Evaluating Programs for Prevention of Mother-to-Child Transmission of HIV Using Process Tracing

Guide and Sample Protocol

September 2019

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MEASURE Evaluation

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September 2019

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This publication was produced with the support of the United States Agency for International Development (USAID) under the terms of MEASURE Evaluation cooperative agreement AID-OAA-L-14-00004. MEASURE Evaluation is implemented by the Carolina Population Center, University of North Carolina at Chapel Hill in partnership with ICF International; John Snow, Inc.; Management Sciences for Health; Palladium; and Tulane University. Views expressed are not necessarily those of USAID or the United States government. MS-19-179

978-1-64232-208-8

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ACKNOWLEDGMENTS

We are grateful to the United States Agency for International Development (USAID) and the United States President's Emergency Plan for AIDS Relief (PEPFAR) for their support of this work.

We would like to thank our colleagues at the Makerere School of Public Health, who worked with our team on the ideas for the process tracing of causal mechanisms implemented in the Partnership for HIV-Free Survival in Uganda, which is the example that we present in this sample protocol. Our specific thanks to Dr. Lynn Atuyambe and his team: Leo Amanya, Susan Mutesi, and Susan Babirye.

Because process tracing is an innovative method that has only been applied a few times in the area of public health evaluations, we reached out to experts who shared their knowledge and experience with our team. We send thanks to Ir. Cecile Kusters, a senior planning, monitoring, and evaluation advisor at the Wageningen Centre for Development Innovation; Melanie Punton, at Itad; and Gavin Stedman-Bryce, managing director at Pamoja.

We also thank Heidi Reynolds, of the USAID- and PEPFAR-funded MEASURE Evaluation project, based at the University of North Carolina, Chapel Hill, for inspiring our team to use process tracing as an innovative qualitative method for exploring causal mechanisms.

Finally, we thank the MEASURE Evaluation knowledge management team for editorial, design, and production services.

Cover:

HIV-positive Sarafina holds her HIV-negative daughter Jorin Joseph Mabena in Dar es Salaam, Tanzania.

Suggested citation:

Bobrow, E. A., Munson, A.J., & Davis, H. B. (2019). Evaluating Programs for Prevention of Mother-to-Child Transmission of HIV Using Process Tracing: Guide and Sample Protocol. Chapel Hill, NC, USA: MEASURE Evaluation, University of North Carolina.

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ABBREVIATIONS

ART	antiretroviral therapy
eMTCT	elimination of mother-to-child transmission of HIV
FGD	focus group discussion
IDI	in-depth interview
IRB	institutional review board
M-B	mother-baby
MNCH	maternal, neonatal, and child health
MTCT	mother-to-child transmission
NACS	nutrition assessment, counseling, and support
PEPFAR	United States President's Emergency Plan for AIDS Relief
PHFS	Partnership for HIV-Free Survival
PMTCT	prevention of mother-to-child transmission
QI	quality improvement
USAID	United States Agency for International Development
WHO	World Health Organization

ORIGINS OF THIS GUIDE

Evaluations of the Partnership for HIV-Free Survival

MEASURE Evaluation—a project funded by the United States President's Emergency Plan for AIDS Relief (PEPFAR) through the United States Agency for International Development (USAID)—had the opportunity to evaluate the Partnership for HIV-Free Survival (PHFS). PHFS was an initiative funded by PEPFAR through USAID, working with the World Health Organization (WHO), UNICEF, ministries of health, and implementing partners. Its purpose was to strengthen the integration of prevention of mother-to-child transmission (PMTCT) of HIV; maternal, neonatal, and child health (MNCH); and nutrition assessment, counseling, and support (NACS) services through a quality improvement (QI) approach in six countries in sub-Saharan Africa: Kenya, Lesotho, Mozambique, South Africa, Tanzania, and Uganda. Although the specific aims of PHFS varied slightly by country, in all six the PHFS approach was designed to contribute to reductions in mother-to-child transmission (MTCT) and increases in child survival by means of improvements in breastfeeding practices, increases in the uptake of antiretroviral therapy (ART) and coverage among HIV-positive pregnant women and mothers, and improvements in overall mother-baby (M-B) care.

MEASURE Evaluation conducted country-level rapid assessments of PHFS in all six countries during 2017 and 2018. Our final report on this work, entitled Legacy Evaluation of the Partnership for HIV-Free Survival: Kenya, Lesotho, Mozambique, South Africa, Tanzania, and Uganda (Hales, Davis, Munson, & Bobrow, 2019), is available here: https://www.measureevaluation.org/resources/publications/tr-18-314

Our team also conducted an outcome evaluation of PHFS in Uganda to gain an in-depth understanding in one country of how the PHFS approach incorporated QI into an integrated model of service delivery for PMTCT of HIV, along with maternal and child health, and nutrition services with the goal of increasing the retention of M-B pairs in care and decreasing vertical transmission of HIV. In Uganda, the evaluation had two primary aims: (1) to determine whether and to what degree the PHFS approach achieved its intended outcomes in terms of PMTCT implementation and maternal and child health outcomes at the patient level and (2) to gather information on the implementation of PHFS in Uganda, with a focus on the QI component and the legacy of PHFS.

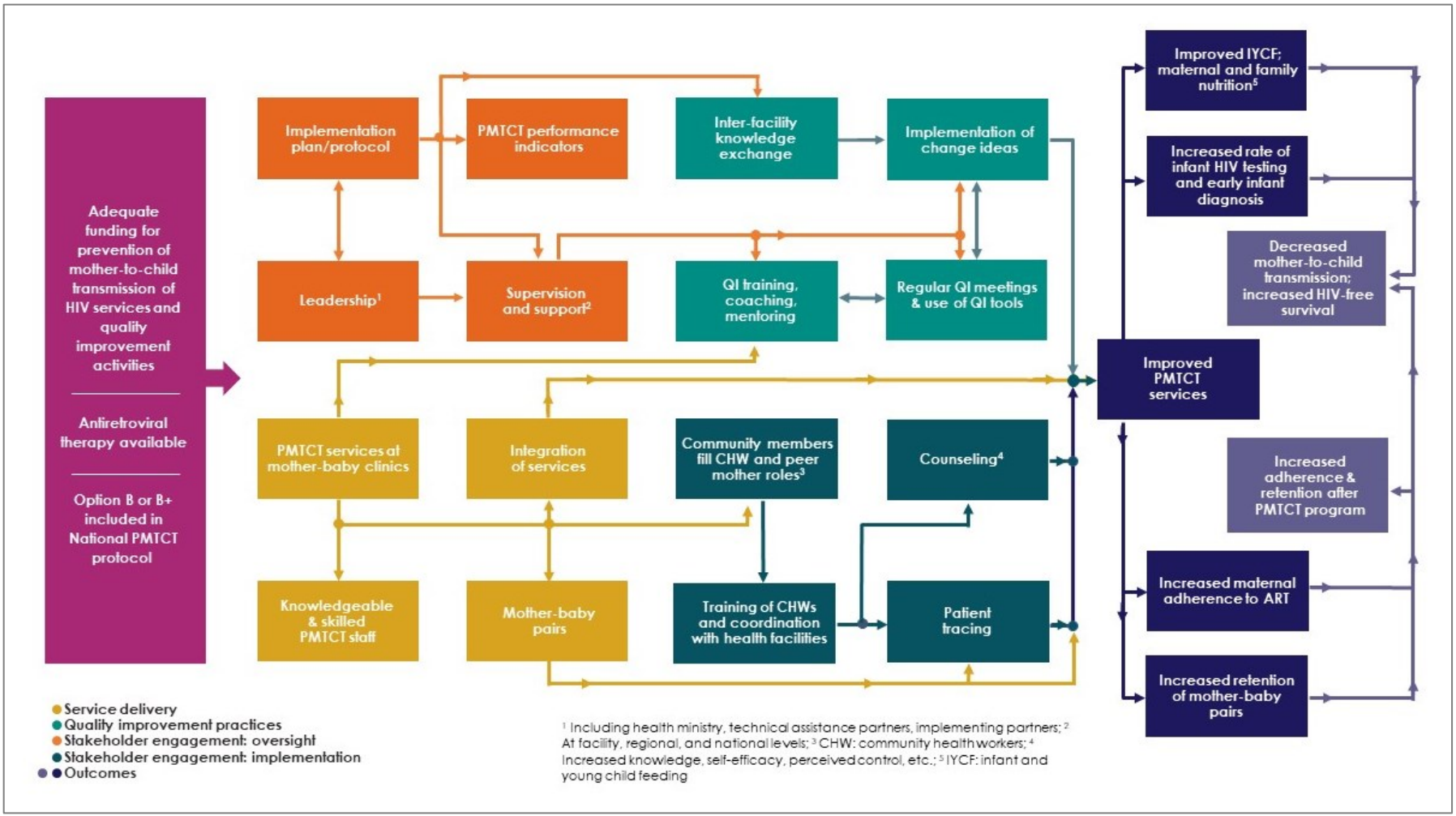
Aim 1 used quantitative methods in a retrospective longitudinal design to assess the program's association with four outcomes: exclusive breastfeeding, 12-month retention in care, completeness of HIV test results among 18-month-old children, and MTCT at 18 months postpartum. Data were extracted from patient records from 2011 (before the program) to 2018 (after the program) at 18 demonstration, 18 scale-up, and 24 comparison facilities.

