The Condom Paradox in Southern Africa: how to explain high HIV prevalence among sex workers reporting high rates of condom use? and what to do about it

Report summary for UNAIDS

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Summary findings and recommendations

Sex workers often face unacceptably high risks of acquiring and transmitting HIV and other STIs. Yet, in a number of countries – including Thailand, Cambodia, India, Kenya, Benin, Côte d'Ivoire – raising condom use in sex work to high levels has been instrumental in slowing, even reversing the course of HIV and related STI epidemics. When this happens, epidemiological patterns and trends suggestive of declining transmission typically emerge early. Such evidence may include 1) decreasing incidence and prevalence of curable STIs/syndromes among sex workers, clients and high-risk male groups, followed by 2) declining numbers of new HIV infections in those same populations. Impact on some epidemics, nationally (Kenya, Cambodia, Thailand), or sub-nationally (West Bengal and Karnataka, India) has later been documented with declining HIV prevalence among the general population.

Data reflecting these trends has frequently come from routine monitoring of reported condom use, trends of symptomatic STIs, syphilis screening and HIV testing among sex workers accessing services. Such early trends seen with programme data were often later confirmed by population-based surveys. Modelling has provided further insight into how condom use in sex work affects HIV/STI transmission dynamics within high-risk and wider sexual networks.

Yet, despite such well-documented experiences, HIV/STI epidemics in Southern Africa have not followed similar patterns. Available data from the region often show moderate to high rates of condom use reported by sex workers, at least with their recent clients, yet sex worker HIV prevalence remains stubbornly high, apparently resistant to intervention, and STI incidence may be on the increase. Why has condom use in sex work in Southern Africa not resulted in HIV/STI declines among sex workers and clients as it has elsewhere?

This condom paradox – persistently high HIV and STI rates among sex workers who report using condoms – is the focus of this review. We analyse available condom use (CU), HIV and STI data from the region and attempt to identify gaps and weaknesses in existing programmes and monitoring systems. Sources of data for this exercise include 1) review of available data reported by countries to UNAIDS through the Global AIDS Monitoring (GAM) mechanism, and linked behavioural surveys, 2) literature review on condom use and sex work in Southern Africa, and 3) qualitative research with sex worker peer educators (empowerment workers) In Zimbabwe.

Findings were synthesised to highlight existing strengths, weaknesses and gaps in programmes and monitoring systems, and recommendations were drafted for strengthening the response. While recognising the importance of comprehensive programming – from prevention to testing and treatment – with community engagement, this report focuses mainly on condom issues in the context of primary prevention. The larger context of structural issues and policy, which are crucial for shaping a supportive environment for safer sex work, are also addressed elsewhere.

The main findings of this review strongly suggest that condom use in sex work in the region receives insufficient monitoring and programming attention to permit either an accurate understanding of the situation, or to expect much impact on HIV and STI transmission. Moreover, inconsistent condom use apparently remains the norm in sex work mainly due to weak or narrowly focused sex worker programming – lacking in scale, intensity and effective combinations of interventions. Structural barriers, temporal and partner factors also undermine consistent condom use, yet these can be at least partially addressed by strong programmes.

These findings are summarised below and supported by evidence in the main document, which begins with data review and analysis, then moves to identifying gaps – with comparative reference to 'gold-standard' examples from outside the region – and framing recommendations for programmes.

What do the data say? are they reliable and useful to programmes?

Available data on condom use in sex work in Southern Africa come primarily from surveys conducted intermittently in a small number of locations. In fact, there is considerable overlap in the sources of data reviewed for this report – globally reported data and behavioural survey data come mainly from the same studies, which may also appear in the wider literature together with a few reviews, qualitative studies, and several surveys with clients of sex workers. Taken together, however, data on reported condom use in sex work are few and far between, both temporally and geographically. Moreover, data are lacking to assess the sufficiency of condom supply – through free and commercial distribution – to sex workers, venues and programmes.

No examples were found in the region of condom use in sex work being routinely monitored. While surveys provide insights into condom use patterns and HIV/STI transmission dynamics in the locations studied, data are generally collected too infrequently to describe trends over time, and are not geographically representative enough to guide an effective programme response.

At global level, countries report data on key HIV programme indicators annually to the Global AIDS Monitoring (GAM) system. Condom use with last client (CULC) is the condom use indicator for sex work, which, together with other indicators – of knowledge and behaviour among general population men and women, and condom supply – comprise UNAIDS 'scorecards' addressing condom use in sex work. Data reported to GAM come mainly from intermittent population-based bio-behavioural surveys (BBS) – including IBBS for sex workers and DHS for the general population. All eight countries in the region[1] have conducted at least one IBBS since 2010, only three countries since 2015.

