



## **PROTOCOL FOR A SCOPING REVIEW OF THE LITERATURE ABOUT USE OF THE PMTCT (PREVENTION OF MOTHER TO CHILD TRANSMISSION) PROGRAM**

By Joyce Kamanzi<sup>1</sup>, RN, PhD nursing student (email: [kamanzi@ualberta.ca](mailto:kamanzi@ualberta.ca)) & Magdalena Richter<sup>2</sup>, PhD, RN, Professor, Faculty of Nursing, University of Alberta, Edmonton, Alberta, Canada

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<sup>2</sup> Participated in the development of the protocol and reviewed the manuscript multiple times.

### **Abstract**

**Background:** The prevention of mother-to-child transmission (PMTCT) program, which was initiated by World Health Organization (WHO) in 2000 (WHO, 2007), can virtually eliminate Human Immunodeficiency Virus (HIV) infection among children. However, despite the efforts and emphasis on the PMTCT program, mother-to-child transmission (MTCT) of HIV continues to be high, especially in sub-Saharan Africa (SSA). Our aim is to conduct a scoping review to examine the literature on use of the PMTCT program in SSA.

**Methods and Analysis:** A scoping review framework, proposed by Arksey and O'Malley (2005), will guide the study. A comprehensive literature search will be performed in the following electronic databases: MEDLINE, EMBASE, Cochrane Library, CINAHL, Scopus, Web of Science Core Collection, Global Health, and Dissertations & Theses Global. The primary research articles published in peer-reviewed journals and grey literature addressing our research question will be included. Two independent reviewers will conduct title, abstract, and full text screening. Data analysis will include a thematic content analysis. The Critical Appraisal Skills Programme (CASP) tool will be used to assess papers prior to the synthesis (Public Health Resource Unit, 2006).

**Summary:** Our findings will be useful to PMTCT implementers, policy makers, and researchers working in the HIV/PMTCT program. The findings will contribute to strengthening the PMTCT program in SSA by identifying knowledge gaps and providing direction for further research. The intention of this scoping review is to build and contribute to a body of literature on the use of the PMTCT Program.

**Keywords:** Experiences of mothers using PMTCT program, PMTCT program, prevention of HIV, mothers living with HIV.

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## Introduction

United Nations Program on HIV and AIDS (UNAIDS) reported that approximately 36.9 million people worldwide are living with Human Immunodeficiency Virus (HIV), and 1.8 million people were newly infected with HIV in 2017 (UNAIDS, 2018). Globally, HIV and Acquired Immune Deficiency Syndrome (AIDS) are one of the leading causes of mortality among women of reproductive age. Additionally, an estimated 180,000 children under 15 years of age acquire HIV in 2017 and more than 90 percent of them are due to Mother-to-child transmission (MTCT). Furthermore, 90 percent of MTCT occur SSA (UNAIDS 2010). Without preventive interventions in SSA countries, between 20 percent to 45 percent of HIV positive mothers will transmit infection to their children. Among that proportion, five percent to 10 percent occur during pregnancy, 10 percent to 20 percent during labor and delivery, and five percent to 20 percent through breastfeeding (World Health Organization [WHO], 2019). The global health plan is to reduce MTCT of HIV by 90 percent and reduce the HIV related maternal mortality rate by 50 percent before 2020 (UNAIDS, 2015). To achieve this target, prevention, treatment, and care are needed and should be delivered to at least 80 percent of HIV positive pregnant women and their children.

The Prevention of Mother-to-Child Transmission (PMTCT) program is one of the strategies to prevent MTCT of HIV. WHO initiated this program with the purpose of providing guidance and assistance to national ministries of health in the selection and the provision of antiretroviral treatment and antiretroviral prophylaxis for women and infants in the context of prevention of MTCT of HIV (WHO, 2007). The PMTCT program offers a range of services before conception and during prenatal, perinatal, and postnatal (WHO, 2019). It focuses on women in their reproductive years (15-49 years), living with or at risk of HIV, to maintain their health and prevent MTCTC of HIV. For women, the PMTCT program provides a range of services for preventing HIV infection, preventing unwanted pregnancies among women living with HIV, providing Antiretroviral Treatment (ART) to maintain their health, and preventing MTCT during pregnancy, labor, and breastfeeding. The PMTCT program also supports safe childbirth practice and appropriate infant feeding (WHO, 2019). For infants exposed to HIV, the PMTCT program provides HIV testing after birth and during the breastfeeding period, as well as ART for prophylactic and effective treatment.

Initially, PMTCT was not integrated into other healthcare services when it was introduced in SSA. Later, research studies revealed the need to integrate PMTCT into maternal and newborn healthcare services specifically to reach women during pregnancy, labor, delivery, and postpartum (Mazia et al., 2009; Nkonki et al., 2007). An effort has been made to make the PMTCT program more effective; however, PMTCT implementation remains low in SSA. Consequently, the HIV transmission rate is high (Nachega et al, 2012). There is an urgent need to understand the reasons for low uptake of the PMTCT program in SSA in order to prioritize strategies to improve the uptake in SSA.

