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Review Paper

Strategies for delivery of HIV test results in population-based HIV seroprevalence surveys: a review of the evidence

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ABSTRACT

Objectives: Many population-based demographic surveys assess local and national HIV prevalence in developing countries through home-based HIV testing and counselling (HBHTC), but results are rarely returned to participants. This review gathered evidence on the feasibility and best practices of providing HIV test results during such surveys by reviewing population-based surveys that provided test results.

Study design: Literature review.

Methods: This review was conducted as part of a broader literature review related to HBHTC. We present results from population-based HIV seroprevalence surveys conducted between January 1984 and June 2013.

Results: We identified eighteen population-based surveys describing uptake of results when testing or results were offered in the home, four of which compare home uptake to facility-based testing. All were from Sub-Saharan Africa. More people tested and received results in HBHTC compared to facility-based testing. Uptake of test results (72%) and the percentage of the population tested (59%) was highest when testing and the provision of results were provided in the home compared to the provision of results elsewhere (41% uptake; 37% population coverage), as well as mobile/facility-based testing and the provision of results (15% uptake; 13% population coverage). Providing results the same day as testing in HBHTC produces higher uptake (97% uptake; 74% population coverage) than delayed results.

Conclusions: Inclusion of home testing and provision of HIV results to participants in national population-based surveys in Sub-Saharan Africa is possible and should be prioritized. The timing and location of testing and the provision of results during HBHTC as part of population-based surveys affects uptake of testing and population coverage.

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Background

Population-based surveys such as the Demographic and Health Surveys (DHS) are used to assess local and nationally representative health data including determining HIV prevalence in many developing countries. Such studies, however, rarely return HIV results to participants[1] despite the recognized importance of making people living with HIV/AIDS (PLHIV) aware of their status. HIV Counselling and Testing (HTC) is the first step in getting PLHIV linked to treatment[2,3] and has been shown to reduce risky behaviour among couples and HIV-infected individuals.[4] Home-based HIV testing and counselling (HBHTC) offers these same benefits,[5,6] and is additionally associated with high acceptability,[7] reductions in stigma,[5,6,8] and results in an increased likelihood of identifying undiagnosed PLHIV earlier in the disease trajectory than facility-based testing.[9–12] Furthermore, a review of 21 HBHTC studies in Sub-Saharan Africa identified no negative consequences of HBHTC[7] and research indicates clients feel HBHTC offers increased confidentiality compared to other HTC approaches.[13,14] Thus, the benefits of HBHTC outweigh the associated risks.

Furthermore, withholding HIV test results from participants during epidemiological studies can no longer be justified for the good of public health as effective treatment is increasingly available and the health benefits of becoming immediately aware of one's positive HIV status is now known.[15] Thus, it is recommended that providing participants the option of receiving their test results become part of all population-based prevalence surveys which test participants for HIV.[15,16] However, more research is needed on how to best accomplish this. Previous reviews of the HBHTC literature suggest high uptake among participants.[7,17] However, the delivery of test results during HBHTC paired with a survey whose primary aim is data collection may differ significantly from studies and programs aimed at service provision. Participation may be influenced by the fact that individuals are also requested to complete a survey, or may differ depending on the specific study protocol related to requirements for HIV testing.[18] Moreover, the increased logistical and resource requirements of issuing HIV test results and counselling has implications on study feasibility. The objective of this paper was to review the literature relevant to delivery of HIV test results during population-based prevalence surveys. Specifically, our objectives were to: 1) explore the feasibility of returning HIV test results to participants during population-based prevalence surveys; 2) document approaches for return of test results across population-based studies, and further examine differences in outcomes among studies collecting specimens for HIV-testing as part of a survey by location of testing and location and timing of results delivery; and 3) gather evidence to recommend best practices for delivery of HIV test results based on evidence from HBHTC studies.

Methods

This review was conducted as part of a review of the literature related to HBHTC during population-based surveys and other studies that have provided testing and delivery of results in the home published January 1984 through June 2013. In this paper we present results for studies which conducted HIV testing as part of a survey and excluding studies where providing HIV testing and counselling was the primary objective. The review protocol including search terms and combinations are detailed in Appendix 1. In addition to published articles and conference presentations we included demographic surveys (DHS reports) published in English, French, Spanish and Portuguese.

