

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 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 region¹ 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 hotspots 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 checkups², 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.

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

- ▶ 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.
- ▶ 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

<p>▶ 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...</p>	<p>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</p>
<p>▶ 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...</p>	<p>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</p>
<p>There is little consensus on how social marketing programs can best contribute in evolving condom markets...</p>	
<p>Free condoms distributed through the public sector have been and will continue to be an important source of condoms, especially for the poor...</p>	
<p>The commercial sector is positioned to make a larger, if modest, contribution to condom markets, but barriers to expansion remain...</p>	
<p>▶ Weak market stewardship functions continue to impede progress... monitoring demand generation activities and distribution to ensure coverage of at-risk groups.</p>	<p>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</p>

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

Background

Sex workers face unacceptably high risks of acquiring and transmitting HIV and other STIs, making unsafe sex work an important epidemic driver in many countries. [1-3] Criminalisation, violence, harassment and discrimination further increase HIV/STI vulnerability [4-6]. Increasing access to comprehensive HIV prevention, care, and treatment for sex workers is thus a global priority requiring appropriately focused, non-judgmental interventions and services [7-11]. Yet, despite evidence of effectiveness, targeted intervention programmes for sex workers frequently lack scale and coverage. [12-18]

In a number of countries, however, raising condom use in sex work to high levels has been instrumental in slowing, even reversing the course of HIV and related STI epidemics. The evidence, accumulating since the late 1980s, is compelling. Rapidly growing HIV epidemics in Thailand, Cambodia, urban areas of India and Kenya, Benin, Côte d'Ivoire, among others, initially slowed as efforts were made to increase condom use in sex work. [19-26] When this happens, epidemiological patterns and trends reflecting declining transmission typically emerge early. Such evidence may include 1) decreasing incidence 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. [19-30] Impact on some epidemics, nationally (Kenya, Cambodia, Thailand), and sub-nationally (West Bengal and Karnataka, India) has later been documented as HIV prevalence declined among the general population.

Sources of data reflecting these trends frequently include routine monitoring of reported condom use, trends of symptomatic STIs, syphilis screening and HIV testing among sex workers accessing services. While much early trend data came from routine programme monitoring, these were 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. [31-33]

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 prevalence among sex workers who are reportedly 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, with the aim of recommending practical solutions for a stronger response.

Methods

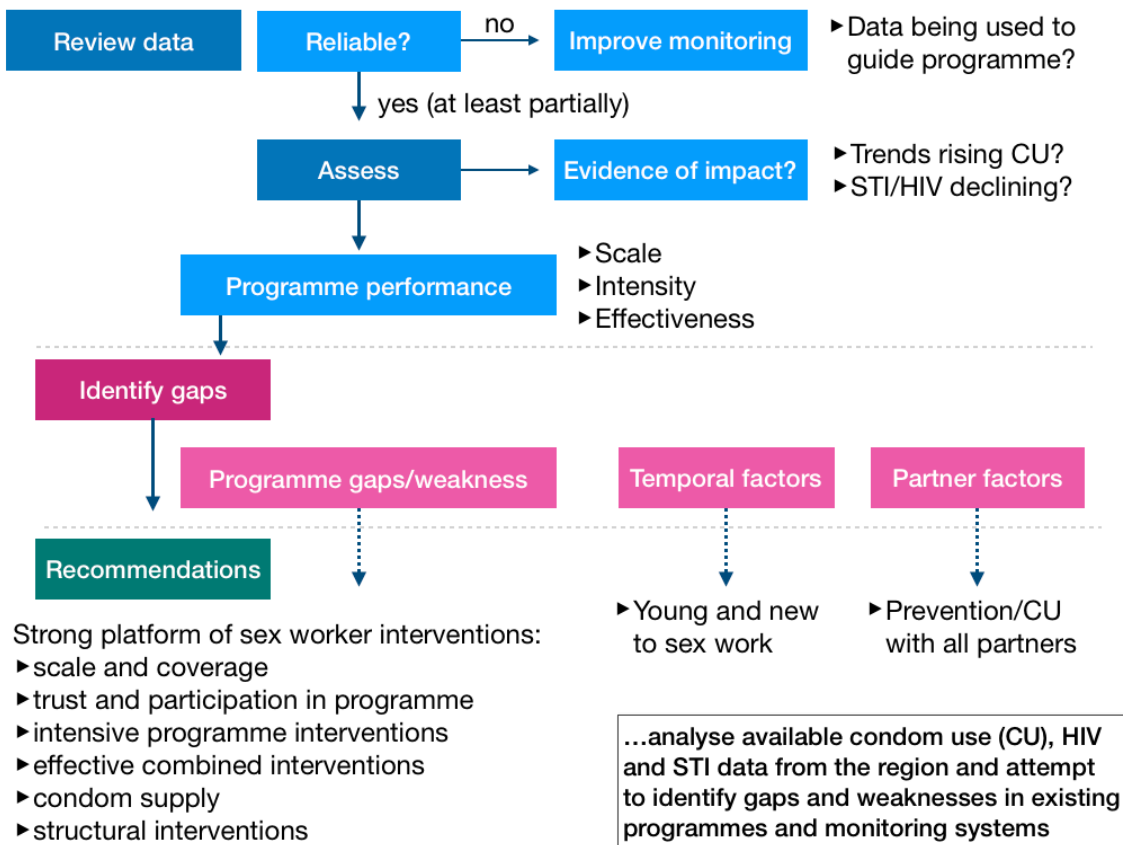
In this review, we look closely at data on condom use in sex work and the apparent failure of programmes to reduce HIV acquisition among sex workers in the region. Several approaches were used to investigate relationships between reported condom use in sex work, HIV/STI incidence and prevalence, programme inputs, barriers and facilitating factors.

- Review of available data reported by countries to UNAIDS through GAM.
- Literature review using keywords ('sex work*' or prostitut* or 'sex-work') AnD ('condom use' or 'condom bargain*' or 'condom negotiat*') and countries in Southern Africa (Botswana, eSwatini, Lesotho, Malawi, Mozambique, Namibia, South Africa and Zimbabwe).
- Qualitative research with sex worker peer educators (empowerment workers) In Zimbabwe.

Using a stepwise approach, we first reviewed available data to assess reliability (see Fig 1). We also attempted to determine to what extent data are being used to guide programmes. The data were then reviewed for evidence of impact – whether reported condom use correlated with changes in HIV or STI trends. We also looked at data on condom and sex worker programme performance with attention to scale, intensity and effectiveness. Gaps and weaknesses were identified as well as temporal, partner and other factors that may influence condom use patterns and impact on transmission.

Findings are synthesised to highlight existing strengths, weaknesses and gaps in programmes and monitoring systems, with recommendations for strengthening the response.

Fig 1 A conceptual model for identifying and addressing condom use gaps in sex work



Findings

The findings of this review are presented in sections covering 1) data review and analysis, 2) comparative reference to 'gold-standard' examples from outside the region, 3) identifying gaps and 4) framing recommendations for programmes.

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

Globally, in programmes that have demonstrated impact on HIV/STIs, data on reported condom use by sex workers, and to a lesser extent by clients – or men likely to purchase sex – have been important indicators of progress. The most common indicators are reported condom use with last client (CULC) and consistent condom use (CCU), with variable definitions and recall periods. Data commonly come from routine programme reporting, often periodically validated by bio-behavioural surveys (BBS). Some sex worker programmes monitor condom use routinely using short surveys (mini-BBS) or polling-booth surveys (PBS), which may reduce some biases. Condom supply and distribution are typically monitored from programme data. Limited data from men on their condom use with sex workers is sometimes collected by population-based surveys or during interviews in clinical settings linked to STI treatment.

In Southern Africa, on the other hand, available data on condom use in sex work come primarily from surveys conducted intermittently in a small number of locations. Routine monitoring of condom use in sex work appears to be almost non-existent in the region. While surveys provide insights into condom use and HIV/STI transmission dynamics in locations studied, data are collected too infrequently to describe trends over time, and are not geographically representative enough to guide an effective programme response.

There is considerable overlap in the sources of regional data reviewed for this report – globally reported (GAM) data and behavioural survey data come mainly from the same studies, a few of which also appear in the wider literature together with reviews, qualitative studies, and a few surveys with clients of sex workers. Overall, however, data on condom use in sex work are few and far between, both temporally and geographically.

The following assessment of the availability and quality of condom data – from a recent global report on challenges and recommendations for reaching 'fast-track' targets for condom use – highlights several data gaps and weaknesses that impede programme performance. [MGH]

While there are considerable data on condom programming available from various sources, the lack of timeliness, consistency and coordination in the collection and dissemination of data limits their usefulness in designing cost-effective programs and monitoring progress at a country, regional, or global level... Despite decades of condom programming experience in sub-Saharan Africa, the understanding of the relationship between inputs and outputs is weak for condom programming. Inputs and outputs are generally not tracked regularly, nor reported with enough detail and consistency to inform decision-making... What data do exist are frequently not easily accessible or formatted for decision-making, and therefore often not used by decision-makers. Global websites that aggregate country and regional data such as aidsinfo.unaids.org are only as useful as the quality of the (sometimes out-of-date) data that are fed into them.

Although the focus of the MGH assessment is on general condom programming, the findings and conclusions apply to condom programming in sex work as well, particularly the mismatch between data collection methods and data needs of programmes. A number of specific issues related to data on condom use in sex work are explored below in regional context.

Available data (description)

We start by examining available data on condom use in sex work – sources, definitions, reliability and likely biases.

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 surveys – including bio-behavioural surveys (BBS) for sex workers and demographic and health surveys (DHS) for the general population. BBS includes different study types including mapping and population size estimation (PSE) studies that often collect some behavioural data and samples for HIV/STI testing.

Table 1.1 summarises BBS conducted in the region since 2011. All eight countries in the region have conducted at least one BBS since 2011, but only three since 2015.

Table 1.1 Main sources of data reported to GAM on sex worker condom use

	2011	2012	2013	2014	2015	2016	2017
Botswana		BBSS 3 districts					BBSS 3 districts
eSwatini			IBBS national		PLACE 5 towns		
Lesotho				Snowball 2 towns/ districts			
Malawi	PSE sub- national		BBSS 14 districts			PLACE/ PSE 6 districts	PLACE/ PSE 15 districts
Mozambique		RDS 3 towns					
Namibia				IBBS/PSE 4 towns			
South Africa					RDS 3 towns		
Zimbabwe	RDS 3 towns				RDS 3 towns		

Data come from behavioural surveys conducted infrequently in too few sites to be nationally representative

Figure 1.2 summarises these overlapping data sources. Data reported to GAM on condom use by sex workers, along with HIV prevalence data, appear to come almost exclusively from BBS. Yet, GAM-reported and BBS data do not align fully. Differences may be due to averaging as some BBS data are reported disaggregated by site. Interpolating (between survey years) or other adjustments may also be an issue because BBS are in all cases conducted less frequently than the annual GAM reporting cycle. That said, differences between GAM data and BBS results are not large.

It is also worth noting that survey methods vary somewhat. Respondent-driven sampling (RDS) and time-location cluster sampling are common validated approaches. Questions and variables concerning sex work and condom use vary considerably across studies, although most include at least a few standardised variables that are comparable (an exception is the Malawi PLACE/PSE studies that do not report condom use at last sex with client). Recall periods for consistent condom use (from one to twelve months) and different approaches to defining/disaggregating partnerships often hinder comparison, particularly at more granular levels of analysis.

Information from the published literature was also reviewed for this report. The published studies are largely different from BBS and GAM sources (Fig 1.2), and may fill some knowledge gaps.

