Appendix I

Strengthening Capacity for Leveraging Existing HIV-related Data among Key Populations to Assess Data Gaps and Prioritize Specific Data Collection in Zambia

19th March 2019, Lusaka Zambia

Objectives

1. Review evidence on key populations from Zambia, including a review of quality of available data

2. Introduce new methods for leveraging existing data, including small area estimation and dynamic transmission modeling

3. Identify gaps in knowledge and programming that impede effective intervention in key populations

The Global Fund 2017-2021 strategy and PEPFAR 3.0 increasingly focus on data to improve evidence-based responses to HIV epidemics, in terms of both the content and scale of HIV programs. Traditionally, in the context of generalized HIV epidemics, most countries have focused almost exclusively on the "general population" with minimal attention towards characterizing the needs of specific key populations. When the majority of new infections occur in general populations, interventions for that population are crucial. Nonetheless, even in countries where HIV prevalence is high in the general population, there are key populations that have disproportionately high risks of HIV acquisition and transmission, such as sex workers, men who have sex with men, and injection drug users. These key populations are important for countries to consider because they represent cost-effective opportunities for prevention; their contributions to the epidemic are much higher relative to their overall population size. Indeed, no epidemics will end unless these key populations are also targeted for prevention efforts. To date, efforts to intervene in key populations have been hindered by: 1) lack of high quality data on epidemiology of transmission and prevention, and 2) limited efforts to incorporate existing data on key populations into country plans.

List of Attending Organizations

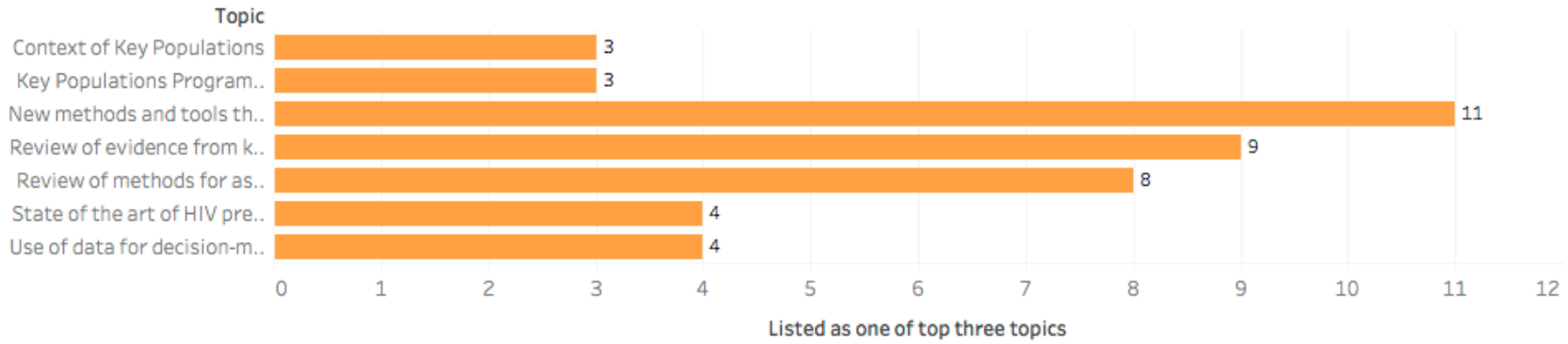
- Centers for Disease Control
- Central Statistics Office
- FHI360/Open Doors
- Johns Hopkins University
- Ministry of Health
- National AIDS Council
- PEPFAR
- Population Council
- Transbantu Association
- UNAIDS
- University of Maryland
- University of Zambia
- USAID
- World Health Organization

