



Toolbox for conducting integrated HIV bio-behavioral surveillance (IBBS) in key populations





Acknowledgments

This book was a collaborative effort of faculty and staff of the Global Strategic Information (GSI) group in the Global Health Sciences at the University of California, San Francisco (UCSF) and the San Francisco Department of Public Health. We would like to acknowledge the contributions of collaborators in the Center for AIDS Prevention Studies at UCSF. We are indebted to the governmental and non-governmental partners, survey staff, and participants in the numerous countries where we have helped to implement integrated bio-behavioral surveys using the methods described herein.

GSI provides technical assistance (TA) in implementing IBBS. Please [visit our website and contact us](#) for trainings and TA.

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All materials available online at globalhealthsciences.ucsf.edu/pphg/gsi/epidemiologic-surveillance/ibbs-toolbox

This publication was a collaborative effort of faculty and staff of the University of California, San Francisco's Global Health Sciences, Strategic Information Group and the San Francisco Department of Public Health. We created this Toolbox by adapting materials and lessons learned from the many integrated biological and behavioral surveys that we helped to implement over the years through funding from various sources including cooperative agreements from the Centers for Disease Control (CDC) Division of Global HIV/AIDS. The contents are solely the responsibility of the authors and do not necessarily represent the official views of CDC.

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Introduction





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Who should use this Toolbox?

This toolbox is for governments, nongovernmental organizations, academics and other researchers who wish to implement integrated bio-behavioral surveillance (IBBS) surveys for key populations at higher risk for HIV infection. The toolbox features two widely used methods

- Time location sampling (TLS)
- Respondent driven sampling (RDS)

These methods focus on three key populations at higher risk for HIV infection

- Female sex workers (FSW)
- Men who have sex with men (MSM)
- Persons who inject drugs (PWID)

However, these tools are modifiable for other sampling designs as appropriate.

UCSF's Global Strategic Information unit within Global Health Sciences along with the San Francisco Department of Public Health's HIV Epidemiology Section has created this free and publicly available toolbox to complement training, technical assistance and mentoring in a variety of methodologies for bio-behavioral surveillance. Essential to our approach are surveillance tools that can be locally adapted and used to produce high-quality, user friendly, practical, reliable and reproducible data to inform policy and programs to improve the health of HIV-affected populations and reduce the spread of the virus.

We hope you find these materials useful. In order to improve their quality and keep them up to date, please send us your feedback by [visiting our website and contacting us](#).

How to use this Toolbox

This Toolbox strives to contain everything you will need to implement an IBBS survey. These documents are based on years of experience implementing IBBS worldwide, including San Francisco, CA, USA, eight countries in Africa, Brazil, China and the Caribbean. Included are

- Sample protocols including information sheets for informed consent

- Qualitative interview guides for formative assessment
- Survey questionnaires
- Operations manuals
- Population size estimation methods integrated into IBBS
- Job descriptions
- Sample budgets
- Guide to using IBBS data
- Resources and references

Adapting materials

All materials are available as PDF and Word documents. They are not necessarily meant to be used as is, but are available to adapt as needed for conducting an IBBS in your location and context. You can download editable versions (in Word) of the Toolbox here: globalhealthsciences.ucsf.edu/pphg/gsi/epidemiologic-surveillance/ibbs-toolbox.

Please note that most chapters include sections that need to be edited with your specific information.

- Throughout the Toolbox, instructions appear in brackets and italicized, e.g. [*INSERT location here*]
- Many sample documents are written for a specific key population. For example, the section on conduct a unique object event is written for FSW. If you are using it for PWID, you will need to change the wording and population-specific information such as eligibility requirements.
- Tips and resources are included as footnotes

GSI provides technical assistance (TA) in implementing IBBS. Please [visit our website and contact us](#) for trainings and TA.



Introduction

Process for using the Toolbox

The Toolbox features sections that walk you through the process of planning, conducting and using an IBBS survey for key populations in your country.

Getting started

The Toolbox provides sample protocols for both RDS and TLS surveys that can be adapted and submitted to local country and university ethical committees and institutional review boards (IRBs). Once approved, planning documents include sample budgets and job descriptions for hiring quality staff.

- Sample RDS protocol
- Sample TLS protocol
- Budgets
- Job descriptions

Formative assessment

The Toolbox provides an operations manual for the formative assessment process, including procedures for conducting key informant interviews, focus groups, mapping exercises and community walkthroughs, including interview instruments. The formative assessment can help decide whether to use RDS or TLS for the survey.

- Formative assessment operations manual
- Qualitative interview instruments

Field implementation

The formative assessment will guide how the surveys are to be conducted and operations manuals and behavioral questionnaires should be adapted based on your findings. The Toolbox provides detailed manuals and procedures for implementing the IBBS survey with focus on three key objectives: estimating the prevalence of HIV and related risk behaviors of the key population; estimating the population size of the key population; and access and use of services. We focus on two widely used approaches: RDS and TLS.