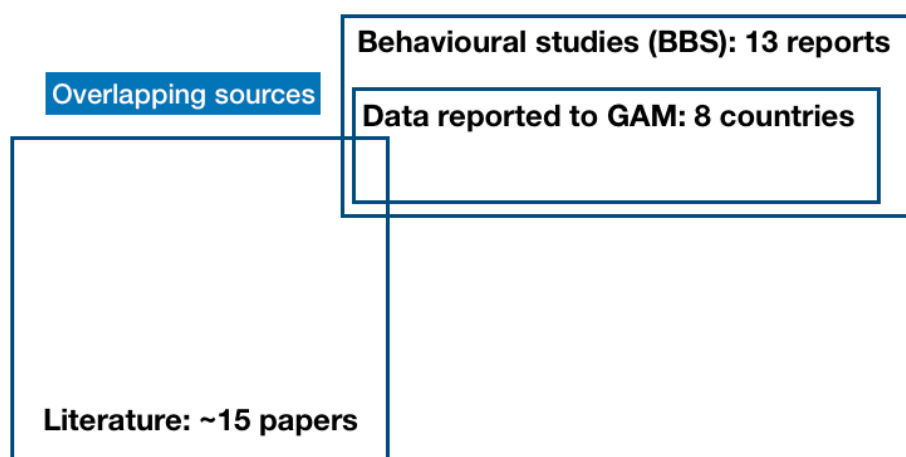
Figure 1.2 Overlapping data sources: GAM, BBS and broader literature review**Available data (reported findings)**

Table 1.2 summarises the data as reported on the 2018 UNAIDS scorecard (HIV prevention for key populations), with different sources indicated along the top row. Most sex workers surveyed are already positive, HIV prevalence ranging from 43-72% across the region. Reported condom use at last (paid) sex with a client (CULC) ranged from 56-96% from GAM (or 63-92% from BBS, reflecting only partial concordance with GAM data).

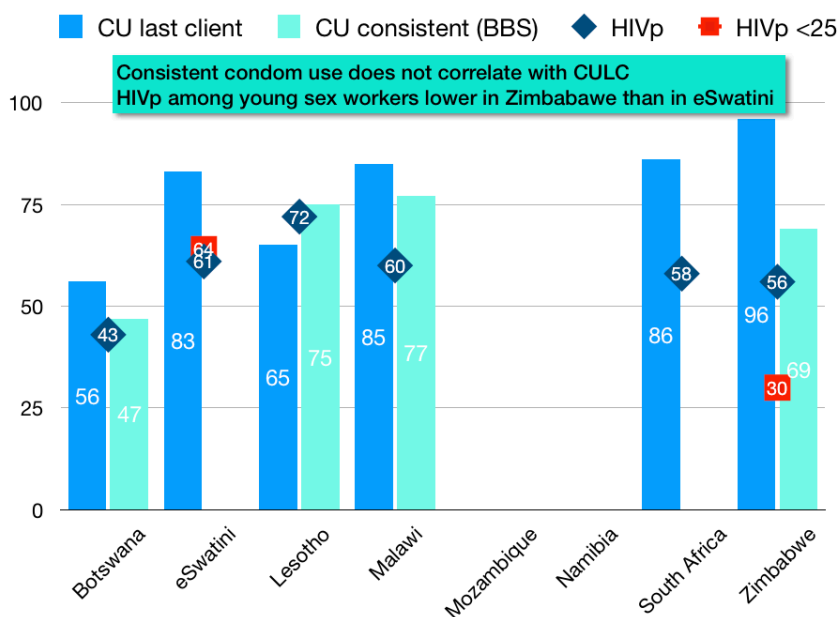
Table 1.2 HIV and condom use data (UNAIDS 2018 scorecard: HIV prevention for key populations)

Source:	BBS	BBS	DHS	Programme	DHS	DHS
	SW HIVp	Condom use last paid sex (SW report)	Condom use last paid sex (male report)	Condom distribution need met (%)	CU with non-reg partner (F 15-49)	CU with non-reg partner (M 15-49)
Botswana	43	56		70	71	76
eSwatini	61	83		76	54	67
Lesotho	72	65	90	80	76	77
Malawi	60	85	75	40	50	76
Mozambique			31	35	42	47
Namibia			67	79	66	80
South Africa	58	86		85	60	69
Zimbabwe	56	96	90	79	67	85

No clear patterns are discernible in these data. Focusing on the sex worker data (and adding data on consistent condom use from BBS), there is no correlation between sex worker HIV prevalence (high in all cases) and either condom use indicator (Fig 1.3). No data on sex worker HIV prevalence trends were found, so it is not possible to relate reported condom use to any changes in prevalence over time. In the case of Zimbabwe, HIV prevalence for sex workers less than 25 years old is much lower than for all sex workers (30% versus 56%), which may be an early sign of slowing transmission. The only other country reporting HIV prevalence among young sex workers (eSwatini), did not show this difference (64% versus 61%).

Figure 1.3 Sex worker HIV prevalence and reported condom use data

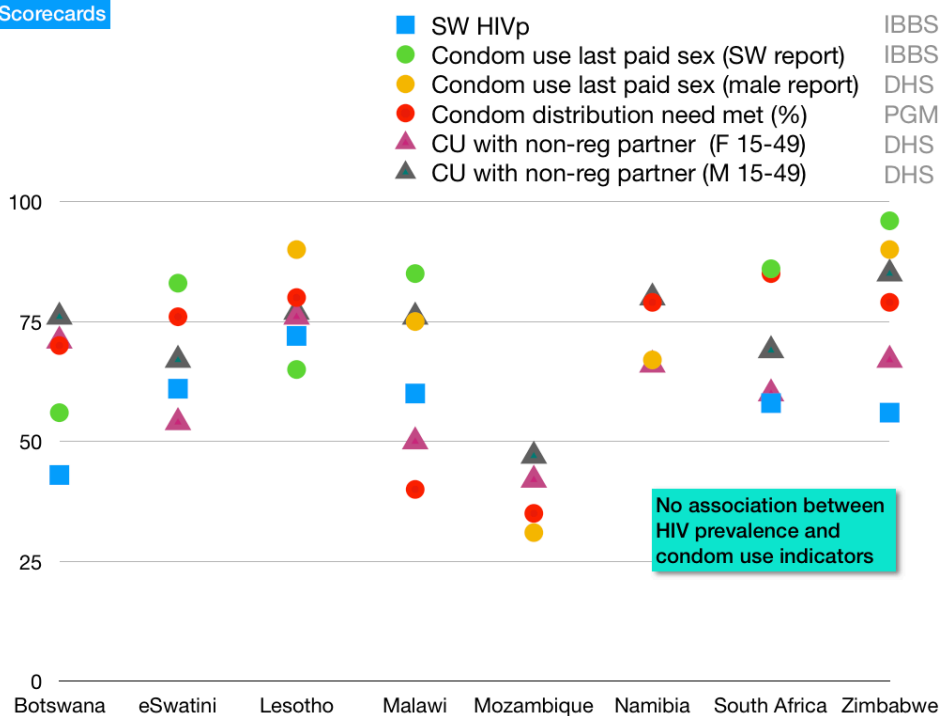
Scorecards + BBS



In these data, there appears to be no relationship between HIV prevalence (uniformly high across the region) and condom use, either CULC or CCU. With the exception of Zimbabwe, reported CULC is below 90%. In Botswana and Malawi, two of three countries reporting both CULC and CCU, consistent use is only marginally lower than CULC, less than ten percentage points, while it is more than 25 points in Zimbabwe. Lack of data for Mozambique and Namibia, and of CCU data for most countries, limits this analysis. Other condom variables from scorecards are compared to sex worker HIV prevalence in Figure 4.

Figure 1.4 HIV and condom use (UNAIDS 2018 scorecard: HIV prevention for key populations)

Scorecards



UNAIDS scorecards include several other condom variables. Two condom supply variables (from programme data) were categorically assessed to be high (green >75%) in five countries (eSwatini,

Lesotho, Namibia, South Africa and Zimbabwe) and these correlated with relatively high numbers of condoms sold/distributed to men (data not shown). In three of these countries (eSwatini, South Africa and Zimbabwe) condom use with last client reported by sex workers was also among the highest (>80%). However, there was no correlation between these variables and HIV prevalence.

Perhaps the least useful condom indicators on the scorecards (condom thematic summary) are those reflecting knowledge of condoms as a prevention method. With the exception of Mozambique, knowledge levels were reported to be very high. These and other data from DHS share major limitations and biases of general population surveys with regard to key populations – missing or underestimating sex workers (among women) and migrant/mobile men. [34 Steen]

Limited attention to trend analysis or data triangulation was found in the global reporting.

Survey data (BBS, IBBS, IBBA, RDS)

As mentioned, most GAM/scorecard data come from population-based surveys. While surveys are often of high quality methodologically, a major limitation is the infrequency of data collection. Surveys take time to organise, are expensive, and few countries conduct them more frequently than every 3-5 years, at times even longer. Examples from Botswana and Zimbabwe (Fig 5) show limited trend analysis done from survey data, albeit over relatively long time spans between survey rounds.

Figure 1.5 Few examples of trend analysis from BBS

In Botswana, BBSS was carried out in three districts in 2012 and 2017. Large decreases in CCU with all partner types were reported between the surveys.

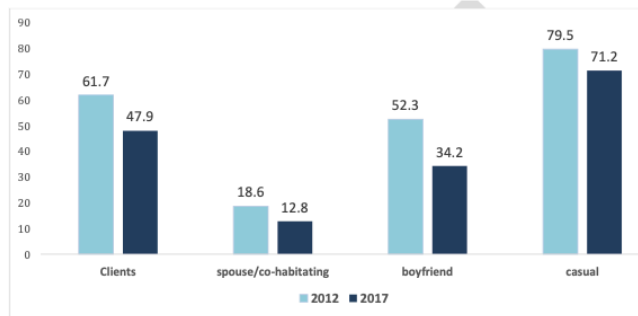
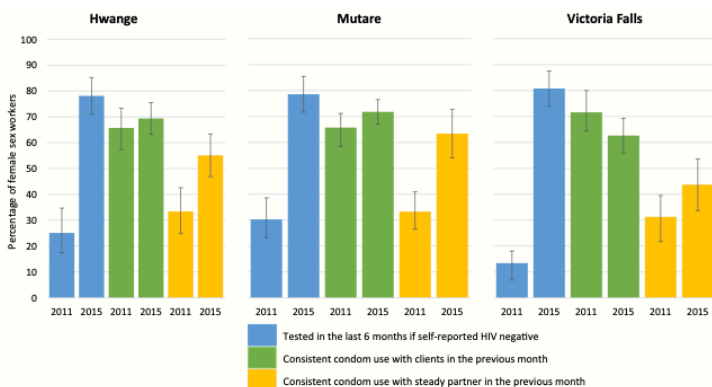


Figure 4. Consistent condom use with different partner types, 2012 vs 2017

Ndori-Mharadze T et al. *Journal of the International AIDS Society* 2018, **21**(S5):e25138
<http://onlinelibrary.wiley.com/doi/10.1002/jia2.25138/full> | <https://doi.org/10.1002/jia2.25138>



In Zimbabwe, RDS surveys carried out in three towns in 2011 and 2015 showed significant increases in CCU with steady partners in two.

Figure 2. Comparison between 2011 and 2015 in proportions of women testing HIV negative and reporting recent HIV testing and condom use in Hwange, Mutare and Victoria Falls.

GAM/scorecard reporting is intended to provide annual updates, yet how this works in practice – with BBS data inputs every 3-5 years – remains unclear. Annual reporting would permit more frequent and useful trend analysis. Programme data – where these are monitored continuously outside the region – allow trends to be updated quarterly or even monthly, providing ongoing feedback to guide programme activities, outreach and clinical services.