Search strategy

We searched the following websites and databases: The DHS Program website[19] for DHS reports and related publications, Medline (via PubMed), Cochrane Library/CENTRAL, EMBASE, and AIDSearch including conference proceedings (PEPFAR Implementers meeting, International AIDS Society (IAS), and the World AIDS Congress) for primary studies and review articles and other publications that reported on HIV testing as part of a survey. We also manually searched the references of articles that met the inclusion criteria.

Studies management/data synthesis

From the initial search we scanned citations and abstracts to identify those that clearly did not meet the inclusion criteria. For the remainder of the citations we obtained full-text versions for review and data abstraction. We also reviewed full-text versions of relevant secondary references. For each study that fulfilled inclusion criteria — reported findings from national or regional surveys, reported on the method of delivery of survey results, testing conducted among adults—we abstracted the following information: year of publication, study design, survey period and country, number and type of participants, where specimens were taken and results given and uptake of testing. The data abstraction was conducted independently by three of the authors (MB, RW, & SK). The selected studies were reviewed using a pretested and standardized abstraction form to extract data. When there was a discrepancy in data abstraction, it was resolved through consensus among the authors.

Because of the heterogeneity of study populations, settings, and differences in survey methods and outcomes ascertainment we did not attempt quantitative synthesis of study results overall, but summarized key publications that presented data from population-based HIV seroprevalence surveys.

Results

We identified 2466 articles from the initial search. Of these, 2146 were excluded after the authors screened the titles and abstracts. We excluded another 51 after in-depth review of the abstract. We identified an additional 69 articles from manual searches and reviewed 67 DHS/AIS reports. We therefore reviewed 336 full text articles, 18 of which met inclusion criteria for the review. Our search criteria had no geographical restrictions; however, all of the articles that met inclusion

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criteria were from Sub-Saharan Africa. See Fig. 1 for the flow diagram for study selection.

Comparison of results uptake among studies collecting specimens for HIV-testing as part of a survey by location of testing and location and timing of results

Table 1 presents the uptake of testing for the eighteen identified studies that collected specimens for HIV testing as part of a survey by the location of the testing and the timing and location of results. The results from these studies suggest that HBHTC where both testing and provision of results are at home produces the highest uptake of results among those tested (72%) and reaches the greatest percentage of the eligible population (59%), compared to home testing and the provision of results at a mobile site or facility (41% uptake; 37% of the eligible population tested), as well as mobile or facility testing and the provision of results at a mobile site or facility (16% uptake; 13% of the eligible population tested). In the Likoma Islands of Malawi, where only 23.5% of men and 22.4% of women reported having ever been tested for HIV, 75% of respondents and their spouses consented to be tested and immediately retrieved their HIV test results at home during HBHTC.[10] In another study in Uganda, 3323 study participants (99%) consented to HIV testing, 3286 (98%) requested results, and 3072 (93%) received HIV results when study participants were given the option of receiving HIV results at home, at the nearby study office, or not at all. Of the options, nearly all (3034, 99%) preferred to receive their results at their home.[14]

Providing results the same day as testing in HBHTC produces higher uptake (97% uptake and 74% population coverage) than delayed results in HBHTC (64% uptake and 62% population coverage). When testing is done at home but results provided at a mobile site or a facility, which is similar to the use of vouchers, uptake of results was 41%, and population coverage was 37%; thus, significantly lower than if results were provided at home. If HTC was provided at either a mobile site or a facility (specimen collected in survey was not used for HIV testing), uptake was 16% and population coverage was 11%. The success of delivering same day test results was demonstrated in Malawi when offering results at home or in the mobile tent at the time of testing had higher uptake of results (98%) compared to when offered several weeks later at a tent near the respondent's house (70%).[20] Reasons for higher acceptance rates in Malawi were similar to other HBHTC studies; participants found the testing to be convenient and confidential, and the rapid blood test itself, credible.[20]

Population-based longitudinal studies comparing uptake of results

Of the eighteen population-based surveys identified in our review (described above), 4 (including two DHS studies) describe the uptake of results when testing and/or results were returned at home compared to other testing strategies (mobile HTC, facility-based HTC) (see Table 2). Overall, higher rates of uptake were observed in the home-based than the facility-based HTC approaches (see Table 2 for more details). One project that provided HTC in Malawi in 2004, with repeat testing to the same population in 2006, found higher rates of receipt of results when they were offered in the homes (98%) as opposed to other locations within the community (67%).[21] The two AIS studies identified, a follow-up to the 2004 AIS in Uganda[22] and the 2011 Uganda AIS,[23] were the only DHS studies out of 67 published DHS and AIS population-based

