

**Sustaining Maternal Health Quality
Improvement Interventions at the community
level in Sub Saharan Africa**

A literature review

Nagalakshmi Venkatraman

Master of Science in International Health

August 2023 - August 2024

KIT (Royal Tropical Institute)

Vrije Universiteit Amsterdam

Sustaining maternal health quality improvement interventions at the community level in sub-Saharan Africa

A thesis submitted in partial fulfilment of the requirement for the degree of Master of Public Health

By: **Nagalakshmi Venkatraman**

India

Declaration:

Where other people's work has been used (either from a printed or virtual source, or any other source) this has been carefully acknowledged and referenced in accordance with departmental requirements.

The thesis "**Sustaining maternal health quality improvement interventions at the community level in sub-Saharan Africa**" is my own work.

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Master of Science in International Health

August 2023 - August 2024

KIT (Royal Tropical Institute)/ Vrije Universiteit Amsterdam

Amsterdam, The Netherlands

Organised by:

KIT (Royal Tropical Institute)

Amsterdam, The Netherlands

In cooperation with:

Vrije Universiteit Amsterdam (VU)

Amsterdam, The Netherlands

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Acknowledgment

Firstly, I would like to extend my heartfelt gratitude to all the lecturers and support staff at KIT, Amsterdam. Your professional guidance and the invaluable knowledge you imparted have been instrumental in my academic journey. Your tremendous care and concern have made my time away from home much more bearable. From the very beginning of this program, the direction and wisdom you have provided have been priceless, and I remain profoundly grateful.

My sincere thanks go to my academic advisor, whose encouragement and guidance have been key motivational factors throughout my MIH program. Thank you and her personal and dedicated support has had a major influence on my academic performance. Even after I returned to my home country, she ensured that all my queries and academic procedures were handled online, which was crucial for my progress. I am deeply appreciative of her efforts and ongoing encouragement.

I would like to express my heartfelt gratitude to my thesis advisor. Thank you and his unwavering support and thorough guidance, even amidst his busy research schedule, have been the backbone of my progress from the beginning to the end of my thesis. I have gained immense academic and professional knowledge from him. I am deeply grateful for his kindness and the knowledge he shared, consistently supporting me both during my time in the Netherlands and after I returned to my home country.

To my mother, I extend my heartfelt thanks and warmest hugs. You have worked tirelessly to raise me as a single mother, always ensuring my well-being and being a strong support for my endeavours, especially during my master's studies in the Netherlands. Even now, despite recovering from major cancer surgery, you have continued to meet all my needs and provide the warmth and support I needed. Thank you for being an amazing mother, and I pray for your speedy recovery.

Lastly, I am grateful to Almighty God for granting me the life and strength to embark on and complete this all-important journey.

Abbreviations:

Abbreviation	Description
ANC	Antenatal Care
CFIR	Consolidated Framework for Implementation
CHEW	Community Health Extension Workers
CHPS	Community-based Health Planning and Services
CHN	Community Health Nurses
CHW	Community Health Workers
CQI	Continuous Quality Improvement
FP	Family Planning
GHS	Ghana Health Service
HIV	Human Immunodeficiency Virus
LGA	Local Government Areas
LMIC	Low and Middle-Income Country
MCH-HB	Maternal and Child Health - Handbook Research
MDG	Millennium Development Goals
MMR	Maternal Mortality Rate
MNH	Maternal and Neonatal Health
MOH	Ministry of Health
NCHS	National Catholic Health Services
NGO	Non-Governmental Organization
PDSA	Plan-Do-Study-Act
PPFP	Postpartum Family Planning
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PMTCT	Prevention of Mother-to-Child Transmission
QI	Quality Improvement
QOC	Quality of Care
SDG	Sustainable Development Goals
SSA	Sub-Saharan Africa
UNICEF Fund	United Nations International Children's Emergency

USAID

VHW

WHO

United States Agency for International Development

Village Health Workers

World Health Organization

Abstract:

Background: According to the World Health Organization (WHO), the Maternal Mortality Rate (MMR) in sub-Saharan Africa (SSA) was 536 deaths per 100,000 live births in 2020, highlighting poor maternal outcomes. The Sustainable Development Goals (SDGs) aim to reduce the global MMR to less than 70 per 100,000 live births by 2030 (SDG 3: Good Health and Well-being, target 3.1). Improving maternal care requires evaluating and then sustaining quality care provided by skilled healthcare workers at the community level. Quality Improvement interventions have shown positive impact, however sustaining these interventions remains a challenge for many local healthcare systems.

Objective: This study aims to identify determinants impacting the sustainability of maternal health quality improvement (QI) interventions at the community level in SSA and to understand stakeholder perspectives and roles in sustaining these interventions.

Methodology: This research is a literature review of eight selected articles, evaluated using the RE-AIM implementation science framework.

Findings: Factors were analysed at three stakeholder levels: governmental agencies/representatives, community/district health workers, and community representatives and beneficiaries. Facilitators included institutionalizing interventions as national policy, and effective training and involvement of Community Health Workers (CHWs). Community leader involvement and engagement were crucial for intervention success, local ownership and subsequent sustainability. A bottom-up decision-making process, integrating community knowledge and preferences, significantly contributed to success. Barriers included insufficient funding, inadequate facilities and resources, negative CHW attitudes, staffing issues, and dilution of intervention plans after scaling up.

Conclusion and Recommendations: Factors affecting the sustainability of maternal health QI interventions were identified at three stakeholder levels. Recommendations were provided to ensure program sustainability in SSA.

Word Count: 11,003

Keywords: Maternal health, Sustainability, Quality Improvement Interventions (QII), SSA, Community.

Chapter 1: Background

Sub-Saharan Africa (SSA) is regarded as a region having among the worst maternal outcomes. A recent systematic review (2021) by the Maternal Mortality Estimation Inter Agency Group states that in 2017, 295.000 maternal deaths occurred globally of which 196.000 (66%) were reported from SSA(1). According to the estimates by the World Health Organisation (WHO), the Maternal Mortality Rate (MMR) in SSA was reported to be 531 deaths per 100,000 live births in the year 2020(2). Whereas globally, the MMR was 223 deaths per 100,000 live births. While maternal mortality remains high across Africa, the latest fact sheet (March 2023) by WHO shows that some countries managed to bring down the mortality rates such as Sierra Leone which had 1.120 deaths per 100.000 live births in 2017 which was reduced to 443 deaths per 100.000 live births in 2020(2). On the contrary, some countries have shown notable increases in maternal mortality between 2017 and 2020 which are Kenya (55%), Zambia (37%), Benin (32%), Comoros (21%), Nigeria (14%)(2). This data once again highlights the increased maternal mortality rate in the SSA region.

A systematic review on causes of maternal mortality in SSA (2021) states that the main causes for the consistently high maternal mortality in SSA are primarily obstetric haemorrhage and hypertensive disorders. Non-obstetric complications and pregnancy-related infections are among the other causes contributing to the high mortality rate in SSA(1). The review recognized that health systems in SSA are insufficiently equipped to track and study the causes and relevant data associated with maternal morbidity and mortality. As a result, the cause of death and other health indicators were found to be potentially contaminated with errors and mortality rates might be higher than initially reported(1).

According to the Sustainable Development Goals (SDGs), the aim is to reduce the global maternal mortality rate to less than 70 per 100,000 live births by 2030, (SDG 3 Good health and wellbeing; target 3.1)(3). Health interventions to reduce maternal mortality rates historically consist of preventive, curative and/or health promotional activities that address routine essential care for pregnant women and/or situational care to address complications in pregnancy. As such, interventions primarily focus on reducing maternal (and newborn) morbidity and mortality and improving the service user's overall health and survival during and immediately after the pregnancy are called maternal health interventions (2). These health interventions in pregnancy can serve as a window of opportunity to improve the overall health of women, benefiting the index pregnancy, as well as future pregnancies, and long-term health and well-being of the woman(3). The maternal health interventions focused at the community level are important, as they result in positive outcomes. Based on evidence from a community-based study on the quality of care for maternal and newborn health, community level interventions have been shown to positively affect maternal health in LMICs(4). Examples of such maternal health interventions at community level are community health posts for primary care, home visitation, trained traditional birth attendants, community mobilization and awareness programs and facilitating community-based support groups. For example, a study showed that having trained traditional birth attendants had a remarkable effect on promoting early breastfeeding and increasing institutional referrals during complications(4). As a result, maternal mortality, neonatal mortality and perinatal mortality was reduced with the traditional birth attendant training program.

In addition, in SSA, interventions at the community level are frequently formally executed by Community Health Nurses/Workers (CHNs and CHWs) and other public health nurses as they play a major role in the primary health care service delivery. Therefore, an increased number of such skilled healthcare workers can effectively reduce maternal mortality to achieve SDG3(4). Studies and empirical data suggest that not only the number of health workers but also the standard of services delivery in many countries are of very poor quality. A considerable number of maternal and newborn deaths occur in the health facilities that cannot cater for safe, effective, timely service delivery(5).

Quality Improvement:

Quality improvement (QI) interventions in healthcare refers to a systematic approach aimed at different levels of the health system in improving the effectiveness, efficiency, safety and quality of public health services or programs(6). In this context, the quality of health care is defined as “the extent to which healthcare services provided to individuals and patient populations improve desired outcomes(6). To achieve the defined quality of care, healthcare must be safe, effective, timely, efficient, equitable and people-centred. Two components are critical to consider in understanding the quality of care: provision of quality of care and the experience of service users receiving the care (6). WHO/United Nations International Children's Emergency Fund (UNICEF) encapsulates the understanding of improving quality of care under the quality-of-care framework (see figure 1) pointing out eight domains that need to be assessed, enhanced and monitored in the context of health facilities and the community making up the broader context of the health system(6). By addressing issues across these eight domains both individual and facility-level health outcomes are improved.

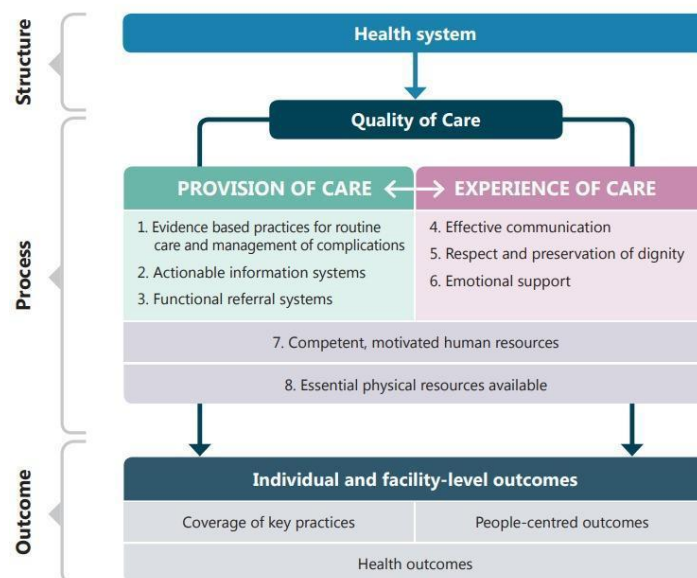


Figure 1 WHO framework for the quality of maternal and newborn health care

This framework helps to understand the ways in which the quality of care can be addressed, from the perspectives of service users and the community (beneficiaries), service providers and health managers/policy makers(6). Based on this framework, six strategies were developed for the overall improvement of maternal and newborn care. These six strategies focus on enhancing the quality of care through vigorous research, guidelines, standards of care, indicators for monitoring at global, national and facility level, effective intervention strategies, and strengthening capacity for quality improvement, measurement and programming(6).

Chapter 2: Problem statement:

Numerous initiatives and intervention strategies have been undertaken to implement quality improvement (QI) interventions aimed at enhancing maternal health, yielding positive outcomes. However, a significant challenge persists in sustaining interventions to achieve lasting benefits over time. A Continuous Quality Improvement (CQI) intervention conducted in South Africa aimed to improve the quality of care by uplifting the effectiveness of Community Health Workers (CHW). This intervention developed the facility based maternal and child health interventions to mothers residing in households served by CHWs(7). Increased care-seeking behaviour, breastfeeding practices, and awareness of Human Immunodeficiency Virus (HIV) status of pregnant women was reported as positive outcomes of QI intervention through CHWs. Training provided to CHWs was mentioned as an essential component for the increased health outcomes and potential sustainability (7). This intervention was sustained for more than 1 year following the training to CHWs. However, limited resources, intensive and skilled facilitators and tools required to perform CQI was a challenge in scaling up the intervention(7).

In another quality improvement case study on Maternal Health in Uttar Pradesh (India), a project was implemented to improve maternal nutrition through providing nutrition counselling to pregnant women attending antenatal care service in Ganesh Shankar Vidyarthi Memorial Medical College (Uttar Pradesh)(8). This intervention successfully counselled 76% of pregnant women attending Antenatal Care (ANC) services in the hospital. This resulted in improved health outcomes of pregnant women and improvement in quality of care by reporting increased body weight (0 to 84%) and haemoglobin levels (58% to 84%)(8). The case study concluded that the project was sustained by the active engagement from the staff and supportive leadership in the Department of Obstetrics and Gynaecology. The active participation of frontline healthcare workers to implement the project were considered as a key factor to sustainability(8).