Aim 2 used traditional qualitative methods in public health, specifically in-depth interviews (IDIs) and focus group discussions (FGDs). Participants were health workers who were part of PHFS facility QI teams, and district and regional QI coaches. We conducted IDIs with 24 health workers (four per district), six regional QI coaches (one per district), and six district QI coaches (one per district). Half of the health workers were based in PHFS demonstration facilities and half were in PHFS scale-up facilities, so that we could see if there were differences between the approaches and experiences from these two types of sites. We also conducted six FGDs (one per district) with health workers in facilities who were considered by QI coaches to be model teams.

Partnership for HIV-Free Survival Retrospective Theory of Change

One product of our legacy evaluation of PHFS was a retrospective theory of change that incorporated results from all six PHFS countries. Although there were variations in the elements implemented, there were common approaches. We divided the approaches into three categories: (1) service delivery, (2) QI practices, and (3) stakeholder engagement, with subcategories of oversight and implementation for stakeholder engagement. Figure 1 shows the core activities within each category and subcategory. Linked activities are indicated by the arrows in the figure. The retrospective theory of change included in our legacy evaluation report (Hales, Davis, Munson, & Bobrow, 2019) shows what was actually done, rather than what was theorized, to achieve the outcomes of an improved PMTCT program, the elements of which are displayed on the right side of the figure.

Figure 1. Retrospective theory of change created during the legacy evaluation of the Partnership for HIV-Free Survival



The PHFS retrospective theory of change serves as a blueprint for other countries interested in implementing the PHFS approach. Our team also produced a guide based on the lessons learned from our legacy evaluation: A Practical Way to Eliminate Mother-to-Child Transmission of HIV: Learning from the Partnership for HIV-Free Survival (forthcoming). We conducted a webinar in September 2019 to introduce the guide to an international audience; that can be viewed here: https://www.measureevaluation.org/resources/webinars/whats-next-practical-implementation-lessons-from-the-partnership-for-hiv-free-survival.

Rationale for Designing an Evaluation of the Partnership for HIV-Free Survival Using Process Tracing

As we compiled our legacy evaluation results and crafted the PHFS retrospective theory of change, we were curious about how the activities were linked to one another. We aimed to confirm assumed correlations and to use methods that would allow within-case analysis to provide more broadly generalizable results. Our goal was to produce a generalized matrix for program interventions, including incremental improvements, from which country programs, implementing partners, and service delivery sites could select the best options for their context. Therefore, we proposed using a process tracing method. Such a method required that we organize PHFS activities into causal mechanisms and then use specific tests from the process tracing method to analyze our qualitative data. The process tracing approach can give decision makers confidence that a particular system of linked interventions will lead to the desired health improvements. In addition, the method can be a means to establish generalizability beyond a single case.

Given that the legacy and outcome evaluations occurred in 2017 and 2018, attempting to find women who participated during the real-time implementation of PHFS from 2013 to 2016 was not possible and would have introduced recall bias into the evaluation. Process tracing provided an opportunity to include and center the highly important voices and perspectives of mothers living with HIV participating in PMTCT programs. By conducting IDIs or FGDs with women in current PMTCT programs we would be able to test proposed causal mechanisms to better understanding if and how specific components of the PHFS approach contributed to increased retention of mother-baby pairs in PHFS health facilities.

OVERVIEW OF THE PROCESS TRACING METHOD

Process tracing is a case-based approach used to describe a linear causal chain with steps from a conceptual model or theory of change (Better Evaluation, 2016). This method is not common in public health evaluations, thus is innovative. Process tracing is appealing since it is a qualitative method that can be used to unwrap whether, why, and how an intervention causes a health outcome.

The first action when using process tracing is to develop a theory about how and why an intervention leads to an observed outcome. The steps between the intervention and outcome are defined, and then detailed hypotheses are developed for each step. The hypotheses are then tested using two guiding questions: (1) what would we expect to observe if the hypothesis is true (e.g., improvement, no relevant change, worsening) and (2) which observations would be very unlikely unless the hypothesis is true (which observations would practically prove the hypothesis because they are extremely unlikely under any other circumstance)?

Our team conducted an extensive literature review and talked to experts in the field. We then compiled our understanding of the four types of causal tests for process tracing (Figure 2) from multiple sources (Beach, D. & Pedersen, R., 2013; Befani & Stedman-Bryce, 2016; Better Evaluation, 2016; Punton & Welle, 2015):

- What evidence would you "expect to see" if the hypothesis were true? This evidence is necessary to keep the hypothesis under consideration. If we don't see it, the hypothesis can be discarded. This is a ***hoop test***.

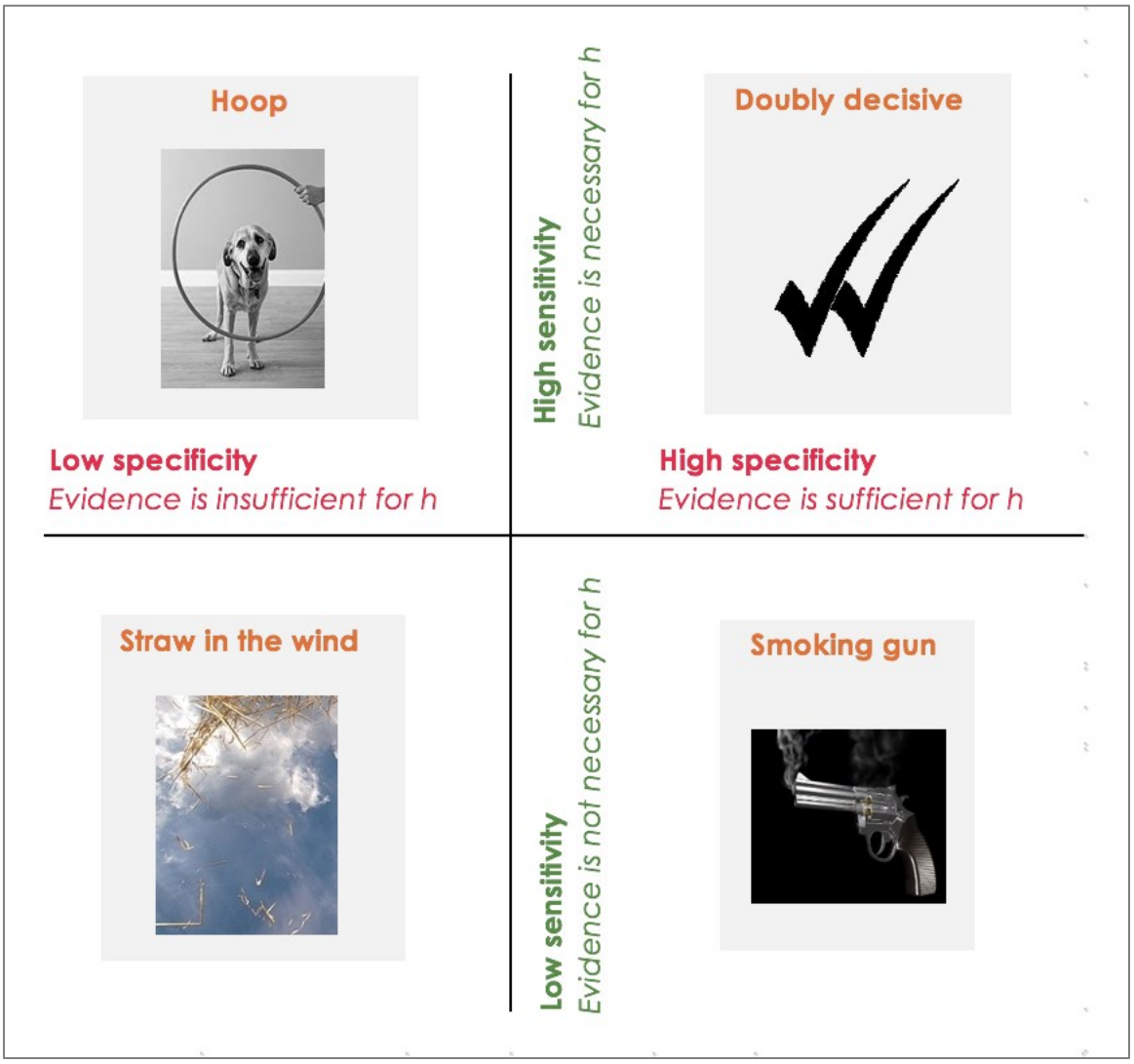
- What evidence would you "love to see"? This evidence is sufficient to prove the hypothesis. If we see it, we have proven the hypothesis beyond reasonable doubt. This is the ***smoking gun test***.