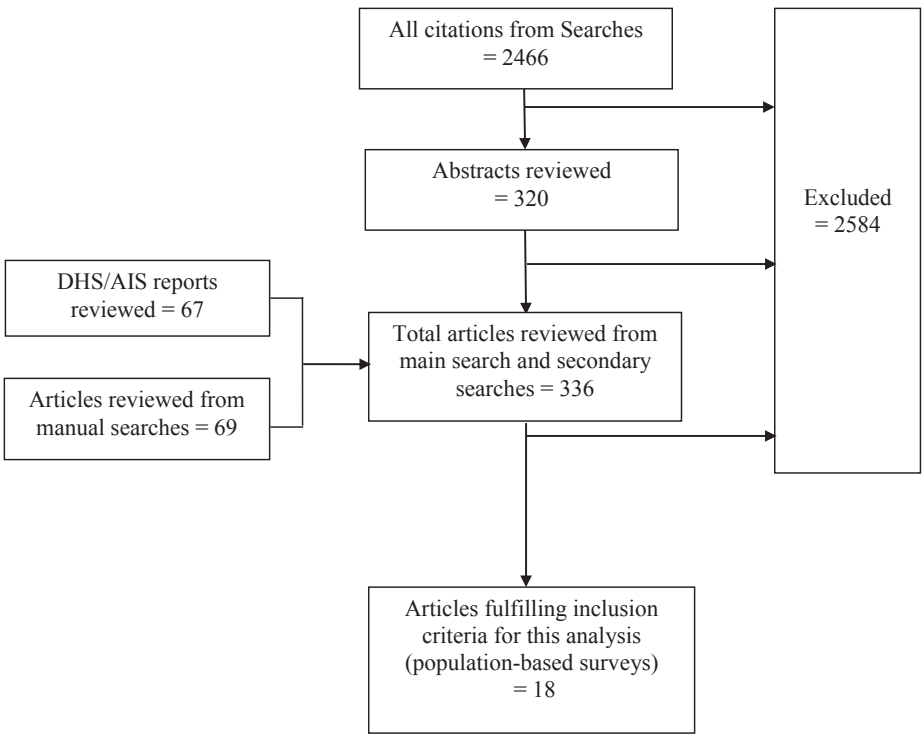

Fig. 1 – Studies flow diagram.

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Table 1 – Comparison of results uptake among studies collecting specimens for HIV-testing as part of a survey by location of testing and location and timing of results.

Authors	Study year	Country	Type of study	Where specimen taken for HIV-test/ when	Where results given/when	Uptake of results among those enrolled/ tested	Percent of eligible pop. tested and received results	Comments
Home testing and results, same day as survey. Same day results								
Obare et al. (2009)[21]	2006	Malawi	Population-based longitudinal cohort	Home-survey/same day	Home/same day	98%	85%	Uptake among those who accepted testing. % of population tested is among those contacted.
Helleringer et al. (2009)[10]	2006	Malawi	Cross-sectional from cohort	Home-survey/same day	Home/same day	96%	55%	Uptake is among those tested. Of those found at home uptake of testing and results was 76%. Prior to home-testing 23% reported ever having tested at a facility. Only 2% of those testing chose not to be tested at home.
Lugada et al. (2010)[35]	2008	Uganda	Randomized	Home-survey/same day	Home/same day	–	56%	
Uganda MOH & IFC International (2012)[23]	2011	Uganda	Population-based survey	Home-survey/same day	Home/same day	–	98%	
					Average	**97%**	**74%**	
Home testing and results, same day as survey. Results later								
Nyblade et al. (2001)[39]	1994	Uganda	Cross-sectional from population-based cohort	Home-survey/same day	Home/'after testing'	33%	28%	
Matovu et al. (2005)[41]	1999	Uganda	Cross-sectional from population-based cohort	Home-survey/same day	Home/'after testing'	62%	48%	% of population tested is among those interviewed. 93% initially requested results. Half of those not receiving results were not home when counsellor visited.
Wolff et al. (2005)[13]	2001–02	Uganda	Population-based longitudinal cohort	Home-survey/ same day	Home/ as soon as available	37%	–	Uptake 46% among those 25–54.
Were et al. (2003)[14]	2002	Uganda	Cross-sectional, population-based	Home-survey/ same day	Home/ 'after testing'	93%	87%	
Yoder et al. (2006)[22]	2005	Uganda	Cross-sectional, population-based	Home-survey/ same day	Home/ next day	97%	86%	Follow-up to Uganda AIS. Uptake is among those who gave blood. Cluster-randomized. 12% refused blood draw.
					Average	**64%**	**62%**	
Separate from survey home testing and results. Same day results.								
Fylkesnes & Siziya (2004)[42]	1999	Zambia	Randomized, population-based	Home separate/next day	Home/same day	56%	17%	