In this report, GAM/BBS data – sources, definitions, reliability and likely biases – were examined. Reported condom use at last sex with a client ranged from 56-96% from GAM (or 63-92% from BBS, reflecting partial concordance with GAM data). Limited trend analysis or data triangulation is reported. The literature review – including full BBS reports behind much of the GAM data – provides more detailed information and additional insights into factors underlying condom use patterns. A range of questions asked in different settings explore condom use in relation to time, partner type, breakage, violence and other factors. Yet, such studies are few.

In summary, current data systems are insufficient to inform strong condom use and related programming for sex workers. Even less data are available to guide condom interventions for men, whether as clients or in high-risk male occupations. Despite these limitations, the available data suggest that:

- Reported condom use with last client (CULC) is only moderate to high (56-96% GAM, 63-92% BBS) and likely to be overestimated given biases and other available information
- Consistent condom use (CCU) as reported is low to moderate (47-77%), 15-30% points lower than CULC in the few cases where both are measured), also likely overestimated
- Data triangulation provides additional strong evidence of inconsistent condom use:
  - HIV prevalence remains very high (43-72%) among sex workers and there is no evidence of declining trends as seen in other regions
  - Despite limited data, STIs appear to be common, in at least some cases rising, both within and beyond sex work networks
  - Condom use data reported by clients (31-90%) is uncommon (few IBBS reports) and likely biased, not comparable to sex worker data due to different locations and methods
- Behavioural and qualitative studies provide some additional details on conditions that facilitate or impede consistent condom use, including structural, temporal and partner factors. Recent

[1] Botswana, eSwatini, Lesotho, Malawi, Mozambique, Namibia, South Africa and Zimbabwe

work on a prevention cascade (demand, supply, adherence) in Zimbabwe offers a framework for addressing these and other factors, and for estimating combined prevention coverage (condoms plus PrEP for example).

Recommendations (global focus) for improving data include:

- Leverage the important normative role of UNAIDS and partners in defining and prioritising what data on condom use and sex work should be collected and how (specific recommendations in full report).
- Promote routine monitoring of condom use indicators as an integral part of sex worker programming. Shift emphasis from surveys to programme data, with surveys repositioned to periodically validate programme data and for more in-depth study of specific issues.
- Introduce and promote a standard set of priority programme indicators (PPI) for condom distribution and use, sex worker programme coverage and intensity, and biological outcomes (STIs, new HIV+) that would permit programmes to monitor trends (dashboard review), and identify gaps and weaknesses.
- Promote trend analysis and data triangulation as important methods for tracking priority indicators and strengthening the programme response for sex workers. Questions like 'if condom use is as high as they say, why are we not seeing decreases in STIs or HIV?' should be driving programme monitoring and planning.
- Support programme-linked operational research into:
  - additional/better CU indicators and behavioural questions for programme monitoring
  - feasible methods for reducing known biases (polling booth) in collecting CU data
  - use of routinely collected data on STIs and new HIV infections for triangulation
  - prevention cascades for estimating combined prevention coverage

What should be expected from good sex worker condom programmes?

In order to identify gaps and weaknesses in regional programmes related to condom use in sex work, a programmatic point of reference or 'gold standard' is needed. The literature review was thus extended beyond the region to permit comparison with programmes that have demonstrated success in reducing HIV and STI prevalence and/or incidence among sex workers. For the purpose of this review, recent experience from Kenya and India – where sex worker programmes closely monitor condom use and related services, and where key STI and/or HIV outcomes have declined – are described as 'gold standard' examples.

Both examples underline the importance of a strong platform of interventions with adequate scale, intensity and effectiveness, and close monitoring of both process and outcome data and trends. Priority outcome indicators (and related programme targets) include reported condom use (increasing targets) and STI and/or HIV trends (decreasing targets).

What are key programme elements to get there? Effective sex worker programmes conduct regular hotspot-based programme mapping and population size estimates, peer interventions with continuous presence at hotspots, condom promotion and distribution based on need, regular medical checkups, and dashboard reviews of priority programme indicators. Structural interventions – to support condom use in establishments, reduce violence, economic vulnerability, etc – facilitate condom use while building trust among sex worker communities.

Monitoring of process data generally includes frequency of outreach contacts, condom distribution related to estimated need, frequency of clinic attendance, among others. Important outcomes that are feasible to monitor include rising condom use (measured frequently across sites using multiple indicators), declining sexual transmission of STIs and/or HIV. Continuous

monitoring of programme data and regular dashboard reviews – ideally with community, implementers and government at multiple levels – allow gaps to be identified and addressed.