Behavioural surveys conducted in the eight Southern Africa countries report data on condom use in different ways, utilising different definitions and time frames. Table 1.3 summarises the main CU

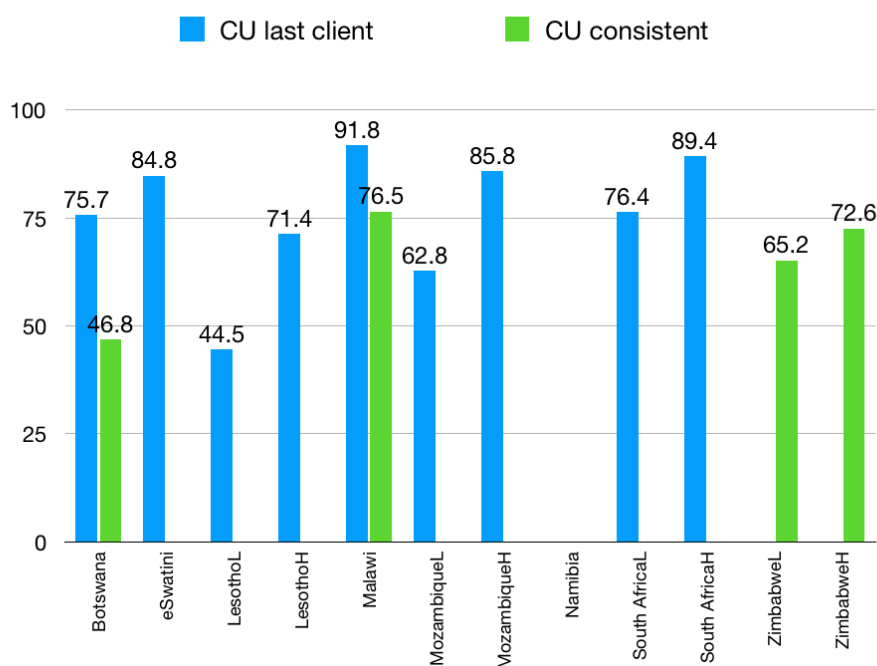
indicators reported in survey reports. While different types of questions may shed light on different condom use challenges, collecting data in this way makes cross-country comparison difficult.

Table 1.3 Common BBS condom use questions, with variable definitions/time frames

CU questions	BOT 2017	ESW 2013	LES 2018	MAL 2013	MOZ 2012	NAM	RSA 2014	ZIM 2011
Condom use last paid sex	any client	reg/new client	any client	any client	any client		any client	
	75.7	82.9 reg 84.8 new	44.5-71.4 (4 districts)	93.4	62.8-85.8 (3 cities)		76.4-89.4 (3 cities)	
Non-paying partner		last mo	last sex		last sex		last sex	
		51.1	19.2-36.5		53.6-59.3		8.9-34.5	
CCU	last mo			with clients last 12 mo				last mo
	46.8			60.4				65.2-72.6 (3 cities)
CCU spouse/cohab partner	last mo			last 12 mo				last mo
	12.8			15.7				33.3-34.2 (3 cities)
CCU boyfriend	last mo			last 12 mo				
	34.2			27.3				
CCU casual	last mo			last 12 mo				
	71.2			54.2				
Sex without condom		last 6 mo						
		68.7						

The geographic representativeness of available survey data is also a concern. Some results are reported by site and not aggregated (perhaps appropriately for methods). Figure 1.6 includes high-low ranges for Mozambique, South Africa and Zimbabwe where data are reported by site.

Figure 1.6 Reporting data as 'national' versus site-specific



In any event, most countries that conduct surveys do so in a limited number of sites – reflecting to some extent programme priorities. This inevitably introduces a degree of site selection bias making it hard to know whether reported findings reflect situations elsewhere in the country.

Attempting to explain inconsistent condom use from survey data

Reasons for differences between CULC and CCU are multiple and complex, related to indicator definitions themselves, recall bias and other factors, including client number (see Annex 3). Most BBS reports provide additional data in attempts to explain condom non-use, inconsistent use, and condom failure. Some include more in-depth study of select issues using qualitative methods.

In Botswana, where decreasing CU trends (two data points 5 years apart) were documented, a number of challenges to consistent condom use were mentioned – 31% reported being paid more not to use condoms, and 24% being forced not to use condoms. Moreover, 35% cited condom breakage (in a context, not uncommon in the region, where dry sex is preferred and lubricant use uncommon). During the month prior to the survey, two-thirds of sex workers experienced at least one such problem. The most common reason for not always using condoms with clients was being offered more money (48%), followed by client refusal to use condoms (14%) and sex workers not liking condoms (13%). Three in five reported that the client provided condoms at last paid sex.

In Zimbabwe, sex workers who received condoms from peer educators were more likely to be condom adherent than those whose clients provided the condoms. The potential complementarity of PrEP and condom use was explored in Zimbabwe where demand, supply and adherence were documented for each method. Gaps were identified at each level for both methods but overall protection was higher when used together. It was recommended that more frequent and intensive support for condom and PrEP adherence be provided for younger sex workers, those new to sex work and with higher alcohol consumption. Women with steady partners were found to be more likely to adhere to both condoms and PrEP.

Heterogeneity in risk was partially described in a few reports. In Botswana, 18% of the sample had been selling sex for less than 12 months prior to the survey. It was noted that while the overall number of clients reported was lower than five years earlier (5 per week compared to 7.6), a small proportion (0.5%) had much higher numbers (>20 per week) than the mean. Partner volume was associated with higher HIV prevalence, and strongly with recent HIV infection – **those reporting >20 clients per week were 22 times more likely to have recently been infected** than those with 0-2 clients.

Differences between two different survey rounds were described in a limited way in Botswana, Malawi and Zimbabwe. In Botswana, reported condom use with all client/partner types fell dramatically between 2012 and 2017. Reasons given included supply – 48.7% reported unprotected sex in the past month due to lack of access to condoms – and condom fatigue. Around 35% reported not using condoms correctly because they were drunk at least once in the past month, while 15% reported being forced to have sex in the past year. In Zimbabwe, condom use with regular partners increased significantly between 2011 and 2015 in two of three sites surveyed.

Temporal trends of demand and supply in sex work can have a strong influence on client numbers, price for sex and condom use, as well as on HIV/STI transmission. In Botswana, the declines in condom use between 2012 and 2017 occurred as the average number of clients reported per week declined (from 7.6 to 5.0), and prevalence of syphilis doubled (from 3.5% to 6.7%). During the early economic crisis in Zimbabwe, sex workers reported lower client numbers as migrant labour contracted, and HIV prevalence declined in the general population. [34] Such temporal fluctuations of sex work supply and demand, while influencing condom use and HIV/STI transmission in and beyond sex work, are often camouflaged by biases in general population surveys.

Such biases are important to understand when comparing reported behaviours of different populations using data coming from different surveys – sex workers and clients for example. In

Mozambique, for example, where between 63-86% of sex workers reported CULC at different locations in 2011-2012 BBS, only 31% of clients reported using a condom at last sex with a sex worker (DHS). Not only are the sampled locations and populations quite different, but DHS and other household surveys (by definition) miss those at risk due to being away from home. BBS, on the other hand, usually sample from identified sex work hotspots.

Such differences are smaller in Malawi where both sex worker and client data came from BSS in 2013/2014 – 93% of sex workers reporting CULC and 60% CCU with clients, while 82% of clients reported condom use during last commercial sex, and 47% CCU with sex workers last 12 months. Of concern are declining CCU trends reported by truck drivers – 59% in commercial sex and 39% with casual acquaintances, significantly lower than 80% and 77% reported in 2006.

Using DHS data to estimate client behaviour likely underestimates important migration/mobility effects, which drive sex work supply and demand³. Beyond that, comparing condom use reported by sex workers and clients is not at all straightforward (doing so would require a carefully designed study of the two populations in one location). Nor is it necessary for programmes, which should monitor trends for sex workers and clients separately (and look deeper if the trends are going in different directions).

Several BBS reports looked at STIs as evidence of risk and condom non-use. Methods varied from symptom recall (less reliable) to diagnostic testing (more reliable). Where syphilis prevalence was measured, it was very high – 28% in Lesotho, 20% in Malawi 2013/2014 (up from 12% in 2006), additional evidence, along with high and stagnant HIV prevalence, of inadequate prevention and inconsistent condom use. In Malawi, 21% of female sex workers reported having had either genital discharge or ulcers in the last 12 months, higher than 16% reported in 2006. 14% of clients of sex workers reported having had either genital discharge or ulcers over a similar period.

Findings from the literature (regional)

The literature review 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 availability, time, partner type, breakage, violence and other factors.

The literature review identified 85 papers published in the last 10 years, but only about 15 had relevant information about condom use in the context of sex work in Southern Africa. To these were added several papers identified using other search methods.

Global emphasis on community, combination prevention and structural interventions

Several review articles with a global perspective discuss data or issues relevant to Southern Africa, including the importance of community involvement, strong outreach and services, and structural interventions. [1,5] Bekker discusses combination prevention for sex workers and estimates that condom promotion and distribution has already reduced HIV incidence among sex workers and clients by more than 70%. [11] If this estimation is accurate, it raises questions about why HIV prevalence among sex workers themselves remains so high in Southern Africa.

Experience from outside Africa is also relevant. Tan reviewed 18 Asian studies published between 1989 and 2015 to explore barriers and facilitators encountered by sex workers when negotiating consistent condom use. [35] Three broad areas influencing condom negotiation in sex work were identified – Individual-level factors related to sex workers' knowledge, perception and power; interpersonal-level factors encompassing dynamics with clients and peer-related factors; and the structural environment of sex work, access to resources, poverty, stigma, the legal environment

³ This is also a potentially important issue with the MGH report (The State of Condom Use), which relies on DHS for 5/6 indicators)

and the role of media. Recommendations included involving sex workers, clients and establishment managers to address multilevel barriers in condom negotiation.

Widespread gaps found in sex worker programming in Southern Africa

Chersich, in a review of 26 studies between 2000 and 2011, found that virtually no African country provided HIV prevention services in sex work settings with adequate scale or intensity. [13] Recommendations were for scaling up and intensifying peer interventions, condom promotion, STI screening, etc, which would also serve as a platform for community mobilisation and address a major source of incident infection sustaining generalised HIV epidemics.

Scorgie, reviewing 128 relevant articles, found that vulnerability to HIV, especially among young women, is linked to occupational factors, poverty, endemic violence, criminalisation, high mobility and hazardous alcohol use, which predict low condom use and STI co-infection. [6] Findings of overlapping sexual networks and high sex worker turn-over argue for focused services at high coverage that take behavioural and social vulnerabilities into account.

Behavioural surveys provided detail on sex work dynamics and condom use

A range of factors that may facilitate and impede condom use in sex work have been described.

Arguably, sex workers working from fixed establishments should expect support for condom use from venue managers. Yet, Elmes reported high HIV prevalence and low consistent condom use for both venue-based and other sex workers (60% and 68%) in Eastern Zimbabwe in 2010. [36] A separate paper from the same study examined price factors and found that client requests for condom use significantly predicted protected sex, but that clients paid on average more than forty percent more for unprotected sex. [37]

In Botswana, data from 2012 bio-behavioural surveillance survey showed high STI rates, and HIV prevalence increasing with age, time in sex work and number of partners. While two-thirds of FSWs reported always using condoms with clients in the past month, 59.5% reported one or more of the following: being paid more not to use a condom, having a condom break, or being forced not to use a condom by clients. [38] Another study from Botswana reported positive effects of colourful condom packaging on the condom use rate. [39]

High reported condom use was reported by sex workers in South Africa, but no increase in the supply of or demand for sex work in the context of World Cup. Negative police interactions were common. [40]

Other papers explore condom use from the side of actual or potential male clients. Baltazar interviewed Mozambican men working in South African mines, a quarter of whom reported an occasional client (although only 7% with a sex worker). HIV prevalence among the mineworkers was 22% and only 19% used a condom at last sex. [41] Male prisoners in South Africa reported a range of attitudes towards condom use that pose barriers to use. [42]

Qualitative studies provide contextual detail

Qualitative research explored additional explanations for inconsistent condom use and condom breakage across the region. Chipamaunga interviewed sex workers in Swaziland and found that penile-vaginal sex was not universal in male-female sexual encounters; and motivation by sex workers for non-condom use included intention to earn more money from unprotected sex, desire for sexual pleasure, and not having time to use condoms. [43] In Namibia, sex workers and transactional sex encounters are heterogeneous entities dependent upon client characteristics (known, stranger, wealthy, attractive) and the woman (in financial need, desiring love), which influence condom use. [44]. In Zimbabwe, violence towards sex workers by police was widely reported, with some sex workers not carrying condoms or throwing away condoms to evade police harassment. [45] A comprehensive global report on police violence towards sex workers includes data from Namibia, South Africa and Zimbabwe. [46] Also from Zimbabwe, drying agents

were described as contributing to condom breakage in focus groups and lubricant use was infrequent. [47]

Programme status in different countries

Sex worker programme factors have been described or assessed in several countries. In Malawi, programme exposure was a significant predictor of condom use at last sex (OR=1.26, $p < .05$). [48] A description of the scale-up of Zimbabwe's national sex worker programme includes detail on initial provision of peer interventions and SRH services based on assessed needs. [49] More recently, the programme was assessed using a mix of methods including programme data, RDS survey and qualitative methods, and documented increasing service use and condom use with regular partners in some sites. [50]

Gaps in the literature

Two important issues related to reported condom use concern 1) trends over time, and 2) additional evidence to validate (triangulate) reported CU data. Yet, limited trend analysis or data triangulation is reported in BBS or the wider literature. A few exceptions include Botswana and Zimbabwe (see Fig 1.5) where differences in condom use with different partner types were measured at select sites between two survey rounds.