Agenda: 19th March 2019

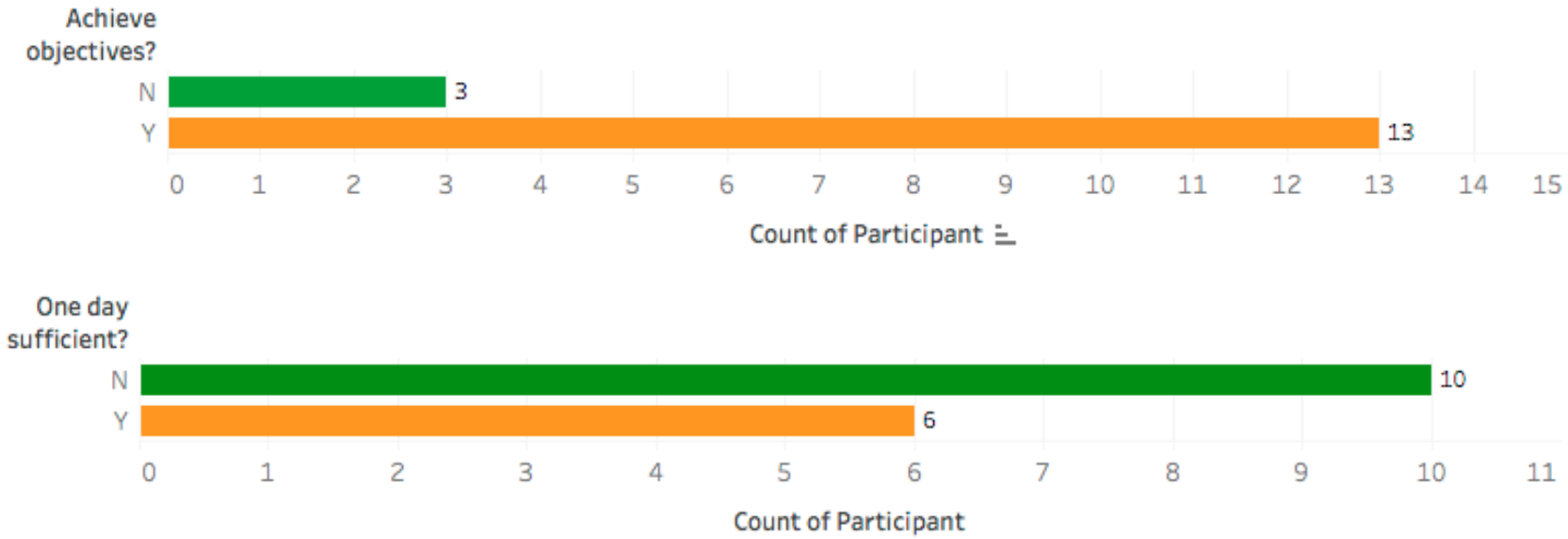
Time	Name of talk	Presenter
8:30-9:00	**Registration – Coffee**	
9:00-9:10	Welcome	Dr. Lloyd Mulenga
9:10-9:25	Objectives of the workshop	Stefan Baral, Johns Hopkins University (JHU)
9:25-9:50	Use of data for decision-making	**Facilitated group discussion**
9:50-10:10	State of the art of HIV prevention and treatment	Stefan Baral, JHU
10:10-10:15	Clarifications	
10:15-10:30	Context of key populations in Zambia	Maurice Musheke, Population Council
10:30-10:35	Clarifications	
10:35-10:50	**Morning Break**	
10:50-11:10	Key populations programming and data in Zambia	Lameck Nyirenda, FHI360/Open Doors
11:10-11:20	Clarifications	
11:20-11:50	Sampling methods for studies of key populations	Amrita Rao, JHU
11:50-12:00	Clarifications	
12:00-12:30	Review of methods for assessing data quality in Zambia	Amrita Rao, JHU
12:30-13:00	Review of the evidence from key population studies in Zambia with assessment of quality of evidence	Nikita Viswasam, JHU
13:00-13:10	Clarifications	
13:10-14:10	**Lunch**	
14:10-14:30	New methods and tools that leverage existing data	Stefan Baral, JHU
14:00-14:30	Results from small area estimation and modeling of transmission dynamics	JHU
14:30-15:00	Discussion and clarifications	
15:00-15:30	**Afternoon break**	
15:30-16:20	Prioritization for data collection	Facilitated group discussion
16:20-16:50	Next steps	
16:50-17:00	Closing of the workshop	UNAIDS, USAID

Workshop Evaluation

At the end of the workshop, participants were given an evaluation form **(Appendix 1)** to give feedback on the contents, organization, and relevance of the workshop. We received feedback from 16 of 27 total attendees (59.3%). Based on feedback from these 16 attendees, the workshop received an overall mean score of 4.1/5, where a score of 1=poor and 5=excellent. When asked to select the top three topics discussed during the day's presentations, participants indicated the 1) new methods and tools that leverage existing data, 2) methods for assessing data quality, and 3) review of evidence from key population studies with assessment of quality of evidence, as the most interesting or useful.

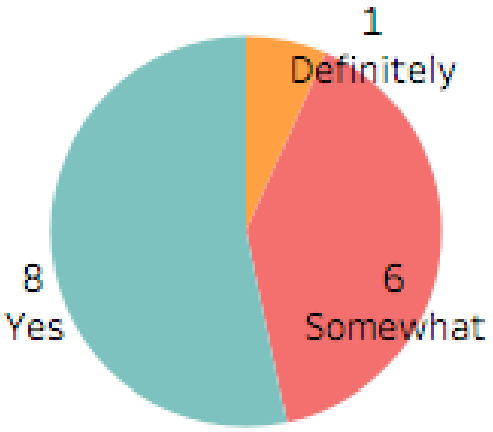


Overall, participants felt that the workshop did achieve the programme objectives, but about 2/3 would have preferred a slightly longer workshop, indicating preference for a 1.5 or 2-day workshop.



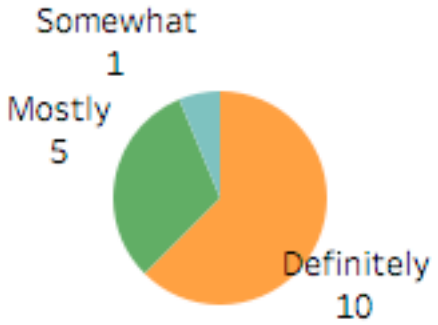
A little more than half indicated that the workshop met their expectations, with another 40% indicating that the workshop somewhat met their expectations. No participants reported that the workshop did not meet his/her expectations.

Did the workshop meet expectations?



About two thirds reported that the knowledge and information gained during the workshop would definitely be useful/applicable in their work, with no participants indicating that the information was not useful.

Will the knowledge and information gained be useful/applicable in your work?