Importantly, such intervention platforms work best when there is strong community mobilisation and engagement. Experience from several communities that have organised themselves successfully to confront HIV/STI epidemics, demonstrate the feasibility of community mobilisation, and important synergies that arise from active community participation. Microplanning is a tool that was developed to enable communities to monitor basic community-based interventions (outreach contacts, condom distribution) and clinical services (regular checkups), as well as STI/HIV transmission trends.

These gold standard examples and methods are not unknown to the Southern Africa region. Limited South-to-South technical assistance to assess and strengthen sex worker programmes has been provided by teams from Kenya (in Malawi) and India (in Mozambique, South Africa and Zimbabwe). Despite encouraging early results, these efforts are currently quite limited in scale. The Kenya experience may be particularly relevant to Southern Africa. As a generalised epidemic, it shares several challenges, including high client HIV prevalence.

Recommendations (global focus) for strengthening condom use in sex work include:

- Promote 'gold standard' programme experience – where condom use is validated by biological outcomes, including declining STI/HIV trends.
- Prioritise outcome indicators – increasing condom use and declining HIV/STI – with feasible programme targets.
- Promote key programme elements to get there – a 'common minimum programme' with outreach, clinical service and structural components, at scale, with sufficient intensity.
- Promote systematic collection and use of programme data, frequently collected across all programme locations, to identify gaps and guide programme adjustments.
- Support improved data use by programmes with standardised tools, guidelines and capacity building support.
- Promote active community involvement in all programming areas – design, implementation, service delivery, monitoring – to build trust and engagement, and to ensure optimal results and sustainability.
- Promote South-to-South technical assistance (as recommended by the Global HIV Prevention Coalition) to assess and strengthen sex worker programmes in the region.

Where are the most important condom gaps and weakness?

Gaps and weaknesses in the programme response for sex workers are common across the region, although weak monitoring limits a thorough assessment. Still, it is clear that intervention programmes for sex workers in general, and specifically those designed to support consistent condom use, are lacking across critical dimensions of scale, intensity and effectiveness.

A matrix of programme components (or common minimum programme), based on experience from Kenya and India, was used to assess gaps in sex worker programmes. Yet, little information, process or outcome data related to sex worker interventions could be found. Furthermore, information on participation, engagement or role of sex workers themselves in existing interventions is largely missing. The search was expanded to include programme reports and evaluations (grey literature). With few exceptions, the only data found cover specific treatment cascade indicators – such as HIV testing, positivity/yield, linkage and retention in care/treatment – usually unconnected to population denominators. As a result, even for these few indicators, it is rarely possible to estimate programme coverage.

Funding for key population programmes across the region, particularly from major international donors (PEPFAR, GFATM), is currently narrowly focused on HIV treatment cascades, with performance-based indicators for HIV testing, yield (HIV-positivity), linkage and retention in treatment linked to continued funding. While condom use and prevention in general are often cited as part of the intervention package, indicators for prevention are not routinely tracked, with performance rarely linked to funding, and consequently receiving less attention. Outreach is often not hotspot-based but conducted intermittently by mobile teams that visit many hotpots infrequently, driven by yield targets. This frequently results in competition among NGOs and undermining of trust by sex workers who see themselves more as numbers towards targets than as active programme participants. Moreover, in the absence of a trusted access platform, the sporadic contact that mobile teams have with sex worker communities makes it impossible to address the range of structural barriers faced by sex workers.

As a result, programmes for sex workers, and specifically those designed to support consistent condom use, are often geographically limited, fragmented and narrowly focused. Lack of scale is evident from programme reports, and donor priorities frequently contribute to fragmentation. While most countries have carried out mapping and population size estimation (PSE) studies, few countries conduct programme gap analyses or have national scale-up plans. An exception is Zimbabwe's national sex worker programme, which approaches national coverage (within reach of 85% of estimated sex workers population).

Programme intensity is lacking in narrowly focused sex worker programmes driven by HIV testing and yield targets. Effective sex worker programmes conduct regular hotspot-based programme mapping, peer interventions with continuous presence at hotspots, condom promotion and distribution related to need, regular medical checkups[2], structural interventions, dashboard reviews of priority (condom and other) indicators. Only three countries in the region cover some of these essential components of a common minimum programme for sex workers in some sites. None address all of them at scale.