Data triangulation – comparing condom use patterns to STI trends for example – receives limited attention in GAM and BBS reports. Yet, where data are available for more than one year, increasing trends (of syphilis in Botswana and Malawi for example) point to problems with consistent condom use. In Malawi, for example, where CULC reported by sex workers is among the highest in the region, STI trends have been steadily increasing over five years (MoH data).

Because such surveys are conducted infrequently, and sample few locations, these data on their own provide insufficient information to guide programmes.

Methods of monitoring/assessing condom use in sex work

In both the full IBBS reports and the wider literature, several issues have been explored in more detail. Asking multiple questions about condom use provides a range of estimates that may be more realistic than any single question. [51] In Zimbabwe, the GAM indicator (CULC) was 96% while it dropped to 48% when the women were asked whether they always used condoms (CCU) in the last month. [52] In Botswana CULC was 76% and CCU in last month 47%. In Malawi, 93% CULC and 60% CCU during the last 12 months (note that most BBS use last one month as the time frame for CCU).

In summary, the main findings of this review strongly suggest that condom use in sex work receives insufficient attention in the region to permit either an accurate understanding of the situation, or to expect much impact on HIV and STI transmission. Data systems are currently 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 (CULC) is only moderate to high (56-96% GAM, 63-92% IBBS) 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, where this is feasible, 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 and likely biased, and generally not comparable to sex worker reports 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 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).

Despite data limitations, it is clear that consistent condom use and related aspects of HIV/STI prevention are not keeping pace with transmission in most sex work settings in the region. In a few cases, reported condom use by sex workers is quite high, at least with their last paying client (recognising likely social desirability bias). In most others, however, even this indicator of condom use implies only partial protection, with far too many unprotected exposures to prevent most sex workers from acquiring HIV. Moreover, when consistent condom use is asked about, results are generally much lower. Condom use, both at last sex and consistent, falls off even more when other types of partners are involved. Even when condoms are used, condom breakage is reportedly common at least in some countries. Importantly, reported condom use among young sex workers and those new to sex work are often lowest, despite reporting more clients and more risk factors. These data point to a number of situations where condom use gaps could be closed – and to specific programmatic actions that could support sex workers in doing so – which is the focus of the remaining sections of this report.

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

2. What should be expected from good sex worker condom programmes?

Despite data limitations, it is clear that consistent condom use and related aspects of HIV/STI prevention are not keeping pace with transmission in most sex work settings in the region. This is likely due to both gaps and weakness in sex worker programming as well as interpersonal, structural and other factors that may undermine consistent condom use. Yet, experience elsewhere has shown that these gaps and barriers can be addressed.

Where have programmes increased condom use in sex work, and decreased HIV/STI?

In assessing gaps, and formulating programmatic recommendations, it is useful to look at programmes that have succeeded not only in raising condom use in sex work but also had measurable impact of STI/HIV transmission. Such 'gold standard' examples can serve as a programmatic point of reference to identify gaps and weaknesses in regional programmes. Importantly, many of these examples also highlight what can be achieved when sex worker communities themselves are actively engaged in their own programmes.

In Kenya, India, Thailand, Cambodia and elsewhere, data clearly document early explosive spread of HIV through sex work networks into the general population. Under conditions of very low condom use, clients quickly infected most sex workers – HIV prevalence surpassing 80% in some cases – which fuelled highly efficient transmission to other clients, and downstream transmission to other sexual partners.

This nearly universal HIV acquisition among sex workers initially began to decline steadily once effective condom programmes, supported by several key programme elements (outreach, clinical services with strong STI focus, structural interventions) were scaled up. [19-30] A significant decline in sex worker HIV prevalence (along with STI incidence) was one early and important marker of the success of these programmes. In most cases, evidence of slowing onward transmission – to clients and their partners – came later.

This initial and critical step – declining sex worker HIV prevalence – has not happened in Southern Africa, where sex workers continue to acquire HIV at alarming rates. It should also be assumed that high-incidence onward transmission continues to drive downstream HIV epidemic spread in the region. The importance of transmission in sex work as a driver of wider epidemic spread is supported by modelling studies that dynamically simulate transmission through and beyond sex work networks. [31-33]

The essential components of sex worker HIV programming have been defined, which include attention to critical policies that should be in place. [7] Along with supportive policies, the effective mobilisation, engagement and ownership of programmes by sex worker communities is of paramount importance. Here, we look at operational aspects – a **common minimum programme** (CMP) of outreach and clinical services – for optimising condom use in sex work based on experience and evidence derived from successful programmes.

CMP components include:

- a trusted platform of prevention services for sex workers with continuous hotspot presence
- sex worker mobilisation and engagement in prevention efforts (sex worker led programming)
- peer-based outreach guided by continuously updated hotspot data
- regular medical checkups providing a range of clinical services including sexual and reproductive health (SRH), STI/HIV screening, violence prevention/care
- condom supply and uninterrupted funding for promotion and related programme activities

These standards are addressed in more detail later under programme recommendations.

Gold standard examples

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 STIs and/or HIV have declined – are described as ‘gold standard’ examples. [53,54]

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) monitored include reported condom use (increasing targets) and STI/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, structural interventions, and dashboard reviews of priority programme indicators. Continuous monitoring of programme data related to these activities, with regular dashboard reviews or priority indicators 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.

In Asia, where targeted sex worker programmes have changed the course of HIV epidemics, effective, appropriately targeted interventions (condom programming, HIV testing with referral for ART, STI screening and treatment) were delivered with adequate intensity and scale. [55-57] Sex workers’ empowerment and social cohesion proved critical to higher uptake of HIV services, better condom negotiation, and reduction in violence from clients and police. [58-59] Community empowerment contributes to FSW psychological and financial resilience and improves ability to work collaboratively toward shared goals. [60-63]

Initiating community identity and empowering FSW can be challenging, particularly where FSW are marginalized, criminalized and have low social cohesion. FSW are heterogenous in age, duration of sex work, whether they identify as FSW, and how they transition into and out of sex work; all factors likely to influence their levels of peer support, behavioural risk, and service use. Programmes supporting community organisation have thus been urged to build collective action, including facilitating access to external knowledge, skills and resources. [63]

Building on earlier work of DMSC in Kolkata, sex workers in Mysore replicated, innovated and adapted to their own context, to interrupt STI/HIV transmission, ensure high treatment uptake and retention, and tackle a range of health and social problems affecting their community.

Microplanning enabled communities to monitor basic community-based interventions (outreach contacts, condom distribution) and clinical services (regular checkups), as well as STI/HIV transmission trends. After several years of strong programming, the absence of symptomatic STIs and low numbers of new HIV infections, suggest very low sexual transmission risk. Lessons from Ashodaya Samithi and DMSC were shared across other communities in India under Avahan.

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. [53] As a generalised epidemic, it shares several challenges, including high pressure for sex worker acquisition – high HIV prevalence among clients increasing probabilities of exposure during unprotected sex. Yet, by implementing effective interventions in sex work, Kenya managed to achieve large reductions in HIV/STI incidence and prevalence beginning in the 1990s before ART became available. Modelling

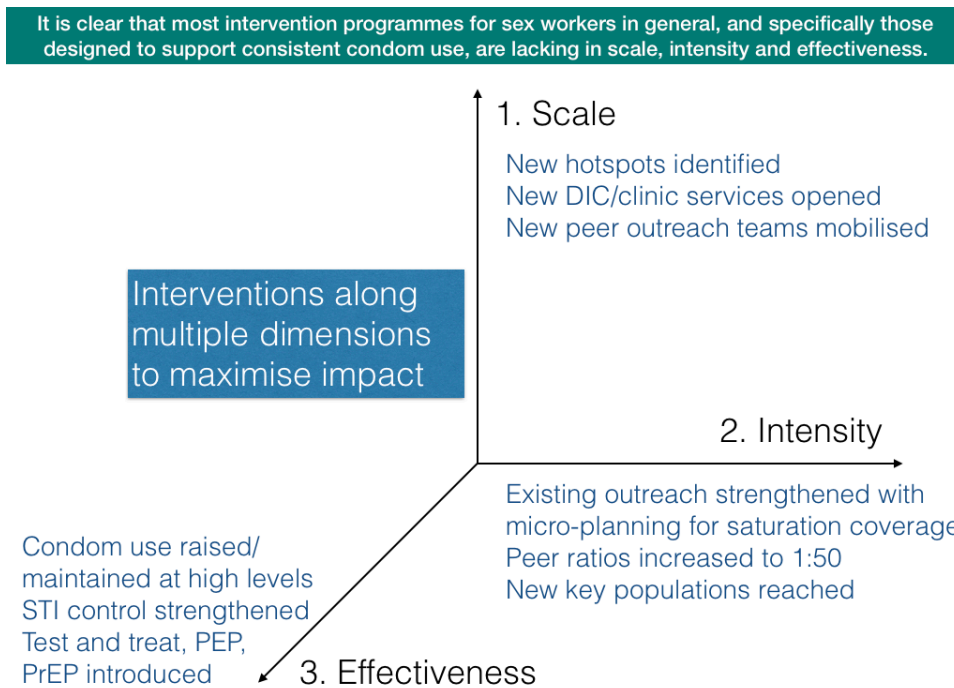
insights from Kisumu, Kenya highlight the complementarity of condoms and ART in epidemic control, the importance of reaching sex workers with the highest rates of partner change, and synergies of condom use and STI treatment when condom use is inconsistent.

3. Where are the most important condom gaps and weakness?

Gaps and weaknesses in the programme response for sex workers appear to be common and extensive across the region, although weak monitoring limits a thorough assessment. Still, it is clear even from available data that most intervention programmes for sex workers, and specifically interventions to support consistent condom use, are lacking in scale, intensity and effectiveness.

Successful sex worker programmes offer effective interventions at scale and with sufficient intensity to have impact (Fig 3.1).

Figure 3.1. Scale, intensity, effectiveness – critical dimensions for sex worker programming



The lack of scale is evident from programme reports. Only Zimbabwe has a national sex worker programme with national coverage (estimated at 85% of need). While most countries have carried out mapping and population size estimation (PSE) studies, few countries conduct programme gap analyses or have developed national scale-up plans. As a result, programmes for sex workers, and specifically those designed to support consistent condom use, are often geographically limited, fragmented and narrowly focused. Donor priorities contribute to fragmentation.

Sufficient programme intensity is also lacking in narrowly focused sex worker programmes. 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, 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.

In such narrowly-focused programmes, outreach is often not hotspot-based but conducted intermittently by mobile teams that visit many hotspots 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, 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.