Table 1 (*continued*)

Authors	Study year	Country	Type of study	Where specimen taken for HIV-test/ when	Where results given/when	Uptake of results among those enrolled/ tested	Percent of eligible pop. tested and received results	Comments
Mutale et al. (2010)[43]	2003	Zambia	Population-based survey	Home separate/ same or next day or two	Home/same day	77%	23%	During the survey those who indicated willingness to test (31% of sample) were visited by counsellors soon after (either on the same day or the day after) for counselling and testing. 90% were tested at home, 10% at a VCT facility.
Sekandi et al. (2011)[44]	2009	Uganda	Cross-sectional	Home-separate/ later, unspecified	Home/same day	-	62%	
					Average	**67%**	**34%**	
HOME TESTING and HOME RESULTS					**AVERAGE**	**72%**	**59%**	
Home testing, mobile results. Results later.								
Obare et al. (2009)[21]	2004	Malawi	Population-based longitudinal cohort	Home-survey/same day	Mobile/2–4 months later	67%	61%	
Mmbaga et al. (2009)[45]	2005	Tanzania	Cross-sectional, population-based	Home-survey/same day	Community site/1 week	49%	35%	
					Average	**58%**	**48%**	
Home testing, facility results. Results later								
Ole-King'Ori et al. (1994)[46]	1991	Tanzania	Cross-sectional	Home-survey/same day	Facility/several months later	36%	14%	
Wolff et al. (2005)[13]	2000	Uganda	Population-based longitudinal cohort	Home-survey/same day	Facility/as soon as available	10%	–	Uptake 13% among those 25–54.
					Average	**23%**	**14%**	
HOME TESTING. MOBILE or FACILITY RESULTS.					**AVERAGE**	**41%**	**37%**	
Mobile testing and results								
Fylkesnes et al. (1999)[47]	1996	Zambia	Population-based, cross-sectional	Mobile/any time	Mobile/2–3 week later	5%	2%	Uptake is among those who expressed interest in being tested and were invited to test. 47% of those tested returned for results. % of population tested is among those found at home
Sherr et al. (2007)[34]	2003	Zimbabwe	Population-based longitudinal cohort	Mobile/ during survey period	Mobile/after testing	–	19%	Assessed ever tested and received results

(*continued on next page*)

Table 1 (*continued*)

Authors	Study year	Country	Type of study	Where specimen taken for HIV-test/ when	Where results given/when	Uptake of results among those enrolled/ tested	Percent of eligible pop. tested and received results	Comments
Wringe et al. (2008)[48]	2003–04	Tanzania	Cross-sectional from population-based cohort	Mobile/same day	Mobile/1 week later	10%	6%	Uptake is among those bled. 27% desired VCT. 35% of those who desired VCT were tested and received results. 78% of those tested in VCT received results. % of population tested is among total population identified as eligible. Mobile VCT offered during fieldwork.
Urassa et al. (2008)[49]	2007–08	Tanzania	Cross-sectional from population-based cohort	Mobile/same day	Mobile/same day	17%	13%	Uptake is among those bled. % of population tested is among total population identified as eligible.
					Average	**11%**	**10%**	
Facility testing and results								
Results same day								
Fylkesnes & Siziya (2004)[42]	1999	Zambia	Randomized, population-based	Facility/any time	Facility/same day	12%	5%	
Yoder et al. (2006)[22]	2004	Uganda	Cross-sectional, population-based	Facility/ anytime	Facility/same day	35–40%	30–35%	Facility-based uptake is estimated from uptake of VCT with vouchers during the 2004 AIS.
Lugada et al. (2010)[35]	2008	Uganda	Randomized	Facility/any time	Facility/same day	–	11%	
					Average	**25%**	**17%**	
MOBILE or FACILITY TESTING and RESULTS					**AVERAGE**	**16%**	**13%**	