The purpose of this paper is to describe a protocol the authors developed for an upcoming scoping review. This scoping review will be guided by a framework developed by Arksey and O'Malley (2005). In this scoping review protocol, we present the intention, type of review, a description of a scoping review framework, the stages of the framework, procedures to minimize

bias, quality assessment, discussion, dissemination plan, and the new knowledge that we plan to develop.

### **Intention**

The intention of this scoping review is to assess the literature on the experiences of mothers using the PMTCT program for preventing HIV transmission in SSA. The key research objectives will be to identify factors that influence and challenge the uptake of PMTCT within sub-Saharan Africa; explore the role of health services in supporting women in the PMTCT program; critically examine the experiences of mothers during the prenatal, perinatal, and postnatal period to prevent HIV transmission; and describe how the PMTCT program can be implemented effectively. In addition, we intend to build and contribute to a body of literature on the experiences of mothers using the PMTCT program in order to assist in the prevention of MTCT of HIV in SSA.

### **Type of Review**

Many different research studies have been conducted in areas related to HIV/AIDS, PMTCT, and HIV vertical transmission (Gourlay, Birdthistle, Mburu, Iorpenda, & Wringe, 2013; Katoba, Hangulu, & Mashamba-Thompson, 2017). Some of these studies are classified as a low source of evidence that should not be used by health care professionals and decision makers to support their decision for practice and to develop policies (Whittemore, Chao, Jang, Minges, & Park, 2014). There is a need to gather, summarize, and synthesize both published and non-published research studies in order to synthesize research evidence (Benzies Premji, Hayden, & Serrett, 2006). In response to this need, healthcare systems made a large investment in facilitating evidence accessibility and utilisation (Grimshaw, Eccles, Levis, Hill, & Squires, 2012; Sckick-Makaroff, MacDonald, Plummer, Burgess, & Neander, 2016). Knowledge synthesis is a systematic approach used to summarize pertinent studies on a specific topic (Whittemore et al., 2014). Many authors (Pare', Trudel, Jaane, & Kitsiou, 2015; Whittemore, et al., 2014) provide different methods of knowledge synthesis, including meta-analysis, systematic review, mixed studies review, qualitative synthesis review, scoping review, integrative review, RE-AIM review, umbrella review, critical review, theoretical review, narrative review, descriptive review, and hybrid review.

A scoping review is used as a knowledge synthesis technique. Scoping reviews are most commonly used to determine what kind of evidence is available on the topic and in this case to synthesise evidence related to the experiences of mothers using PMTCT to prevent HIV transmission. A scoping review represents evidence by mapping and charting data (Arksey & O'Malley, 2005) and to identify research gaps.

### **Scoping Review Framework**

Arksey and O'Malley's (2005) framework provides guidance and an efficient foundation to conduct scoping review studies. It further supports the researchers to conduct a review in a transparent and rigorous way (CRD, 2009; Mays, Pope, & Papay, 2005) and provides an explicit approach, which increases the reliability of the findings. A scoping review framework will guide

the development of our protocol. We will adopt six stages to conduct the scoping review, which are: (1) identify the research question; (2) identify relevant of the studies; (3) study selection; (4) chart the data; (5) collate, summarise, and report the results; and (6) consultation.

### **Stage One: Identify the Research Question**

The main research question that will be addressed in this review is: What are the experiences of mothers using the PMTCT program to prevent HIV transmission in SSA? The research question was framed based on the SPIDER tool (Cooke, Smith, & Booth, 2012).

The SPIDER tool was used as a strategy tool to answer the research question. The SPIDER tool is a relevant tool to assist researchers in conducting effective searches for qualitative research studies in the public and/or community health area. The SPIDER tool can be used as a structure for the literature search strategy to synthesize research evidence on the experiences of individuals and communities on an issue. Furthermore, the researcher can use the SPIDER tool to get a better understanding of how a public and/or community health intervention may be received and accessed in the community (Cooke, Smith, & Booth, 2012).

SPIDER stands for: (S) Sample: which is a smaller group of participants; (PI) Phenomenon of Interest: can be behaviors and individual experiences; (D) Design: study design has a great influence on the robustness of study findings and analysis; (E) Evaluation: outcomes evaluation may have more subjective and unobservable outcomes like attitudes, behaviors, and views; (R) Research type: in SPIDER, research type can be qualitative and mixed methods (Cooke, Smith, & Booth, 2012).

