based on the following criteria (see Table A3 for details):
  - For sex workers and prisoners risk categories are based on HIV prevalence in the overall population as a proxy for the risk in the two populations.
  - For gay men and other men who have sex with men and transgender people risk categories are based on the estimated level of HIV incidence.
  - For people who inject drugs risk categories for PrEP are based on the coverage of harm reduction services.

Prevention targets for young people and adults were defined along the following lines:
- Targets are disaggregated by age and sex.
- Risk categories were defined based on the level of HIV incidence in specific geographical areas and individual risk behaviours (see Table A4 for details).
- For some programme areas, risk categories are defined based on the level of HIV incidence by geography alone. This includes programmes that reduce susceptibility and vulnerability over longer periods of time including voluntary medical male circumcision and economic empowerment of women. It also includes post-exposure prophylaxis.

- For other programme areas, risk categories are defined based on a combination of behaviours and HIV incidence in the geographical area. This includes targets for services that respond more directly to individual risk exposures such as condoms, pre-exposure prophylaxis and STI screening.
- In addition to programmatic targets, the Global AIDS Strategy calls for ensuring that 80% of service delivery for HIV prevention programmes for key populations and women be delivered by community-, key population- and women-led organizations. This target specifically refers to those programme components designed to reach key populations, young people and women.

Table A1. Prevention targets for key populations

KEY POPULATIONS	Sex workers	Gay men and other men who have sex with men	People who inject drugs	Transgender people	Prisoners and others in closed settings
Condoms/lubricant use at last sex by those not taking PrEP with a non-regular partner whose HIV viral load status is not known to be undetectable (includes those who are known to be HIV-negative)	--	95%	95%	95%	--
Condom/lubricant use at last sex with a client or non-regular partner	90%	--	--	--	90%
PrEP use (by risk category) ■ Very high ■ High ■ Moderate and low	80% 15% 0%	50% 15% 0%	15% 5% 0%	50% 15% 0%	15% 5% 0%
Sterile needles and syringes	--	--	90%	--	90%
Opioid substitution therapy among people who are opioid dependent	--	--	50%	--	--
STI screening and treatment	80%	80%	--	80%	--
Regular access to appropriate health system or community-led services	90%	90%	90%	90%	100%
Access to post-exposure prophylaxis as part of package of risk assessment and support	90%	90%	90%	90%	90%

Table A2. Targets for young people and adults by level of risk

Young people and adults 15-49		Risk by prioritization stratum		
		Very high	**Moderate**	**Low**
All ages and genders	Condoms/lubricant use at last sex by those not taking PrEP with a non-regular partner whose HIV viral load status is not known to be undetectable (includes those who are known to be HIV-negative)	**95%**	**70%**	**50%**
	PrEP use (by risk category)	**50%**	**5%**	**0%**
	STI screening and treatment	**80%**	**10%**	**10%**
Adolescents and young people	Comprehensive sexuality education in schools, in line with UN international technical guidance	**90%**	**90%**	**90%**

		Strata based on geography alone			
		Very high (>3%)	**High (1–3%)**	**Moderate (0.3–1%)**	**Low (<0.3%)**
All ages and genders	Access to post-exposure prophylaxis (PEP) (non-occupational exposure) as part of package of risk assessment and support	**90%**	**50%**	**5%**	**0%**
	Access to PEP (nosocomial) as part of package of risk assessment and support	**90%**	**80%**	**70%**	**50%**
Adolescent girls and young women	Economic empowerment	**20%**	**20%**	**0%**	**0%**
Adolescent boys and men	VMMC	**90% in 15 priority countries**			
People within serodiscordant partnerships	Condoms/lubricant use at last sex by those not taking PrEP with a non- regular partner whose HIV viral load status is not known	**95%**			
	PrEP until positive partner has suppressed viral load	**30%**			
	PEP	**100% after high-risk exposure**			

Table A3. Thresholds for the prioritization of HIV prevention methods for key populations

	Criterion	Very high	High	Moderate and low
Sex workers	National adult (15–49 years) HIV prevalence	>3%	>0.3%	<0.3%
Prisoners	National adult (15–49 years) HIV prevalence	>10%	>1%	<1%
Gay men and other men who have sex with men	UNAIDS analysis by country/ region	Proportion of populations estimated to have incidence >3%	Proportion of populations estimated to have incidence 0.3–3%	Proportion of populations estimated to have incidence <0.3%
Transgender people	Mirrors gay men and other men who have sex with men in absence of data	Proportion of populations estimated to have incidence >3%	Proportion of populations estimated to have incidence 0.3–3%	Proportion of populations estimated to have incidence <0.3%
People who inject drugs	UNAIDS analysis by country/ region	Low needle–syringe programme and opioid substitution therapy coverage	Some needle–syringe programme; some opioid substitution therapy	High needle–syringe programme coverage with adequate needles and syringes per person who injects drugs; opioid substitution therapy available

Table A4. Thresholds for the prioritization of HIV prevention methods for young people and adults

	Criterion	High and very high		Moderate	Low
Adolescent girls and young women	Combination of [national or subnational incidence in women 15–24 years] AND [reported behaviour from DHS or other (≥2 partners; or reported STI in previous 12 months)]	1–3% incidence AND high-risk reported behaviour	>3% incidence	0.3–<1% incidence and high-risk reported behaviour OR 1–3% incidence and low-risk reported behaviour	<0.3% incidence OR 0.3–<1% incidence and low-risk reported behaviour
Adolescent boys and young men	Combination of [national or subnational incidence in men 15–24 years] AND [reported behaviour from DHS or other (≥2 partners; or reported STI in previous 12 months)]	1–3% incidence AND high-risk reported behaviour	>3% incidence	0.3–<1% incidence and high-risk reported behaviour OR 1–3% incidence and low-risk reported behaviour	<0.3% incidence OR 0.3–<1% incidence and low-risk reported behaviour
Adults (aged 25 and older)	Combination of [national or subnational incidence in adults 25–49 years] AND [reported behaviour from DHS or other (≥2 partners; or reported STI in previous 12 months)]	1–3% incidence AND high-risk reported behaviour	>3% incidence	0.3–<1% incidence and high-risk reported behaviour OR 1–3% incidence and low-risk reported behaviour	<0.3% incidence OR 0.3–<1% incidence and low-risk reported behaviour
Serodiscordant partnerships	Estimated number of HIV-negative regular partners of someone newly starting on treatment	Risk stratification depends on choices within the partnership: choice of timing and regimen of antiretroviral therapy for the HIV-positive partner; choice of behavioural patterns (condoms, frequency of sex); choice of PrEP			