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surveys in 35 countries that have included HIV testing which gave respondents the opportunity to receive their HIV test results in the home. The 2006 Uganda study was conducted in order to test the feasibility of offering HIV test results and counselling at home within a survey setting; the follow-up AIS in Uganda tested and provided results to all consenting participants, following the successful pilot. As reported in Table 2, they found that the approach increased the proportion of respondents who learnt their HIV status compared to the estimated percentage of VCT vouchers (30%–35%) that were redeemed from the 2004 AIS survey. The majority (87%) of eligible respondents in the 33 clusters surveyed consented, were tested for HIV and received their results.[22] Almost all respondents who gave blood also received their HIV test results at home. In the 2011 AIS, all respondents age 15–49 years were eligible and 96% were interviewed and tested for HIV; 3% were not interviewed, and only 1% were interviewed and refused to provide a blood sample for testing. Coverage levels for the HIV testing did not vary much by urban–rural residence and were higher for women (97%) than men (94%), mainly because men were more likely not to have been interviewed (4%) than women (2%).

Surveys providing referrals for HIV testing

In most other DHS surveys participants were provided with informational brochures on HIV/AIDS and a list of fixed sites providing VCT services within the surrounding 10 km radius. Some surveys provide vouchers or referral cards for free HIV testing in existing facilities but data regarding uptake of HTC was not available.[24–28] Three population-based serosurveys in South Africa, similar to DHS and AIS surveys, also provided respondents with referral cards for HTC but did not track uptake.[29–31] One exception to the standard VCT referral system was the 2004 Kenya DHS, which collaborated with the CDC-Kenya program to provide mobile VCT in all areas except Nairobi while survey teams were working in the area (and two days after the survey).[32] A total of 10,600 clients, both DHS participants and community members, received HTC through the mobile sites. It was not reported what percentage of DHS participants sought the mobile HTC service. In terms of population coverage, if we estimate the 2003 population of those 15 and over, excluding Nairobi to be approximately 19.6 million, then coverage of HTC provided through this mobile service was low at less than 1%. The 2011 Ethiopia DHS offered similar services for households farther than 10 km from a fixed VCT site.[33] The USAID and CDC partners provided the logistical support for the provision of mobile VCT services set up in or near survey areas following data collection, and information about the mobile VCT were given to participants in those areas. No data, however, was reported on the number of participants utilizing this service.

Discussion

Previous reviews have found HBHTC generally to be acceptable, with greater associated benefits than risks for participants.[7,17] This review, which identified evidence from Sub-Saharan Africa, supports these findings, and uniquely contributes to the literature by demonstrating that including HIV testing and delivery of results specifically within population-based surveys is acceptable and possible. In terms of increasing the number or proportion of individuals diagnosed and linked to care, the impact of returning these results within surveys is minimal because these surveys usually reach a very small proportion of individuals within the countries where they are conducted. This would however be ethically correct,[15] especially considering that most of the individuals who participate in these surveys, and importantly, individuals identified as HIV infected, have not tested previously, and may not access testing thereafter, even when they are given referrals or vouchers. The impact, in terms of numbers tested, can be increased by testing family members of individuals who participate in the survey, and other individuals within the communities but this would require large scale preparation, extra funding and partnering with local service providers for the testing and linkage to post-testing care and support.[21]

This review also has practical implications for how to best incorporate the return of HIV test results into population-based surveys. Offering of HIV-testing and/or results at home is associated with higher uptake of test results and greater population coverage (including those who decline to be tested) than other HTC approaches (see Table 2).[13,21,22,34] Uptake is also increased when testing is done in the home and further increased when results are provided in the home (see Table 1).[10,21,23,35] Results consistently show that respondents find HTC in the home to be more confidential and private than other HTC settings.