The workshop received a score of 3.9/5 for organization. Some **suggestions** included:

1. Would prefer a longer workshop and more time for methods-based presentations
2. Would like to see more group work, group discussions
3. Would have liked to have better air-con

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Workshop Evaluation Form

Questions

1) What is your overall assessment of the event? (1 = poor - 5 = excellent)

1 2 3 (4) 5

The aircon was a problem

2) Which topics or aspects of the workshop did you find most interesting or useful (select up to 3)?

- Use of data for decision-making: facilitated group discussion ☐
- State of the art of HIV prevention and treatment ☐
- Context of Key Populations in Zambia ☐
- Key Populations Programming and Data in Zambia ☐
- Sampling Methods ☐
- Methods for assessing data quality ☒
- Review of evidence from Key Population studies ☒
- New methods and tools that leverage existing data (small area estimation) ☒

3) Regarding the topics above, were there any topics that you would have preferred to spend more time on?

Notes

Welcome Remarks by Dr. Llyod Mulenga

The meeting commenced at 09:10hrs, followed by a round of self-introductions. Dr. Lloyd Mulenga representing Ministry of Health, gave his welcoming remarks. He stated that the meeting was important to the Ministry and should be taken seriously as it considers the fight against HIV without leaving anyone behind. The meeting had brought together people from different organizations including civil society and presenters from JHU.

The participants were reminded that the workshop would be focused on reviewing available data for key populations in Zambia including assessing the quality of those data and looking at novel strategies for using data for key populations including extrapolating data to the places where there are no original data and mathematical models and to discuss data collection priorities for data focused on key populations. He went on to say that the Ministry was open and wanted to have an opportunity where there would be a meeting of this manner. He thanked the visitors from JHU for coming to help estimate KP size. He further encouraged the participants to feel free to discuss what they were there for as the meeting had all the blessings from the Ministry of Health.

Dr. Mulenga then welcomed everyone to NAC as he was part of the Management Team and wished everyone a great deliberation.

Use of data for decision-making: Facilitated Group Discussion

In decision making, data increases access to and use of comprehensive HIV prevention, care, and treatment services by key populations (KPs). It also helps in the following of specific clients and that they are prioritized for intervention. Data helps in identifying people at highest risk and provide intervention as an approach to epidemic control.

Transbantu

- Started with needs assessments, data on transgender and intersex people, covers broader LGBTI
- Working with provincial health office to create safe space for outreach at clinic sites
- Currently violence happening in community during outreach
- No numbers on people reached, but one estimate for 2014-2017
- Working towards data tool that can submit data accurately

University of Maryland

- We use KP data to estimate needed services
- Recruit FSW as community health workers – programming guidance
- Any geospatial data to guide programming in specific sites

UNAIDS

- Resource tracking, expenditure according to targets and by key population
- Using stigma index to pull specific info on target population. (Spectrum) estimates used and special data conducted to pull data used for advocacy. Ex. knowing how much of response is financed locally, and them how much is reaching programs/provinces that carries that highest burden

USAID

- Spectrum is main element for COP planning, look at prevalence by age, etc and site
- Then go back to site level to inform budgets for programming at site level

JHU

- Spectrum not intended to look at distribution risks
- Moving forward: working with UNAIDS HQ about looking at who is a risk where
- Ideally this process of assessing risk distribution will happen side by side with spectrum estimates in planning

State of the art of HIV prevention and treatment

Stefan Baral, Johns Hopkins School of Public Health

**Full presentation available in shared dropbox folder. Some notes below:*

- Overall, 2% reduction in incidence per year
- Preventive benefits associated with treatment
- ANRS Universal treatment trial
    - Evaluate the effect of early ART on HIV incidence in general population
    - No incidence benefits associated with treatment.
- Project SEARCH - Kenya and Uganda
    - Universal ART with a multi disease patient centered model. Bringing in men by pairing with other more symptomatic disease they may have, and get treatment for both.
    - Treatment support at their house.
    - Hit the target of 73% target of viral suppression, but no incidence differences in the study

- Pop ART - no declines in incidence in their treatment art. the intervention, some incidence declines in the intervention with prevention alone.
    - Lack of incidence outcomes: noted challenges:
        - in and out migration
        - late diagnoses
        - suboptimal retention

- General population interventions: give generalized epidemics. Limited study of individual characteristics.

- Overall: with increasing levels of treatment, haven't seen incidence declines

    - Botswana thought of as a generalized epidemic, but actually really variance in incidence rates in different parts of the country (ex. mines, trucking routes)

- AGYW: most have no HIV risk, some have very HIV risk associated with transactional risk (overall twice higher odds of HIV)

- Thinking over 5, 10, 20-year time horizon, much higher risk of onward transmission from sex work than from serodiscordant partnerships. even though within a year, see more new infections from serodiscordant than from Sex work

- PrEP - 10 percent population, same amount of medication, but differential targeting.
    - No targeting - uniform coverage: low % of infections averted
    - Using a risk based approach to targeting PrEP, more impactful in reducing incidence infections over time

Data needs: targeted response to where you know risks to be the highest.