- What evidence would you "like to see"? This evidence is weak, as it is neither necessary nor sufficient to prove the hypothesis. However, it helps move you incrementally toward greater confidence in the hypothesis when considered alongside other evidence. This is the ***straw in the wind test.***

- The fourth process tracing test, called the ***doubly decisive test***, is rare, because it is passed when the evidence confirms the hypothesis and strongly supports causality.

The nuance of analyzing data using the process tracing tests is that the evaluators must weigh the evidence according to how much it increases the probability that a hypothesis is true, or how much not finding the evidence decreases the probability that the hypothesis is true. In the end, the goal is to estimate the level of confidence that a particular intervention has caused or contributed to a particular outcome in a particular stepwise, linear fashion as laid out in the causal mechanism.

Figure 2. Visual of the four process tracing tests



Source: Personal communication with Melanie Punton, of Itad.

h=hypothesis

Our team created detailed matrices with three hypotheses for each step in the proposed causal mechanism we planned to test. These hypotheses were a core hypothesis, a bonus hypothesis, and an alternative (negative) hypothesis. We detailed the source of the evidence needed. This level of detail was deemed necessary in order to apply the process tracing tests during analysis. These detailed matrices can be found in Appendix A.

HOW TO USE THIS GUIDE

We were unable to conduct our proposed process tracing evaluation of PHFS because of delays with the Institutional Review Board approvals. Therefore, this guide offers the following resources:

- Information and references on our previous evaluations of PHFS conducted by MEASURE Evaluation
- Background information on our concept and rationale for using the process tracing method to evaluate the PHFS approach
- Information about the process tracing method as we understand it to be applied to public health evaluations
- A sample protocol that can be adapted to evaluate PMTCT programs in other countries using process tracing, including specific language from our protocol on evaluating PHFS using process tracing

Natural audiences for this guide are evaluators or researchers interested in the innovative method of process tracing in public health evaluations, in partnership with other stakeholders, such as government and nongovernmental implementers of PMTCT programs. We highly recommend that investigators develop protocols in a participatory manner, involving partners at the local, national, and international levels, and in conjunction with donors. It is essential to have input from key stakeholders, and to follow their guidance, particularly in designing procedures to inform and contact study participants in a culturally appropriate way. Careful planning and participation will help facilitate use of the generated evidence to improve programs and policies.

SAMPLE PROTOCOL

This sample protocol includes language in *italics* that is specific to evaluating the PHFS approach in PMTCT using the process tracing method. These sections would need to be adapted to suit the context in which an evaluation of this type was being conducted. Other general sections of a protocol would also need to be added (notes on this below).

Study Overview

Investigators

At the start of your protocol, make sure to list the principal investigators and the co-investigators with their names, titles, and contact information. As mentioned above, we encourage developing protocols in a participatory manner.

Protocol Summary

This is essentially an executive summary of your protocol. Be sure to include a brief background section on the context and program, aim(s), objectives, method, and how the results will be used.

Introduction

Study Background and Rationale

In this section of the protocol, write about MTCT of HIV, and the elements of PMTCT programs. Provide details of the specific PMTCT program you intend to evaluate, including country context; details on the scope, target populations, coverage, and testing schedule; and any other relevant facts. Also include reasons why the program exists and what it intends to achieve.

Our rationale for the PHFS approach was as follows:

The PHFS was galvanized to redress the lack of PMTCT focus on the postpartum period and the need to link exclusive breastfeeding and extended breastfeeding with maternal ART to improve HIV-free survival. To achieve this, PHFS recognized that a continuum of care was needed to integrate PMTCT, MNCH, and NACS services beginning in pregnancy (i.e., antenatal care, HIV testing, and initiation of ART) and extending up to two years postpartum (i.e., 1000 days). As PHFS evolved, the partners took a more comprehensive approach to the challenges of PMTCT. In addition, PEPFAR, WHO, and UNICEF were looking for practical innovations that could be identified, tested, and embraced by local stakeholders to help ensure the sustainability of the work.

Potential Use of Study Findings

In this section of the protocol, it is helpful to give concrete examples showing how the results can be used.

For our evaluation of PHFS using process tracing, we included the following language:

The results of this evaluation are intended to strengthen the case for integrating and improving the delivery of PMTCT, MNCH, and NACS services, and health services broadly, through QI. These results will lead to a more thorough understanding of the processes by which service integration and QI approaches contributed to PHFS outcomes. Alongside PHFS outcome evaluation results, these process tracing results will be used to identify opportunities for refining and improving integration of services, QI, and the overall PHFS approach.

Conceptual Model and Causal Mechanisms

Conceptual Model for a PHFS Evaluation

As discussed above, our team developed a PHFS retrospective theory of change based on the results of our legacy evaluation of PHFS in all six countries where it was implemented. Process tracing requires an evaluation team to begin with a conceptual model. Therefore, we used the retrospective theory of change (Figure 1) that depicted the multifaceted nature of PHFS as a starting point for our evaluation. Our protocol included details about the model and then delved into the causal mechanisms we proposed to test using process tracing.

Causal Mechanisms to Test in a PHFS Evaluation

Our team created two extremely detailed causal mechanisms from the PHFS approach to test using process tracing (Appendix A). The following text in italics is a summary of the two causal mechanisms included in our study protocol. We did not include the detailed mechanisms in our protocol, but include them in this guide as a way to share the mechanisms, the actors, data sources, and hypotheses that we determined for each component in the mechanism:

For this process tracing activity, we will examine two specific components of the PHFS program to understand the processes connecting each component to an observed program outcome. We have developed detailed causal mechanisms, consisting of small component steps between the intervention component and the program outcome. We will focus on one service delivery component: integration of services (specifically, designated "clinic days" for M-B pairs) (Table 1) and one QI component: QI supervision and coaching to PHFS facilities (Table 2).

For Table 1, note that the focus is on mothers' perceptions of the clinic environment, not on the changed service provision as a result of clinic days focused on elimination of MTCT (eMTCT). This mechanism is centered on the area of service delivery/integration of services from the PHFS retrospective theory of change. Table 2 presents the second causal mechanism we propose to test and focuses on the QI area of the PHFS retrospective theory of change.

Table 1. Causal mechanism focused on "mother-baby pair clinic days" contributing to increased retention in care for mother-baby pairs

Intervention	*Step 1*	*Step 2*	*Step 3*	*Step 4*	*Step 5*	*Outcome*
Designated "clinic" days for PMTCT mothers with HIV-exposed infants (M-B pairs) at M-B care points	*Health facilities scheduled designated clinic days for PMTCT M-B pairs (separate from clinic days for HIV-negative mothers)*	*PMTCT M-B pairs attended the clinics on designated PMTCT clinic days*	*PMTCT mothers felt less stigmatized for receiving PMTCT services AND formed informal support networks at PMTCT clinic days*	*PMTCT mothers were more satisfied with their experiences at the health facilities*	*M-B pairs returned for follow-up appointments*	*Increased retention in care for PMTCT M-B pairs, compared with combined under-5 clinic days* *(April 2013–August 2015)*

Table 2. Causal mechanism focused on quality improvement supervision and coaching contributing to improved and sustained quality improvement work

Intervention	*Step 1*	*Step 2*	*Step 3*	*Step 4*	*Step 5*	*Outcome*
QI supervision and coaching to health facilities by regional and district QI coaches	*QI coaches made contact with assigned facility-based teams*	*QI coaches provided initial and ongoing supervision, technical support, and motivation to the facility-based teams around key QI issues (e.g., choosing and monitoring indicators/ projects, identifying and implementing change ideas)*	*Facility-based QI team members gained QI skills, felt account-able to the QI coaches, and felt motivated to do QI work*	*Facility-based teams performed QI work*	*Facility-based QI teams saw improvement in defined indicators and patient outcomes and felt motivated to continue QI work*	*Improved and sustained QI work on PMTCT over time throughout PHFS*

Study Aims, Research Questions, and Hypotheses

Study Aims and Hypotheses for a PHFS Evaluation

This study has the following primary aim:

Aim 1: To test and confirm assumed correlations between PHFS intervention components and observed PHFS outcomes. We will examine two theorized causal mechanisms using the process tracing method to examine if and how:

1. *Designated "clinic days" for PMTCT M-B pairs contributed to increased retention in PMTCT care.*

2. *QI supervision and coaching contributed to improved QI processes at the PHFS health facilities.*

Based on our theorized causal mechanisms, we made the following hypotheses:

1. *Designated "clinic days" for PMTCT M-B pairs increased retention in care by creating an environment with reduced stigma and opportunities to form informal support networks, resulting in increased patient satisfaction and a higher rate of M-B pairs returning to the health facility.*

2. *QI supervision and coaching to health facilities by national and district QI technical staff led to improved QI processes at PHFS facilities by increasing the QI teams' skills, motivation, and accountability to do QI work. This led to improved tracking of performance indicators and implementation of change ideas and, in turn, improved performance on QI indicators and continued motivation to conduct QI activities.*

Methods

Study Design

In our evaluation protocol, our section on study design included details about the design plus information about the study participants:

This process tracing activity will use mixed methods to systematically examine hypothesized causal mechanisms linking two PHFS program components to observed PHFS program outcomes. The activity will take place in [include specific country name here] *as a complement to the PHFS outcome evaluation, and it will focus on causal mechanisms, described above, for two specified PHFS outcomes (increased retention in care for PMTCT M-B pairs and improved QI processes at PHFS facilities).*

The evaluation design is based on process tracing methods for testing causal inferences. The evaluation team has developed various hypotheses to explain how each step in a causal mechanism leads to the following step. The three types of hypothesis for each step are a core hypothesis, an alternative hypothesis, and a bonus hypothesis. Four process tracing tests for causal inference are used to confirm, eliminate, strengthen, or weaken each hypothesis. Each test is conducted primarily using qualitative data collected through FGDs and IDIs with PHFS stakeholders, but also using quantitative data collected through review of health facility and PHFS records. Data collection tools (i.e., FGD guides, interview guides) contain specific questions needed to perform each test for each of the specified hypotheses (Collier, 2011).