In this protocol, the application of the SPIDER tool is as follows:

S: Studies that include women using PMTCT

PI: Experiences of mothers using PMTCT to prevent HIV transmission

D: Data from qualitative studies

E: Examine critically the different experiences of mothers using PMTCT to prevent HIV transmission

R: Qualitative research and mixed methods

### **Objective**

To critically examine and map the experiences of mothers using PMTCT program during the prenatal/perinatal/postnatal period to prevent HIV transmission in SSA.

### **Stage Two: Identify Relevant of the Studies**

The researchers will search numerous health databases including: MEDLINE, EMBASE, Cochrane Library, CINAHL, Scopus, Web of Science Core Collection, Global Health, and Dissertations & Theses Global. In addition to these afore mentioned databases, we will search grey literature. Grey literature will enhance the depth and breadth of the review, to show that the International Journal of Nursing Student Scholarship (IJNSS). Volume 6, 2019, Article # 36. ISSN 2291-6679. This work is licensed under a Creative Commons Attribution-Non Commercial 4.0 International License <http://creativecommons.org/licenses/by-nc/4.0/>

review is as exhaustive and comprehensive as it could be (Benzies Premji, Hayden, & Serrett, 2006). The grey literature search will include information from Google, Google Scholar, and the reports related to PMTCT/MTCT. This database will be searched/browsed for additional relevant studies. Moreover, reference lists of relevant studies and reviews will be scanned for additional studies meeting the inclusion criteria. Considering the research interest, we will conduct a hand search using the tables of contents of key journals and conduct a hand search to find articles that have been missed in databases and reference list searches. Additionally, to identify other primary research studies, we will consult existing networks, relevant national and local organizations working in the HIV/PMTCT field, and conferences organizers. In this review, HIV/AIDS, WHO, and UNAIDS websites will be hand searched for relevant studies.

A librarian with expertise in systematic review searching will be consulted for assistance in developing the search strategy, defining the keywords, and designing and refining the search for the review. The key words used in this scoping review are HIV, PMTCT, MTCT, pregnant, women, children, breastfeeding, labor, delivery, access to Antiretroviral Therapy (ART), testing, transmission, prevention, control, Africa, and sub-Saharan Africa.

### **Stage Three: Study Selection**

#### **Inclusion and exclusion criteria**

The studies meeting the following criteria will be included:

- Studies that include HIV infected pregnant and breastfeeding women and their children from birth to 2 years
- Studies that include PMTCT as an outcome
- Studies that include MTCT or vertical transmission
- Studies published between 2008 and March 2018
- Primary studies using qualitative and mixed method study design, including theses
- Studies that were conducted in Sub-Saharan Africa

The following criteria will be used to exclude the studies:

- Primary studies using quantitative method study design
- Not in English
- Published abstracts, posters, and conference publications
- Books, book chapters, commentaries, and editorials

#### **Tools and tables to use for screening**

In this scoping review, the steps of PRISMA flow diagram will be followed during our data selection (Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009). The first reader will remove duplications. Two independent reviewers will perform a title and abstract screening. We will then carry out full article screening using the inclusion and exclusion criteria. In case of disagreement, an independent third reviewer will resolve conflicts. The agreement level will be calculated using kappa rating (inter-rater agreement) to show percentage of agreement (Mandrekar, 2011). The values of 0.75 and higher represent excellent and acceptable level of agreement.

## **Data Management**

The results from the searching will be imported to RefWorks, a web-based citation manager.

### **Stage Four: Charting data**

#### **Data extraction procedure**

We will use a data extraction form for qualitative research adapted from UK National Institute for Health and Clinical Excellence (NICE) universal template (British Psychological Society & Gaskell, 2007) to record the key information of the selected primary studies. A pilot test on ten randomly selected included studies using the data extraction tool will be conducted by the researcher together with the two independent reviewers. It will help us to refine the tool, deal with discrepancies, and avoid misunderstanding or disagreement between the reviewers.

### **Stage Five: Collating, Summarizing, and Reporting the Results**

This process involves providing a narrative summary of all the included studies. Thematic analysis will be performed in this scoping review. In our descriptive numerical summary, we will describe the characteristics of included studies using qualitative content thematic analysis, which involves identification of the themes in relation to the research objectives. A qualitative software (NVIVO software) will be used in the analysis process to support thematic content analysis.

We will use the table to summarise the basic characteristics of all included studies. This will support findings comparisons and identifying any potential bias and gaps.

### **Stage Six: Consultation**

Stakeholders (for example nurses who are working in HIV clinics, experts in knowledge synthesis) will be consulted as proposed in the Arksey and O'Malley framework of scoping review. We are planning to identify and connect with stakeholders through visiting HIV Edmonton Clinics, attend workshops, and do conference presentation. They may offer additional sources of information, perspectives, meaning, and applicability of the scoping review study (Arksey & O'Malley, 2005). We will share the preliminary findings with stakeholders; this will, in turn, enable stakeholders to build on the evidence and offer a higher level of meaning, content expertise, and perspective to the preliminary findings. The consultation with stakeholders will also help to improve the clarity of scoping review evidence. We will ask for their involvement in developing the dissemination strategies.