Even with achieving 90 90 90, who is left behind can sustain the epidemic

Discussion

Open Doors

- Adherence is a big challenge, more so than initiating treatment
- Great to have evidence that shows that treatment as prevention is not the most effective or should be a primary prevention approach
- Many more factors beyond the use of drugs that influence incidence. A multifactorial approach necessary, go back to the table and pay greater attention to prevention
- Will prioritize individuals as high risk in order to make them eligible for PrEP
- Introduced recency testing also to identify those as highest risk for more targeted services

Formative assessment among key populations at risk of HIV in Zambia (Context of key populations in Zambia)

Maurice Musheke, Population Council

**Full presentation available in shared dropbox folder. Some notes below:*

- Mapping, census and enumeration
  - Mapping of KP venues, then validation
  - Stratification and selection of venues by venue type
  - Physical counting of KP members
- Outcome of validating peak hours and peak venues different from what was described in formative interviews
- Research assistants recruited from KP groups

Direct count population size estimates (2013-2015)

- Higher population sizes in Lusaka, Livingstone, Ndola, and Solwezi
  - Recommended sites for initial IBBS surveys

Site	KP	Map/Enum Estimate
Kapiri-Mposhi	FSW	892
Kitwe	FSW	1,011
	MSM	524
	PWID	234
Livingstone	FSW	2,992
	MSM	1,643
	PWID	1,792
Lusaka	FSW	3,459
	MSM	993
	PWID	N/A
Ndola	FSW	2,007
	MSM	486
	PWID	883
Solwezi	FSW	1,329
	MSM	565

Taken from presentation given by Maurice Musheke during workshop

Discussion

Central Statistics Office (CSO)

- Question about quality of data. Representing transgender community, asking how TG sex workers were included and organized in the data presented?
- Answer: Began focus group discussion starting with KP members
  - Go to hotspot mapping and validation, only satisfied with hotspots if they have validated peak days and peak hours [no reference to TG sex workers]

Open Doors

- Used this data when did an IBBS, did size estimation via capture recapture, and it took 6 days

Question: Were PWUD not found in smaller districts?
Answer: For ethical and approval reasons did not conduct there because of political and cultural sensitivities

Key populations programming and data in Zambia

Lameck Nyirenda, Open Doors

**Full presentation available in shared dropbox folder. Some notes below:*

- HIV testing done for MSM and TG
    - MSM: 22% tested positive out of 1312
    - TG: 27% tested positive out of 123 tested
- Over 2018, saw increase in HIV testing among these groups
    - Strengthening leadership at every level of programming; addressed low performance to push for more testing in those sites, index testing
    - Listening, then addressing challenges brought up at programs
    - Resource allocation (staff, like number of peer promoters)
    - Sites that performed better, received additional peer promoters
    - Sites not performing well; receive more technical visit, on site mentorship
    - Data reviewed on a more frequent basis to address issue earlier
- Joseph (Open Doors): Leadership quality approach
    - Taking approach that 20% of the sites yielding 80% of the results, built on that
    - Set up a situation room to receive and look at data and provide feedback on daily basis
    - use social networking, index testing strategies to reach unreached KPs
- Through linkage;, have care continuum data for people who knew they're living with HIV, on treatment, linked to treatment
- Data gaps:
    - Cascade doesn't end at linkage to ART
    - Have some data on viral suppression but not good data due to challenges, depend on treatment partner
- Data barriers
    - high mobility of key population making retention on HIV services difficult, use of pseudo names among key populations have negative impact on follow ups
    - Lack of a national level unique identified code makes it difficult to account for clients
- Lameck: Identifying the age among MSM? Heavily above the age of consent, hard to identify the very very young people in these places
    - Joseph (Open Doors) - when doing IBBS, not putting young KPs as a priority, won't deny services to young KPs though can't intervene in the policy perspective.