While interventions such as these proved useful in improving the quality of care, a recurrent problem experienced was the inability to sustain the intervention beyond its project timelines. Sustainability in this context is addressed using various terms such as ‘maintenance’, ‘long-term’, ‘continuation’, ‘adoption’, ‘institutionalisation’, ‘integration’, ‘continuance’(9). There are multiple statements that define sustainability with subtle differences, but all these definitions are derived from Shediak- Rizkallah and Bone framework which consolidates the definition as the continuation of health benefits and program function even after the funding ends(9). Shediak-Rizkallah and Bone defines sustainability as “the maintenance of health benefits over time” and the United States Agency for International Development (USAID) states sustainability with more focus as “the capacity to maintain program services at a level that will prevent ongoing prevention

and treatment for a health program after termination of financial, managerial and technical assistance from an external donor”(9).

A study identified nine domains for the sustainability capacity for public health interventions: Programme evaluation, funding stability, political support, communication, public health impacts, strategic planning, partnerships, organisational support and programme adaptation(9). Interrelationship of these elements contribute to understanding the sustainability of public health interventions across different perspectives like decision-makers, funders, researchers and evaluators(9). Despite increasing concern and focus given to sustainability of public health interventions, the majority of these efforts still remain theoretical, especially in regard to sustaining public health interventions. The concepts of sustainability and its principles are mostly found in theories rather than in practical, empirical studies(9). A recent paper on sustainability of public health interventions comments that there is a shortage of tools to measure sustainability(9). The same study also recommends prioritizing the use of theoretically informed frameworks to evaluate, develop, implement design and sustain the interventions(9).

Sustainability should be emphasized because there is limited focus and understanding of sustainability in QI interventions on maternal health as illustrated above. It is critical to understand what practical ways there have been to sustain QI interventions, what other challenges are faced by different stakeholders and what strategies have been used successfully to promote sustainability. This knowledge can have a direct as well as a long-term impact on the maternal health of the community while helping reach the SDGs (12).

2.1. Research Question:

Which factors impact the sustainability of Quality improvement (QI) interventions in maternal health at the community level in SSA?

2.2 Objective:

2.2.1 Main objective:

1. To identify the determinants that impact the sustainability of maternal health QI interventions at the community level in Sub-Saharan Africa (SSA) region.

2.2.2 Secondary Objectives:

1. To analyse the perspectives and roles of different stakeholders and beneficiaries in sustaining maternal health QI interventions in the community.
2. To provide recommendations critical for different stakeholders within the project implementation life cycle for addressing sustainability of maternal health quality improvement (QI) interventions in the Sub-Saharan Africa (SSA) region.

Chapter 3: Methodology:

3.1 Study Design:

In this study, a literature review was conducted using different search engines including PUBMED, Science Direct, Google Scholar. A literature review shares with the reader the results of other studies that are closely related to the one being undertaken. It relates a study to the larger, ongoing dialogue in the literature, filling in gaps and extending prior studies. In literature review, the literature not only supports the issue or addresses the research question but also raises potential queries or hypotheses that should be further investigated (13).

This literature review was part of an ongoing systematic review by University Medical Centre Julius Center for Health Sciences and Primary Care, The Netherlands on ‘Scaling up of quality of care interventions in maternal health in SSA’. The studies identified for this literature review were selected based on the articles from systematic review. The article selection primarily focused on quality improvement interventions implemented at the community level while analysing the roles of different stakeholders identified. These selected articles are thoroughly reviewed and an evaluation framework, RE-AIM, was used to analyse available data to draw the key factors impacting sustainability across different interventions.

3.2 Search strategy:

The search strategy from the systematic review on scaling up quality of care interventions in maternal health in SSA was partly utilized to perform the initial screening. Subsequently, this literature review builds on the search strategy from the systematic review by drawing out interventions conducted at a primary health care/community level. The search strategy utilized in the systematic review is described below.

PCC:

The search strategy for the systematic review followed the PCC (Population, Context and Concept) method for a comprehensible approach to identifying key terminologies and search strings. This search strategy directed the researchers in the systematic search of literature to identify relevant publications. Maternal health interventions were identified as the Population in the search strategy. Maternal health refers to the health of pregnant mothers, or the mothers in the pre- or post-natal period. Maternal health interventions were therefore considered any project, program, tool, techniques, process or action geared toward addressing any maternal health issue. The broad understanding of maternal health interventions ensures a wider scope for extracting as many potential interventions as possible within the field early in the search process. The Context was based in the SSA region with a focus on primary healthcare. Sustainability and quality improvement were considered the key concepts within the study. Studies identified had to be based on processes to improve the quality of care while providing insight into the sustainability of the intervention.

The first step was the initial search performed in one database, MEDLINE (PUBMED), to identify whether the search strategy used would generate two to three predetermined articles. The search strategy was then revised by reviewing the search strings accordingly. The second step consisted of using the identified keywords and terms in all the selected databases (PUBMED, SCOPUS, Global Health, SCieLo, CINAHL and African Index Medicus). This was followed by consolidating the search outcome from all databases and performing a title and abstract screening

to identify all articles meeting the predetermined inclusion criteria. The third stage consisted of a careful full-text screening as well as a review of the reference of identified articles to prepare a final list of articles for the literature review.

The narrative description of the search strategy was tracked using Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for scoping review (PRISMA) and the outcome from the search, full text retrieval, data extraction and presentation of the evidence was populated in the PRISMA flow chart.

Primary Keywords:

‘Maternal Health’ AND ‘Community’ AND ‘Quality improvement’ AND ‘Health intervention’ AND ‘Sustainability’ AND ‘SSA’.

The systematic review and subsequent literature review focussed on the following keywords above and their related synonyms. Where applicable, MeSH terms were identified around these keywords as well. The keywords and strings were reviewed with the help of a librarian. A sample of the full text search syntax is available in the appendix 3.

Data extraction and analysis:

The articles meeting the final inclusion criteria were listed and data extracted into a data extraction sheet. The data extraction sheet is provided in the appendix 2. The selected number of studies were evaluated by utilizing the RE-AIM tool that is provided to plan and assess each component of the RE-AIM framework (framework described below). The Maintenance domain was of primary interest in this literature review. Key questions consolidated in a checklist by the RE-AIM framework were systematically addressed for each study article. Data extraction was performed by meticulously answering the relevant key questions. The results are presented in a table form for each article and consolidated through inductive analysis in the chapters that follow.

3.3 Inclusion criteria:

The research question was intended to be broad which is reflected in the inclusion criteria elements of population, concept and context.

Table 1 Inclusion and exclusion criteria

Category	Inclusion	Exclusion
Language	English	Non- English
Timeframe	2005-2023	<2005
Type of articles	Original research article, intervention or studies, sustainability studies.	Study protocols, proposals.
Study focus	Sustainability, interventions at community or primary	Any deviation from sustainability, community or

	healthcare level, quality improvement initiatives.	primary healthcare level, quality improvement.
Geographical area	Countries in SSA	Countries outside SSA
Implementation level	Post implementation	Pre implementation

3.4 Analytical Framework:

In this section, an overview of implementation science and its importance in global health will be provided. Existing implementation frameworks and its use will be explored and described.

Implementation science consists of several activities organised and planned in a particular context to bring desired changes of any intervention like a policy, project or a programme for an effective action. Also, implementation is about mobilising concepts, theories, methods from theories to how interventions work in real world settings(10). Implementation science is the study of strategies that helps to bridge between what we know, and we do. The gap is bridged by addressing the barriers that slow or stop the uptake of planned interventions.



Figure 2 Idea of implementation science

3.4.1 Implementation science in Global Health:

Regarding implementation science in global health, global actors say that ‘we know *what* we have to do, but we don’t know *how* to do it’ this means not knowing or facing challenges in translating theoretical concepts into practical applications in real-world settings(10). The WHO Commission on the Social Determinants of Health (2008) has emphasized effective interventions to enhance population health and achieve health equity(10). However, despite the well-established theoretical effectiveness of these interventions, their coverage remains limited. Implementation science aims to apply theories, concepts, and methods to better understand the mechanisms, reasons, and effectiveness of interventions in real-world settings(10).

Implementation science and sustainability:

Implementation science plays a pivotal role in ensuring the sustainability of programs and interventions by focusing on the long-term integration of evidence-based practices within organizations and communities(11). A study on developing a comprehensive definition of sustainability emphasize that sustainability extends beyond merely maintaining the initial impact

of an intervention; it also involves adapting and evolving these practices to align with changing contexts and needs(11). This process encompasses the institutionalization of programs, where new practices are embedded as standard procedures within an organization, and routinization at the individual level, where these practices become an integral part of individuals' behaviours(11). Additionally, the adaptability of programs to the local context and their capacity to respond to ongoing changes are identified as critical elements of sustainability(11). By addressing these aspects, implementation science contributes to the resilience and responsiveness of interventions, ensuring their continued effectiveness well beyond the initial funding or support phases(11).

3.4.2 Framework in Implementation science research:

The last decade of implementation science has developed the need to establish a theoretical basis of implementation strategies to facilitate implementation(12). Hence, there is a huge interest in applying theories, models and frameworks to gain knowledge about the factors by which implementation is succeeded. Implementation science now applies frameworks that are borrowed from other disciplines like psychology, sociology etc. But there are few frameworks that emerged from implementation science itself(12). In the study of implementation theories, Nilsen quoted that implementation is a process of diffusion, dissemination and implementation. Diffusion is a passive, untargeted and unplanned spread of new practices, dissemination is an active and planned spread of new practices on a targeted audience. Implementation is a process of integrating those practices within a setting(12). Theories, frameworks and models exist to describe the process of translating research into practice, understanding the factors that influence implementation outcomes and evaluating implementation(12).

There are five categories of such theoretical approaches and models. They include:

Table 2 Theoretical approaches in implementation science.

CATEGORY	DESCRIPTION	SOME EXAMPLES
Process models	Mainly designed to guide the process of translating research into practical applications(12).	Model by Huberman, the K2A framework, the Ottawa model
Determinant frameworks	Help to specify the enablers or barriers that determine the implementation process(12)	PARIHS, the conceptual model, framework by Gurses, framework by Nutley
Classic theories	Originate from other disciplines like psychology, sociology providing aspects of implementation(12).	Theory of diffusion, social networks theories, communities of practise
Implementation theories	Developed directly by implementation researchers exploring implementation strategies and outcomes(12).	Implementation climate, absorptive capacity, normalization process theory

Evaluation frameworks	Help to understand the factors that lead to successful and unsuccessful implementation outcomes(12).	RE-AIM framework, PRECEDE-PROCEED
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The evaluation frameworks such as PRECEDE-PROCEED model and RE-AIM framework are often used to evaluate implementation programs in the field of public health and relevant as an analytic framework in this literature review(12).

3.4.2.1 PRECEDE-PROCEED model

PRECEDE stands for Predisposing, Reinforcing, and Enabling Constructs in Educational Diagnosis and Evaluation. PROCEED stands for Policy, Regulatory, and Organizational Constructs in Educational Diagnosis and Environmental Development(13). The PRECEDE-PROCEED model is widely used to understand and determine the health needs that are required for designing, implementing and evaluating health promotion and disease prevention programs to address those health needs (13). PRECEDE provides structure for planning health programs whereas PROCEED supports in laying out the implementing and evaluating the health program. In order to determine the effectiveness and outcomes of interventions as well as the long-term sustainability of the intervention, a process evaluation, short-term evaluation, intermediate evaluation and/or long-term evaluation should be undertaken. Certainly, it is important to take into account all the above components required for the program and what the available resources are for the implementation and sustainability of the intervention. These are dynamic and adaptable over a time(13).

3.4.2.2 RE-AIM framework:

RE-AIM stands for Reach, Effectiveness, Adoption, Implementation, Maintenance. Table 3 provides a detailed overview of the different domains making up the framework. The RE-AIM framework aims to explicitly address the factors that can improve sustainable adoption and implementation of effective, generalizable, and evidence-based interventions(12).

