**Implementation Outcomes and Impact of HIV Self-testing in Low- and Middle-Income Countries: A Scoping Review**

# Introduction

## Rationale

HIV self-testing (HIV-ST) has become increasingly popular tool in the fight against HIV/AIDS. Evidence have established that self-testing are [accurate and reliable](https://www.sciencedirect.com/science/article/pii/S2352301818300444) [1]. It also leads to [increased frequency and uptake of HIV testing](https://onlinelibrary.wiley.com/doi/full/10.7448/IAS.20.1.21594) compared to standard testing services [including MSM](https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0188890) [2,3]. Previous reviews have also demonstrated that it is acceptable in [both](https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001414) [patients and providers](https://link.springer.com/article/10.1007/s10461-015-1097-8) [4,5]. These reviews on acceptability were conducted around 2013 and highlighted the lack of studies from low- and middle-income countries. More importantly, acceptability is only one of the multiple implementation outcomes [6] (acceptability, adoption, appropriateness, feasibility, fidelity, implementation costs, penetration, sustainability) that should be studied to understand the process of translating technology from the bench to the community.

Two recent reviews have looked into implementation: one focusing on [qualitative studies](https://www.tandfonline.com/doi/abs/10.1586/14737159.2015.960518) [7] and one focused on [recent research](https://link.springer.com/article/10.1007/s11904-016-0307-y) [8]. Both studies, however, were not done in a systematic manner thus painting an incomplete picture of the research landscape on implementation outcomes.

## Objectives

In this review, we aim to map out the state of the literature HIV self-testing in LMIC following an implementation outcomes and impact framework. We will identify gaps in the literature and provide a narrative synthesis of what is known in relation to implementation outcomes and impacts of HIV-ST.

# Methods

## Protocol and Registration

The protocol will be developed following the [PRISMA Extension for Scoping reviews](http://www.equator-network.org/reporting-guidelines/prisma-scr/) [9]. The protocol will be made publicly available the Open Science Framework repository.

## Eligibility Criteria

We will include all research or reports that looked at implementation outcomes or impact of HIV-ST in low- or middle-income country settings. We define implementation outcomes following [Proctor’s taxonomy](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3068522/)[6]. These include acceptability, adoption, appropriateness, feasibility, fidelity, cost, penetration, and sustainability. Impacts that will be included, based on preliminary searches, are linkage to care, health outcomes, health-related behavior, satisfaction, and safety. Additional impacts may be added depending on the retrieved literature.

We will exclude the following:

1. Studies that only reported diagnostic accuracy (e.g. Sensitivity and Specificity) of Self-test kits based (except if based on ST user reading)
2. Studies with intervention or goals that is related to HIV testing in general and without a sub-analysis or focus on self-testing
3. Studies that did not clearly report that self-testing was done or being promoted (e.g. home-based tests but did not specify whether test was performed by health care worker or the person)
4. Abstracts
5. Editorials or commentaries
6. Reviews

## Information Sources

We will search the following databases from inception to search data: Medline (Pubmed), Embase, Global Health, and Scopus. We will look for gray literature at the following databases: WHOLIS, USAID clearinghouse, and HIVST repository.

## Search

## The search strategy will be developed with an experienced medical librarian. Preliminary searches were done to identify the appropriate keywords. Given the expected inconsistency in language of implementation science, our search string was only a combination of self-tests, HIV, and low-/middle-income countries. Previous reviews used rapid or point of care in their search string. We found that these results in unmanageable number of hits with a lot of irrelevant content so we opted to remove them in the search strategy. A copy of the strategy used for Medline (Pubmed) is attached at the end of the document. No language or date restrictions will be applied. To supplement database searches, bibliographies of retrieved reviews related to HIV self-testing and included literature will be hand searched for additional literature. We will also try to retrieve full text publications of abstracts that we encounter.