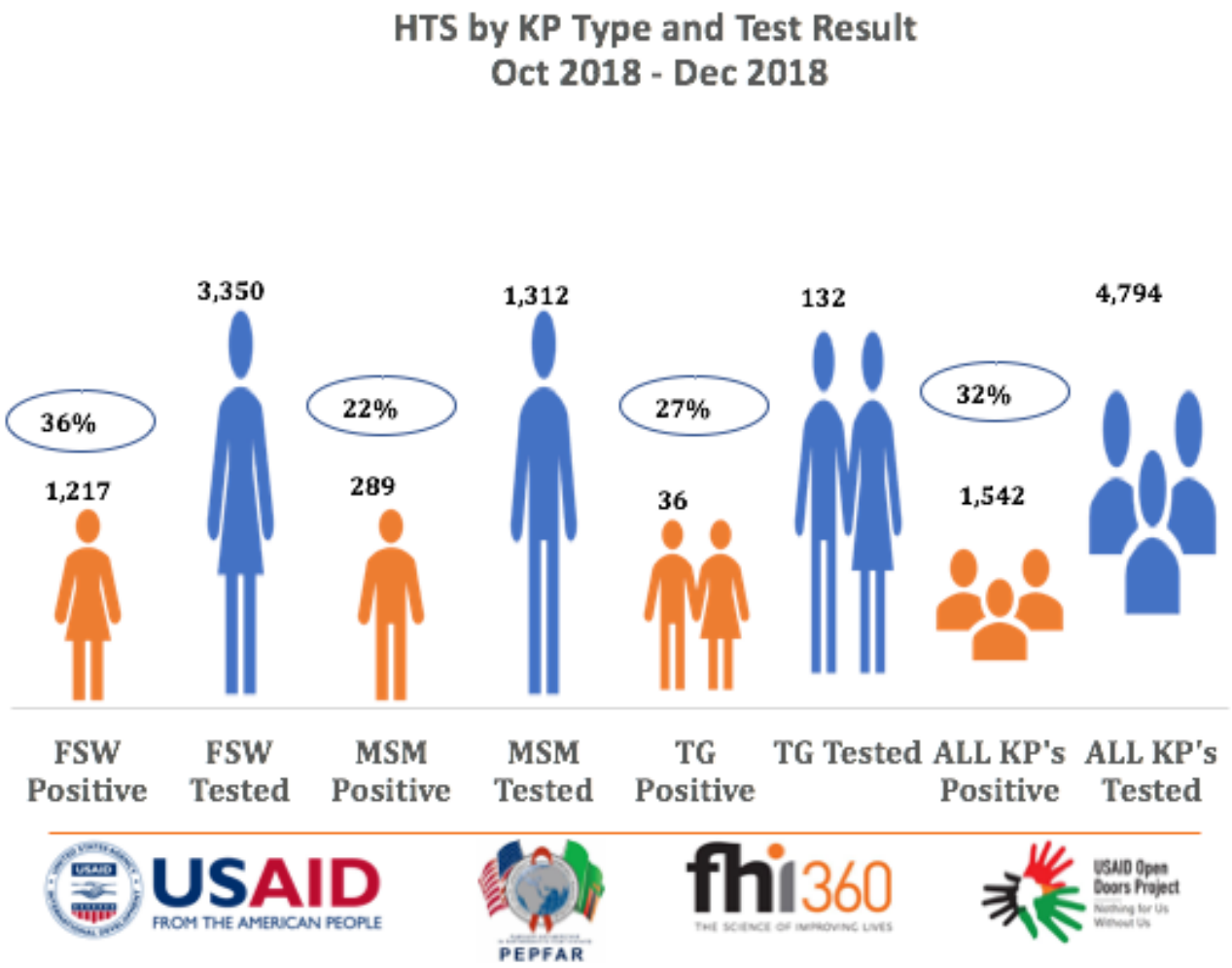
Discussion

- *Question*: with program data, how do we hope to capture high risk and what level of disaggregation do we need to get to define risk?

    - Answer (Joseph): number of partners in the last 24 hours, use of condom at last sex, alcohol consumptions: we have indicators that capture these things to link behavior and HIV testing

- *Nuha (UNAIDS)*: Share more of your experience on retention? From yield to link, but then proportion of those who are linked to services to those that are being retained?
    - Answer (Lameck): don't have the numbers but some opinions by program team know there are challenges, want to work with partners

- Asking on sociobehavioral communication for KPs, we don't have much developed on that, how are you doing that?
    - Answer (Joseph): having a hard time getting materials approved, but we've adapted using materials from other programs to distribute



Taken from presentation given by Lameck Nyirenda during workshop – data from USAID Open Doors project

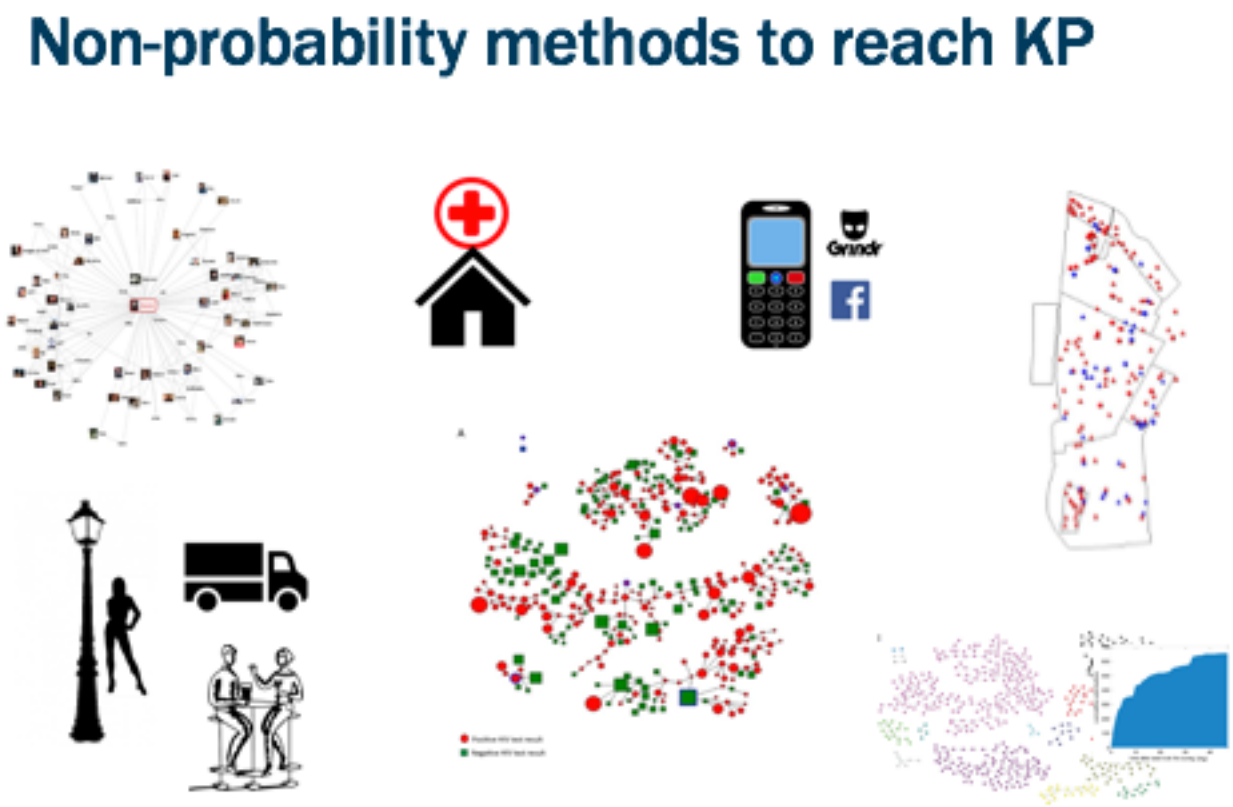
Sampling methods for studies of key populations