With very few exceptions, there appears to be insufficient attention to and monitoring of priority programme indicators to support sex workers in using condoms and accessing related services. Most countries rely on infrequent behavioural surveys for data on condom use (see section 1), which is insufficient for programme planning. With few exceptions, no routine data are collected on priority indicators, reflecting process or outcomes, leaving sex worker programmes without basic information to guide interventions.

Recommendations (country focus) for strengthening planning and monitoring aspects of the sex worker programme response include:

- Indicators, targets and funding should go beyond limited objectives (HIV testing, yield, etc) to reflect and support comprehensive sex worker programme priorities, including consistent condom use and decreasing HIV/STI acquisition and transmission.
- Priority programme indicators (PPIs) should include routinely collected data on the most important programme addressable factors – scale, coverage, focus, uptake, frequency of outreach contacts, condom distribution, regular clinic attendance, etc.
- Regular programme dashboard reviews of PPIs should be carried out, with trend and gap analysis and programme correction.
- PPIs should include data on risk (inconsistent condom use, alcohol/substance use, violence), time factors (age, duration in sex work) with attention to differences in partner type and CU facilitators/inhibitors.

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[2] Regular checkups, part of the sex worker access platform, include a range of SRH services, STI screening, HIV testing with active linkage to treatment and adherence support for positives

- Key outcome indicators to monitor closely include condom use (CULC, CCU from polling booth or mini-BBS), STI rates and new HIV infections(from clinic data).
- IBBS and related surveys (and qualitative research) should be repositioned as 'validation' studies to periodically check programme data and explore specific questions in more detail.

How can programmes close gaps and support consistent condom use in sex work?

In terms of interventions and services, closing gaps to support consistent condom use in sex work requires attention to both ensuring uninterrupted condom supplies in sufficient quantities and optimising sex worker programming. These two programme areas are often managed separately but should be more closely coordinated. Most importantly, effective programmes need to build trust and engage sex worker communities to actively take part (see gold standard examples in section 2).

Condom programming, including general demand and supply chain issues, has been comprehensively addressed in a separate report. [MGH] As a general assessment of overall condom programming, however, it only lightly touches on the context of sex work, as part of demand creation among at-risk populations. More attention to sex work-specific issues ('demand creation with key populations') was a major recommendation of the report. More effective reach and engagement of sex workers and clients is also critical given the major role of transmission in sex work to epidemic dynamics and control. Some of these aspects are covered in this report under recommendations for strengthening sex worker programming.

Sex worker programmes in the region clearly need strengthening in order to have impact on condom use and HIV/STI transmission. Current gaps and weaknesses can be addressed by building strong sex worker programme platforms. Specific interventions to support condom use or PrEP uptake, for example, should take off from a solid platform of outreach and clinical services guided by programme data. In addition to strengthening primary prevention, investment in sex worker access platforms can be expected to also improve HIV testing uptake, linkage and retention to treatment. An example of a common minimum programme platform based on gold standard experience is described in this report (see matrix, Table 4.1).

Critical dimensions of an effective programme platform of sex worker services are scale, intensity and effectiveness. The programme should strive for national scale, extending the platform to achieve saturation coverage of important hotspots. Intensity is built around a 'continuous hotspot presence' meaning that peer educators work in their own hotspot locations, and take responsibility for maintaining contact with a defined group of sex workers with whom they can build trust. A combination of effective primary prevention interventions – condoms, STI/HIV screening, PrEP, etc – is provided through frequent outreach as well as during regular medical checkups. These are often a high priority for sex workers, and quality service provision builds trust and participation in the sex worker programme overall. A common minimum programme defines the set of interventions, activities and services that make up this programme platform, and programme monitoring tracks performance against targets. Several strengths of such a platform would address current regional gaps and weaknesses, and facilitate optimal support of consistent condom use in sex work. These are discussed in more detail in the main report.

With a strong platform of interventions and services for sex workers, it is also easier to identify and address specific gaps or problems that hinder consistent condom use by individual sex workers. Risk assessment can help identify those who need more intensive services. As implemented under microplanning with quarterly updates, young sex workers and those new to sex workers can be easily identified for more frequent outreach contacts. Inconsistent condom use related to alcohol, drugs, violence or specific partner situations can also be addressed with more frequent and additional services including PrEP, adherence support, etc.

In Zimbabwe, recent work on identifying critical steps – demand, supply, adherence – of a prevention cascade may be another useful approach for identifying individual gaps that can be addressed by programmes.