## Selection of Sources

Two reviewers will screen titles and abstracts. Studies that remain eligible after this phase will undergo full text screening again by two reviewers. Both screenings will be done independently and conflicts will be resolved by discussion or a third reviewer. Rayyan will be used to facilitate screening.

## Data charting process

Included studies will be tagged according to type of implementation outcome or impact studied. A standard pre-tested extraction form will be used by the reviewers. Extraction will be done independently by reviewers. Conflicts will be resolved through discussion.

## Data items

Summary results relevant to that outcome will be extracted. For quantitative research, adjusted estimates will be prioritized over crude estimates. Subgroup analysis for key populations (MSM, FSW, Pregnant women) will also be extracted. For qualitative research, key themes or a summary of relevant results will be extracted. Contextual factors identified to affect implementation will also be extracted.

For all studies,meta-data such as year of publication, publication status, type, country of implementation, and population will be extracted.

## Critical appraisal

Critical appraisal will not be performed.

## Synthesis of Results

Summary tables and figures related to the meta-data and the implementation outcome tags will be generated.

Narrative synthesis of key results per implementation outcome and impact will be done. No meta-analysis is planned for this review.

# References

1 Figueroa C, Johnson C, Ford N, *et al.* Reliability of HIV rapid diagnostic tests for self-testing compared with testing by health-care workers: a systematic review and meta-analysis. *Lancet HIV* 2018;**5**:e277–90. doi:10.1016/S2352-3018(18)30044-4

2 Johnson CC, Kennedy C, Fonner V, *et al.* Examining the effects of HIV self-Testing compared to standard HIV testing services: A systematic review and meta-Analysis. *J Int AIDS Soc* 2017;**20**. doi:10.7448/IAS.20.1.21594

3 Zhang C, Li X, Brecht ML, *et al.* Can self-testing increase HIV testing among men who have sex with men: A systematic review and meta-analysis. *PLoS One* 2017;**12**:1–19. doi:10.1371/journal.pone.0188890

4 Figueroa C, Johnson C, Verster A, *et al.* Attitudes and Acceptability on HIV Self-testing Among Key Populations: A Literature Review. *AIDS Behav* 2015;**19**:1949–65. doi:10.1007/s10461-015-1097-8

5 Pant Pai N, Sharma J, Shivkumar S, *et al.* Supervised and Unsupervised Self-Testing for HIV in High- and Low-Risk Populations: A Systematic Review. *PLoS Med* 2013;**10**. doi:10.1371/journal.pmed.1001414

6 Proctor E, Silmere H, Raghavan R, *et al.* Outcomes for implementation research: Conceptual distinctions, measurement challenges, and research agenda. *Adm Policy Ment Heal Ment Heal Serv Res* 2011;**38**:65–76. doi:10.1007/s10488-010-0319-7

7 Engel N, Pant Pai N. Qualitative research on point-of-care testing strategies and programs for HIV. *Expert Rev Mol Diagn* 2015;**15**:71–5. doi:10.1586/14737159.2015.960518

8 Estem KS, Catania J, Klausner JD. HIV Self-Testing: a Review of Current Implementation and Fidelity. *Curr HIV/AIDS Rep* 2016;**13**:107–15. doi:10.1007/s11904-016-0307-y

9 Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, Moher D, Peters MDJ, Horsley T, Weeks L, Hempel S, Akl EA, Chang C, McGowan J, Stewart L, Hartling L, Aldcroft A, Wilson MG, Garritty C, Lewin S, Godfrey CM, Macdonald MT, Langlois EV, Soares-Weiser K, Moriarty J, Clifford T, Tunçalp Ö, Straus SE. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ann Intern Med. 2018.

# Timeline

1. Search - Jan 25 to Feb 1
2. Title and Abstract screening - Feb 1 to 15
3. Full text screening - Feb 16 to Mar 1
4. Data Extraction - Mar 1 to 29
5. Analysis and Writing - April

# Search Strategy for PubMed

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