Amrita Rao, Johns Hopkins School of Public Health

**Full presentation available in shared dropbox folder. Some notes below:*

- Full population enumeration represents the gold standard
- But in the real world, we can't enumerate everyone and so have to take a sample
- For key populations, no sampling frame exists, and so we have developed non-probability methods to reach KPs, including
    - Network-based
    - Venue-based

    - Facility-based
    - And Others
- Facility-based recruitment: simple, fast; those engaged in services likely different than those not engaged in services
- Venue-based sampling: efficient, no need for complete roster and approximates random cluster sampling. It requires a *complete mapping* of places where population found and requires weighting, because of unequal probability of sampling
- Snowball sampling: accrue rapidly using social networks; not recommended unless limited by time and resources
- Respondent driven sampling (RDS): final sample will be similar to the population of the network from which you are sampling; strong assumptions and need for adjustments
    - Need to run diagnostics to ensure assumptions are met
- WebRDS and other innovative strategies exist
- How to decide which method to use?
    - Research question; generalizability; efficiency; ensure that reporting and analytic methods match the design



Taken from presentation given by Amrita Rao during the workshop

Discussion: Sampling method presentation

Open Doors

- Carried out assessments using sampling methods – numbers being validated through service provision results

University of Maryland

- Program perspective, going back to register to see if any difference in what has happened vs aggregate data through auditing

USAID

- Country partners reporting up to the GF, don't really check quality, trying to assess what has been sent into them, don' t have opportunity to triangulate sources

Review of methods for assessing data quality

Amrita Rao, Johns Hopkins School of Public Health

**Full presentation available in shared dropbox folder. Some notes below:*

- The purpose of this presentation is to introduce the methods used in the quality assessments of available data.
- Having access to data is important
    - For understanding the problem, identifying gaps in current problems, informing development of new programs, making the case for investment
- Deciding whether or not to use certain data should depend on availability of, but also quality of the data
- To this end, a quality assessment tool was developed to evaluate the quality of available evidence for key populations
    - Prevalence, incidence, care continuum, PSEs
- Scores are based on performance in three main categories: study design, study implementation, and study-specific criteria
- Differentiating between target, source, and sample population
- In evaluating the study design, we should consider whether or not a study is an accurate and representative picture of the population of interest
- In evaluating study implementation, we should consider whether those who chose to participate were similar to those who did not participate
- Finally, in evaluating indicator-specific criteria, we should consider whether testing measures, statistical adjustments, and other analytical factors are consistent across person, place, and time
- *Worked example provided in dropbox folder*

Review of the evidence from key population studies in Zambia with assessment of quality of evidence

Nikita Viswasam, Johns Hopkins School of Public Health

**Full presentation available in shared dropbox folder. Some notes below:*

- Review of the current and available evidence for key populations in Malawi
    - Just to note that these were the data we were able to gather and collate, but also realize that there may be data either being collected in real time or that have been previously reported (but unpublished) that we may not have had access to. If there are other data sources that you know of that seem to be missing here, we'd love to hear about them.
- In an ideal setting, we'd have information on key indicators for key population groups
- In reality, there are gaps in the available data
- To help facilitate use of available data and identification of gaps where further data collection is needed, a data repository is being developed of all available data on key populations. This data repository is intended to be accessible and sustainable
- Data pulls are customizable and can include some or all of the available data, but again, include data on these primary indicators.
    - Link to google form for data requests: https://goo.gl/forms/cbc94Qlii3BUZYmB2
- Data gathered here are based on a larger systematic review and focuses primarily on articles published between 2006 and 2016. A preliminary search was done to update this for more recent articles.

FSW sources

- There are 11 data sources on female sex workers in Zambia, 7 sources are quantitative and 2 that are qualitative, with data having been collected between 2000 and 2017. These include 2 systematic reviews, 1 randomized controlled trial with 4 publications, and 5 country reports.