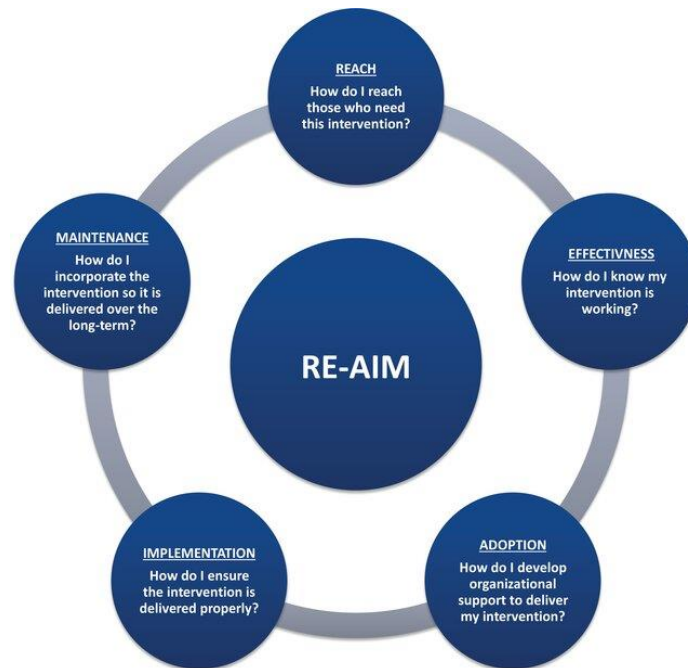


Figure 3 RE-AIM framework

Table 3 RE-AIM abbreviation

	Elements	Description of the elements	Outcome measure
R	REACH	The absolute number, proportion, and representativeness of individuals participate in a given initiative, intervention, or program(14).	Percent individuals who participate, based on valid denominators. Use of qualitative methods to define the representativeness of the participants in the intervention(14).
E	EFFECTIVENESS	Effectiveness is the impact of an intervention on the outcomes including negative effects, quality of life and economic outcomes(14).	Effect of primary and broader outcomes (eg: mortality/morbidity rates, quality of life, perceived experiences, etc.)(14)
A	ADOPTION	The proportion and representativeness of settings and intervention agents (people who deliver the program) who are willing to initiate a program after its testing phase. This can be assessed at both setting level and user level(14).	Setting level: Setting exclusion, percent of settings approach to participate. Staff level: Staff exclusion, percent of staff invited to participate, characteristics of staff participation and qualitative analysis of staff participation and representation(14).
I	IMPLEMENTATION	Implementation refers to the fidelity or adherence to the various elements of an intervention's protocol, including consistency of delivery as intended and the time and cost of the intervention. At a setting level, this refers to various elements of the intervention protocol and at an individual	Proportion of the intervention protocol delivered (adherence/ consistency), adaptations made during the study as well as time and money required or consumed for the intervention(14).

		level, it refers to client’s use of the intervention strategies(14).	
M	MAINTENANCE	Maintenance refers to institutionalization of an intervention and/or policy or the extent to which an intervention becomes a part of routine organizational practice. At an individual level, maintenance also explains the long term of effect of an intervention on the users or benefactors(14).	At the individual level, primary outcome such as ≥ 6 months follow up after final intervention is done, effects of subgroups over a long time, differential rates by patient condition. At the setting level, how the program is adopted after final intervention is done including a discussion on sustainability strategies and challenges(14).

The Maintenance domain of RE-AIM framework explicitly analyses institutionalization of an intervention and/or policy or the extent to which an intervention becomes a part of routine organizational practice. It provides guidance on investigating how an intervention is adopted after the project timeline has concluded and includes a review of sustainability strategies and challenges experienced. In addition, in a study on pragmatic applications of RE-AIM for healthcare initiatives in community and clinical settings, it is concluded that the RE-AIM framework is less complex than other evaluation frameworks such as the PRECEDE-PROCEED model(15). The PRECEDE-PROCEED model is known to have more components and measures to be addressed which challenges the community or the participating organization and leads to lower interest(15). As such, the model may have a direct impact on the workload and subsequent evaluation results. Whereas, RE-AIM is regarded as a less complex model, intuitive and easily understandable(15). The RE-AIM framework in a simple manner directly addresses “who, what, where, how, when and why” which is easier for decision-makers to utilize in planning and evaluating interventions(15). It is for these reasons that the RE-AIM framework is utilized in this literature review to help understand the factors to be considered to ensure an intervention is successfully sustained within a local community.

For example, the evaluation of the implementation of the Maternal and Child Health Handbook (MCH-HB) program in Angola is a notable study utilizing the RE-AIM framework(16). This evaluation, recommended by the World Health Organization, aimed to promote the utilization of health services from pregnancy to early childhood(16). The study assessed the MCH-HB program using an overall achievement score and identified barriers and facilitators impacting the program's sustainability and its potential adoption in other settings(16). The results indicated that while the achievement of the 'reach' and 'adoption' dimensions was high, the 'implementation' and 'maintenance' indicators were low(16). Key barriers to implementation and maintenance included inadequate management and supervision of the MCH-HB in health facilities, insufficient training and competence among health workers, human resource shortages, a poor learning environment, and a lack of resources within health facilities(16).

The straightforward and simplistic approach in evaluating public health programs offered by the RE-AIM framework is leveraged in understanding the sustainability of quality improvement interventions for maternal health in local communities in SSA(16).

Chapter 4: Results

The following chapter describes the selection of sources of evidence in accordance with the PRISMA guideline, characteristics of sources of evidence and synthesis of results in accordance with the main domains of the RE-AIM evaluation framework.

4.1 Selection & characteristics of sources of evidence

The primary database search from PUBMED, SCOPUS, Global Health, SCieLo, CINAHL and African Index Medicus yielded 10028 articles. After removal of duplicated studies, 6093 articles were screened based on title alone to reduce articles to a more manageable size. The title only screening was conducted using the aforementioned eligibility criteria regarding countries (Sub-Saharan African countries), field of practice (maternal health) and type of publication (excluding study protocols). The title only excluded 4403 articles, leaving 1690 articles. The remaining 1690 articles were screened based on their titles again and abstracts. Using the full aforementioned eligibility criteria, 1649 articles were excluded. The remaining 41 studies explicitly provided information on the implementation of a community health intervention focussed on improving the quality of maternal healthcare within the Sub-Saharan African context. The ensuing full-text review focussed on identifying aspects of sustainability within the implementation process of the community health intervention as well as the stakeholders involved within this process if any. After a further exclusion of 33 articles after full-text review, 8 studies from the database search were included in the final literature review. Eight (8) articles were selected for this literature review as the inclusion criteria exclusively focuses on the role of community health workers in the scalability and sustainability of community health intervention. These 8 articles covered community interventions across different parts of SSA including Nigeria, Uganda, Rwanda, Ghana, Benin, Mozambique.

Figure 4 provides a structured overview of the selection process of the sources of evidence as defined by the systematic review that eventually supported this literature review.

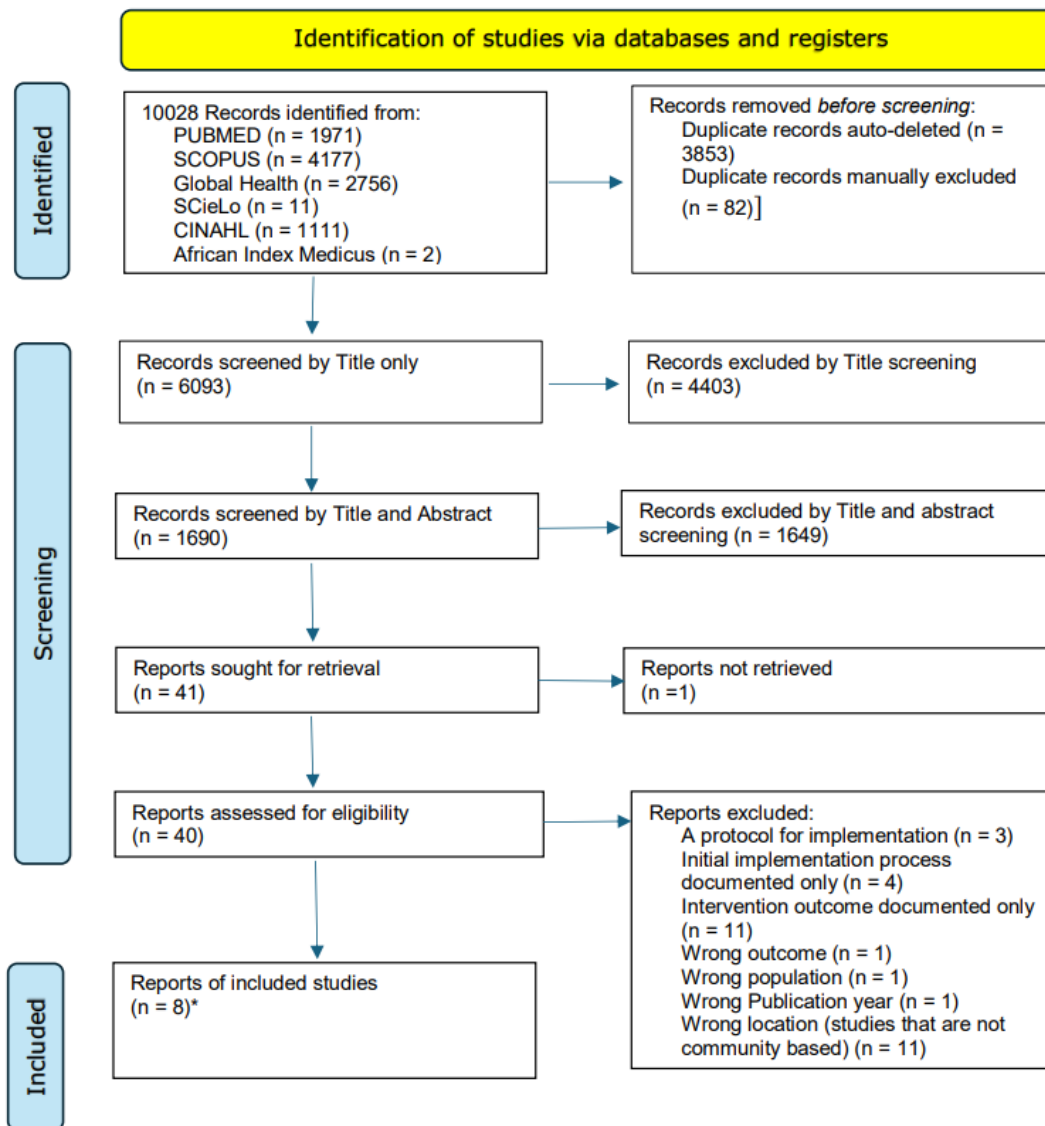


Figure 4 PRISMA flow diagram

4.2 Synthesis of results

The RE-AIM framework guided the analysis of the included articles. The articles were examined across the key domains of Reach, Effectiveness, Adoption, Implementation and Maintenance. All 8 articles specifically focus on describing or evaluating the implementation and sustainability for a specific intervention and as such the key domains of the RE-AIM framework are used to analyze these. Any initial implementation or pilot of an intervention served as relevant background information on the intervention itself but did not directly form part of the analysis. The focus was primarily the progress of the intervention after it had been implemented in a particular community setting.

The first table is the descriptive characteristics of the included articles including authors, year of publication, geographic location of study, study aims, design, methodology key findings/results. This is followed by tables for each RE-AIM framework domain providing an overview of the extracted data per article per domain.

Table 4 Descriptive characteristics of included articles

	Authors	Publication Year	Country	Study aim	Methodology	Intervention	Implementation Outcome Measured
1	Christine Kim	2019	Uganda (Busia and Oyam district)	Evaluation of quality improvement of Community Based Family Planning	Process evaluation	Community Based Family Planning (CBFP)	Increased uptake in FP service and improved women's health outcome
2	Cindy Hutchinson	2010	Benin	Evaluation of near-miss cases	Process evaluation	near-miss case reviews and audit	Identification of 6 themes impacting sustainability of near-miss case audits.
3	Deepthi Wickremasinghe	2021	Nigeria (Gombe State)	Evaluating sustainability and scalability of VHW scheme`	Process evaluation	Village Health Workers scheme for MNCH services	Emergence of six key actions considered to promote sustainability.
4	Jaime Haver	2015	Rwanda, Nigeria	Exploring the MNH tasks shift to CHWs by enhanced training	Process evaluation	MNH training and task shifting to CHWs	service delivery to women was improved by community based intervention
5	Nanaa A. Y. Twum-Damso	2012	Ghana	Quality improvement intervention on MNCH through developing the knowledge of health care providers	Design and implementation progress	Quality Improvement program in national MNCH strategy	Adoption of QI by local stakeholders and scale up of QI interventions from 3 districts to 38 district and all 29 catholic hospitals in Ghana
6	Celso Inguane	2023	Mozambique	Implementation assessment of SAIA- SCALE	Process evaluation	Implementation of Scaling-up the Systems Analysis and Improvement Approach" for Prevention of Mother-to-Child HIV Transmission in Mozambique (SAIA-SCALE) for mother to child HIV transmission	Enhanced scalability of SAIA for PMTCT through alignment with organizational structures, processes, and priorities at the primary healthcare level
7	Petal Petersen Williams	2015	Cape town	Exploring the feasibility of SBIRT approach to pregnant women receiving antenatal care	Process evaluation	Screening for alcohol and other drug use among pregnant women (SBIRT)	Agreement among healthcare providers on the significant need for integrating screening, brief intervention and referral for substance use among pregnant women into routine care.
8	Abigail R. Krumholz	2014	Ghana	Evaluation of community based primary care and CHPS	Process evaluation	Community based primary care through adoption of CHPS	Development of strategies to integrate leadership development from the Navrongo Project into CHPS scale-up activities for improved impact replication