A matrix of programme components (or common minimum programme) was attempted for this report, based on ‘gold standard’ experience from Kenya and India (see Table 3.1). Yet, little information, process or outcome data related to sex worker interventions could be found (even including grey literature, programme reports and reviews). With very few exceptions, there appears to be scant attention to sex worker programming, to supporting condom use or access to related services, or to monitoring programme indicators.

Table 3.1. Apparent sex worker programme gaps across Southern Africa

	KEN	BOT	ESW	LES	MAL	MOZ	NAM	RSA	ZIM
Mapping/PSE with gap analysis	+				+/-				+/-
Continuous hotspot presence	+				+/-			+/-	+/-
Peer-based outreach	+	+/-	+/-	+/-	+	+/-	+/-	+/-	+
Microplanning introduced	2013				2016			2017	2017
Risk assessment with questions on CCU, age, time in sex work, alcohol/drug use	+				+/-			+/-	+/-
CU need assessed									
Regular medical checkups	+				+/-			+/-	+/-
Structural interventions addressing CU facilitators, barriers, violence	+								+/-
Dashboards with CU and other priority programme indicators (PPI)	+								
Data triangulation (STIs, new HIV infx)	+								

Sex worker programmes in region are weak

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, 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.

Mapping and population size estimations (PSE) have been conducted to some extent in most countries in the region, a potential starting point for sex worker programme planning. Yet, most mapping/PSE cover pre-selected sub-national locations where intervention programmes are planned. Less common are national assessments needed to inform scale-up, with high-level gap analysis (matching areas of known sex work to areas with intervention programmes) linked to intervention planning. Direct involvement of sex workers in programmatic mapping is uncommon despite proven feasibility and reliability of participatory methods.

At the community level, some mention of peer-based outreach appears in all countries. In many cases, however, peer-involvement is quite limited – a sex worker who moves from hotspot to

hotspot with a mobile HIV testing unit, for example, hired for 'demand creation'. Composite 'reach' indicators (KP-PREV for example) may include provision of information and condoms in addition to referral for testing, but continued funding is usually linked to performance against HIV testing and 'yield' targets.

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 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.

Such a limited outreach model is weak compared to gold standard sex worker intervention platforms. Lack of continuity (continuous hotspot presence) and narrowly focused services breed distrust. With respect to supporting condom use, frequently neglected areas include assessment of risk and condom need, regular medical checkups and structural interventions.

- ▶ Risk assessment to identify reasons for inconsistent condom use including age, time in sex work, alcohol/drug use, etc.
- ▶ Regular medical checkups to reinforce condom use and permit STI screening, PrEP, etc.
- ▶ Structural interventions to address condom use facilitators, barriers, violence.

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

Many of these gaps and weaknesses in sex worker programming have also been described in several regional reviews. [6,13,64,65]

More intensive and structured approaches to peer-based outreach have been recently introduced in Zimbabwe, Malawi and South Africa, at local or subnational scale. Microplanning-guided outreach systematically engages sex workers at identified hotspots with peer-based interventions, building trust by maintaining a continuous hotspot presence. Peer educators from each hotspot are trained and supported to undertake data-guided outreach, enumerating sex workers at their specific hotspot, talking about the programme, offering information, commodities and referrals, assessing risk and tailoring support to each sex worker's needs, seeing those at highest risk more frequently. Sex worker microplanners meet with supervisors on a weekly basis to analyse the data they collect and to plan activities for the next week.

In Zimbabwe, microplanning was introduced together with self-help groups (SHG), which aimed to facilitate solidarity and cooperation, by addressing a range of structural issues identified by SHGs themselves. Initial results suggest that SHGs have not only reduced sex worker competition and increased cooperation, building confidence and empowerment, but that microplanning and SHG together are synergistic.

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

Closing gaps to support consistent condom use in sex work requires attention to both ensuring uninterrupted condom supplies and optimising sex worker programming, two critical programme areas which are often managed separately but should overlap more. Importantly, the most effective programmes build trust and engage sex worker communities to actively take part in all aspects of programming (see gold standard examples in section 2).

Condom supply chain issues have recently been comprehensively addressed in a separate report. [66] More attention to sex work issues ('demand creation with key populations') was a major recommendation of the report, and of critical importance given the major role of transmission in sex work to epidemic dynamics and control.

Table 4.1. Insights from 'Status of Condom Use' and implications for sex worker programming

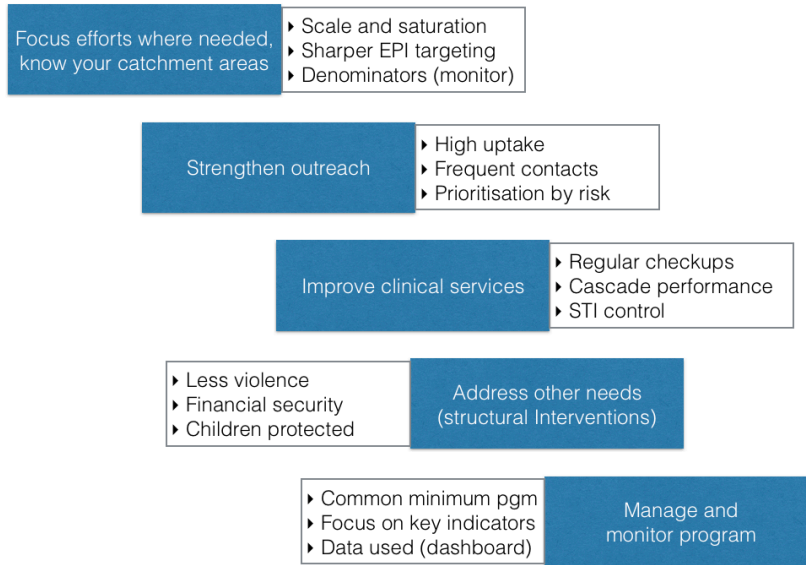
6 general insights – status of condom use (MGH) Implications for sex worker programming

<p>► 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...</p>	<p>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)</p> <p>► 'Demand gap' mainly due to lack of scale and intensity in sex worker programmes in region</p>
<p>► 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...</p>	<p>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).</p> <p>► Sex worker programming in Southern Africa, narrowly focused on treatment as prevention, does not adequately support CU</p>
<p>There is little consensus on how social marketing programs can best contribute in evolving condom markets...</p>	
<p>Free condoms distributed through the public sector have been and will continue to be an important source of condoms, especially for the poor...</p>	
<p>The commercial sector is positioned to make a larger, if modest, contribution to condom markets, but barriers to expansion remain...</p>	
<p>► Weak market stewardship functions continue to impede progress... monitoring demand generation activities and distribution to ensure coverage of at-risk groups.</p>	<p>Monitoring of programme data, with regular dashboard review of priority indicators, needed to guide programmes</p> <p>► Data on CU in sex work – collected infrequently from few survey sites – not adequate for programmes</p>

Sex worker programmes in the region clearly need to be strengthened to increase condom demand and use, and to have desired impact on HIV/STI transmission. Strong programmes elsewhere – those reporting high condom use and declining sex worker STI/HIV rates – have several components in common that are missing or weakly implemented in countries of the Southern Africa region (Table 3.1).

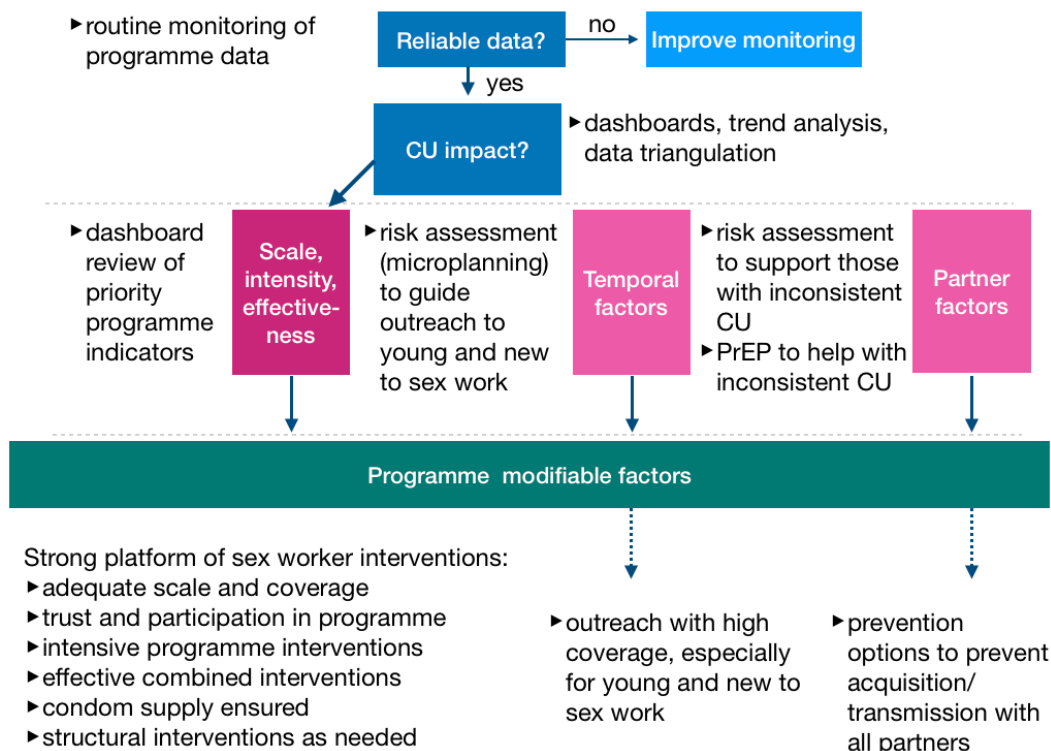
These gaps and weaknesses can be addressed by building strong sex worker programme platforms. Specific interventions to support condom use or PrEP uptake, for example, should take off from a solid platform of outreach and clinical services (common minimum programme) informed by programme data. An example of this based on gold standard experience is shown in Fig 4.1.

Figure 4.1. Example of a ‘common minimum programme’ for sex work



Important criteria or dimensions for an effective platform of sex workers services are scale, intensity and effectiveness (Fig 3.1). The platform should strive for national scale with saturation coverage of important hotspots. Intensity is built around a ‘continuous hotspot presence’, meaning that peer educators work in their own hotspots and take responsibility for maintaining contact with a defined group of sex workers with whom they build trust. A combination of effective interventions – condoms, STI/HIV screening, PrEP, etc – is provided through frequent outreach as well as during regular medical checkups. The common minimum programme defines a set of interventions, activities and services that make up this programme platform, and programme monitoring tracks performance against targets. Such a platform would address current regional gaps and weaknesses, and facilitate support for consistent condom use in sex work by 1) strengthening programmes, and addressing 2) temporal and 3) partner factors (Fig 4.2).

Figure 4.2. Framework for supporting condom use through strong sex worker programming



Intensive peer outreach at hotspots offers several advantages in terms of condom support, strengthening the overall intervention response while addressing temporal and partner factors that are frequently associated with inconsistent condom use.

- ▶ Peer educators build trust within their communities which enables them to better assess condom use behaviour and address barriers to consistent condom use.
- ▶ Simple risk assessment tools assist peer educators to identify those at higher risk (inconsistent condom use, young age, new to sex work, problematic drinking, violence) so they can provide more frequent and intensive support and referrals.
- ▶ Peer-based structural interventions, including violence response mechanisms and self-help groups, build trust and improve conditions that may impede consistent condom use.

Access to high-quality, non-judgmental clinical services is often cited as a priority by sex workers, whose trust and participation in programmes increases when good services are easily accessible. The strongest sex worker programmes promote regular checkups with a range of STI and HIV screening and treatment options among other services. Quarterly checkups are promoted during outreach and monitored at the clinic.