It is important to note some of the limitations of our review. Because of the unique research questions and the heterogeneity of study populations and settings and differences in survey methods and outcomes ascertainment we did not attempt quantitative synthesis of study results. Furthermore, although we searched 'grey' literature, it is likely some relevant unpublished studies were missed. Even though we did not geographically restrict our search, all of the articles which met inclusion criteria were from Sub-Saharan Africa. This likely reflects that HBHTC and providing HIV test results during seroprevalence surveys is more common in Sub-Saharan African settings due to high prevalence generalized epidemics in many countries in that region. Therefore, our findings may not generalize to other regions or areas without generalized epidemics. Providing HIV test results in the home as part of HIV epidemiologic or other surveys in low prevalence settings and geographic regions other than Sub-Saharan Africa needs to be further studied to determine acceptability and feasibility in a given context, especially with regards to availability of HIV care and treatment.

Implications for implementation

This review suggests that in the Sub-Saharan African context it is possible and preferable to deliver HIV-test results within the homes rather than from other sites within or outside the community. However, in a survey context this may have implications on the extra time and human resources needed to conduct testing and counselling and return results in households. It also has significant cost implications; while prior

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Table 2 – Population-based longitudinal studies comparing uptake of results; percentage of the population tested and who received results.

Authors	Year of study	Country	ARV availability	Uptake of results among those enrolled/tested			Percent of eligible population tested and received results			Comments
				Home	Facility	Difference	Home	Facility	Difference	
Sherr et al. (2007)[34]	1999 & 2003	Zimbabwe	No	–	–	–	19% 1185/6248	7% 530/8036	12%	Tested at home for survey then offered VCT at mobile site. Compares percent of population tested in 1999 before mobile VCT was offered as part of study and reports % ever tested in 2003 (which was after mobile VCT was offered).
Wolff et al. (2005)[13]	2000 & 2001–02	Uganda	No	37% 396/1078	10% 79/790	27%	–	–	–	Compared uptake of results in cohort when results were only offered in facility in 2000 to when results were offered in the home in 2001–02.
Obare et al. (2009)[21]	2004 & 2006	Malawi	2004 No 2006 Yes	98% 2714/2758	67% 1998/2973	31%	91% 2714/2987	61% 1998/3284	30%	Compared uptake of results in cohort when results were only offered at a mobile site in 2004 to when results were offered in the home in 2006. % uptake is among those contacted.
Yoder et al. (2006)[22]	2005	Uganda	Yes	97% 1447/1495	35–40% 6459–7392 /18,454	57–62%	86% 1447/1686	30–35% 6459–7392 /21,359	51–56%	Follow-up to Uganda AIS. Facility-based uptake is estimated from clinic data on use of VCT vouchers from 2004 AIS. Uptake is among those who gave blood. For facility % reached is estimated from the population eligible for interview/testing in the 2004 AIS.

research supports the cost-effectiveness of HBHTC compared to other testing approaches,[11,36] costing information identified from 2004 in Malawi during home-based HTC shows that the average home-based testing with results provided at a mobile site cost $49.57 per client.[37] The feasibility and cost of home testing and provision of results during national population-based surveys needs to be evaluated in more countries, especially those that do not have policies and guidelines on HBHTC and delivery of results.

If the delivery of results to participants is incorporated into population-based surveys, the various levels of consent should be clearly defined in order to reduce the rate of non-response and to ensure that individuals clearly understand that they can agree to some components of this package but decline others, as was done in the Ugandan surveys.[22,23] The survey team would also need to consider gender dynamics between spouses during the consent process, ensuring an opportunity to all participants, especially women and children, to individually make an informed choice about their participation. The review indicated that men were also more likely to ask questions after the presentation of the consent form than were women, and were less likely to accept a blood test right away than women.[38] Yoder and colleagues[22] reported a few cases where women refused to participate in the study because their husbands were not at home and they felt they could not decide without their permission. There were also two cases where a husband forbade his wife from testing and one case where a wife defied her husband's wishes for her not to test and chose to test anyway.

If the results are returned to the participants, it will require additional personnel to provide counselling before and after returning the results, and to provide linkage to post-testing support services for those who are identified as HIV positive. While it is possible to have the same individual conduct the interview, counselling, and provide results, this would make it difficult to differentiate the consent for survey participation and the consent for HTC and return of results. It may be preferable to have a separate team who collects the specimen for HTC and/or provides results and counselling. Staff cadre required to provide results as part of national population-based surveys would vary based upon the approach chosen for giving results. For example, more counselling staff may be needed if test results are to be returned in the home than if they are given out at a mobile site or facility. According to the experience described by Nyblade et al.[39] in Rakai, Uganda, a counsellor travelled with the interview team and was available for counselling at survey time, as requested by respondents. The counselling team consisted of 10 trained HIV counsellors (1 per community), supervised by a senior counsellor.