- RDS operations manual
- TLS operations manual

- Behavioral questionnaires
- Unique object and unique event operations manual
- Population size estimate summary
- Census and enumeration spreadsheet

Using results

The Toolbox provides guidance on how to interpret the valuable data collected throughout the survey, how to write a report and disseminate the findings to key stakeholders in the community. Once the data has been interpreted and analyzed, the last step is to use the findings to determine what interventions are best suited to the needs of the key population.

- Interpreting and disseminating
- Publications
- Using evidence to inform interventions
- Resources and references

Choosing between RDS and TLS

Our Toolbox focuses on two approaches to sample key populations (RDS and TLS) with inclusion of the formative and ancillary activities associated with each. We first acknowledge that there are no true censuses or gold standards studies for FSW, MSM, PWID and many other key populations and therefore no verification of whether RDS or TLS produce true population-based estimates. We hold to their validity based on underlying theoretical assumptions about the populations and their suitability for RDS or TLS. Side by side comparisons of TLS and RDS in the same population find notable differences in the samples achieved on such factors as age and socio-economic status. For a complete discussion of these theoretical requirements of each method, we refer you to the reference and resource materials at the end of this Toolbox.

Meanwhile, in the spirit of the practical orientation of this Toolbox, the following table can help guide your decision on whether RDS or TLS is more suitable to a successful IBBS in your population. These considerations can be assessed during the formative phase of the IBBS.



Topic	Considerations for RDS	Considerations for TLS
Reproducibility	Unknown, less control over enrollment due to peer referral	Unknown, but more control can be exerted over enrollment at venues and inclusion of sub-groups
Visibility of target population, presence in venues	Low visibility and few venues favors RDS, especially when part of the population never attends venues	High visibility and attendance at venues are required for TLS; TLS misses those not attending venues and over represent those frequently attending venues
Social networking	Social connections between all members of the population are required for RDS	Socializing together in venues is required for TLS, but not for recruitment
Stigma, marginalization, legal status of risk behavior	High stigma, high marginalization, and severe legal consequences favor RDS as less attention is drawn to venues	TLS operates when social/legal space is sufficient for relatively open venues serving the population; attention of study activities at venues may be a risk
Socio-economic status	RDS may reach lower SES participants with primary and secondary incentives	TLS may reach higher SES participants with venues requiring money (nightclubs, bars, restaurants, hotels, etc.)
Mobility	Highly mobile populations may not have social connections or time in one location to recruit peers	TLS may efficiently sample highly mobile populations
Participant and staff safety	RDS has more control over implementing measures to protect participants and staff at study sites	TLS operates in diverse environments where less control is possible over safety
Outreach and comfort of staff with population environment	RDS does not require staff to conduct outreach or have a presence in the population's environment	TLS requires outreach to the target population's environments, comfort with such venues is required; other prevention activities can be done at venues
Hours of operation	RDS can operate during typical working hours, accommodating some times after hours or weekends	TLS typically requires late night hours and weekends to reach the population
Formative research	RDS requires modest formative research to understand social networks and find initial seeds	TLS requires more extensive formative research to map all possible venues for recruitment
Analysis	Adjustments to produce population estimates standardized in specialized software; multivariate and other analyses uncertain	Adjustments to produce population estimates not standardized; weights often ignored
Cost	In our experience, cost is variable to local conditions and neither RDS nor TLS is consistently more or less expensive	In our experience, cost is variable to local conditions and neither RDS nor TLS is consistently more or less expensive

Other considerations for choosing may be specific to your context. On a final note, there is no guarantee that either TLS or RDS (or other approach) will work in your situation.



Introduction

List of acronyms

AIDS	Acquired immune deficiency syndrome
ARV	Antiretroviral
AUDIT-C	Alcohol use disorders identification test-consumption
CAPI	Computer assisted personal interview
CBO	Community based organization
CI	Confidence interval
COW	Community outreach worker
DBS	Dried blood spots
ELISA	Enzyme-linked immunosorbent assay
FGD	Focus group discussion
FSW	Female sex worker
HIV	Human immunodeficiency virus
HTC	HIV testing and counseling
IBBS	Integrated biological and behavioral survey
IRB	International review board
KII	Key informant interview
NGO	Non-governmental organization
MoH	Ministry of Health
MSM	Men who have sex with men
PWID	Persons who inject drugs
QDS™	Questionnaire Development System
RDS	Respondent driven sampling
SFDPH	San Francisco Department of Public Health
SMAP	Scientific manuscript advisory panel
STI	Sexually transmitted infection
TLS	Time location sampling
TWG	Technical working group
UAT	Unlinked anonymous testing
UCSF	University of California, San Francisco
UTC	Unique testing code