Study participants and data collection tools vary somewhat for each of the two causal mechanisms:

- *For causal mechanism 1 (service delivery/integration of services), the evaluation team will interview and facilitate FGDs with health facility staff at PHFS demonstration and scale-up facilities, PMTCT mothers who have participated in PMTCT "clinic days" at M-B care points, and community health workers who participated in PHFS activities. Questions will focus on mothers' experiences with and perceptions of the PMTCT clinic days. The evaluation team will also review facility records and PHFS reports to gather additional information on participation in clinic days and M-B retention in care.*

- *For causal mechanism 2 (QI), the evaluation team will interview and facilitate FGDs with regional and district QI coaches and QI team members at PHFS demonstration and scale-up facilities. Questions will focus on experiences with and perceptions of the QI process, with particular focus on QI supervision and coaching. The evaluation team will also review QI journals to gather additional information on the QI activities at PHFS facilities over time.*

Data Collection Procedures

Data collection will last between five and seven days and will include meeting with QI coaches and visiting PHFS demonstration and scale-up sites to speak with PMTCT mothers, community health workers, and health facility staff. The evaluation will not formally look at a comparison group of sites, but will include a range of scale-up, demonstration, high-performing, and low-performing sites to capture a range of perspectives and experiences. By testing a theorized causal mechanism, process tracing methods allow for within-case analysis to provide more broadly generalizable results that can be applied to PMTCT programs in various contexts within Uganda and in other countries (Collier, 2011).

In process tracing, the unit of analysis is a case, which consists of (1) the effect under investigation (i.e., observed outcome), (2) the hypothesized cause (i.e., program component), and (3) the hypothesized processes that link the hypothesized cause and the effect (Punton & Welle, 2015).

To collect data on each case, the research team will conduct interviews and FGDs with QI coaches, health facility staff, mothers who have attended PMTCT "clinic days," and community health workers, according to their involvement in each step of the hypothesized causal mechanisms. Our team decided that FGDs might be more efficient for process tracing, as we will seek to understand whether there is consensus or there are disparities among the group members regarding the questions for each step in the causal mechanisms.

One or two members of the evaluation team will travel to each PHFS country for one to two weeks to conduct interviews, FGDs, and programmatic data review, along with a local consultant. The evaluation team will meet with QI coaches in a central location and will visit PHFS demonstration and scale-up health facilities to meet with health facility staff, mothers who have attended PMTCT "clinic days," and mentor mothers.

Data Collection Instruments

In this section of a protocol, you would explain the different data collection guides you created and how you drafted and pre-tested them. In our sample protocol, we included the following:

The team developed FGD and IDI guides (Appendix B) to steer data collection with each stakeholder group. Questions were specifically designed to test the hypotheses for each step in each of the two causal mechanisms. Questions were structured toward each of the four process tracing tests, intending to confirm, eliminate, strengthen, or weaken each hypothesis and illuminate the causal mechanisms. The data collectors will take detailed notes following each focus group and interview.

In line with the mixed-method approach for a rapid assessment, the evaluation will rely on data from two principle sources: (1) interviews and FGDs with stakeholders, including health facility staff, PMTCT mothers who have attended "clinic days" at M-B

care points, linkage facilitators/mentor mothers, and regional and district QI coaches; and (2) programmatic data from PHFS facilities and implementing partners.

The programmatic data will be drawn primarily from reports prepared by implementing partners (e.g., quarterly and annual reports, special studies) or from the underlying data sets; the evaluation will not collect any new or additional program data. Additionally, PHFS facility records will be reviewed to collect data on the frequency of PMTCT "clinic days" at M-B care points and on participation at the clinics. Data from QI journals and QI supervisor logs will also be collected to assess improvement and continuation of QI processes.

Data Management and Use

We decided not to record and transcribe our FGDs and IDIs, because we were focused on the process tracing tests for each step in the causal mechanisms. In other situations, particularly when there is a language barrier, the investigator may consider creating transcripts of the data collection. Our plan for managing and using the qualitative data collected was as follows:

The team may record the interviews and focus groups, but only with consent of the people being interviewed and only as a back-up source of information when notes from the interviews are compiled. If the participants are not comfortable being recorded, the team will rely solely on their written notes from the interview. No transcripts from the audio recordings will be created. Audio recordings will not be kept once the final report is completed. The team will summarize the strategies used in each country and will produce a report that describes each program and discusses similarities and differences. This will be useful for funders, policy makers, and ministries of health in thinking about how similar programs may function in different contexts.

Reports and other documents provided by stakeholders that include program data will be catalogued and stored in a secure, shared folder so that each member of the team has access to all of the reports/data. Comprehensive trip reports will be written after each country visit to ensure that an accurate record of the evaluation activities during a visit is captured; these reports will also be stored in the same secure, shared folder for use in writing the final evaluation report.

Basic measures to protect the anonymity of all interviewees (e.g., attributed quotes will not be used in the evaluation report unless prior approval has been secured) will be put in place.

Data Analysis and Possible Conclusions

As mentioned in the process tracing section above and as seen in the matrices in Appendix A, our team spent a tremendous amount of time and effort on defining our causal mechanisms and multiple hypotheses for each step. We were planning to use these tools in our analysis and application of the process tracing tests, specifically the three main tests:

- "Expect to see" = hoop test
- "Love to see" = smoking gun test
- "Like to see" = straw in the wind test

We anticipated that our evidence might belong to the weakest category, represented by the straw in the wind test. We did define, at least for causal mechanism 1 on service delivery/integration of services, that if our evidence was strong we would be able to draw this conclusion:

Scheduling M-B pairs for PMTCT-integrated care appointments on designated "clinic days" can increase retention in care by providing eMTCT mothers the opportunity to give and receive informal peer support, which leads to motivation and self-efficacy to return to the clinic. (Note: This would happen with or without other, more-formal support groups, linkage facilitators/expert mothers, or educational sessions.)

Human Subject Considerations and Institutional Review Boards

We are highlighting this important part of the protocol in this guide, although we do not have specific text to include here. Investigators will need to write information about the institutional review boards (IRBs) that will review their protocols, data collection instruments, and consent forms. Investigators will need to describe the assessments of risks and benefits to participation, confidentiality considerations, compensation, and inform consent process. IRBs require copies of informed consent forms for all participant groups and at least draft data collection guides for qualitative data collection as part of their applications. Investigators will need to determine which IRBs are necessary to use, often including one in the United States, if that is where international investigators and funders are located, and one in the country where the data will be collected.

Other Considerations

Protocols often also include additional sections, such as a timeline and/or a knowledge management plan. In some cases, investigators may choose to include details about the roles and responsibilities for evaluation team members and stakeholders. We do not feel the need to include details on these additional sections. However, we encourage the inclusion of these sections if they are required or deemed useful.

CONCLUSION

We hope that this guide and sample protocol are useful to other evaluators. We learned a tremendous amount when researching and planning for our evaluation of the PHFS approach using the innovative qualitative method of process tracing. We had hoped to add additional depth and make an even stronger case for how successful the PHFS approach was in so many countries, and how it has the potential to eliminate the transmission of HIV from mothers to children.

We encourage implementers of PMTCT programs to read through the findings from our evaluations of PHFS and to use the guide we produced, which includes key lessons from the PHFS approach and user-friendly, detailed checklists of key steps involved in implementing the approach. The core activities in the PHFS approach, specifically those in service delivery, QI, and stakeholder engagement, have been shown to improve PMTCT outcomes in facilities. We believe the PHFS approach can be broadly applied across and within countries, while having the added benefit of being successfully adapted through the QI method to a local context.