The personnel will require rigorous training and supervision in order to address the additional consent issues presented by delivery of results. It would also be necessary to address confidentiality and linkage to care and other services post-test. Some studies that have provided testing and returned results describe the training provided according to the specific country recommendations.[39] Uganda has developed training manuals for providers of HBHTC (both door-to-door and household member VCT) which describe the processes for providing HBHTC, including mobilization,

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household education, ensuring confidentiality during testing and provision of results, and quality control procedures.[40]

Conclusions

This review has provided evidence that testing and delivery of HIV results in the home as part of surveys in Sub-Saharan Africa is feasible and results in more individuals testing. The review has also provided useful information on operational issues, gaps and challenges in implementation. Although returning HIV test results would alter the processes of implementing national population-based surveys substantially, the benefits outweigh other considerations. It would be useful for countries that have not implemented this strategy to pilot and refine the processes and to evaluate some of the potential negative outcomes before undertaking this process, since the outcomes may vary depending on country context. Some of the areas that require additional evaluation include: negative outcomes, linkage to post-test support, consent, confidentiality, quality of counselling and testing, and costing of the exercise to inform the planning process.

Author statements

Ethical approval

The manuscript reviewed published literature and publicly available reports and thus ethical approval for writing the manuscript was not required. The reviewed papers were from studies which each had ethics approval for their research.

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Conflicts of interest

The authors declare no conflicts of interest.

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Appendix 1. Search strategy

PUBMED/MEDLINE. (January 1984 to June 2013, English, Human subjects) December 2015 using the following search terms: ("HIV"[Mesh] OR HIV) AND ("home based" OR door OR 'home careservices'[mesh] OR voluntary AND ((counselling AND testing) OR VCT)). *This search yields 1180 citations*.

EMBASE online (January 1984 to June 2013, English, Human Subjects) January 2016 using the following search terms; #1 HIV/, #2 HIV, #3 #1 OR #2, #4 Home Care Services/, #5 'home based' OR door OR voluntary, #6 #4 OR #5 #7 (counseling and testing) OR VCT, #8 #3 AND #6 AND #7. *This search identified 865 citations*.

COCHRANE LIBRARY. (1984 to 2013) December 2015 using the follow search terms: #1 MeSH descriptor: [HIV] explode all trees, #2 HIV, #3 #1 OR #2, #4 MeSH descriptor: [Home Care Services] explode all trees, #5 'home based' OR door OR #4 OR voluntary, #6 (counselling AND testing) OR VCT, #7 #3 AND #5 AND #6. *This search yields 133 citations*.

AIDSearch which also includes major AIDS meetings [(International AIDS Society (IAS) Pathogenesisand Treatment (2001 to 2013), International AIDS Conferences (1985 to 2009), Conference on Retroviruses and Opportunistic Infections (1996 to 2009)] and conference abstracts (1980-2009) was searched using the following search strategy:#16

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ANIMALS NOT (HUMAN AND ANIMALS) #17 NOT #16 #18HOME-BASED OR HOME BASED OR HOMEBASED OR door to door ORdoor-to-door OR home care services OR homecare services OR homecare OR home care OR home-careOR home access OR home OR in-home OR domicile #19 VOLUNTARY COUNSELING ORVOLUNTARY COUNSELING OR VOLUNTARY TESTING OR HIV TESTING OR VCT ORHBVCT #20#17 AND #18 AND #19 AND PY=1980-2009). *This search identified 288 citations*.

Note: AIDSearch became a part of PUBMED in 2008; therefore any other relevant citations after 2008 would be captured in the PUBMED search.

The DHS Program. http://www.dhsprogram.com/What-We-Do/Survey-Search.cfm (1984-June 2013) June 2013 Demographic and Health Surveys (DHS) and AIDS Indicators Surveys (AIS) published between 1984 and 2013 were reviewed (English, Portuguese, French). *This search included 67 reports reviewed*.

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