Table 5 Overview of the Domain Reach

DOMAIN	Title/ First author / Publication year/ Country	Data Extraction
REACH	Kimet al. 2019/ Uganda	Three learning centres were previously established in Busia district of Uganda with Oyam district as the scale-up site. The site selection was decided by the MOH. The target QI team consisted of Village Health Teams (VHT), midwives and their clients including district health managers, health-centres in-charges. The selection criteria was primarily based on their prior experience being part of a QI team(17)
	Hutchinson, 2010	The Near Miss Case Review (NMCR) sustainability was studied in five referral hospitals of Benin: Two national university hospitals, one regional facility, one district hospital and one catholic hospital These facilities represented institutions where near miss cases were reportedly high and therefore also represented a larger proportion of potential cases to be reviewed through the country (18).
	Wickremasinghe, 2021	Community health workers referred to as Village Health Workers (VHWs) were identified and selected with the help of community leaders and religious leaders. State health agencies were also involved in the administrative component of the program. Women, between ages 18 to 49 years, preferably married and literate in English were selected in this program as they were considered(19).
	Jaime Haver/ 2015/ Rwanda, Nigeria	Rwanda: Community based MNH care focussed to reach pregnant women through Animatrice de santé Maternelles (ASM), who are female CHWs and the ASMs were extended to reach 100 to 150 households. The ASMs were selected by the community members under the in charge of village coordinator and the selection was finally approved by village leaders and community health supervisors. Nigeria: This program reached around four to six villages with volunteers who were trained by health facility staff. Jhpiego recognized the positive results through community directed intervention in the treatment of parasite infection and implemented that in malaria control in pregnancy. Jhpiego is the main stakeholder involved in the intervention(20).
	Nana A. Y. Twum-Damso / 2012/ Ghana	Geographical reach: The 1 st phase of QI improvement collaborative was launched in 3 districts and a catholic diocese and scaled-up to all the health facilities in 38 districts of the northern region of Ghana and 29 catholic hospitals were selected for the program in the rest of the region. QI Teams: Each team in the health facility forms a team of 4 to 10 from different disciplines and locally selected QI teams. The nationwide quality improvement project was established through the Ministry of Health. Institute for Healthcare Improvement (IHI), the National Catholic Health Services and Ghana Health Services (GHS) partnered together and delivered the project as delivering agency(21)
	Celso Inguane/ 2023/ Mozambique	The SAIA SCALE implemented in 12 districts of Mozambique and the study participants for the assessment were from 7 districts conducted at 21 health. All the 21 health facilities are primary health centres which were selected purposefully. There were 85 participants included in the study for IDIs and FDGs. 98% (83/85) of the participants were women and 49% (41/85) of the participants were frontline nurses. The selection criteria were based on being government employee, experience in the intervention field(22)
	Petal Petersen Williams/ 2015/ Cape Town	Two obstetrics units offering primary health care to huge urban township communities were purposefully selected as research sites by Western Cape Department of Health. The health care professionals included nurses, midwives, mental health nurse, HIV counsellor, health promoter, midwife obstetric unit manager. Pregnant women with alcohol and other drug use in antenatal care were the target beneficiaries for this study. This is due to the fact that Western cape records the highest fetal alcohol spectrum disorder (FASDs) in the world, which is a most severe risk of alcohol during pregnancy. And along that, 46% of a particular subgroup of pregnant women in the province use tobacco(23)
	Abigail R. Krumholz/ 2014/ Ghana	The study aims to reach child health and fertility through community-based nurses who were also referred as Community based Health Officers. Health managers were interviewed and discussed strengths and weaknesses of both the project Navrongo and CHPS. The Navrongo project was scaled up as a national policy by the government and adopted as CHPS(24).

Table 6 Overview of the Domain Effectiveness

DOMAIN	Title/ First author / Publication year/ Country	Data Extraction
EFFECTIVENESS	Christine Kim/ 2019/ Uganda	Effective positive outcomes were shown in both the districts in which the FP clients return to follow up check-ups, increase in male involvement in the FP program and there is an improved result in VHTs counselling the clients on the FP methods. The link between the health centres and the health services provided in the community were strengthened through the QI process(17)
	Cindy Hutchinson / 2010/ Benin	The participants including the policy makers reported the advantage was the perceived ability to improve the quality of care. Understanding women's experiences in health services, promotion of teamwork, increase in job satisfaction and assisting in supervision of professional practice are the positive outcomes. The disadvantage was the discussion on fear of blame and punishment. These discussions brought about distress and tear to the individuals and this also mentions to be a hindrance to sustainability(18)
	Deepthi Wickremasinghe/ 2021/ Nigeria	As a result of interventions and discussions with the interventions, six key actions were mentioned as essential to promote the VHWs scheme sustainability. The result says the VHWs are trained and fully operational and also trained additionally and the program was delivered efficiently. VHW's knowledge, status were raised in the communities through the program. Unintended consequences are shortage of staff, facilities, medical supplies within primary healthcare facilities, this shortage of facilities was insufficient to fulfil the demand in antenatal care delivery(19).
	Jaime Haver/ 2015/ Rwanda, Nigeria	Rwanda: Between the year 2010 and 2011, 30 districts received training for community base MNH. 19 248 women were accompanied during danger in health facilities and 1 50 207 women in labor were accompanied. There were 2433 ASMs receiving training in community based MNH. Nigeria: the coverage of insecticide nets distributed to communities was increased and the attendance in prenatal care was also reported to have a higher coverage. The CDI program has significant effect in intermittent preventive treatment in pregnancy adherence were large and the proportion of women taking sulfadoxine-pyrimethamine was increased to five doses from two during pregnancy by community directed distribution compared to the control groups.(20)
	Nanaa A. Y. Twum-Damso / 2012/ Ghana	The intervention resulted in the development of system thinking, active participation of managers, frontline workers, generation of new ideas from the local data, ownership and sustainability. Difficulty in recruitment, double training to the staff, delay in process are considered as negative stages of the intervention. Community engagement, shifting MNH tasks in health facilities to CHWs, scaling up the interventions and increased 10-fold results in the 1st phase are the positive effects(21).
	Celso Inguane/ 2023/ Mozambique	The intervention equipped frontline nurses and district managers competencies to identify and solve problems timely and independently. Compatibility of the intervention with organization structures, process and priorities of the health facility level, community engagement, relative priority of the intervention at district level, leadership engagement, executing the intervention as planned are the facilitators of effectiveness. The nurses and managers were inspired by this intervention to improve humanization services to mothers and HIV exposed babies. The intervention regarded PMTCT as a national priority which will influence countries with similar setting to adopt the same concept(22)
	Petal Petersen Williams/ 2015/ Cape Town	The important outcome is the idea of integrating the intervention with the routine care provision. The provision of training, guidance, support and monitoring was essential to many staff in the clinic. A clear procedure and referral pathways was developed as a success of the intervention. The staff working at the clinic level was in a negative attitude towards women using alcohol or other drugs which was considered as a barrier. The staff weren't concerned about the importance of this intervention and along with that, they felt the intervention as an additional work. Language was a constraint in carrying out the interventions and the facility was mentioned to have a limited facility which hinders the extension of reach(23).
	Abigail R. Krumholz/ 2014/ Ghana	The original Navrongo Project successfully achieved significant outcomes, including a 15% decline in fertility rates and over a 50% reduction in childhood mortality in areas served by Community Health Officers (CHOs). CHPS was successfully scaled up due to local initiatives but there is a lack of institutional commitment. However, these impressive results were not fully replicated during the national scale-up of the Community-based Health Planning and Services (CHPS) programme. Although CHPS improved post-infant childhood survival rates, it did not impact infant survival rates or achieve the same level of success in reducing fertility rates as the original Navrongo Project(24)

Table 7 Overview of the Domain Adoption

DOMAIN	Title/ First author / Publication year/ Country	Data Extraction
ADOPTION	Christine Kim/ 2019/ Uganda	The Ministry of Health selected two districts: Busia (learning site) and Oyam (scale-up) from setting up CBFP learning centres. The three health centres which already have CBFP program in place were composed together to establish a QIC learning site. The programmes in these centres were delivered by community health workers or Village Health Teams (VHTs). There were 129 participants who took part in the program from both the districts. The average age of VHTs participating are 44.2 and their experience accounts for an average of 12.7 years of that which includes 3.8 years of experience in CBFP program. The experience of midwives participating is 7.9 years. Where the clients average experience in FP is 2.6 years(17)
	Cindy Hutchinson / 2010/ Benin	The study setting is the 5 hospitals in Benin and the participants were health care workers, midwives, obstetrics, social workers and policy makers from the Ministry of health. Two members representing the MOH and eight health-care workers were the participants. The interview guide was translated into French and changed according to the advice of a local scientist(18).
	Deepthi Wickremasinghe/ 2021/ Nigeria	The intervention is adopted and delivered by VHWs, CHEWs, Maternal and Newborn health coordinator and Gombe state Primary Health Care Development Agency. And there were 57 wards in Gambe state and a total of 1200 VHWs adopted the intervention. One of the highlighting adaptations made is increasing the stipends to VHWs from 4000 Naira to 6000 Naira bringing huge motivation to the VHWs which is a boost to the project. While implementation, a Ward Development Committee(WDC) member observed the recruitment criteria of having English literacy could limit the scheme's reach and they would end up not even getting a single person and hence in 2018, the selection criteria shifted to the literacy in Hausa, a most prevalent language in Gombe state(19)
	Jaime Haver/ 2015/ Rwanda, Nigeria	Rwanda: Rwanda: The program was implemented in a few districts of Rwanda and scaled up to national level. At the facility level, MOH selected 3 CHWs and one of that was ASM (female CHW) focussed specifically on pregnant women. Technologies like mobile phones were adopted to achieve sustainability. Nigeria: Jhpiego adapted community involved principles in implementation for malaria in pregnancy in Akwa Ibom state in Nigeria. This is the state reported to be endemic in Intermittent preventive treatment in pregnancy (IPTp) and insecticide-treated net distribution was low. Each group of the community selected 2 Community Directed Distributors (CDDs) who promoted the intervention by recordkeeping, insecticide-treated net distribution. The primary health facility staff received training on malaria in pregnancy and reached out to the group of communities (clans) and village(20)s.
	Nanaa A. Y. Twum-Damso / 2012/ Ghana	Health facilities in 38 districts of the northern region of Ghana and 29 catholic hospitals were selected for the program in the rest of the region. The 'Change agents' who are typically public health nurses, disease control officers. Regular visits, discussions, support, site visits were performed by project facilitators and change agents to the QI teams for the testing and evaluation of QI concepts. The project adopted Model For Improvement (MFI) for QI methods along with Institute for Healthcare Improvement (IHT) improvement collaborative method. Plan-Do-Study-act (PDSA) was referred to monitor, determine the change on Continuous quality improvement(21)
	Celso Inguane/ 2023/ Mozambique	21 Health facilities in the seven provinces of Manica adopted this qualitative assessment in two intensive and one maintenance phase. There were 85 participants included in the study and out of that 98% were women and they were frontline nurses and Maternal and Child Health (MCH) health facility managers. The interviewers held the IDIs, and they were graduates from social sciences, public health, humanities etc and at least 3 years of experience in MCH research or HIV. One hour long IDIs and FDGs were conducted in Portuguese and it was translated into English during data analysis. The findings were presented in Portuguese which is the official language of Mozambique(22).
	Petal Petersen Williams/ 2015/ Cape Town	In the Western Cape region, near Cape Town, a network of midwife obstetric units has been set up to ensure geographical accessibility to obstetric services. These units offer outpatient primary obstetric care to women in specific regions and redirect those patients with high-risk pregnancies to secondary or tertiary hospitals following established guidelines. The health care providers' attitude like scolding the women who were using alcohol or other drugs was mentioned to be altered. Because they could affect the women's response to the intervention. The interviews were conducted in English but few Afrikaans speaking participants expressed themselves in their native language(23).
	Abigail R. Krumholz/ 2014/ Ghana	The Navrongo project was adopted as a national policy in the year 1999 and scaling up as Community-based Health Planning and Services (CHPS) in the year 2000. Local government, community leaders, health workers were involved to adopt and implement CHPS. The transition of the project adopted disseminating site visits, community engagement, that were integral to Navrongo project but this adoption was supportive(24)

Table 8 Overview of the Domain Implementation

DOMAIN	Title/ First author / Publication year/ Country	Data Extraction
IMPLEMENTATION	Christine Kim/ 2019/ Uganda	During the learning session, the Busia VHT and Oyam VHTs shared their records, experience in QIC and implementation process. Busia VHTs shared their run charts, supervision checklist, mentorship schedules with midwives, monthly meeting updates and presented how they delegated the monthly reports. Oyam VHTs were inspired by Busia and mentioned they believe they can also adapt new change ideas and bring successful outcomes. The list of challenges in Busia is the limited supportive environment like limited transport expenses, unreliable stock and supplies whereas the QIC complexity(17).
	Cindy Hutchinson / 2010/ Benin	Health workers and policy makers were explored to understand the views of the sustainability of near miss case reviews as a key element. All the interviews were conducted by the lead author of this study. There was significant financial cost and time needed to conduct the interviews. This cost requirement was a barrier to sustain the intervention(18).
	Deepthi Wickremasinghe/ 2021/ Nigeria	Integration of VHW scheme with Community Health Influencers and Promoters Services (CHIPS) program to become CHIPS agents. Adding to it, the preferred age of married women is also shifted from 15 to 40 to 18 to 49 which increased the community acceptance of VHWs. Training to VHWs and additional training to them for delivering effective messages. Sensitizing community members, community leaders and husbands during the implementation developed a positive relationship between VHWs and the community. The husbands expressed disapproval for the shorter length hijabs provided to the VHWs with the backpacks, promoting the adaptation of longer hijabs(19).
	Jaime Haver/ 2015/ Rwanda, Nigeria,	Distribution of misoprostol by trained CHWs and female CHWs. Lifesaving intervention by distributing contraceptives and injections to women. Insecticide-treated net distribution. Distribution of misoprostol to women on home-based births. Selected ASM were given six days of training and education on community based MNH. . Each cooperative receives \$1500 to \$6000 per quarter. This program was first implemented in a few districts but later scaled up to national level. Nigeria. The CDDs were employed to assist in managing various interventions, including promoting health, providing Intermittent Preventive Treatment in pregnancy (IPTp), maintaining records, and distributing insecticide-treated nets. Staff at the primary healthcare facilities underwent in-service training on malaria and its effects during pregnancy(20).
	Nanaa A. Y. Twum-Damso / 2012/ Ghana	The program was implemented by two phases of learning sessions(workshops). The QI teams were fully supported with transport, board, lodging associated with the learning sessions. Training in facilitation and QI methods were given to two District Health Management Teams (DHMT) and Regional Health Management Team (RHMT). Engagement of leaders from GHS and NCHS was a key strategy to seek guidance on design, implementation at national, regional and district level(21).
	Celso Inguane/ 2023/ Mozambique	Two intensive phases and one maintenance phase with 12 months each in all the 12 districts. The district managers were accompanied by nurses to support SAIA cycles and in the maintenance phase the district managers received financial support. For the first 12 months, the nurse accompanied the district managers to support SAIA cycle whereas in the maintenance phase, the district managers received only financial support. Also, the managers in MCH and PMTCT received additional training about SAIA implementation strategy before the intensive phase. The program was implemented by carrying out In-Depth Interviews (IDIs) and Focus Group Discussions (FGDs). Study nurses and district supervisors were funded \$1500 through a small grant for their visits in the intervention.(22)
	Petal Petersen Williams/ 2015/ Cape Town	They were interviewed by the first author, and it was observed by the second author. All the interviews were taken in a span of 2 months (August - September 2011) with 40 mins for each interview. The interviews were conducted in English and few participants expressed in Afrikaans, their native language and all the interviews were audio recorded. Characteristics of the intervention, inner and outer settings, characteristics of the individuals, process were the topics discussed to understand the concepts of implementation(23)
	Abigail R. Krumholz/ 2014/ Ghana	The project Navrongo and CHPS both were integrated with health services for the implementation. Decentralization and community-based service delivery was adopted as an implementation strategy to overcome the remoteness. The program was delivered by home-based outreach and work routine where the supervisors and nurses traditionally connected with men in the community. Incorporation of community engagement in the program was valued in CHPS rather than Navrongo project. Supervision in each of the sub district by supervisor, field officer and associated staffs was mentioned as intensive during Navrongo Project in national policy(24)