Prevalence

- 2 sources of data on HIV prevalence on female sex workers
    - One is the IBBS on female sex workers conducted in 2016-2017, facilitated by Population Council
    - The other is the 2015 IBBS on female sex workers, facilitated by FHI 360.
- 2015 survey reported prevalence ranged from 46% in Livingstone to 73% in Chirundu. In 2017 survey, prevalence ranged from 46% in Ndola to 53% in Livingstone.
- For sites that were included in both surveys, it appears the prevalence captured in the 2017 survey is lower in each site compared to the 2015 survey. It's also of note the sample size of the 2017 IBBS is around 400-500 per site, while the 2015 is between

150-300 per site.

Incidence

- As Maurice has presented earlier, there is one data point on incidence in the 2015 IBBS study, which was determined recent infections through a Lag avidity assay.
    - A recent infection being defined as having occurred with a 118-142 day period from the tie of assay.
    - Of the 1744 FSW that were tested, 1.6% were found to have a recent infection, across the sites

Care continuum data

- Going to **HIV testing data,** the 2006 and 2009 IBBS on female sex workers conducted by FHI 360 captured female sex workers that had ever had an HIV test
    - Both the 2009 and 2006 IBBS include data for Kapiri Mposhi, Livingstone, and Chirundu
    - 2009 IBBS also has data for Solwezi.
- 2009 IBBS reported a higher percentage of surveyed FSW that ever had an HIV test, ranging from 68% in Solwezi to 85% in Livingstone
    - compared to the 2006 survey, with test rates ranging from half of the sex workers sampled in livingstone to 2/3rs of sex workers in Kapiri Mposhi.
    - The quality of reported data in both surveys were scored as fair
- And then moving to other indicators in the HIV care cascade, the 2018 IBBS by Population council reported on awareness of HIV positive status of those who tested positive, as well as treatment status by self report.
    - About half of those who tested HIV positive in Lusaka and Livingstone were previously aware of their HIV states.
    - In Ndola, about a third (32.3) of those who tested positive
    - Solwezi, 43% of those who tested positive were aware of their status.
- Of those who were aware of their HIV positive status, three quarters reported that they were currently on ART in Livingstone and Lusaka, and in Ndola and Solwezi, two thirds of those who were aware of their status reported they were currently on ART.
- HIV care continuum data collected by a randomized controlled trial that compared 2 HIV-self testing approaches to standard of care. This was conducted in Kapiri Moshi, Chirundu, and Livingstone in 2016.
- So, when assessing HIV care cascade data 4 months after enrolment, about 80% of participants reported having had an HIV test in the past month, and overall about 95% had an HIV test at some point during the study period.
- About a quarter reported having tested HIV positive. Of those testing positive, 78% sought medical care. And 56.6% of those testing positive reported being on treatment. And we concluded that this study quality was fair.

PSE

- IBBS conducted in 2016-2017 used several different size estimation methods in the formative phase and primary data collection phase
    - formative phase, methods used were mapping and enumeration, Delphi, and literature review
    - later phase, Unique object multiplier, wisdom of the crowd, and successive sampling were used
    - 7000 successive sampling -10000 unique object method
- Population council also did a formative assessment of key populations, conducted from 2013 – 2015
    - included district level population size estimates conducted using mapping and enumeration, modified Delphi method, and literature review
    - 6000 - 7500, modified Delphi to mapping and enumeration.
- Median size estimates totaling all sites ranged from 6000 using modified Delphi to 7500 using mapping and enumeration
    - Note: Delphi method did not include Lusaka in their estimates since data collection for that site wasn't completed at the time of estimation.
- Corridors of Hope, FHI360 conducted population size estimates between 2013-2015
    - capture re-capture, census and a method similar in concept to wisdom of the crowds described as a **key informant method** (key informants were interviewed the estimate the size of FSW at each hotspot that was mapped.
    - total median estimates using capture recapture across 10 districts were 9350.
    - no median estimate reported for the census method and key informant method, but the range reported for census was 2986 - 4100, and the range for key informant method was 4736 - 10747.
- FSW Open Doors, also used one method that is similar in concept to wisdom of the crows, and described as a nomination method
    - Key informants were interviewed and gave information on other members of the community, who were then contacted and referred other members and so on.
    - FSW were defined as any female, above the age of 18, who usually or occasionally receive money, gifts or services in exchange for sexual service."
    - Estimate total across 8 districts is 17, 827
    - Open doors have really dedicated peer promoters, who are members of targeted community, who may have been a part of this process, And they would be an important for any population size estimation process using a number of other methods as well

MSM

- Population Council formative assessment
    - MSM were defined as men who were engaged in oral and/or anal sex with other men in the past 6 months. Median estimates totaling across all 5 districts ranged from 2190 using modified Delphi to 3160 using mapping and enumeration. Literature review yielded a total estimate of 8857
- Open Doors
    - Estimate conducted of MSM

- MSM were defined as a male, over the age of 18, who consensually has sex with another male (anal or oral sex)
- The total estimate across the 8 districts was a middle estimate of 2260, with a range of 1558 - 2957

PWUD

- PWUD Pop Council
  - They defined their study population as females and males who have used illegal drugs (oral, nasal, injected) in the last six months;
  - Median estimate of 1300 – 2026

Transgender populations

- TG Open Doors 2017
  - TG: A transgender person was identified as any person assigned, for example, as male at birth but identifies himself as a woman (TG-F) or vice versa for TG-M.
  - Middle estimate across 8 districts was 333, with a range if 168 – 496

Prisoners

- **HIV prevalence**
  - 2 data sources on HIV prevalence among prisoners
    i. serobehavioral survey conducted from 2009-2010 at 6 prisons in different province, and other survey conducted in 2011 assessing HIV prevalence in Lusaka central prison
    ii. Prevalence ranged from about 26% in Kamfinsa prison to 42% in Lusaka central prison
    iii. The 2011 survey, which also captured HIV status at prison entry, exit, and formerly incarcerated in community settings, reported a prevalence within prisons of 27.4%.
- **HIV Care continuum**
  - In the In But Free survey, data on HIV testing and awareness of status was also captured. Half of surveyed prisons reported having ever taken a voluntary HIV test. Of those who tested positive, about 3 quarters knew of their HIV positive status prior to the study testing.