- ▶ Condom use is reinforced at checkup visits, where counselling can be oriented to STI/HIV status – if negative, how to stay negative; if positive, prevention linked to treatment.
- ▶ Clinic visits also allow the programme to continuously monitor STI/HIV outcomes, which helps validate reported condom use trends.
- ▶ Clinic visits should reinforce condom promotion messages by peer educators and offer additional support where needed. With availability of PrEP, for example, sex workers who have difficulty maintaining consistent condom use with clients or partners, can be offered PrEP, with follow-up at the same quarterly checkup visits. Issues related to alcohol, drug use or violence often require collaboration between peer support and clinical teams.
- ▶ Condom use can also be monitored at clinic visits by asking a few questions systematically (mini-BBS), and polling booth methods may help reduce biases.
- ▶ STI screening and/or presumptive treatment are recommended services for sex workers that can also be folded into quarterly checkups. These services complement PrEP by treating other infections that are likely to occur with inconsistent condom use. Effective STI treatment further reduces probabilities of HIV acquisition and transmission during unprotected sex.
- ▶ Finally, STI data helps in triangulating and validating CU trends, and has been used to identify hotspots where transmission risk is high and where programme efforts need strengthening (epidemiologic targeting).

Common structural issues faced by sex workers, including various manifestations of violence, poverty and discrimination, have been well documented. At an intervention level, working with sex worker communities, a number of actions can be supported.

- ▶ Since inconsistent condom use is often related to partner refusal/violence, pressing needs for food, shelter, children's school fees, healthcare, etc, sex workers themselves can set priorities and guide an effective response.
- ▶ In establishment settings, structural interventions (100% condom use policies, house rules) to support and enforce condom use can reduce the onus on sex workers to negotiate with individual clients. Sex work operating from hotels and other fixed venues is common in some southern African cities where large numbers of sex workers report very high client turnover.

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 is a tool used in microplanning to identify sex workers who might benefit from more frequent outreach or additional services (PrEP), support groups, etc.

- ▶ Young sex workers and those new to sex workers who should be seen more frequently
- ▶ Inconsistent condom use related to alcohol, drugs, violence or specific partner situations may benefit from more frequent outreach, additional services and support.

Example – how microplanning does it...

Microplanning has helped to engage sex worker communities and establish programme platforms of outreach interventions and clinical services, with regular promotion and monitoring of condom distribution and use. Such a platform builds trust by maintaining a continuous hotspot presence, and provides a range of services that meet sex workers' expressed needs, while supporting adherence to condom use and other prevention behaviours. Data on priority indicators are continuously collected and frequently reviewed against targets. Periodic risk assessment facilitates identification of those with inconsistent condom use and more intensive interventions to address factors such as young age, new to sex work, alcohol/drug use and violence, which may undermine consistent condom use. Regular medical checkups reinforce condom use, permit STI screening and treatment and routine monitoring of sex workers on PrEP or ART without stigmatisation.

Table 4.1. How microplanning supports sex worker condom programming

	How microplanning works	How microplanning supports CU
Mapping/PSE with gap analysis	Continuous programme data on outreach contacts at hotspots, including new sex workers (and those leaving/inactive), updated at least quarterly	Condom use data can be compared to reliable population denominators
Peer-based outreach	Outreach is guided by feasible targets, and performance is reviewed weekly with peer supervisors.	Condom promotion and distribution are key outreach activities that are repeated frequently.
Continuous hotspot presence	Peer educators are chosen by hotspot and work with other sex workers with whom they interact frequently	Condoms and related advice or referrals can be easily obtained from trusted peer educators
Condom distribution based on need	Condom needs of each sex worker is discussed with peer educators taking into account number of clients and related factors	Condom distribution based on need is more efficient and provides better data for monitoring
Risk assessment with questions	Risk is reassessed quarterly to guide frequency of outreach contacts – high risk weekly, medium risk biweekly, low risk monthly. Inconsistent CU, young age, new to sex work, alcohol/drug use, violence are risk factors that prompt additional support	Risk assessment identifies inconsistent condom use, and several common reasons, which can then be addressed by PE with the sex worker
Regular medical checkups	PEs promote quarterly medical checkups for all sex workers, regardless of HIV status, clinicians decide what services to offer based on the sex worker's status and specific needs	Condom use is reinforced at clinic visits and complementary services offered, including HTC, ART, PrEP, STI screening and treatment
Structural interventions: CU facilitators, barriers, violence	Violence and other structural barriers are identified by risk assessment, and solutions sought – violence response, venue-based interventions and other structural interventions depend on context	Reported condom use increases with appropriate structural interventions that support sex workers with condom use at establishments and other venues
Dashboards with CU and other priority programme indicators (PPI)	Continuous monitoring of PPI strengthens programme performance – Microplanning includes weekly data reviews with peer supervisors, monthly and quarterly meetings with larger teams	PPIs tracked closely include condom distribution by need, risk assessment with data on inconsistent condom use, which can also be monitored periodically using mini-BS or polling booth methods
Data triangulation (STIs, new HIV infx)	Microplanning with regular medical checkups permits monitoring of STIs (by symptoms, signs and/or screening tests), as well as new HIV infections from HTC	Reported condom use trends are more credible when triangulated with STI and/or HIV data

Figure 4.1 illustrates how 3 priority programme indicators (PPIs) have been continuously tracked for more than ten years 1) monthly outreach contacts against estimated population (PSE), 2) quarterly clinic visits (regular medical checkups) against PSE, and condom use against estimated demand. All indicators fell during two periods when funding was interrupted. Reported condom use (data not shown) is monitored periodically by polling booth surveys.

Figure 4.1 Microplanning (India) – monitoring community outreach, condoms, clinic attendance [54]

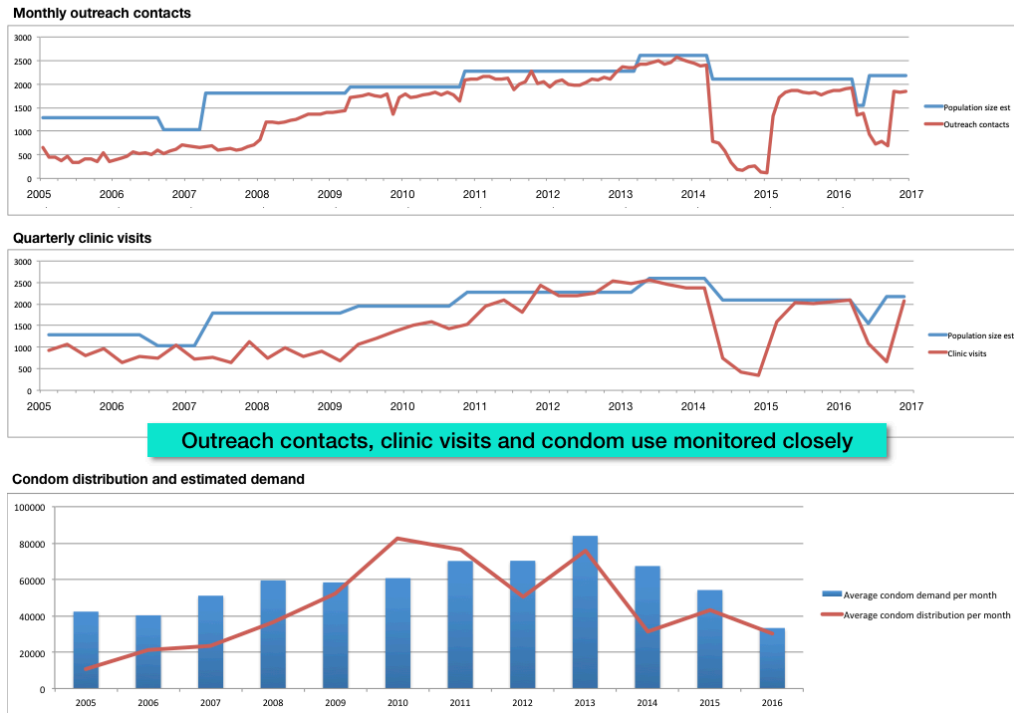


Figure 4.2 shows how both STIs and new HIV infections (key outcomes) were tracked over the same period. Declining rates for both indicators follow improvements in programme performance.

Table 4.2 Microplanning (India) – continuous programme monitoring of key HIV/STI outcomes [54]

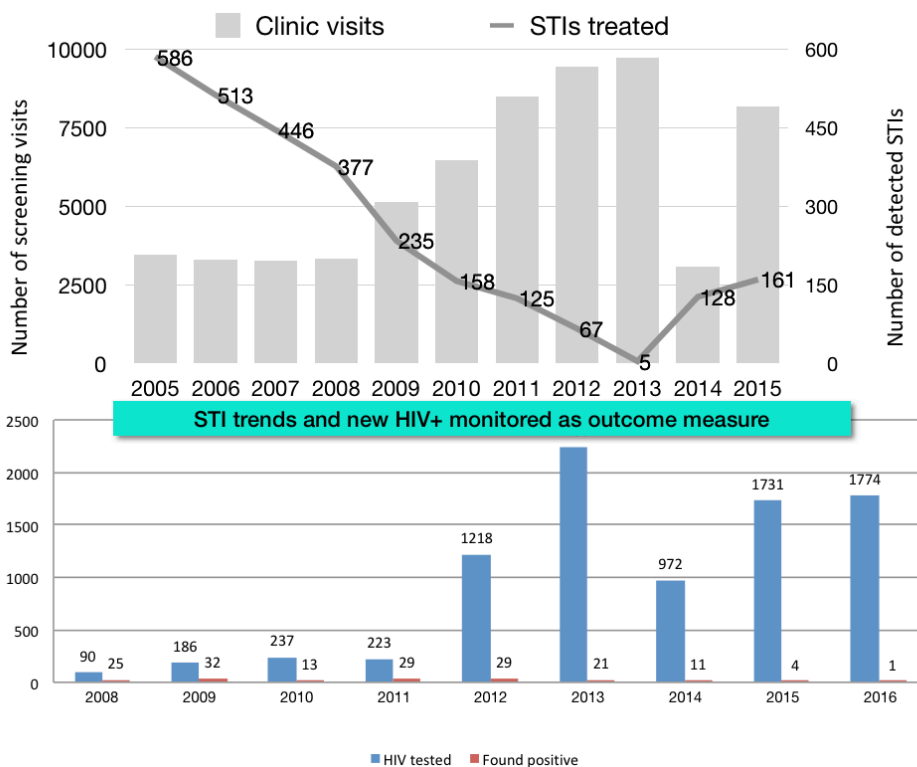


Figure 4.3 shows a Kenya national KP programme dashboard panel with several PPIs tracked quarterly over five years – funding and peer ratios (inputs), outreach contacts, condom distribution and STI screening (outputs) and STI positivity (outcome). Improved outcomes validate positive effects from programme efforts.