Table 9 Overview of the Domain Maintenance

DOMAIN	Title/ First author / Publication year/ Country	Data Extraction
MAINTENANCE	Christine Kim/ 2019/ Uganda	Three ideas developed from the interviews are found in potential sustainability and institutionalization of QIC: Integration of QI services into other areas, district level plans and support for QI and motivation of QI teams especially VHTs and midwives. Oyam is assigned as a scale up site. Learning site in Busia was mentioned to continue for a longer time to deliver FP services for sustaining QIC. Continuing Busia CBF learning site and sustaining it without committed government and project resources remains a challenge. In Busia, funding QIC initiatives centrally and at district level is also another reported challenge. Oyam VHT mentions that the knowledge of the trained staff remains even after the organizational support stops. MOH specifies, the advantage of introducing a learning site is that other districts with similar environments can adapt and do the same(17).
	Cindy Hutchinson / 2010/ Benin	There is an assured improvement in the quality of care over a period. Barriers to sustainability to the reviews are a challenging work environment, poor leadership, insufficient training, technical support, limited human and financial assistance. External resources and support were seen as an important motivation, financial assistance and pressure to be considered during the audit reviews. MOH and maternal health policy supports Benin near-miss case audits but this study highlighted the barrier as its limited resource(18).
	Deepthi Wickremasinghe/ 2021/ Nigeria	The study highlights six actions that should be implemented to sustain the VHW scheme are strong government ownership and transition of responsibilities, adapting a scheme for sustainability, motivation to VHWs, institutionalization with health systems, financial management and fostering community ownership. The major weakness mentioned by MOH is sustaining the scheme is the funding and the weakness of resources. Travelling to long distances over hills and terrain was recorded as a challenge to VHW and CHEWs which lessen sustainability. In other hand, institutionalizing the program along with the health system involving government, non-government members and stakeholders is an effective initiation to sustainability, but with limited funding due to uncertainties(19).
	Jaime Haver/ 2015/ Rwanda, Nigeria	The cooperative paradigm was regarded as a motivating factor and solution for sustainability to support the integration of the program to sustainability. To facilitate scale-up, mobile phones were used for quick SMS transmission, enabling ASMs to input data into a digital system. Each ASM in the pilot areas was given a phone to report on community interventions, deaths, and other details to Rwanda's health system. They also used these devices to send urgent messages to health centres to help refer pregnant women quickly. Nigeria: Maintenance of CDD was achieved with the support of the primary healthcare centres as they were actively involved to recruit new CDDs if required. Based on the success of this program using CDI technique, other two communities were willing to scale it up for integrated community case management of childhood illness(20)
	Nana A. Y. Twum-Damso / 2012/ Ghana	The project was designed in accordance with the local QI capacity and ownership for the sustainable function. Further, the process was relied on the country's health information for monitoring and other factors to promote sustainability. Learning sessions were monitored by health leaders in a higher frequency, Quarterly review meetings for the change agents by health leaders for discussing the progress, facilitators and challenges, Integration of QI into routine monitoring and supervision of MNCH teamwork, QI presentations yearly twice at district and regional level are the action and techniques that promote sustainability(21).
	Celso Inguane/ 2023/ Mozambique	The scalability was enhanced by organisational structures, processes, The priority given at the primary level of health system and health care delivery was considered as a facilitator to sustain the implemented program. Financial need, lack of infrastructure are the factors that hinders sustainability. Lack of adequate health facilities, road infrastructure, accessibility to health facilities by mothers, available resources like medicine for HIV are the barriers to the effectiveness of the intervention. Less privacy in waiting homes during MCH consultations discourages mothers from seeking institutional birth. Stock out of essential medicines and materials used for the treatment of HIV could make the intervention ineffective(22).
	Petal Petersen Williams/ 2015/ Cape Town	There are multiple barriers identified like attitudes of clinic staff, limited resources in facilities, dishonesty in pregnant women about their habits, language for implementing SBIRT. The identified barriers relating to the pregnant women are lack of honesty and they consider the intervention as an add-on which requires them to stay in the clinics was reported as frustration to the pregnant women. The negative attitude of the staffs, their limited interest in the intervention were the major barriers. Lack of knowledge in staff and not knowing how to handle women with substance use is a major barrier in implementation(23).
	Abigail R. Krumholz/ 2014/ Ghana	Adopting the Navrongo Project as a national policy as CHPS was a commendable initiative to sustain the intervention. Decentralisation, mobilising district resources, leadership, community engagement are the factors supporting implementation and scale up. Resource constraints, maintaining community engagement, and continuous learning and ensuring high-quality care and bridging service delivery gaps are vital elements to address in

		terms of sustainability. Community engagement, programme expansion and institutionalisation are the notable factors that supported the scale up of CHPS. Systematic trust and an element of mistrust of this large-scale program to make it work were the crucial elements of successful scale up(24).
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4.3.1 Reach

The element Reach investigates the participating population as well as the beneficiaries within the intervention. This is accomplished by addressing three key questions: Who takes part in the intervention, who are the targeted beneficiaries of the intervention (Who does the initiative appeal to?), and do the intended beneficiaries represent the target population?. The research issue in question here is: *Are we giving enough consideration to representation in our interventions?* In the following section, we present information available in the selected articles regarding representation in the intervention.

All eight articles reported on the representation within the intervention. They primarily addressed who was involved in the implementation of the intervention as well as factors that went into the selection of the participants and /or beneficiaries. The participating health facilities were considered the largest in the country handling the majority of complicated maternal cases in Benin(18). Therefore, the outcome of the intervention was believed to likely be representative of the country. Existing facility audit teams within the facilities and hospitals were involved in the intervention(18). The audit teams were however further trained on conducting a maternal near miss review and audit in addition to the conventional maternal mortality audit conducted within the facilities(18). This implies the audit teams were likely already defined locally prior to project initiation and an external local research team within the larger project team had to work with the existing hospital audit team to build capacity around conducting near miss audits and case reviews(18).

However, within the intervention Community-based Family Planning in Uganda a new category of stakeholders were identified and involved in the implementation of an intervention(17). Within this project, a pilot site was identified through site assessment and a specific category of stakeholder (Village Health Workers) were identified as key participants through which Family Planning services would be delivered to the community to supplement the FP services already provided in district hospitals(17). It is also impressionable in this study that the involvement of community leaders was key to defining this Village Health Team and providing the local support and backing needed for the team to work effectively(17). This was also the case in the VHW scheme intervention in Nigeria and Community based Maternal and Neonatal Health (MNH) through VHW in Rwanda respectively(20). Within these studies, it was equally highlighted how, with the help and approval of community and religious leaders, village health volunteers and teams were identified and selected. An important collaboration with the state health agencies ensured the administrative component of the program as well as some preconditions for participation and financing i.e. women, between ages 18 to 49 years, preferably married and literate in English were met.

In Uganda's community-based family planning initiative, the emphasis on trust between Village Health Teams (VHTs) and clients proved crucial(17). Findings indicated that Quality Improvement Collaboratives (QICs) were effective in being client-centered, with significant perceived benefits including enhanced client satisfaction and trust. These improvements were attributed to a greater focus on protecting client privacy and confidentiality, which also led to increased engagement of men and couples in family planning services(17).

The study on factors impacting the scaling up of an evidence-based strategy of community-based primary care discussed reach and representation from a geographical perspective driven primarily by national government(24). In this article, Community-based Health Planning and Services (CHPS) aimed to transform the primary health care system by shifting the emphasis from the conventional facility-based approach towards a programme of community-based care (reference article)(24). Reach was defined as a scale-up process in which the success of the intervention in one district in Ghana was scaled up to regional and national intervention. In this case, the decision on who will take part, who the initiative appealed to and representation was driven by national authorities who had an invested interest in building a national policy and strategy on improving primary health care as part of meeting Millennium Development Goals (MDG) 4 and 5. Likewise, in another study on nationwide quality improvement in Ghana reach is also represented in the form of a national scale-up process where the success of utilizing simple quality improvement processes to solving maternal health problems under regional and subsequent national spread(21). As the Ghana Health Service was the driving partner in this intervention, the intended (planned) reach for the intervention would always be national(21). However, it followed a process of district level piloting followed by a regional spread. The initiative directly appealed to national authorities as it was directly tied to accelerating the achievement of MDG 4 and the design and implementation of the national Maternal and Child Health (MNCH) program and strategy. However, the effectiveness of the specific local intervention and direct impact to individual community members was not the primary focus(21).

Across the articles, it is already evident that determining the target population varied and was dependent on the key players driving the project and the motivating factors (i.e. direct national policy implications vs. community level problem-solving). The target population was identified through various strategies, which included the utilization of primary health centres, health facilities, obstetric units, and engagement with community stakeholders and leaders. In terms of factors that either promote or impede the ability to connect with the target audience, it was observed that primary health care centres and the involvement of local community health workers were advantageous in improving reach but also ownership.

Some articles () also illustrate the importance of women empowerment and involvement in maternal health interventions as community health volunteers, village health team members and nurses and midwives. However, there is no mention of their involvement as leaders and decision-makers in the process. According to the RE-AIM framework, there should be a delineated description of characteristics of the participants in comparison with the non-participants which is not provided in most of the articles though all articles have the objective of analysing the implementation of health interventions.

4.3.2 Effectiveness

Effectiveness is an outcome frequently documented in any interventions or study performed. It directly appeals to the readers as it provides insight into whether something works or not. and in other words it is just What results? As per RE-AIM evaluation chart, improvement in quality of life, improved health outcomes, better medication are a few examples of effective outcomes. The intervention/study results, the effectiveness of the study to the target population, unintended

consequences are all other factors also studied when one is presenting the effectiveness of an intervention.

All eight articles provided information about the effectiveness of the intervention. In Uganda, the implementation of family planning (FP) interventions in Busia and Oyam districts demonstrated notable success, including increased follow-up check-ups, greater male involvement, and improved Village Health Team (VHT) counselling(17). These achievements were facilitated by enhanced midwife mentorship, supportive supervision, and effective Quality Improvement (QI) processes that strengthened connections between health centres and community services(17).

The qualitative study on the sustainability of obstetric near-miss audits identified key themes critical to sustainability: maintaining care quality, addressing the fear of blame and punishment, ensuring resource availability, providing training, fostering supportive work environments, and navigating broader policy issues. (18)Participants noted that the primary benefit was the perceived improvement in care quality, though fear of blame and punishment emerged as significant barriers to sustainability(18).

For the Village Health Workers (VHW) scheme, essential actions for sustainability included strong government ownership, planned transitions, motivation of VHWs, institutionalization, financial management, and community engagement(19). Despite a successful partnership between the government, nongovernmental implementers, and donors, challenges persisted, particularly financial uncertainties and achieving robust government ownership(19).

Regarding the Community-based Health Planning and Services (CHPS), while program leaders recognized its alignment with doorstep services and community focus, the shift towards specific health interventions and expanded clinical scope within the Ghana Health Service (GHS) bureaucracy has inadvertently diminished community engagement(24). Reform efforts must incorporate local knowledge and maintain grassroots involvement to sustain the effectiveness of community-based primary care strategies, as scaling up can lose direction if grassroots champions are sidelined(24).

At the leadership level, effectiveness of the intervention was defined along the lines of feasibility for policy translation, as well as meeting the objectives of the intervention as stated at the onset of the intervention design focussing also on accountability to the funders, international collaborators and government agencies. These included: shifting MNH tasks to CHWs, scaling up the CHPS program, integrating the intervention into the routine care in the health facility, training and services to the staff.