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APPENDIX A. EXAMPLE CAUSAL MECHANISMS FOR EVALUATING THE PARTNERSHISP FOR HIV-FREE SURVIVAL USING PROCESS TRACING

CAUSAL MECHANISM 1: "Mother-baby pair clinic days" contributing to increased retention in care for mother-baby pairs*

PHFS program area: Service delivery/integration of services

Intervention: Designated M-B pair clinic days for HIV-positive mothers with HIV-exposed infants (i.e., M-B pairs) to receive eMTCT services

Outcome: Increased retention in eMTCT care for M-B pairs over time (April 2013–August 2015)

***Note: The focus is on mothers' perceptions of the clinic environment, not on changed service provision as a result of eMTCT-focused clinic days.**

	Intervention	1	2	3	4	5	Outcome
Component	Designated "M-B pair clinic days" for M-B pairs to receive eMTCT services at M-B care points	Health facility staff scheduled eMTCT M-B pairs for appointments on designated M-B pair clinic days	eMTCT M-B pairs attended appointments on designated M-B pair clinic days	eMTCT mothers experienced informal peer support (e.g., emotional, informational, and appraisal support, including role modeling) from other eMTCT mothers on M-B clinic days	eMTCT mothers felt motivation and self-efficacy to return to care	M-B pairs returned for follow-up appointments after attending M-B pair clinic days	Increased retention in care for eMTCT M-B pairs over time (April 2013–August 2015)
Actor	Health facility	Health facility staff (midwives and MCH nurses)	Mothers	Mothers	Mothers	Mothers	Mothers
Data Source		1. Health facility staff focus groups	1. Quantitative data from outcome evaluation (% M-B pairs attending appointments on scheduled M-B pair clinic days (proxy: % attending appointments on	1. Mother focus groups 2. Health facility staff focus groups 3. Focus groups or interviews with "linkage facilitators"	1. Mother focus groups 2. Health facility staff focus groups 3. Focus groups or interviews with "linkage facilitators"	1. Quantitative retention data from PHFS outcome evaluation in Uganda (% M-B pairs retained in care at various time points) 2. Mother focus groups	1.Quantitative retention data from PHFS outcome evaluation in Uganda (change in % M-B pairs retained in care over time); examine data throughout PHFS

			scheduled appointment dates, assuming always scheduled for clinic days) 2. Health facility staff focus groups 3. Mother focus groups			3. Health facility staff focus groups 4. Focus groups or interviews with "linkage facilitators"	(April 2013–August 2015) and post-PHFS (September 2015–October 2018)
Core Hypothesis		1.1. Health facility staff scheduled mothers for their appointments on M-B pair clinic days	2.1. M-B pairs attended designated M-B pair clinic days because their appointments were scheduled for those days	3.1. eMTCT mothers experienced informal peer support from other eMTCT mothers while attending M-B clinic days	4.1. eMTCT mothers felt motivation and self-efficacy to return to care because of informal peer support from other eMTCT mothers on M-B pair clinic days	5.1. M-B pairs returned to the health facility for follow-up appointments on M-B pair clinic days because they felt motivation and self-efficacy to return for care on clinic days	
Alternative Hypothesis		1.2. Health facility staff did not schedule mothers for appointments on M-B pair clinic days	2.2. M-B pairs did not attend the M-B care points on M-B pair clinic days because of time conflicts, personal preference, etc. (Note: Other reasons for why they did not attend clinic days may be found; process can be iterative; we can add another hypothesis if necessary)	3.2. eMTCT mothers did not experience informal peer support from other eMTCT mothers while attending M-B clinic days (because the clinic was not a comfortable or conducive space for relationship building OR eMTCT mothers did not want to disclose their status to other mothers)	4.2. Informal peer support from other eMTCT mothers did not make mothers feel more motivation and self-efficacy to return to care	5.2. Despite feeling motivation and self-efficacy to return to care, M-B pairs did not return for follow-up appointments due to challenges getting to care (e.g., time conflicts, transportation challenges, non-disclosure, went to an alternative health facility)	

Bonus Hypothesis		N/A	2.3. M-B pairs attended designated M-B pair clinic days for separate incentives/ programs that coincided with clinic days (e.g., nutrition demonstrations, food assistance)	3.3. eMTCT mothers experienced informal peer support from other eMTCT mothers because of formal sessions or group activities on M-B pair clinic days, which facilitated relationship-building between eMTCT mothers 3.4. eMTCT mothers experienced informal peer support on M-B pair clinic days because of their interactions with linkage facilitators at the care point	4.3 eMTCT mothers were motivated to return to care because they felt less stigmatized by HIV-negative patients (because of peer support from other eMTCT mothers) on the M-B pair clinic days 4.4. eMTCT mothers were motivated to return to care because they formed strong relationships with health facility staff (and felt supported and non-stigmatized) because of attentive, focused service by staff on M-B pair clinic days)	5.3. M-B pairs returned to the health facilities for follow-up appointments because of other reasons (….iterative process…)	BONUS OUTCOME: Increased retention in care for eMTCT M-B pairs over time, past the close of PHFS (September 2015–October 2018)

CAUSAL MECHANISM 2: Quality improvement supervision and coaching contributing to improved and sustained quality improvement work

PHFS program area: Quality improvement

Intervention: Supervision and coaching to health facilities by regional and district QI coaches

Outcome: Improved and sustained QI work over time

	Intervention	1	2	3	4	5	Outcome
Component	QI supervision and coaching to health facilities by regional and district QI coaches	QI coaches made contact with assigned facility-based teams	QI coaches provided initial and ongoing supervision, technical support, and motivation to the facility-based teams around key QI issues (e.g., choosing and monitoring indicators/ projects, identifying and implementing change ideas)	Facility-based QI team members gained QI skills, felt accountable to the QI coach, and felt motivated to do QI work	Facility-based teams performed QI work	Facility-based QI teams saw improvement in defined indicators and patient outcomes and felt motivated to continue QI work	Improved and sustained QI work on PMTCT over time throughout PHFS
Actor		QI coach	QI coach	Facility-based QI team	Facility-based QI team	Facility-based QI team	Facility-based QI team

Data Source		1. Focus group with district QI coaches 2. Focus group with regional QI coaches 3. Focus group with facility-based QI team members 4. Red supervisor visitor book (look for first entries by regional and district coaches)	1. Focus group with district QI coaches 2. Focus group with regional QI coaches 3. Focus group with facility-based QI team members 4. Red supervisor visitor book (look for entries by regional and district coaches)	1. Focus group with district QI coaches 2. Focus group with regional QI coaches 3. Focus group with facility-based QI team members 4. Red supervisor visitor book (may find information in entries by coaches on their visits with QI teams) (normal visitor book as backup)	1. Focus group with district QI coaches 2. Focus group with regional QI coaches 3. Focus group with facility-based QI team members 4.QI journals (look for frequency of meetings, notation of change ideas and action plan, tracking of indicators/ projects, overall completeness of QI journals)	1. Focus group with district QI coaches 2. Focus group with regional QI coaches 3. Focus group with facility-based QI team members 4.QI journals (look for improvement in projects/ indicators throughout PHFS)	1. QI journals (look over time and frequency of meetings, reaching targets, active journals, test and treat, how often and by whom the QI meetings were attended, notation of change ideas and action plan, tracking of indicators/ projects, overall completeness of QI journals, improvement in projects/indicators throughout PHFS) 2. Interviews with facility-based QI team members 3. Interviews with QI coaches; can see if QI is focused on eMTCT or if it has expended to other areas as well

Core Hypothesis		1.1 The coaches assigned to each health facility made contact with the facility-based team	2.1. Coaches visited assigned health facilities regularly to provide supervision, technical support, and motivation on QI topics	3.1. Through continual supervision, technical support, and motivation from QI coaches, facility-based teams built QI skills and felt motivated to perform QI work	4.1. With skills, motivation, and continued coaching, facility-based teams performed QI work at their facilities	5.1. Seeing improvements in their work, defined indicators/ projects, and patient outcomes motivated QI teams to continue doing QI work over time	6.1. Good QI work on PMTCT was improved and sustained over time, throughout PHFS, because health facility staff were motivated by improvements in indicators and patient outcomes (along with motivation from coaches)
Alternative Hypothesis		1.2 Coaches assigned to each health facility did not make contact with the facility-based team	2.2. QI coaches did not visit health facilities regularly because of time, resource constraints, competing priorities, or unpredictable circumstances, such as weather 2.3. QI coaches did not provide supervision, technical support, and motivation during facility visits (Note: Various reasons could include health facility staff having conflicting priorities during visits OR coaches not being interested/ capable)	3.2. QI teams did not build skills and feel motivated to do QI work because the QI coaches did the work for them and they became reliant on the coaches 3.3. QI teams did not build skills and feel motivated because they did not have a strong relationship with their coaches 3.4. QI teams had skills and motivation to do QI work prior to supervision and coaching	4.2 Despite skills and motivation to do QI work, facility-based teams did not perform QI work because of conflicting work priorities	5.2. Lack of progress in QI indicators demotivated teams to continue doing QI work 5.3. After seeing progress in defined indicators, QI teams felt like they no longer needed to continue doing QI work 5.4 Because of staff turnover, QI work at the facility worsened over time	6.2. Good QI work was not sustained until the end of PHFS