Table 4.3 Microplanning (Kenya) – dashboard review of priority programme indicators (PPI) [53]

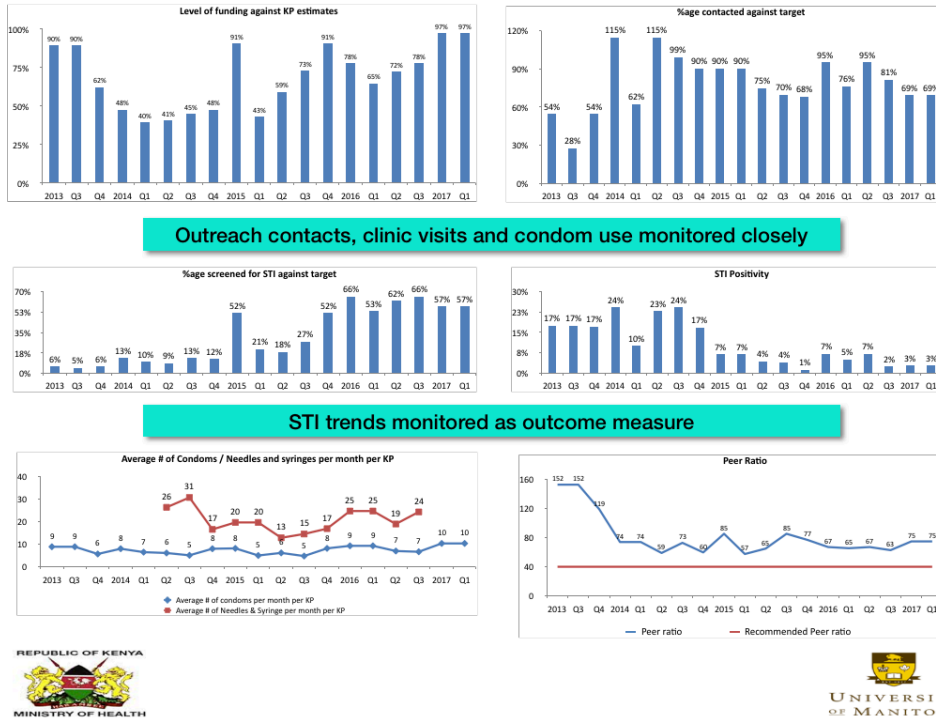
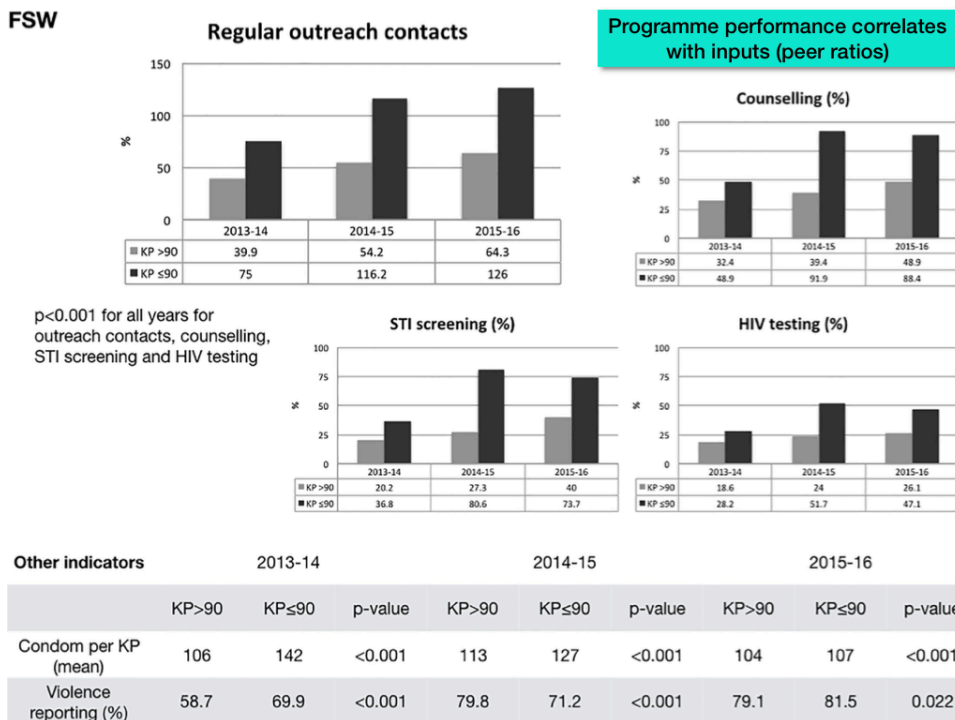


Figure 4.4 shows how Kenya dashboard PPI data were further analysed to show how better peer ratios (<90 sex workers per peer educator) led to more frequent outreach contacts, which in turn resulted in significantly higher uptake of STI screening, HIV testing and counselling.

Table 4.4 Microplanning (Kenya) – Better results with lower peer ratios (<90 KP per PE) [53]



Examples – technical support, south-to-south capacity building

The examples above demonstrate the feasibility and effectiveness of investing in strong community-based sex worker programmes. Scaling up and managing such a response at a national scale requires coordination as well as technical support to build capacity for implementation and monitoring. Experience from several countries has shown the benefits of investing in ongoing technical support and of south-to-south capacity building.

In Kenya, HIV prevention programs for KPs were scaled up in 31 out of 47 counties with 81 implementing partners. [53] Policies and guidelines were developed collaboratively to define and guide KP programme implementation. The National AIDS and STI Control Programme (NAS COP), through its Technical Support Unit (TSU), provides training, supportive supervision and mentoring to the implementing partners to ensure effective implementation of the national KP programme.

Zimbabwe's National Sex Work Programme (Sisters with a Voice), began in 2009 with 3 fixed urban sites and 13 part-time mobile highway sites, expanding in 2013 to 6 fixed and 30 mobile sites covering main urban areas and transport corridors nationwide. Complementary bridge group interventions reached long-distance truckers and condom distribution expanded. [34] Technical support from Centre for Sexual Health and HIV AIDS Research (CeSHHAR), and south-to-south collaboration, has enabled smooth introduction of microplanning and structural interventions.

South-to-South capacity building has been conducted in Mozambique, South Africa, Zimbabwe, Kenya, and India to scale up effective sex worker programming, introduce microplanning and a support provision of a range of SRH services for sex workers.

5. Recommendations

1. Global focus

1.1. Improving data:

- ▶ Leverage the important normative role of UNAIDS and WHO 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

1.2. Strengthening condom use in sex work:

- ▶ 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, and 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 GPC) to assess and strengthen sex worker programmes in the region.

2. Country programme focus

2.1. Strengthening monitoring of the programme response:

- ▶ Indicators, targets and funding should go beyond limited objectives (HIV testing, yield, etc) to reflect overall programme priorities and critical outcomes – 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.
- ▶ 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.

2.2. Improving intervention and service aspects of the programme response:

- ▶ 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 3V’s – violence, venues, vulnerability
 - ▶ 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.

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Annex 1: Key data-related questions

The following specific questions were part of the TOR for this review.

- ▶ Why is consistent condom use among sex workers so much lower than condom use at last sex?

First of all, the data reviewed for this report did not show any consistent pattern between the two indicators.

That said, there are important differences (and potential complementarity) between data on condom use at last sex and consistent condom use, whether with clients or regular partners.

Condom use during last sex with client (CULC) is commonly collected, standardised, and included among GAM indicators. Recall is better for the most recent sex act and the aggregated data can be used as an estimate of the overall proportion of exposures covered by condoms.

Consistent condom use (CCU) is also commonly collected but less standardised, with variable recall periods and partner type used. Inconsistent condom use is a risk factor that programmes should monitor closely, using risk assessment to identify sex workers who could benefit from more frequent or more intensive support.

Why are there sometimes large differences between CULC and CCU? Some sex workers reporting CULC will be consistent users, others inconsistent, and risk factors – including age, duration in sex work, number of clients and alcohol/substance use – are important cofactors. When many sex acts over a month are considered, condom use failures accumulate, and the data more accurately reflect the proportion of consistent condom users, those who likely need less programme attention.

Both indicators are important for programmes to monitor. Even in gold standard programmes, reported CCU is lower than CULC. Potentially useful programme targets may be >90% for CULC and >70% for CCU.

In this review, no clear patterns were seen between the two indicators, mainly due to lack of standardised indicators and weak data systems.

- ▶ Why is reported condom use by sex workers so much higher than condom use reported by clients in many contexts?

Again, the data reviewed did not show a consistent pattern between condom use reported by sex workers and that reported by male clients (or male occupational groups believed to be at high risk).

It is difficult to compare condom use reported by sex workers and clients mainly because of multiple biases related to different study locations, populations and methods. Even when surveyed at the same time and place (as, for example, in Malawi where IBBS populations included sex workers and several mobile male occupational groups) differences are likely because different sex encounters are being asked about.

While efforts should be made to triangulate and validate behavioural data, there are more reliable ways of doing this. Trend analysis, whereby the direction of change, rather than actual values or proportions, is one feasible and useful approach – declining trends for both sex workers and clients argue that data reflect real change. Monitoring STI trends among both sex workers and males (STI clinic patients for example) can provide additional triangulation.

For sex worker programmes, condom use data reported by sex workers should be the first priority because they directly answer questions about the proportion of protected sex acts (CULC) and the proportion of sex workers who use condoms consistently. Reports from men, whether actual clients or high-risk occupational groups, can provide additional insights.

- ▶ Is the level of consistent condom use linked to coverage and/or intensity of programmes?

In the data reviewed, no clear correlation between CCU and programme coverage or intensity was seen. This may be partly explained by 1) few data points for CCU as discussed in section 1, and 2) few data on programme coverage and intensity. The only programme data related to condoms are two condom distribution indicators. As mentioned earlier, two condom supply variables (from UNAIDS scorecards) were categorically assessed to be high (green >75%) in five countries (eSwatini, Lesotho, Namibia, South Africa and Zimbabwe) and these correlated with relatively high numbers of condoms sold/distributed to men (data not shown). In three of these countries (eSwatini, South Africa and Zimbabwe) condom use with last client reported by sex workers was also among the highest (>80%). However, there was no correlation between these variables and HIV prevalence.

Data from the wider literature review support a strong linkage between more intensive sex worker programmes with high rates of coverage and both consistent condom use and declining HIV/STI rates. The review of the regional data was unable to show this connection, due mainly to the low level of sex worker programming in the region. With the possible exception of Zimbabwe in recent years, no programmes report high coverage. Moreover, many programmes trying to reach sex workers in the region have a narrow (test and treat) focus and limited or sporadic contact with sex worker communities.

- ▶ To what extent is reporting of consistent condom use related to the specific delivery platforms in place?

Gold standard examples show a strong relationship between strong delivery platforms for a range of relevant sex worker services and increasing condom use (as well as declining HIV/STI trends).

This review found no relationship between delivery platforms and reported condom use in Southern Africa, which is likely due to both insufficient data and weak sex worker programming. However, it should be noted that Zimbabwe, the one country with a nationally scaled sex worker programme (and a long-standing condom programme), has reported the highest rates of CULC. Recent limited experience implementing micro-planning in Zimbabwe, Malawi and South Africa may show progress in the future.

- ▶ What other factors are associated with high consistent condom use among sex workers (individually and/or in specific settings or programmes)?

Again, lack of data limits the extent to which this question can be addressed for the region. No associations were seen in the GAM data. BBS reports and other publications identify several facilitating and limiting factors, many of them previously recognised, with respect to reported condom use.

- ▶ Reported CU higher when condoms supplied by peer rather than by client.
- ▶ Failure to use a condom related to client coercion or violence, and to offer of more money.
- ▶ Condom failure/breakage related to dry sex, lack of lubricant.

Factors associated with high consistent condom use (and HIV/STI declines), including strong sex worker programming with active community engagement, are discussed in detail in sections 2 (gold standard programme standards).