New methods and tools that leverage existing data

Stefan Baral, Johns Hopkins School of Public Health

**Full presentation, including results of province-level extrapolation can be found in the dropbox*

Approaches to population size estimation and opportunities for leveraging existing data

- Population size estimation can be broken into two distinct phases
  - Phase I: local, direct size estimation
  - Phase II: extrapolation from areas with local/direct size estimates to regional or national level
- Phase-I approaches include survey-based approaches that are derived from methods from ecology and animal behavior
  - Can also include routine or program data based approaches
- Small area estimation: one form of Phase II size estimation
  - To produce reliable estimates for where only small samples or no samples are available
  - The key idea is to borrow information from other areas that have more samples
  - Cost/scientific rigor spectrum
- Phase II approaches include
  - Expert opinion, simple and stratified imputation, regression, more complex models

Discussion:
Landscan - Using satellite imagery (lights at night to estimate overall population size)
UNAIDS: Shapefiles on a 110, using 107, another estimate of 116, trying to harmonize that? CSO would need to draw the boundaries for that. Shapefiles from CSO, Ministry of national planning (have been using this one)
Most of the newer redistricting is tiny mining towns with new boundaries.

JHU: Predictions using random effects model. Can use census data for northern province even though no PSE, can use census data.

University of Maryland

- still a pretty small range (0.5 - 3%) and estimates fall within that

Question: FSW - used stratified imputation to compare how it differs with the model?
Emphasis - as a starting point, averaging things for a new estimate in a new districts loses the granularity of those methods

USAID, CSO:
"This method makes sense to me but would be difficult to sell"

- how can we message it in a way that makes sense and methodologically sound and appealing?

Question: What about the quality of the PSE that were inputs here?
Answer: Just used all estimates here, but would be really important to sit down and really determine which ones to exclude and which ones to use moving forward

CSO:

- Easy to sell spectrum estimates - see what has gone in and the assumptions behind it. Not the case here - the concern is that people don't stay sex workers. Prisoners not always continuing incarcerated.
    - Answer: really a snapshot in time. It's not that it's the same 1.5% at any time. The idea here is not cumulative number that grows over time, but in a snapshot, what is the proportion of people who are FSW, MSM, etc
    - The math models for Spectrum are a lot more complex than what we are talking about here. But yes, a joint process of what goes into them, then the model is run with them and look at results together.
- Goal: Have a similar process where countries themselves could one day have a process of running this as a model for PSE similar to what they do with Spectrum in-country?

Prioritization for data collection

Facilitated group discussion

Ultimate product: a joint document on the immediate data needs
What are things you'd want to do in 2019 to inform things moving forward?

MoH:

- Incarcerated: easiest to address
    - can try to follow up to get estimates on that KP with the relevant authorities
    - USAID had lot difficulty locating, but will attempt to find these again with new access to quantify

UNAIDS:

- MSM and FSW are still key. MSM a big gap. Only have a bit on the size estimates. need to look at it from a program perspective.
- For PWUD - don't have prevalence, incidence, or care continuum.
- Should focus on those KP left behind: FSW, MSM, PWUD as a starting point

MOH:

- Want to see what kind of size estimates are available for TG, tricky, because the kind of data collected may be biased. It would be very helpful for MoH to have
- Really important to assess how, when PSE on TG are done, how peers have captured that in terms if definition. Even through definition specified in the report, assessing that peers used that size estimation process

USAID:

- in the short term, we need to be able to quantify the populations and develope that information to prove our agility in program service coverage

Next step analysis - for this
Those who engage with GF portfolio manager: KP focus is important for GF. A factor for them are who are the major players in this? GF considers this KP a priority area, can try and apply their funding but would need to specify KP

CDC:

- on board with generating more data and taking these estimates, either through IBBS or modeling approach
- Optimizing protocol as it's being developed to ensure can hit different pieces?
- ICAP is working on a protocol for MSM groups - would be interested in taking up our input on that

Workshop Closing

UNAIDS:

- Started as a collaboration with MoH in 2017 when talking about PSE for KP.
- Important to continue this work, with UNAIDS support
- should also look to integrating PSE as a country team into Spectrum process.
- PSE for KP also important since many districts are rolling out KP interventions - these should sensitize and coordinate efficient delivery
- Spectrum, everyone understands the process and everyone communicates the results
    - We should do the same thing here to focus on how we communicate results, which may on the surface seems complex, but explain in a way that makes sense
    - People don't question the estimates that come out of Spectrum, so focus on getting to that point with the PSE/extrapolation

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