Recommendations (country focus) for improving primary prevention and service aspects of the programme response include:

- Ensure a strong platform for sex work interventions with essential components including:
  - Regular hotspot-based programme mapping to ensure scale and coverage
  - Peer interventions with continuous presence at hotspots
  - Condom promotion and distribution based on need
  - Regular medical checkups
  - Structural interventions addressing violence, venues and other vulnerabilities
  - Dashboard reviews of priority (condom and other) indicators
- Address temporal factors
  - Identify young and new to sex work through risk assessment, triggering more frequent contacts and a higher level of support
- Address partner factors
  - Identify inconsistent condom use through risk assessment, triggering more frequent contacts, higher level of support
    - access to PrEP + condoms for additional protection
    - male-focused interventions where feasible
- Address other factors
  - Identify problematic drinking/drug use, violence through risk assessment, triggering more frequent contacts, higher level of support
  - Assess programmatic gaps and weaknesses along the prevention cascade, prioritising condom use (demand, supply, adherence) together with related prevention interventions and services – outreach, clinic attendance, STI screening/treatment, PrEP, violence response, etc.

Examples are presented describing how successful programmes have strengthened condom use in sex work elsewhere.

In summary, increasing condom use in sex work remains the most effective proven intervention for halting and reversing HIV/STI epidemics. Increasing condom use in sex work in Southern Africa is feasible, and should lead to rapid reductions in STI/HIV acquisition and transmission among sex workers and their clients.

A recent assessment of condom programming in 13 African countries (The State of Condom Use, Mann Global Health) has identified six areas of general condom programming that need attention (Table S1). Three of these should be priority areas for sex work programmes, and are addressed in detail in this report.

- The ‘condom gap’ is a ‘demand gap’, which is mainly due to weak sex worker programmes, lacking in scale and intensity, in the region.
- There are important opportunities for expanding HIV prevention options. Yet, most sex worker programming in Southern Africa is too narrowly focused on treatment as prevention, and does not adequately support condom use.
- Monitoring of routine programme data, with regular dashboard reviews of priority indicators, is needed to guide programmes. Yet, available data on condom use in sex work – collected infrequently from a few survey sites – is insufficient and not used by programmes.

Table S1 The state of condom use in sex work

6 general insights – status of condom use (MGH)	Implications for sex worker programming
▶ The **"condom gap" is a "demand gap".** Increasing motivation and ability to use condoms by addressing social and behavioral barriers is required to drive condom use…	Increasing CU in sex work is feasible and should lead to declining STI/HIV acquisition and transmission among sex workers (not yet evident in Southern Africa) ▶ **'Demand gap' mainly due to lack of scale and intensity in sex worker programmes in region**
▶ **Condom programming has not fully adapted to the emergence of other HIV prevention options**… opportunity to increase condom use through robust integration models that include strong condom-focused behavior change and skills-building components in otherwise medicalized interventions…	Strengthening CU while adding PrEP can increase overall protection (Zimbabwe). Increasing CU while scaling up ART is synergistic (Kenya). Yet, ART, PrEP and MMC can also undermine CCU (risk compensation). ▶ **Sex worker programming in Southern Africa, narrowly focused on treatment as prevention, does not adequately support CU**
There is little consensus on how **social marketing** programs can best contribute in evolving condom markets…	
Free condoms distributed through the public sector have been and will continue to be an important source of condoms, especially for the poor…	
The **commercial sector** is positioned to make a larger, if modest, contribution to condom markets, but barriers to expansion remain…	
▶ **Weak market stewardship** functions continue to impede progress… **monitoring demand generation activities and distribution to ensure coverage of at-risk groups.**	Monitoring of programme data, with regular dashboard review of priority indicators, needed to guide programmes ▶ **Data on CU in sex work – collected infrequently from few survey sites – not adequate for programmes**

Synthesis of findings

- **Data** – minimal, inconsistent, inadequate to track progress or guide programmes
  - CU indicators (CULC, CCU) not standardised, different definitions, time frames and partner types used by different countries
  - Survey data usually not nationally representative (site selection bias)
  - Surveys conducted too infrequently (3-5+ years) to be useful to programmes
  - Almost no analysis of trends
  - Limited triangulation with other outcome data (STI trends, new HIV infections)
  - CU indicators not prioritised, not linked to targets or programme funding

- **Programmes** – too weak to slow sex worker HIV/STI acquisition/transmission
  - Lacking scale/coverage (except Zimbabwe, maybe Malawi…), not monitored
  - Lacking evidence of intensity (frequency outreach contacts, clinic visits, etc)
  - Lacking evidence of effective combinations of interventions and services (outreach, condoms, PrEP, STI screening/treatment, structural interventions, etc)
  - Often fragmented (not hotspot-based), driven by narrow cascade targets