4.3.3 Adoption

The average description of adoption was described into two distinct components. The staff delivered the program and the settings adopted to deliver the program. Where the intervention is conducted? and what are the target settings are the major questions addressed in terms of adoption.

All articles provided information about the adoption with a vivid analysis of the agents who adopted the intervention after the testing phase. The intervention was adopted by a diverse group

of professionals and community representatives each playing a crucial role in the link between the health system and the community. They include Community Health Workers (CHWs), Village Health Teams (VHTs), Community -Directed Distributors (CDDs), social workers, local health teams who all are the first point of contact in the community. Across all articles, the midwives who were an integral part of maternal health intervention served as tutors, supervisors and the primary contact person for the community health volunteers. The adoption of interventions were composed of staff and community leaders working in a collaborative way to ensure the intervention is picked up in a way fitting the community. These sometimes involve providing opportunities for the intervention to be adjusted to fit the environment. In VHW scheme in Nigeria community ownership was formally integrated into the health system through the Ward Development Committee (WDC) structures in Gombe state(19). This approach strengthened the connection between the scheme and the health system, ensuring that communities were actively involved in decision-making processes related to the scheme(19). This integration significantly enhanced both the effectiveness and sustainability of the intervention. Also, the initial selection criteria for the intervention required English literacy(19). However, it was later revised to Hausa literacy, reflecting the most prevalent language in Gombe. This adjustment supported the effective selection of the required Village Health Workers (VHWs) for the scheme, ensuring better alignment with the local linguistic context and enhancing the overall efficacy of the intervention(19).

Research in Cape Town emergency departments also highlighted the need for additional training and support for peer counsellors implementing screening and brief interventions(23). There was a clear call for support, with midwife obstetric units expressing the need for everyone to receive training and take responsibility for addressing alcohol and drug use. This aligns with findings from other settings where a lack of knowledge prevents brief interventions, and healthcare workers commonly request more training(23).

During the Navrongo project, community members actively took part in the healthcare activities, significantly contributing to communal well-being(24). This also shared a sense of responsibility within the community(24). Their positive commitment and involvement were evident in the intervention activities, highlighting their dedication to improving healthcare outcomes. However, after scaling up, the respondents feel that the CHPS approach has become more like a formal, bureaucratic system rather than the original Navrongo idea of a genuinely community-driven program impacting community interest and subsequent sustainability(24).

4.3.4 Implementation

Implementation examines how the program was executed, including necessary adjustments and adaptations for successful execution. The research issue in question here is: *How will the initiative be delivered, including adjustments and adaptations?* It involves understanding how the initiative will be delivered, outlining key elements and actions that contributed to its successful implementation. This includes the use of tools such as checklists, self-reports, and audits to evaluate progress. Challenges encountered in different settings are also crucial for understanding the facilitators and barriers to successful implementation. Additionally, the costs and resources allocated during the implementation phase play a significant role in effectively delivering and executing the intervention plan. In this section, we provide an overview of the information from the selected articles concerning representation within the intervention.

Community-based family planning in Uganda was advanced through learning sessions, workshops, and mentorship involving midwives, with VHTs surprising in their use of the Plan-Do-Study-Act (PDSA) model(17). Facilitators include peer-to-peer learning and effective implementation processes with monthly meetings and reports. Challenges in Busia include limited transport, unreliable supplies, and QIC complexity(17). Solutions such as supervisory checklists and increased stipends for VHTs have improved performance but financial support remains a barrier to sustainability. Materials used include run charts, checklists, and monthly reports, which have inspired other teams to adopt similar techniques(17).

To assess the implementation drivers of SAIA-SCALE in Mozambique, the intervention was executed in two intensive phases and one maintenance phase, each lasting 12 months across 12 districts(22). During the first 12 months, district managers were accompanied by nurses to support the SAIA cycles, while in the maintenance phase, district managers received only financial support. Additionally, MCH and Prevention of Mother-to-Child Transmission (PMTCT) managers received extra training on the SAIA implementation strategy before the intensive phase(22). Study nurses and district supervisors were funded \$1500 through small grants for their intervention visits. Implementation facilitators included SAIA's alignment with the organizational structures, processes, and priorities of Mozambique's health system at both district and health facility levels. However, barriers to successful implementation were identified, including inadequate health facility and road infrastructure, which impeded mothers' access to MCH/PMTCT services and limited nurses' ability to improve service provision, as well as challenges in managing intervention funds(22).

In Cape Town, an intervention focusing on health care professionals in antenatal service delivery regarding SBIRT to address alcohol and drug use was researched through interviews conducted by the first author and observed by the second author(23). The interviews, lasting 40 minutes each, were conducted in English, with some participants expressing themselves in Afrikaans, and were audio-recorded over two months (August-September 2011). Topics discussed included characteristics of the intervention, settings, individuals, and the implementation process(23). Barriers identified were women's lack of honesty, negative staff attitudes, and language barriers. Facilitators included ongoing training, adequate support, clear guidelines, and referral pathway(23)s.

Limited stock, lack of staff, complexity of QI methods, structure of health system, limited space, resource constrained environment are the major challenges in implementation. Accountability, monitoring and supervision are the scale up challenges in LMIC health systems. Compatibility of the intervention along with the health system, leadership engagement, support from the managers and staff, training and services are the facilitating factors in the process of implementation. Respondents highlighted that CHPS evolved from the Navrongo Project in Ghana, expanded to offer a broader range of services beyond initial family planning efforts(24). The Ghana Health Service adopted this comprehensive service model as a national policy, maintaining the integrity of the pilot intervention. Evidence of CHPS impact atrophy indicated that implementation challenges may have weakened the strategic framework of the Navrongo Project during its scale-up phase(24).

4.3.5 Maintenance

All the selected articles had given information about maintaining the program for a long term. Results from individual level and organizational level were considered in evaluating maintenance in accordance with the RE-AIM assessment chart. There are no articles that explicitly mention individual level indicators for maintenance. Sustaining an intervention was established by carrying out long term learning centres (workshops) for training CHWs (reference needed). Adapting these centres into areas with similar settings could be a promoting factor to sustainability. Embedding the activities of QI services in the MNCH routine was mentioned as an important element that promotes long-term maintenance.

Scaling up the QI initiative in Rwanda was facilitated by adopting the use of existing mobile phone technology for quick message transmission enabling the rapid data input to the health system(20). This adoption helped the CHWs to communicate as usual with the health centres easily, which increased the effectiveness of the intervention. The project Navrongo in Ghana was initiated as a community-based intervention but later it was scaled up as Community-based Health Planning and Services (CHPS) which was scaled up as a national policy(24). This institutionalisation was initially successful, but the study mentions the challenges in implementing and sustaining the same program as a national initiative. The challenges raised from the dilution of the initial project which affected the project's strategies and initial plans(24). The community engagement was diminished as the project progressed as a national policy, which reduced the effectiveness of CHPS. To overcome such hindrance, the study recommends prioritising the involvement of local stakeholders which emphasizes the regular adaptation and monitoring of the interventions with the local feedback and experiences(24). Quality of care can be ensured through maintaining the balance between the expanding CHPS coverage and maintaining the quality in existing areas. Enhancing maintenance was achieved by prioritising the intervention at the primary level of the health system and the health care delivery(24).

District-level planning and decentralization of the interventions was considered as crucial in implementing and sustaining(17). This includes routine educational sessions supervised by health leaders, quarterly evaluation meetings for change agents, and annual quality improvement presentations at district and regional levels to discuss progress and challenges. The introduction of learning sites in Busia inspires other districts with similar settings to adapt the services and ensure the maintenance of QI interventions(17).

The study on near-miss cases in Benin mentioned the work environment, poor leadership, insufficient training, technical support, and limited human resources as a barrier to maintenance(18). The lack of adequate privacy in maternal consultations discouraged the mothers to seek institutional births(18). Almost all the articles quoted the importance of community-based health workers in different values. Motivation given to VHTs, task shifting from MNH to CHWs, training and development to Village Health Workers (VHWs), encouraging them to increase their stipends, and extended responsibility are the key factors that facilitated the success and maintenance of the interventions. The negative attitude of the staff in few places was a highlighted barrier to the effectiveness, implementation and sustainability. Involving district managers, nurses, CHWs and the knowledge given to them through training will remain even if the external support to the intervention stopped, which facilitates the effective outcome.

One of the barriers which was highlighted predominantly was the financial constraint. Funding QIC initiatives centrally and at district level. External financial assistance was a crucial element in sustaining QIC initiatives and the lack or pause or cease of any external financial assistance or support was a direct threat to continue any program. Frequent stockouts of medicines and materials makes the intervention less effective. Lack of government commitment in terms of finance was mentioned as a challenge to continue the learning sessions in Busia. Financial constraint was a major part of the near-miss case reviews, which affects the sustainability of the near-miss cases(18). The lack of adequate finance to support the transition of tasks from MNH to CHWs was quoted as a 'weakness' by MOH, because training to CHWs, the activities in the scheme was tough in terms of maintenance. Financial barriers also affect the provision of required infrastructure, medicines, funds to the intervention.

Chapter 5: Discussion

The primary aim of this review was to evaluate the components that facilitate or hinder the sustainability of maternal health quality improvement interventions for community health workers in Sub-Saharan Africa. This review extends beyond evaluating the effectiveness of interventions and presents the elements critical to sustainability as conceptualized by the RE-AIM framework. The RE-AIM framework provides a simplistic yet intuitive guide to understanding sustainability across all five domains. This is particularly observed as one considers the understanding of sustainability to be a maintenance or increase in initial coverage, integration into routine practice, as well as an expanded scope of service.

Table 10 Facilitators and barriers impacting the sustainability of maternal health QI interventions in SSA

Facilitators	Barriers
<ul style="list-style-type: none"> - Integration of Quality Improvement (QI) into existing services - Planning interventions compatible with the existing health system - Allocation of resources to ensure high-quality care - Regular auditing of the intervention at a regular interval - Multidisciplinary teamwork - Motivation for CHWs, including financial compensation and rewards - Training and learning sessions for CHWs tailored to local needs - Community engagement and ownership, fostering relationships between nurses, CHWs, and the community - Inclusion of local leaders and community members in decision making process - Women's positive experiences in healthcare services - CHWs overcoming accessibility issues through home visits and engagement of men - Regular monthly meetings for CHWs, fostering peer-to-peer discussions 	<ul style="list-style-type: none"> - Lack of institutional commitment and support to Community-Based intervention - Complexity of Quality Improvement Collaboratives and intervention - Limited long-term funding for the intervention - Inadequate health facilities, lack of medical supplies, limited space, and lack of supportive environment - Lack of training and knowledge among CHWs, midwives, and other staff - Insufficient staffing and challenges in staff retention - Negative attitudes and lack of knowledge among staff towards intervention or its beneficiaries - Dilution of the initial plan of the project during scaling up, fading of community engagement in decision making process - Fear and stigmatization among participants or beneficiaries of the intervention - Lack of honesty, transparency as well as privacy where required - Delays in district-level recruiting and scheduling, - Weak health data systems for monitoring and - Frequent QI trainings due to high turnover

As the results are presented, it becomes very apparent how different stakeholders and agents identify and emphasize different enablers and barriers to sustaining an intervention. Even similar enablers or barriers were discussed in different ways and responsibility for those factors was perceived differently by different actors. Without a common understanding and dialogue on what works and what does not work, interventions frequently lose their perceived relevance and/or utility over time. Most literature presents enablers and barriers to intervention independent of the stakeholders involved or the health system level where the factors are apparent. In the following discussion, we attempt to consolidate the factors identified in the literature and present them as analyzed at the three levels based on the stakeholders involved: governmental agencies/representatives, community/district health workers, and community representatives and beneficiaries. The review elaborated on how these multilevel factors and stakeholders define and influence the sustainability of quality improvement in maternal health interventions.

The Role of Government in sustaining Maternal Health Initiatives

The Ministry of Health (MOH) was pivotal in selecting program sites, ensuring that interventions were customized to meet the specific needs of the targeted districts. As a crucial stakeholder, the MOH played a major role in decision-making processes for scaling up interventions and spearheaded various collaborative initiatives. Collaborative initiatives involving international institutions, health agencies, and local health services, led by the Ministry of Health (MOH), were effective in promoting sustainability. The integration of maternal health services with other healthcare services significantly improved the overall intervention outcomes. However, according to MOH reports, sustaining and financing these quality improvement initiatives in maternal health presents challenges. The proposal to expand these maternal health quality improvement initiatives (QII) to other districts with similar conditions was recognized as a commendable strategy for promoting scalability.

When the intervention was government-led, with support from a nongovernmental implementer and donor funding, the government was involved in all major decisions during its planning, inception, and implementation. A planned transition involved a gradual transfer of leadership and budgetary responsibilities to the external agency, including collaboration and shadowing between government staff and nongovernmental officers. This strong government ownership and involvement significantly contributed to the sustainability of the intervention.

The selection of regional leaders and stakeholders is crucial for the institutionalization of these interventions alongside other governmental and non-governmental partners, thereby ensuring sustainability. The MOH's collaboration with community-level organizations and managers has facilitated effective implementation and sustainability at the national level. MNCH care was integrated into MOH as part of the government's health system reforms and decentralization efforts. The decentralization efforts employed by the MOH enabled outreach to beneficiaries through CHWs, supported by the supervision and assistance of ward development members, district managers, supervisors, and other community actors. These reforms provided a strong foundation for embedding MNH care within the existing healthcare structure.