#### **Procedures to Minimise Bias**

Multiple sources of data will be assets to avoid bias in the scoping review. Additionally, we will involve two reviewers in data screening, data extraction, and quality assessment in each

eligible article. The independent third reviewer will resolve disagreement among the reviewers. A designed information extraction form will be developed, and pilot tested.

### **Quality Assessment**

We will apply quality assessment criteria used for qualitative research to portray transparency as well as a clear approach for judging the credibility and the quality of the qualitative studies (Higgins & Green, 2008). The Critical Appraisal Skills Programme (CASP) tool will be used to assess papers prior to synthesis of the scoping review (Public Health Resource Unit, 2006). The advantages of using the CASP tool for this review is that it allows the reviewers to assess the methodological quality of research studies that will be included in the scoping review.

The CASP tool consists of ten criteria/questions and each criterion/question will be scored “1” if the researcher complied with the criterion or “0” if the researcher did not meet requirements as stated on the quality assessment tool. Each individual qualitative study will be assessed against 10 methodological quality criteria. The studies that meet 8 to 10 of the quality criteria will be considered high quality, those meeting 6 to 7 of the quality criteria medium quality, and those meeting less than 6 of the quality criteria as low quality. A study will not have to meet all 10 criteria to be included in the scoping review and an article will not be excluded based on this because the article may contain important information needed by the researchers to respond to research questions and the scoping review does not seek to assess quality of evidence (Arksey & O’Malley, 2005). Two reviewers will be involved in quality assessment and assigning a weight of evidence to each individual study based on the extent to which they considered study findings to be grounded in the experiences of HIV positive women on the PMTCT of HIV (low, medium, or high). The CASP tool does not suggest a scoring system to guide our weighting of evidence. For the purpose of the success of our scoping review, we have to establish a general rule. The studies that meet 8 to 10 of the quality criteria will be considered to be high quality, those meeting 6 to 7 of the quality criteria of medium quality, and those meeting fewer than 6 of the quality criteria of low quality.

### **Dissemination Plan**

The dissemination of research findings ranges from the sharing of draft papers among colleagues, to do presentations at meetings/seminars/workshops/conferences, to publish abstracts and papers in journals that are indexed in the major bibliographic databases (Higgins & Green, 2008). The advantages of findings dissemination are to increase the uptake of the evidence within implementers, policy makers, and researchers working in HIV/PMTCT program. The most consistent concern about findings from clinical and health care services research studies is the failure to translate evidence from research studies into practice (Grimshaw et al., 2012). To make the findings dissemination of this scoping review more effective, we will involve stakeholders to support and translate the preliminary scoping review findings and improve the uptake of scoping review evidence. In addition, we plan to present the findings at HIV/PMTCT related workshops/conferences/seminars. We plan to publish the review in a peer-reviewed scientific journal.

## **New Knowledge Development from the Synthesis of Study Findings**

The findings from this scoping review may provide evidence that will contribute to PMTCT program implementers to design PMTCT programs, especially in the prenatal, perinatal, and postnatal periods. They can effectively improve PMTCT services in SSA and illuminate the knowledge gaps on the reasons for low uptake of PMTCT program in SSA. This study has the potential to support policy makers to prioritize the strategies for improving PMTCT program uptake in SSA; in return, it will decrease MTCT rate in SSA.

### **Summary**

This scoping review is part of the larger study on the PMTCT program to prevent HIV transmission in SSA. The review will map the existing literature on experiences of mothers using PMTCT Program to prevent HIV Transmission in SSA. The HIV transmission rate is high in SSA due to the factor that PMTCT coverage remains low in SSA (Nachega et al., 2012). We will search for literature published in the past 10 years (between 2008 and 2018) to obtain the most recent information. The findings will be useful to PMTCT implementers, policy makers, and researchers working in HIV/PMTCT program, and will help to address the issue related to a high rate of MTCT of HIV in SSA. The proposed scoping review will thus contribute to strengthen PMTCT program in SSA. It will also help to find out the knowledge gaps and provide direction for further research. The intention of this scoping review is to build and contribute to a body of literature on the experience of mothers using PMTCT Program to prevent MTCT of HIV in SSA, which can improve maternal and child health.

### **Conclusion**

In conclusion, we believe that a scoping review is an essential and well-regarded approach to reviewing health research evidence. A scoping review framework will be used in this protocol and will provide an excellent foundation for good methodology. The main strength of scoping review is its ability to extract the essence of a diverse body of evidence and give meaning and significance to a topic that is both developmental and intellectually creative. Within this paper, we tried to portray a Scoping review plan for knowledge synthesis on how to prevent MTCT of HIV.

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