Bonus Hypothesis			N/A	3.5 QI teams felt motivated to do QI work because they felt accountable to the QI team leader at their facility 3.6 QI team members felt motivated to do QI work because they felt special as selected members of the QI team	4.3. QI teams performed QI work because they feared repercussions of not complying with their responsibilities 4.4. QI teams were able to perform QI work because they received additional QI resources (i.e., better journals, posters, worksheets) 4.5 QI teams performed QI work because they were motivated by the learning sessions (i.e., by competition or inspiration)	5.5. QI teams continued QI work because the QI process promoted team building and teams felt motivated to continue working with each other 5.6. QI teams did QI work because they were motivated by performance feedback (e.g., dashboards with green and red checks)	6.3 QI work was sustained until the end of PHFS because QI teams could call the QI coaches for support and troubleshooting when they encountered challenges 6.4. Good QI work was sustained past the close of PHFS until present (this will help with the legacy of PHFS) 6.5. QI has been used in other areas outside of eMTCT or PMTCT because of successful experiences with PHFS QI

APPENDIX B. EXAMPLE DATA COLLECTION GUIDES FOR EVALUATING THE PARTNERSHIP FOR HIV-FREE SURVIVAL USING PROCESS TRACING

1. Focus Group Discussion Guide for Health Care Workers

Evaluation of the Partnership for HIV-Free Survival (PHFS)
Process Tracing – Integration of Services, Mother-Baby Pair Clinic Days

FOCUS GROUP DISCUSSION GUIDE FOR HEALTH CARE WORKERS

Hello, my name is _____ and I work with _____. I am here to learn about integration of services that took place at health facilities as part of the Partnership for HIV-Free Survival or PHFS. I am interested in your experiences providing PMTCT/eMTCT services to mother-baby (M-B) pairs, particularly in regard to "M-B pair clinic days" at M-B care points. I look forward to hearing about your current experiences, as well as your experiences during PHFS, from 2013-2016.

Name of health facility: _____ District: _____

	Current title/position	Number of years working at health facility	Title/position during PHFS (2013-2016)
1			
2			
3			
4			
5			
6			
7			
8			

QUESTIONS

1. Designating and scheduling "mother-baby (M-B) pair clinic days"

a. During PHFS, when did M-B pairs come to the M-B care point?
b. How did you decide which days would be designated clinic days for M-B pairs?
c. How did M-B pairs know to come to the care point on designated clinic days?
    i. What was the process to schedule M-B pairs for appointments?
d. How were designated M-B pair clinic days different from other days at the health facility?

**During PHFS, did health facility staff schedule M-B pairs for appointments on M-B pair clinic days?*

2. M-B pairs attending appointments on M-B pair clinic days

a. How often did M-B pairs attend the health facility on M-B pair clinic days?
b. How often did M-B pairs attend the health facility on days that were not designated M-B pair clinic days?
    i. If M-B pairs did not attend the health facility for eMTCT services on their scheduled appointment days, what do you think may be the reasons?

**During PHFS, did mothers attend appointments on scheduled M-B clinic days?*

3. Informal peer support among eMTCT mothers because they attend M-B pair clinic days

a. Please tell me about the relationships among HIV+ mothers who attended the mother-baby care point during PHFS.
    i. How did HIV+ mothers interact with each other at the M-B care point?
    ii. What differences, if any, did you see in the way HIV+ mothers interacted with each other on M-B pair clinic days, compared to non-M-B pair clinic days?
    iii. How did HIV+ mothers interact with other patients at the clinic on non-M-B pair clinic days?
b. From your perspective, what role did peer support play in mother-baby pairs' experiences at the health facility?
    i. Can you tell us about how HIV+ may have supported each other at the M-B care point?
    ii. Do HIV *mothers experience informal peer support at M-B pair clinic days?*
c. From your perspective, how comfortable is the waiting area outside the mother-baby care point for mothers?
    *i. *Do you think the health facility a comfortable space for mothers to form relationships with other mothers on M-B pair clinic days?*
    *ii. *Do you think HIV+ mothers feel comfortable disclosing their status to other HIV+ mothers?*
d. In your opinion, how may stigma affect M-B pairs' experiences at the health facility?
    *i. *How did stigma differ for M-B pairs on M-B pair clinic days compared to non-M-B pari clinic days?*
e. Please describe relationships between HIV+ mothers and health facility staff at the M-B care points?
    *i. *Do you feel that the M-B care points allow mothers to build strong relationships with health facility staff? If yes, how? If no, please explain.*
*f. *Do mothers who attend M-B care points form informal or formal support groups? If yes, please tell me about these support groups with other mothers.*

g. Please describe relationships between mothers and linkage facilitators/mentor mothers at the M-B care points?
    i. **Do you feel that linkage facilitators/mentor mothers have supported mothers at mother baby care points? If yes, how have they supported mothers? If no, please explain.*

4. Motivation to return to care because of peer support

a. From your perspective, to what extent do mothers feel motivated to return to M-B care points after attending mother-baby pair clinic days?
b. What motivates mothers to return to the mother-baby care points?
    i. **Peer support?*
    ii. Strong relationships with health facility staff?
    iii. Less stigma at the clinic on mother-baby clinic days?

**Did mothers feel motivated to return to care because of peer support from other mothers?*

**Did mothers feel motivated to return to care because they felt less or no stigma on M-B pair clinic days?*

**Did mothers feel motivated to return to care because of strong relationships with health facility staff?*

**Did mothers feel motivated to return to care because of strong relationships with linkage facilitators/mentor mothers?*

5. Return for follow up because of motivation and self-efficacy

a. During PHFS, what were the reasons that mothers return for eMTCT services at M-B care points?
b. What were the things that could hinder M-B pairs from returning to M-B care points even if they wanted to return to care?
    i. (Probe: Time, transport issues, distance, money, went to another facility, had to work, no clean clothes to wear, baby was sick, mom was sick, hasn't disclosed and could not leave the house, weather, stigma etc.)

**During PHFS, did mothers return to care BECAUSE they felt motivation and/or self-efficacy to return to care on M-B pair clinic days?*

2. Focus Group Discussion Guide for Mothers

Evaluation of the Partnership for HIV-Free Survival (PHFS)
Process Tracing – Integration of Services, Mother-Baby Pair Clinic Days

FOCUS GROUP DISCUSSION GUIDE FOR MOTHERS

Hello, my name is _____ and I work with _____. I am here to learn about a program called the Partnership for HIV-Free Survival. I would like to learn about the eMTCT services at this health facility. I am speaking with you to learn about your experiences attending this mother-baby care point and how you feel as a client at this health facility. Thank you for speaking with me, I look forward to hearing about your experiences.

Name of health facility: _____ District: _____

	Age of respondent	Number of children (total)	Time since diagnosis with HIV	Number of children since diagnosis	Age of current HIV-exposed infant
1					
2					
3					
4					
5					
6					
7					
8					

QUESTIONS

1. Health facility staff designating and scheduling mother-baby (M-B) pair clinic days

a. When do mothers come to the mother-baby care point? How often do mothers attend the mother-baby care point?
b. How do mothers know the day when they should come to the mother-baby care point for appointments? Who tells mothers what day they should come?

**Do health facility staff schedule M-B pairs for appointments on M-B pair clinic days?*

2. M-B pairs attending M-B pair clinic days because they are scheduled for appointments on those days

a. When mothers come to the mother-baby care point, what other kinds of patients are at the health facility?
b. How often do mothers come for eMTCT services on days that are specifically for mother-baby pairs?
    i. Why do mothers come to the M-B care point on their scheduled appointment days?
    ii. Are there extra services/activities at the facility on M-B pair clinic days either inside or outside of the mother-baby care point? (Probe: incentives, nutrition demonstrations, food assistance, family support group, etc.)
c. How often do mothers come for eMTCT on days that are not dedicated specifically to mother-baby pairs?
    i. If mothers don't come for eMTCT services on their appointment days, why?
    ii. (Probe: Time, transport issues, distance, money, went to another facility, had to work, no clean clothes to wear, baby was sick, mom was sick, hasn't disclosed and could not leave the house, weather, etc.)