Annex 2: UNAIDS Scorecard for HIV prevention among key populations, 2018

HIV prevention among key populations - thematic			2018																												Version	2.01.
Thematic area	Indicator	Source	Angola	Botswana	Cameroon	Cote d'Ivoire	DR Congo	Ethiopia	Ghana	Kenya	Lesotho	Malawi	Mozambique	Namibia	Nigeria	South Africa	Swaziland	Tanzania	Uganda	Zambia	Zimbabwe	Brazil	China	India	Indonesia	Iran	Mexico	Myanmar	Pakistan	Ukraine		
Impact	HIV prevalence (sex workers, <25 years)	GAM 3.3A/ IBBS	7	id	28	2	5	id	3	id	id	id	id	id	id	id	64	id	id	id	30	2	0	id	4	1	8	6	2	1		
	HIV prevalence (sex workers, all ages)	GAM 3.3A/ IBBS	5	43	24	11	6	24	7	id	72	60	id	id	14	58	61	28	34	49	56	5	0	2	5	2	7	15	2	6		
	HIV prevalence (men who have sex with men, <25 years)	GAM 3.3B/ IBBS	id	id	29	id	2	id	id	12	id	id	id	id	19	id	id	15	id	id	id	10	8	id	24	id	12	6	4	7		
	HIV prevalence (men who have sex with men, all ages)	GAM 3.3B/ IBBS	id	15	37	12	3	id	18	18	33	17	id	id	23	27	13	18	13	id	31	18	7	3	26	id	17	12	5	8		
	HIV prevalence (people who inject drugs, <25 years)	GAM 3.3C/ IBBS	id	id	id	84	6	id	id	16	id	id	id	id	2	id	id	12	27	id	id	na	4	id	3	2	1	28	18	5		
	HIV prevalence (people who inject drugs, all ages)	GAM 3.3C/ IBBS	id	id	id	5	6	id	id	18	id	id	id	id	3	46	id	16	27	id	id	na	6	6	29	9	3	35	38	24		
Outcome	HIV prevalence (transgender people, <25 years)	GAM 3.3D/ IBBS	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	19	id	id	id	id	id	id	id	6	id	
	HIV prevalence (transgender people, all ages)	GAM 3.3D/ IBBS	id	16	id	id	8	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	3	25	id	17	id	7	id	id		
	Condom use of sex workers with most recent client (reported by sex workers)	GAM 3.6A/ IBBS	83	56	96	94	69	id	90	92	65	85	id	id	98	86	83	70	69	79	96	90	94	91	68	59	87	81	51	94		
	Condom use at last anal sex among MSM	GAM 3.6B/ IBBS	33	78	78	75	77	id	60	79	62	63	31	id	51	81	46	14	39	id	id	64	88	84	81	id	73	77	26	78		
	Condom use among transgender people	GAM 3.6D/ IBBS	id	60	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	94	id	id	id	id	28	id		
	Condom use at last paid sex act (reported by men)	DHS or other survey	71	id	81	42	34	81	44	74	90	75	31	67	66	id	id	73	60	90	id	id	48	33	id	id	77	id	id	id		
Output	Safe injecting practices (people who inject drugs)	IBBS/ GAM 3.8	id	id	id	93	22	id	88	id	id	id	id	71	id	id	84	id	id	id	na	87	86	89	82	71	91	58	97			
	% of opioid users who receive opioid substitution therapy	GAM	id	id	id	id	id	id	14	id	id	id	id	id	id	id	4	id	id	id	na	id	19	12	11	id	15	id	4			
	Sex workers																															
	Population size estimate for female sex workers in 1000s	GAM 3.2A/ Pop. size study	125	5	116	49	56	140	63	130	6	31	168	8	100	112	4	160	55	18	45	550	id	868	230	90	240	66	229	80		
	% of all sex workers who received at least two HIV prevention interventions in the past three months	GAM 3.7A/ IBBS/prg. data	43	60	23	95	id	id	48	51	55	65	51	56	44	45	51	id	id	18	39	22	id	73	40	id	id	id	1	48		
	% of sex workers who avoided health care because of stigma and discrimination	GAM	id	id	id	23	id	id	id	id	8	id	id	id	id	id	id	id	id	id	id	6	12	id	id	id	id	id	4	id	id	
	Men who have sex with men																															
	Population size estimate for men who have sex with men in 1000s	GAM 3.2B/ Pop. size study/ IBBS/prg. data	106	4	67	30	31	id	31	18	11	43	82	7	26	300	2	50	11	7	id	2000	id	357	750	id	1200	250	832	180		
	% of all MSM who who received at least two HIV prevention interventions in the past three months	GAM 3.7B/ IBBS/prg. data	id	64	17	1	id	id	55	id	40	id	4	44	25	33	24	28	id	10	id	30	id	59	20	id	id	id	1	24		
	% of men who have sex with men who avoided health care because of stigma and discrimination	GAM	id	id	14	22	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	63	id	id	id	id	id	8	id	id		
	People who inject drugs																															
	Population size estimate for people who inject drugs available	GAM 3.2C/ Pop. size study/ IBBS/prg. data	id	id	id	id	4	id	6	18	3	id	4	id	45	75	id	30	2	2	id	na	id	177	33	200	110	93	113	350		
% of all people who inject drugs who received at least two HIV prevention interventions in the past three months	GAM 3.7C/ IBBS/prg. data	id	id	id	22	id	id	id	34	id	id	15	id	15	24	id	21	8	id	id	na	id	76	44	id	id	34	2	65			
Needles and syringes per person who inject drugs	GAM 3.5/ Prg. records	id	id	id	id	1	id	189	id	id	id	id	id	id	id	id	15	id	id	id	na	240	424	3	50	6	358	242	84			
% of people who inject drugs who avoided health care because of stigma and discrimination	GAM	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	64	id	id	id	na	id	id	id	id	id	4	id	id			
Transgender people																																
Population size estimate for transgender people	GAM 3.2D/ Pop. size study/ IBBS/prg. data	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	20	id	id	70	39	id	120	id	52	id		
% of all TG people who who received at least two HIV prevention interventions in the past three months	GAM 3.7D/ IBBS/prg. data	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	4	id		
% of transgender people who avoided health care because of stigma and discrimination	GAM	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id	id		

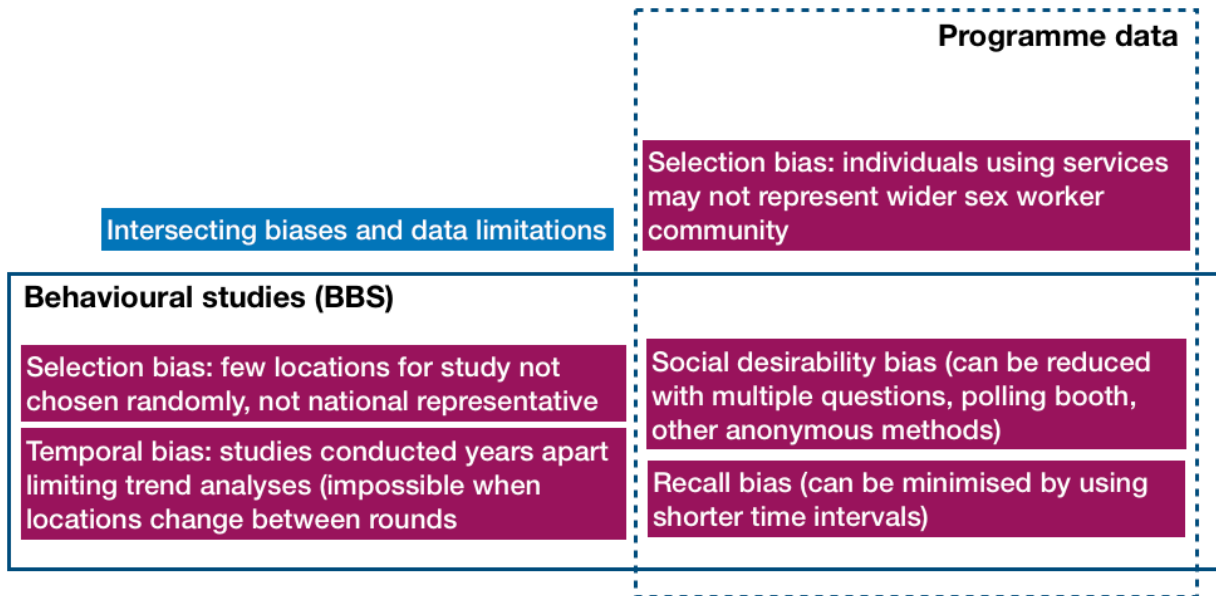
Legend: Very good (green), Good (light green), Medium (yellow), Low (orange), Very low (red), Insufficient data (id), Not applicable (na)

Annex 3: Summary of data source and indicator issues

Survey data including the many BBS/BBSS/IBBS/IBBA/RDS studies conducted in the region are generally of high methodological quality. However, due to high cost, they are conducted infrequently (every 3-5+ years) and sample from a few priority locations. They thus cannot be considered nationally representative nor are they very useful for analysis of trends over time.

Programmatic monitoring data coming from sex worker interventions are generally weaker methodologically in terms of sampling but have two important advantages – they may be more representative across geographies, and can be used to follow trends. Unfortunately, almost no routine condom use monitoring data is collected in the region.

Figure #. Potential biases by type of data



Condom use data from programme monitoring and periodic surveys are complementary. Ideally, both would be used, with routine monitoring informing programme action in real time, and surveys providing some additional detail as well as validation of monitoring data and trends.

Indicator issues

The most commonly used CU indicator for sex workers is CU with last client (CULC). This can be phrased in several ways (CU with last sex with client, CU with last paid sex, etc). An important advantage of this indicator is that it gives an estimate of the overall percentage of sex acts with clients.

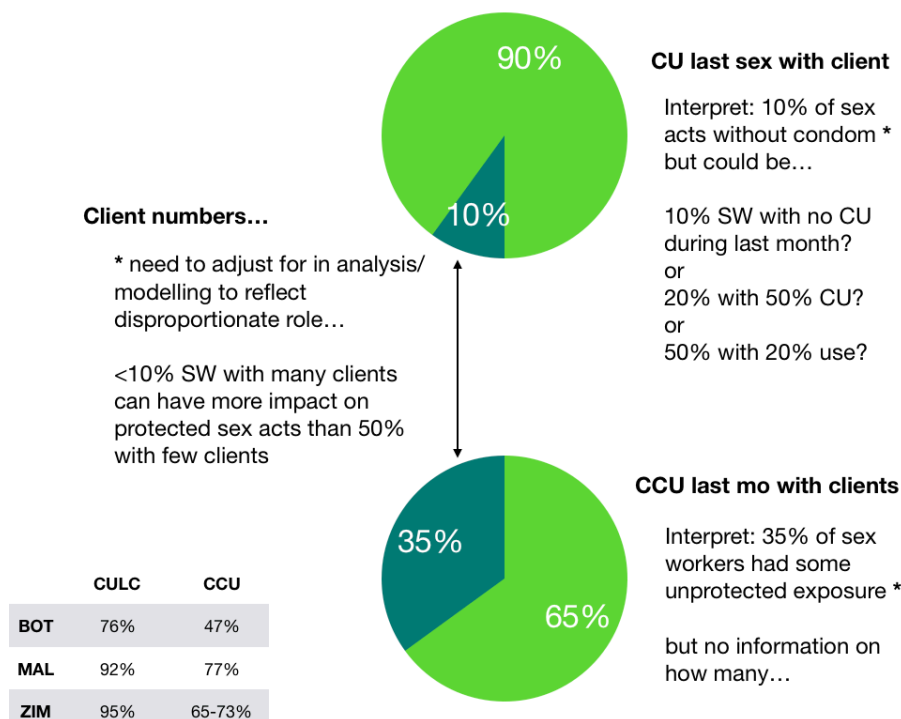
But what does this indicator tell us about consistency of condom use? As shown in Figure #, 90% CULC may result when 90% of sex workers use condoms consistently and 10% never use them. It may also be found when 80% are consistent users and 20% use condoms half the time, or when half are consistent and half are 20% users.

The likelihood of inconsistent condom use over one month increases with the number of sex acts. If reported CULC is 99% and the 1% nonuse is spread evenly across all sex workers (for example when non-use is due to force/violence or other reasons beyond the sex worker’s control), CCU decreases linearly with the number of sex acts, reaching 50% among sex workers with 50 clients in the last month.

In real-life situations, a population of sex workers surveyed about condom use will be mixed (or heterogeneous) in terms of condom use and number of clients. We know that the number of clients reported by sex workers is also highly heterogeneous, with most sex workers reporting relatively

few clients, and a few reporting high numbers. Other factors being equal, we can expect that the more active sex workers, even if CULC is the same, will have lower CCU.

Figure #. Condom use at last sex and consistent condom use say different things



Even with 95% reported CULC, CCU during the last month less than 70% could be explained in several ways:

- 20% of sex workers having 60-100 or more clients in the last month (>3-5 per working day) would likely report inconsistent CU due to external factors

High client numbers is important for other reasons as well... risk assessment, micro-planning...

Example of risk assessment tool used in microplanning to help peer educators decide who to contact more frequently.

Annex 4: Generic risk assessment tool used under microplanning

Risk assessment

Young age (how old?)	0 : 1
New to sex work (duration?)	0 : 1
High client numbers (how many per week?)	0 : 1
Inconsistent condom use (define)	0 : 1
Problematic drinking, drugs, violence (define)	0 : 1
Risk (total score)	0 : 1 : 2 : 3 : 4 : 5

Risk score: 0=low, 1-2=medium, 3-5=high