Adding to that, representatives from the MOH emphasized the importance of conducting inter-facility and inter-district joint learning sessions as a strategy to enhance CHWs initiative and

motivation to improve performance and accelerate the adoption of proven change ideas. CHWs, when provided with adequate support through mentorship and learning sessions, are capable of effectively implementing the Plan-Do-Study-Act (PDSA) concept, engaging in data analysis, and driving continuous improvement. To further strengthen the implementation of the Community-Based Family Planning Quality Improvement Collaborative (CBFP QIC) and other community-based QICs, these learning sessions play a critical role in empowering CHWs with the necessary skills and knowledge. These sessions were scaled up and implemented in other districts with similar settings, demonstrating the feasibility and effectiveness of the approach in resource-limited environments. The policy makers also advocated for the inclusion of midwifery schools in integrating the concept of reflective practice into their curricula.

“The idea of having a learning center or learning district is very important, especially in a resource limited setting. When you introduce something, people think it cannot work, but when you tell them that another district with the same environment has begun to do it, then they can think, okay, we can do it. So, it’s very important. That’s why we put it in the [national QI] framework.” –MOH official

Introducing new initiatives can initially meet resistance, but when people see that another district with a comparable environment has successfully adopted these sessions, they become more inclined to accept and implement them. This peer-influence mechanism is essential for promoting widespread adoption and ensuring the sustainability and scalability of QI efforts in resource-constrained areas(25). Health extension workers, local community leaders, religious and traditional leaders, local agencies, ward members, healthcare managers, and supervisors have all played pivotal roles in engaging with the community and in the selection process of CHWs.

The major challenges to sustaining an intervention, such as financial barriers, limited resources, and the perceptions and attitudes of staff, are essential considerations for achieving sustainable outcomes while maintaining positive impacts. All major government representatives and MOH officials highlighted funding and financial barriers as critical issues affecting sustainability. Specifically, the lack of adequate funding and resources were identified as significant factors hindering the long-term viability of the intervention.

Community Health Workers (CHWs) - Training and Task Shifting:

Community Health Workers (CHWs) have demonstrated significant positive outcomes and effective actions, particularly in maternal health quality improvement interventions within community-based programs. The training and knowledge given to staff and CHWs were significant factors in the long-term sustainability of maternal health. CHWs were motivated by the delegation of tasks and the adaptation of the programs to fit the local context. Maintaining community engagement was essential for sustainability. In rural areas where hospitals and health centers were inaccessible, CHWs and community health officers provided doorstep home visits, offering a practical solution to accessibility issues and addressing maternal health concerns. Key elements such as community engagement, program expansion, and institutionalization have been instrumental in supporting the scaling up of maternal health initiatives.

“The CHW program created a new systematic approach and level of trust between hospital based prenatal clinic and obstetric services”

Says a care insurer and a community-based service provider in a study to explore institutional and community factors that contributed to sustain CHW programs in the United States(25).

Training in Quality Improvement (QI) methods and standard treatment protocols has enhanced CHWs' ability to respond effectively to emergencies, thereby improving the quality of care they provide. This thorough training on medical treatments and equipment has not only elevated the standard of care but also enabled CHWs to support doctors more effectively during treatments. Extensive educational training and sensitization have significantly advanced CHWs' knowledge, status, and role within the community. Comprehensive training sessions, including workshops on medical instrument operation, have further empowered CHWs to make meaningful contributions to healthcare delivery.

The motivation and involvement of CHWs played a crucial role in the success of maternal health QII, aiding in their scalability and sustainability. A study examining the sustainability of CHW programs in the United States identified three key factors influencing long-term viability: support from supervisors, peers, and healthcare providers; relationships with healthcare systems and insurers; and securing consistent, adequate funding. CHWs emphasized the significance of receiving regular feedback through monthly meetings, along with sufficient support and assistance in managing challenging cases, to ensure they were not left unsupported. Adding to that, the CHWs emphasized the importance of mentoring midwives and delivering presentations as critical components for enhancing care quality and ensuring the sustainability of interventions(17).

“Our coming here [to the health center] monthly has helped us to know what challenges our fellow VHTs are facing in their communities and what challenges I am facing, and when we sit and discuss, we come up with solutions to those challenges.” - Busia VHT

Access to Electronic Health Records (EHR) and the presence of CHWs in clinical settings enabled them to schedule appointments and provide timely responses and feedback to clients. This not only enhanced the value of CHWs but also increased their visibility within the healthcare system(25).

“Integration with health records and all that, gives us capacity to give timely feedback on their patients. So, our value added is very immediate and visible.”

Acquiring adequate funds that is essential for ongoing training, supervision, and integration of CHWs into the system is crucial(25). Lack of funds can lead to issues with staff recruitment and retention, program implementation which affects the sustainability of the CHW programs(25).

“Work is really hard. . . yes, we’re all passionate about this, but that doesn’t pay the bills. . . You can’t pay rent with passion. . . you lose good people because of salaries”

This is a statement by a CHW who mentioned how essential it is to include the salaries of CHWs in order to retain them in the program (25).

This study emphasized overcoming financial barriers to sustain a program by improving insurers to the interventions, cutting down unnecessary outpatient or expensive expenses, and developing partnerships with healthcare providers. These are valuable insights that are considered while planning and implementing maternal health QII (25).

CHWs were very important in creating awareness and sensitization within communities through various methods, especially in Family Planning (FP) initiatives like Community-Based Family Planning (CBFP). They actively encouraged women to involve their husbands in FP counseling, home visits, and couple-to-couple consultations. They also engaged men in social settings such as beer clubs, farming areas, and sports events to foster rapport and promote the benefits of FP services. This outreach helped build friendly connections and raise awareness of FP services, including discussions on potential side effects and maternal health issues. As a result, these efforts increased women's access to maternal healthcare, the use of contraceptives, and male involvement in FP services. This comprehensive approach improved service delivery and strengthened the linkages between health centers, the community, and CHWs. Additionally, learning sessions focused on postpartum care, including hygienic cord care and neonatal care, facilitated by direct interactions and improved personal connections and relationships, thereby enhancing hygienic practices in maternal health. Consequently, these initiatives led to a significant improvement in women's healthcare within the QII.

Similarly, Accredited Social Health Activists (ASHA) is a community-based female volunteering program established in India in 2005, which resulted in huge positive outcomes, especially in maternal health services(26). This intervention intended to target rural residents and provide education on institutional birth delivery, maternal care and neonatal care. The ASHA volunteers were involved in house visits to create awareness on maternal health and provided essential medical supplies (26). The usage of at least one antenatal care was increased from 74% to 84% between 2005 and 2012 and using health facilities for giving birth between the same year was increased to 66% to 43%. These results exclusively presented the increase in quality of care in maternal health through community-based volunteers (26).

The attitudes and performance of the staff, CHWs, and other health workers are critical factors that require careful attention, as their involvement and approach significantly impact the project's success. Negative attitudes, judgments, lack of engagement, and perceptions of being overburdened with program-related tasks have notably affected the outcomes of maternal health QII. Therefore, it is essential to address and improve the attitudes and involvement of the staff and CHWs to enhance the effectiveness of these interventions.

Community Representatives: Implications for Community Ownership:

Community members actively took on responsibility for the community health worker scheme, recognizing it as a vital intervention designed to benefit them. Regular monitoring and consultations with ward committee members were conducted to address community challenges effectively. The involvement of community leaders and heads in supporting the CHWs fostered greater acceptance and ownership within the community. Their engagement was crucial in decision-making processes, making them integral to the intervention. This endorsement by community leaders and committee members significantly contributed to the successful outcomes of the scheme, demonstrating the importance of local support and involvement in achieving program sustainability and effectiveness.

Community stakeholders attributed the success to several key factors related to the community-based interventions. Firstly, engaging community members, chiefs, and leaders from the beginning and throughout the project cycle was crucial. The coordination by Ward Development Committees (WDCs), instead of external experts, and the transparency in handling project funds and records

by community members fostered trust and accountability. Additionally, the community-managed drug revolving fund ensured the availability of essential medications in health centers. Key factors identified included participatory community engagement, ownership, and direct supervision of project activities by community members, and the involvement of multiple stakeholders, including policymakers, technical experts, and civil society organizations. Furthermore, the adoption of a bottom-up decision-making process, rather than a top-down approach, was instrumental. This method respected and integrated the knowledge and cultural preferences at the community level, significantly contributing to the intervention's success.

“involving people affected by a problem in developing solutions through collaborative research, planned action, along with process and outcome evaluation”

The principles of community-based participatory research were utilized in building community ownership of maternal and child health interventions in rural Nigeria(27). According to Madeline Shalwitz and colleagues, this approach involves engaging those affected by the problem in creating solutions through collaborative research, strategic action, and both process and outcome evaluations(27). The intervention employed a participatory and collaborative approach, incorporating co-learning and mutual exchange between community members and experts. It demonstrated commitment from all partners, leveraged existing community strengths, empowered communities to recognize their unexplored potentials, and delivered activities identified through initial research(27).

Community-based selection has proven to be one of the most effective methods for choosing Community Health Workers (CHWs). When community members are involved in the selection process, it significantly boosts comfort and trust, leading to improved maternal health outcomes and fostering a strong sense of community ownership and accountability. By offering emergency services and Quality Improvement (QI) methods tailored to local needs, CHWs have made a notable impact on the quality of care. District managers often facilitated direct interactions between CHWs and women to ensure successful primary healthcare delivery. Prior to implementing new initiatives, CHWs engaged with traditional leaders and community members, promoting thorough consultation and a heightened sense of collective responsibility. This engagement was further reinforced by regular feedback sessions, which strengthened the overall effectiveness of the intervention. These approaches cultivated a robust sense of community ownership, with various stakeholders actively participating in achieving the intervention's success and sustainability.

Chapter 6: Conclusion and Recommendations:

This chapter draws insights from previous chapters to conclude and provide recommendations for government officials, policymakers, program managers, public health researchers, and other relevant stakeholders. These recommendations aim to sustain maternal health quality improvement interventions at the community level in sub-Saharan Africa (SSA).

6.1 Conclusion:

Starting with the framework itself, the application of the RE-AIM framework has significantly enhanced the understanding of how various determinants influence sustainability. By examining each domain within the framework, deeper insights have been gained into the roles and responsibilities of different stakeholders throughout the intervention process, from program design and decision-making to institutionalization, overcoming financial barriers, community involvement, successful implementation, and ensuring sustainability. By this, it is observed that the ‘Maintenance’ domain is not the only aspect relevant for understanding sustainability as previously thought. Each domain provides relevant information to help understand where potential facilitators and barriers exist in sustaining a health intervention. Addressing the key questions consolidated in a checklist by the RE-AIM framework has facilitated the comprehension of how different factors impact sustainability. However, it is important to note that the framework itself does not offer a specific checklist for stakeholders to plan sustainable interventions.

Maternal health quality improvement interventions at the community level have proven to be highly effective in enhancing the health of pregnant women and reducing maternal mortality. Community-level initiatives, particularly those implemented through Community Health Workers (CHWs), have shown significant success. However, sustaining these interventions remains a challenge in SSA countries.

Despite the positive impact of CHWs on maternal health through various programs and initiatives in SSA, there is a dearth of information available for sustaining these interventions. While many interventions involve CHWs, there is an urgent need to prioritize sustainability. This approach ensures that interventions can continue long-term, providing women in the region with consistent quality maternal health services.

Factors facilitating the sustainability of these interventions in the **outer context**: Institutionalization with local governments. Partnerships with other organizations, both local and international, offer additional support, resources, and expertise. Community ownership and engagement. National policies, plans, and strategies designed to support the implementation and sustainability of these interventions. Integrating successful interventions within the national health systems has proven to be an effective way of sustaining and delivering long-term care.

Facilitating factors for the sustainability of the interventions in the **inner context**: Training and knowledge provided to CHWs. Involving community members in the projects fosters a sense of commitment and responsibility. This means engaging them from the initial research phase through to the intervention delivery. CHWs' commitment and motivation toward the interventions.

Several external factors hinder the sustainability of maternal health quality improvement interventions in the **outer context**: Financial constraints are a major barrier, as limited funding during implementation often ceases after the project timeframe, affecting both effectiveness and sustainability. Additionally, the lack of infrastructure, equipment, medical supplies, space, and privacy in health facilities is a significant challenge. Privacy issues, in particular, discourage women from opting for institutional births, which is a major concern that needs to be addressed.

Internal factors within the intervention and community can also pose barriers in the **inner context**: Insufficient knowledge, training, and the attitude of the staff involved in the interventions are

major hurdles. Without proper training and a positive attitude towards the intervention, staff may not be able to effectively implement and sustain the programs. Furthermore, community members' lack of understanding or support for the interventions can also impede sustainability. Women's dishonesty and lack of involvement in the program due to fear, punishment, cultural factors, etc.

Stakeholder Roles in Sustaining Interventions

Understanding the role of different stakeholders in sustaining maternal health quality improvement interventions involves three main groups: government and leadership, community health workers, and the community. Recognizing their perspectives and roles in sustaining an intervention is crucial to understanding the multilevel factors and stakeholders that define and influence the sustainability of quality improvement maternal health interventions. Government and leadership must provide the necessary policy and financial support. Community health workers need ongoing training, motivation, and resources. The community must be engaged and take ownership of the interventions for them to be sustainable.