** Would you say that mothers attend appointments on scheduled M-B clinic days?*

3. Informal peer support among eMTCT mothers because they attend M-B pair clinic days

h. Please tell me about the relationships among mothers who attend the mother-baby care point.
    i. What kinds of things do mothers talk about with other mothers?
i. How have mothers helped each other at mother-baby care points? Can you tell us about a time when mothers supported each other?
    i. Emotional support: How do you think mothers feel after they talk to each other at the mother-baby care points?
    ii. Informational support: What do mothers learn from talking with other mothers at the mother-baby care point?
    iii. Tangible support: What kinds of things and services do mothers share with each other?
j. How comfortable is the waiting area outside the mother-baby care point?
    *ii. *Is the health facility a comfortable space for mothers to form relationships with other mothers on M-B pair clinic days?*
    *iii. *Do mothers feel comfortable disclosing their status to other mothers?*

k. Could you tell us about a time when mothers may have felt unsupported, alone, or excluded at the mother-baby care points?
l. Please describe relationships between mothers and health facility staff at the M-B care points?
    i. **Do you feel that the M-B care points allow mothers to have strong relationships with health facility staff? If yes, how? If no, please explain.*
m. **Do mothers who attend M-B care points form informal or formal support groups? If yes, please tell me about these support groups with other mothers.*
n. Please describe relationships between mothers and linkage facilitators/mentor mothers at the M-B care points?
    i. **Do you feel that linkage facilitators/mentor mothers have supported mothers at mother baby care points? If yes, how have they supported mothers? If no, please explain.*

4. Motivation and self-efficacy to return to care because of peer support

c. To what extent do mothers feel motivated to return to M-B care points after attending mother-baby pair clinic days?
d. To what extent do mothers feel confident in their ability to return to care if they want to?
e. What motivates mothers to return to the mother-baby care points?
    iv. **Peer support?*
    v. Strong relationships with health facility staff?
    vi. Less stigma at the clinic on mother-baby clinic days?

**Do mothers feel motivated to return to care because of peer support from other mothers?*

**Do mothers feel motivated to return to care because they feel less or no stigma on M-B pair clinic days?*

**Do mothers feel motivated to return to care because of strong relationships with health facility staff?*

**Do mothers feel motivated to return to care because of strong relationships with linkage facilitators/mentor mothers?*

**Do mothers feel confident in their ability to return to care because of peer support from other mothers at mother-baby pair clinic days?*

5. Return for follow up because of motivation and self-efficacy

c. What are the reasons that mothers come back for eMTCT services at M-B care points?
d. What are the things that could hinder mothers from returning to M-B care points even if they want to return to care?
    ii. (Probe: Time, transport issues, distance, money, went to another facility, had to work, no clean clothes to wear, baby was sick, mom was sick, hasn't disclosed and could not leave the house, weather, stigma/feeling judged, etc.)

**Do mothers return to care BECAUSE they feel motivation and/or self-efficacy to return to care on M-B pair clinic days?*

3. Focus Group Discussion Guide for Qi Coaches

Evaluation of the Partnership for HIV-Free Survival (PHFS)
Process Tracing – QI Coaching

FOCUS GROUP DISCUSSION GUIDE FOR QI COACHES

Hello, my name is _____ and I work with _____. We are trying to learn about quality improvement (QI) activities and QI coaching that took place at health facilities as part of the Partnership for HIV-Free Survival or PHFS. We are interested in your experiences as QI coaches and your work with QI teams to improve PMTCT/eMTCT services. We look forward to hearing about your experiences.

Regional or district coaches: _____

	District/region	Number of years as a QI coach with PHFS	Title during PHFS (2013-2016)
1			
2			
3			
4			
5			
6			
7			
8			

QUESTIONS

1. Initial contact between QI coach and QI team

Please describe the initial phase of QI coaching for PHFS.

b. Please tell us about the first time you interacted with your QI teams.

*c. *Did QI coaches make contact with all of the assigned QI teams?*

   a. With which of your assigned teams did you make contact? Why? With which of your assigned teams did you not make contact? Why?

2. Coaching (support supervision, mentoring) to QI teams

Please describe how you worked with QI teams at your assigned health facilities.

a. How often did you visit health facilities for QI coaching?
b. What were the barriers to visiting facilities?
c. What factors helped you visit facilities?
d. What did you do on your coaching visits?
e. How did you interact with QI teams when you visited health facilities?
   i. To what extent did you provide support supervision QI teams? Can you provide some examples?
   ii. To what extent did you mentor QI teams? Can you provide some examples?
      - To what extent did you provide guidance to QI teams?
      - To what extent did you share information about QI to QI teams?
   iii. Are there instances when you did not provide support supervision, mentoring, guidance, and knowledge-sharing? If yes, why not?

**Did QI coaches provide ongoing coaching (including support supervision, mentoring, guidance, and QI information provision) to QI teams?*

3. Skills/capacity, motivation, confidence in abilities, and accountability to perform QI work

In this section, we will talk about QI teams' skills, capacity, motivation, and accountability in relation to QI work.

3A. SKILLS & CAPACITY

o. Please describe QI teams' QI skills and their capacity to do QI work when you first began working with them.
p. How did their QI skills change over time? If their QI skills changed, why did they change? If not, why not?
q. What was the role of support supervision and mentoring in QI teams' capacity to do QI work?
   *a. *Did support supervision and mentoring (i.e. coaching) improve QI teams' skills and capacity to do QI work?*
r. To what extent do you feel that having QI skills and capacity contributed to teams performing QI activities?
   *a. *Did increased QI skills and capacity contribute to teams doing QI work?*

3B. MOTIVATION

a. Please describe QI teams' motivation to do QI work when you first began working with them.

b. How did their motivation change over time? If their motivation changed, why did it change? If not, why not?
c. How do you think support supervision and mentoring affected QI teams' motivation to do QI work?
    a. **Did support supervision and mentoring (i.e. coaching) improve QI teams' motivation to do QI work?*
d. To what extent do you feel that having motivation to do QI work contributed to teams performing QI activities?
    a. **Did increased motivation contribute to teams doing QI work?*

3C. CONFIDENCE IN THEIR ABILITY (SELF-EFFICACY)

a. How confident were QI team members in their abilities to perform QI work when you first started working with them?
b. How did their confidence in their abilities change over time? If their confidence changed, why did it change? If not, why not?
c. How do you think support supervision and mentoring affected QI teams' confidence in their ability to do QI work?
    a. **Did support supervision and mentoring (i.e. coaching) improve QI teams' confidence in their ability to do QI work?*
d. To what extent do you feel that confidence in their abilities contributed to teams performing QI activities?
    a. **Did increased confidence in their abilities contribute to teams doing QI work?*

3D. ACCOUNTABILITY

a. To what extent did QI teams feel accountable to QI coaches to perform QI work when you first started working with them?
b. How did their accountability to coaches change over time? If their confidence changed, why did it change? If not, why not?
c. How do you think support supervision and mentoring affected QI teams' accountability to coaches?
    a. **Did support supervision and mentoring (i.e. coaching) improve QI teams' accountability to coaches?*
d. To what extent do you feel that accountability to QI coaches, contributed to teams performing QI activities?
    a. **Did increased accountability to QI coaches contribute to teams doing QI work?*

4. Improvement in eMTCT indicators

e. What changes, if any, did QI teams see in client outcomes for defined indicators/projects?
f. How do you think seeing changes in those indicators/projects affected teams' motivation to do QI activities? Please provide some examples.
g. How do you think seeing changes in those indicators/projects affect teams' continuation of QI activities over time? Please provide some examples.

**Did seeing improvement in QI indicators/projects increase QI teams' motivation and continuation of QI work over time?*

ADDITIONAL QI INFORMATION TO COLLECT FROM QI COACHES:

- Take photographs of "dashboards" that coaches used to assess and record the performance of QI teams during PHFS (and now, if applicable).
- Please ask the coaches:
    - How they filled out the dashboards
    - How QI team members responded to the dashboards

4. Focus Group Discussion Guide for QI Teams

Evaluation of the Partnership for HIV-Free Survival (PHFS)

Process Tracing – QI Coaching

FOCUS GROUP DISCUSSION GUIDE FOR QI TEAMS

Hello, my name is _____ and I work with _____. We are trying to learn about quality improvement (QI) activities and QI coaching that took place at health facilities as part of the Partnership for HIV-Free Survival or PHFS. We are interested in your experiences doing quality improvement activities for PMTCT and working with QI coaches. We look forward to hearing about your experiences.

Name of health facility: _____ District: _____

	Current title/position	Number of years working at health facility	Title/position during PHFS (2013-2016)
1			
2			
3			
4			
5			
6			
7			
8			

QUESTIONS

1. Initial contact between QI coach and QI team

a. Please describe the initial phase of QI coaching you received for PHFS.
b. Please tell us about the first time you interacted with your QI coaches.
*c. *Did your QI coaches make contact with your QI team?* If not, why not?

2. Coaching (support supervision, mentoring) to QI teams

Please describe how QI coaches have worked with your QI team.

a. How often did QI coaches visit your facility during PHFS (2013-2016)?
b. Why do you think they did or didn't visit frequently?
c. What did your coaches do when they came for your coaching visits?
d. How did QI coaches interact with you when they visited?
   iv. To what extent did you provide support supervision QI teams? Can you provide some examples?
   v. To what extent did you mentor QI teams? Can you provide some examples?
      - To what extent did you provide guidance to QI teams?
      - To what extent did you share information about QI to QI teams?
   vi. Are there instances when you did not provide support supervision, mentoring, guidance, and knowledge-sharing? If yes, why not?

**Did QI coaches provide ongoing coaching (including support supervision, mentoring, guidance, and QI information provision) to QI teams?*

3. Skills/capacity, motivation, confidence in abilities, and accountability to perform QI work

In this section, we will talk about QI teams' skills, capacity, motivation, and accountability in relation to QI work.

3A. SKILLS & CAPACITY

s. Please describe your team's QI skills and capacity to do QI work when you first began working with QI coaches?
t. How did your QI skills change over time? If your QI skills changed, why did they change? If not, why not?
u. What was the role of support supervision and mentoring in your team's capacity to do QI work?
   *a. *Did support supervision and mentoring (i.e. coaching) improve your teams' skills and capacity to do QI work?*
v. To what extent did having QI skills and capacity contribute to you doing QI activities?
   *a. *Did increased QI skills and capacity contribute to your team doing QI work?*

3B. MOTIVATION

e. Please describe your team's motivation to do QI work when you first began working with your QI coaches.
f. How did your motivation change over time? If your motivation changed, why did it change? If not, why not?
g. What was the role of support supervision and mentoring in your team's motivation to do QI work?
   *a. *Did support supervision and mentoring (i.e. coaching) improve your team's motivation to do QI work?*

b. To what extent did motivation to do QI work contribute to your team performing QI activities?
    *a. *Did increased motivation contribute to your team doing QI work?*

3C. CONFIDENCE IN THEIR ABILITY (SELF-EFFICACY)

a. Please describe your team's confidence in your ability to do QI work when you first began working with your QI coaches.
b. How did your confidence in your abilities change over time? If your confidence changed, why did it change? If not, why not?
c. What was the role of support supervision and mentoring in your team's confidence in your ability to do QI work?
    *i. *Did support supervision and mentoring (i.e. coaching) improve your team's confidence in your ability to do QI work?*
d. To what extent did confidence in your ability contribute to your team doing QI activities?
    *i. *Did increased confidence in QI abilities contribute to your team doing QI work?*

3D. ACCOUNTABILITY

a. Please describe how accountable you felt to do QI work when you first began working with your QI coaches.
b. How did your accountability to your QI coaches change over time? If your accountability changed, why did it change? If not, why not?
c. What was the role of support supervision and mentoring in your team's accountability to your QI coaches to do QI work?
    *i. *Did support supervision and mentoring (i.e. coaching) increase your team's feeling of accountability to your QI coaches to do QI work?*
d. To what extent did accountability contribute to your team doing QI activities?

4**. Improvement in PMTCT indicators**

a. What changes, if any, did your QI team see in client outcomes for defined indicators/projects?
b. How did seeing changes in those indicators/projects affect your team's motivation to do QI activities? Please provide some examples.
c. How did seeing changes in those indicators/projects affect your continuation of QI activities over time? Please provide some examples.

**Did seeing improvement in QI indicators/projects increase your team's motivation and continuation of QI work over time?*

ADDITIONAL QI INFORMATION TO COLLECT AT HEALTH FACILITY

- Supervisory visit book (red book):
    - Record frequency of QI coaching visits and general content of visit
    - Take photos of coaches' entries, if possible
- General visitor book:
    - If red supervisory visit book is not available, record frequency of coaching visits
    - If red supervisory visit book is available, confirm frequency of QI coaching visits
- QI journals:

- Take photos of all pages of QI journals for several projects (from 2013 to 2018)
- Please note the trends in the quality/completeness of entries in QI journals over time:
  - Did quality and completeness of tracking change over time? If so, how did it change?
- Please note overall trends in performance in QI indicators/"projects" at the health facility over time

5. In-Depth Interview Guide for Linkage Facilitators/Mentor Mothers

Evaluation of the Partnership for HIV-Free Survival (PHFS)
Process Tracing – Integration of Services, Mother-Baby Pair Clinic Days

IN-DEPTH INTERVIEW GUIDE FOR LINKAGE FACILITATORS/MENTOR MOTHERS

Hello, my name is _____ and I work with _____. I am here to learn about eMTCT services that took place at health facilities as part of the Partnership for HIV-Free Survival or PHFS. I am interested in your experiences working/volunteering with mother-baby (M-B) pairs. I am particularly interested in your involvement in "M-B pair clinic days" at M-B care points. I look forward to hearing about your current experiences, as well as your experiences during PHFS, from 2013-2016.

Name of health facility: _____

District: _____

Title/position: _____

Number of years attending health facility: _____

Number of years working/volunteering at health facility: _____

QUESTIONS

Introduction Questions

a. What is your role at the health facility?
b. What is your involvement at M-B care points?
c. Please tell us how you interact with M-B pairs at M-B care points?
d. Was your role different PHFS (2013-2016)? If yes, how?

1. Designating and scheduling "mother-baby (M-B) pair clinic days"

d. During PHFS, when did M-B pairs come to the M-B care point?
e. How did M-B pairs know to come to the care point on designated clinic days?
f. How were designated M-B pair clinic days different from other days at the health facility?

**During PHFS, did <u>health facility staff schedule</u> M-B pairs for appointments on M-B pair clinic days?*

2. M-B pairs attending appointments on M-B pair clinic days

c. How often did M-B pairs attend the health facility on M-B pair clinic days?
d. How often did M-B pairs attend the health facility for eMTCT services on days that were <u>not</u> designated M-B pair clinic days?

i. If M-B pairs did not attend the health facility on their scheduled appointment days, what do you think may be the reasons?

**During PHFS, did mothers attend appointments on scheduled M-B clinic days?*

3. Informal peer support among eMTCT mothers because they attend M-B pair clinic days

w. Please tell me about the relationships among HIV+ mothers who attended the mother-baby care point during PHFS.
   i. How did HIV+ mothers interact with each other at the M-B care point?
   ii. What differences, if any, did you see in the way HIV+ mothers interacted with each other on M-B pair clinic days, compared to non-M-B pair clinic days?
   iii. From your perspective, what role did peer support play in mother-baby pairs' experiences at the health facility?
   *iv. *Do HIV mothers experience informal peer support at M-B pair clinic days?*

x. Please describe your relationship with HIV+ mothers at the M-B care points?
   a. How have you supported M-B pairs at M-B care points? Please provide an example.
   b. Informational support: What do you talk about with HIV+ mothers about?
   c. Emotional support: How do you think mothers feel after they talk to you?
   d. In what ways has it been difficult for you to support M-B pairs? Please provide an example.
   e. **Do you feel that linkage facilitators/mentor mothers have supported HIV+ mothers at M-B care points?*

y. From your perspective, how comfortable is the waiting area outside the mother-baby care point?
   *a. *Do you think the health facility a comfortable space for mothers to form relationships with other mothers on M-B pair clinic days?*
   *b. *Do you think HIV+ mothers feel comfortable disclosing their status to other HIV+ mothers?*
   *c. *Do HIV+ mothers feel comfortable disclosing their status to you?*

z. In your opinion, how may stigma affect M-B pairs' experiences at the health facility?
   *a. *How did stigma differ for M-B pairs on M-B pair clinic days compared to non-PMTCT clinic days?*

aa. Please describe relationships between HIV+ mothers and health facility staff at the M-B care points?
   *iv. *Do you feel that M-B care points allow mothers to build strong relationships with health facility staff? If yes, how? If no, please explain.*

*bb. *Do mothers who attend M-B care points form informal or formal support groups? If yes, please tell me about these support groups with other mothers.*

4. Motivation to return to care because of peer support

f. From your perspective, to what extent do mothers feel motivated to return to M-B care points after attending M-B pair clinic days?

g. What motivates mothers to return to the M-B care points?
   *vii. *Peer support from other HIV+ patients?*
   viii. Peer support from you (mentor mothers/linkage facilitators?)
   ix. Strong relationships with health facility staff?
   x. Less stigma at the clinic on mother-baby clinic days?

**Did mothers feel motivated to return to care because of peer support from other mothers?*

**Did mothers feel motivated to return to care because of strong relationships with linkage facilitators/mentor mothers?*

**Did mothers feel motivated to return to care because of strong relationships with health facility staff?*

**Did mothers feel motivated to return to care because they felt less or no stigma on M-B pair clinic days?*

5. Return for follow up because of motivation and self-efficacy

h. During PHFS, what were the reasons that mothers return for eMTCT services at M-B care points?

i. What were the things that could hinder M-B pairs from returning to M-B care points even if they wanted to return to care?

iii. (Probe: Time, transport issues, distance, money, went to another facility, had to work, no clean clothes to wear, baby was sick, mom was sick, hasn't disclosed and could not leave the house, weather, stigma etc.)

**During PHFS, did mothers return to care BECAUSE they felt motivation and/or self-efficacy to return to care on M-B pair clinic days?*

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This publication was produced with the support of the United States Agency for International Development (USAID) under the terms of MEASURE Evaluation cooperative agreement AID-OAA-L-14-00004. MEASURE Evaluation is implemented by the Carolina Population Center, University of North Carolina at Chapel Hill in partnership with ICF International; John Snow, Inc.; Management Sciences for Health; Palladium; and Tulane University. Views expressed are not necessarily those of USAID or the United States government. MS-19-179

978-1-64232-208-8

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