6.2 Recommendations:

6.2.1 Government & Ministry of Health (MOH):

The Ministry of Health, in partnership with other relevant ministries and agencies, should prioritize holding monthly meetings, providing ongoing mentorship to midwives, and conducting presentations that involve supervisors, healthcare managers, and ward members to track and evaluate interventions. These steps are crucial for cultivating a culture of continuous improvement in healthcare delivery and ensuring long-term viability. It is also important to extend the Quality Improvement Initiative (QII) in maternal health to similar settings nationwide, fostering a culture of sustainability across the country.

To enhance the program's sustainability, addressing financial and resource constraints is vital. Strengthening collaborations with state agencies, as well as national and international organizations, is recommended. Leveraging their support can provide the necessary resources and funding, which are crucial for the program's ongoing effectiveness and sustainability. During the budget and project design phases, it is important to consider financial and resource needs beyond the initial project timeline and during the transition of the project from international organizations to national and local agencies. Ensuring that maternal health interventions remain self-sustaining beyond external funding requires a thorough review during the project's pre-planning phase, engaging both local and national stakeholders. This comprehensive approach will help secure the program's long-term success and impact.

6.2.2 Project managers/ researchers/ community stakeholders

Institutionalization & Decentralization: Integrating the program into the existing health system and involving government, non-government members, and various stakeholders is crucial for ensuring sustainability. Despite the challenge posed by limited funding and financial uncertainties, it is essential to adopt innovative approaches and optimize available resources to guarantee long-

term success. To enhance the sustainability of maternal health programs, it is advisable to decentralize these initiatives, embedding them into district-level plans. This decentralization should include strategies such as increasing community engagement, mobilizing resources at the district level, and prioritizing support for primary health centers. By implementing these measures, maternal health programs can become more resilient and better equipped to address the specific needs of local populations.

Task Shifting: Shifting tasks from maternal and neonatal health services to Community Health Workers (CHWs) has proven to be a significant initiative that enhances the effectiveness of maternal health Quality Improvement Initiatives (QII). The literature review indicates that the training, development, and empowerment of CHWs are critical to achieving positive outcomes in community interventions. These elements have facilitated not only the success of maternal health QIIs but also their ongoing maintenance and sustainability. The review underscores the importance of not merely transferring responsibilities to CHWs but engaging with them throughout the project's duration, fostering trust, enthusiasm, and a sense of ownership. Motivating CHWs through increased stipends, a supportive work environment, and addressing their accessibility issues with travel support is essential for their retention and effective delivery of interventions. Furthermore, selecting CHWs with the involvement of local, regional, and community leaders enhances trust and familiarity within the community. This selection process strengthens community responsibility and ownership, thereby bolstering the commitment of CHWs. Direct engagement through this process significantly increases the acceptance of CHWs and facilitates more effective primary healthcare delivery.

6.2.3 Community members/ Beneficiaries:

Adopting a **bottom-up decision-making** process, which respects and integrates local knowledge and cultural preferences, significantly boosts comfort and trust, thereby contributing to the intervention's success. Engaging community members in the selection process of CHWs further strengthens this sense of ownership and accountability. Offering emergency services and Quality Improvement (QI) methods tailored to local needs, with active involvement from CHWs, can notably enhance the quality of care. Coordination of projects should be conducted by Ward Development Committees (WDCs) rather than relying on external experts. Ensuring that community members manage project funds and maintain records with transparency is essential for fostering trust and accountability. Emphasizing community ownership is crucial for achieving sustainable and impactful outcomes.

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APPENDIX: 1. RE-AIM assessment chart

Components	Key questions
REACH	<p>Who took part? Who was the initiative intended to appeal to?</p> <p>How was it known if those who participated were representative of the intended beneficiaries (target population)?</p>
EFFECTIVENESS	<p>What were the results?</p> <p>What were the most important outcomes expected to be seen? How likely was it that the initiative achieved its key outcomes?</p>
ADOPTION	<p>Where was the initiative conducted?</p> <p>What settings or organizational types were targeted?</p> <p>How many of these settings and organizations used the program or participated in the policy?</p> <p>Who delivered the program or policy?</p>
IMPLEMENTATION	<p>How consistently was the program or policy delivered?</p> <p>How was the initiative delivered, including adjustments and adaptations?</p> <p>To what extent were the key aspects of the program or policy delivered as intended?</p> <p>What costs and resources (including time and burden, not just money) were considered?</p>
MAINTENANCE	<p>When was the initiative renewed?</p> <p>What happened over the long-term? Was the organization able to sustain the initiative over time and were there plans to leave trained staff in place?</p> <p>How likely was the initiative to produce lasting effects for individual participants?</p>

APPENDIX 2: Data extraction sheet

GENERAL INFORMATION	
Title	Title of the paper identified
First Author	Name of first author (Surname, Initials)
Year of Publication	Year of publication
Journal name	Name of journal
Country studied	Name of country where study was conducted. If multiple countries, enter "Multicountry (name of countries)"
CHARACTERISTICS OF THE STUDY	
Research question	Research question as stated in the research paper. N/A if not explicitly mentioned.
Aim	Aim is stated in the research paper. N/A if not explicitly mentioned.
Objectives	Objective as stated in the research paper. If multiple objectives, list all objectives.
Methodology (qualitative vs. quantitative)	Indicate whether the research paper employed a qualitative, quantitative, or mixed methodology
Study Design	Name the study design used
Total study duration (applicable for longitudinal or quantitative studies)	From YYYY to YYYY. Including period data was collected and analysed. If no quantitative data, indicate period over which study was conducted
Sample size	Provide sample size where applicable. For example, no. of participants for the intervention.
Maternal Health issue addressed	
Stage of pregnancy	Indicate whether the intervention addresses health issues during pregnancy (antenatal/antepartum), during childbirth (i.e., labour/delivery/intrapartum) or after pregnancy (postpartum).

Maternal health illness being addressed	Indicate whether the health intervention addresses a specific maternal health disease/illness or not
Name of maternal disease or illness	If health intervention addresses a specific maternal illness, document the name of the illness.
Quality of Care domain (WHO, 2016a) - Intervention should address at least one	
Evidence-based practice for routine care and management of complications	Yes/No/unknown - QI intervention is intended to improve the delivery of a particular evidence-based management of labour, childbirth, and the immediate postnatal period to mothers and/or to newborns in the first few days of life. E.g., routine care, early diagnosis of complications and their appropriate management.
Actionable information system	Yes/No/unknown - QI intervention creates or improves a health information system (paper-based/electronic) for improved use of data to ensure early, appropriate action to improve the care of every woman and/or newborn
Functional referral system	Yes/No/unknown - QI intervention improves the referral process such that every woman and newborn with condition(s) that cannot be dealt with effectively with the available resources is appropriately referred
Effective communication	Yes/No/unknown - QI intervention improves communication with women and their families effectively responding to their needs and preferences. Patients receive more information about their care and are involved in decisions regarding their treatment.
Respect and dignity	Yes/No/unknown - QI intervention involves addressing respectful care and dignity. It addresses issues related to privacy and confidentiality at all times, and any kind of mistreatment, such as physical, sexual or verbal abuse, discrimination, neglect, detainment, extortion or denial of services, should be avoided.
Emotional support	Yes/No/unknown - Intervention focuses on providing every woman and her family with emotional support that is sensitive to their needs and strengthens the woman's capability. This includes the option for a companion during labour and childbirth.

Competent and motivated human resource	Yes/No/unknown - Intervention focuses on making competent, motivated staff consistently available to provide routine care and manage complications. This includes access at all times to at least one skilled birth attendant and supporting staff, an appropriate competence and skills mix to meet the requirements of labour, childbirth and the early postnatal period, and managerial and clinical leadership that is collectively responsible for developing and implementing appropriate policies and fosters an environment that supports facility staff in continuous quality improvement.
Essential physical resources available	Yes/No/unknown - The intervention focuses on the health facility having an appropriate physical environment, with adequate water, sanitation and energy supplies, medicines, supplies and equipment for routine maternal and newborn care and management of complications. This includes ensuring that the areas for labour, childbirth and postnatal care are designed, organised and maintained according to the needs of the women and babies.
Attributes of quality improvement intervention (case/intervention definition)	
Problem definition	Quality improvement requires a problem in healthcare to be defined. Document the problem statement as defined in the article if available
Goal & aim	What aim was set specific for the quality improvement intervention as stated in the article?
Setting	What is the setting of the quality improvement intervention (e.g., health facility, community, district wide, regional, national, multi country)?
Improvement Activity	What specific change activity is being tested in the intervention? If multiple change activities, list all.
Input/Process measure	What input or process measure is being used to test the change activity?
Outcome measures	What outcome measure is being used to test the impact of the change activity?
Criteria of quality improvement	

Primary intent	Yes/no – Is a measurable improvement to a specific aspect of healthcare delivery or health issue provided requiring some iterative testing for possible solutions?
Employing an iterative process of testing change ideas	Yes/No – Does the intervention involve a continuous process of planning and testing changes, studying, and learning by comparing the results to a predicted outcome or hypothesis?
Consistent use of an agreed methodology	Yes/No – Is a specific QI methodology used such as the PDSA model, Model for Improvement, Lean, Six Sigma, and Experience-based Co-design to direct the change?
Empowerment of front-line staff and service users	Yes/No – Are staff/ patients directly contributing to or leading the improvement work in the intervention?
Using data to drive improvement	Yes/No – Is basic descriptive data analysis and inferences being used to measure the impact of tests of change over time?
Scale-up and spread, with adaptation to context	Yes/No – Is there any attempted scale up, spread or adoption of the tested change?
CHARACTERISTICS OF THE SCALING PROCESS	
Provision of definition of scaling up or down	Yes/No – Is a clear definition of scaling up or scaling down provided in the articles?
Definition of scaling up or down	Provide definition of scaling up or scaling down as explicitly stated in the article (if available)
Scalability of the intervention	Scale up/Scale down - Is the intervention being scaled up or scaled down?
Reason for scaling up (if applicable)	If the intervention is being scaled up, what is the reason provided in the article for scaling up?
Reason for Scaling down (if applicable)	If the intervention is being scaled down, what is the reason provided in the article for scaling down?
Objective of scale up process (van Olmen et al., 2020)	
Increase population coverage	Yes/no - Does the scale up process focus on increasing the population coverage?
Institutionalisation	Yes/No - Does the scale up process focus on integrating the intervention/change activity into routine care?

Diversification	Yes/No - Does the scale up process focus on expanding the package of change activities or intervention to ensure comprehensiveness of the intervention?
Implementation strategy used for scaling	
Setting for scale up	<i>Setting</i> refers to the specific physical location, in which the intervention is put into practise. Is the scaling process implemented within the health facility, community, district wide, regional, national, or international level?
Site selection for scale up	What approach was used to decide where to scale up to?
Primary decision-maker in the scaling process?	Who is considered the decision-maker in the scaling process of the intervention? i.e., who decided scaling up or down is required?
Implementers of the scaling process	Who is identified as responsible for implementing the scaling up or down of the intervention or change activity?
Funding	Is there any funding mentioned/used in the implementation of the scale up or down process?
Source of funding	If applicable, is the source of funding from an external international donor, national government or internally generated (i.e., local facility or community)?
Outcome of Scaling up or down process	Yes/No - Is there a measurable outcome provided for the scaling up or down process?
Outcome measure used	Provide a description of how success of scaling up or down is measured?
Results of the Scaling up or down	What is the outcome of the attempted scaling up or down process?
Enablers/facilitators of the scale up process implementation	Indicate the enablers or facilitators to the implementation of the scale up strategy as identified by the author(s).
Barriers to the scale up process implementation	Indicate the barriers to the implementation of the scale up strategy as identified by the author(s).

APPENDIX 3: Search strings used in PUBMED

PUBMED		
PCC	Search term	Search strategy
POPULATION	Maternal Health	"Maternal Health"[MeSH Terms] OR "Maternal Welfare"[MeSH Terms] OR "Maternal Health Services"[MeSH Terms] OR "Perinatal Care"[MeSH Terms] OR "maternal"[Title/Abstract] OR "mother"[Title/Abstract] OR "pregnanc*"[Title/Abstract] OR "women's health"[Title/Abstract] OR "antenatal"[Title/Abstract] OR "prenatal"[Title/Abstract] OR "intrapartum"[Title/Abstract] OR "postnatal"[Title/Abstract] OR "post-partum"[Title/Abstract] OR "ante natal"[Title/Abstract] OR "pre natal"[Title/Abstract] OR "intra partum"[Title/Abstract] OR "post natal"[Title/Abstract] OR "post partum"[Title/Abstract] OR "perinatal"[Title/Abstract] OR "midwi*"[Title/Abstract] OR "obstetric*"[Title/Abstract] OR "Midwifery"[MeSH Terms] OR "Pregnant Women"[MeSH Terms] OR "Delivery, Obstetric"[MeSH Terms] OR "Obstetrics and Gynecology Department, Hospital"[MeSH Terms] OR "pregnancy complications"[MeSH Terms] OR "birth attendant*"[Title/Abstract]
	Health Interventions	"health intervention*"[Title/Abstract] OR "health program*"[Title/Abstract] OR "health polic*"[Title/Abstract] OR "health strateg*"[Title/Abstract] OR "public health"[Title/Abstract] OR "Health Promot*"[Title/Abstract] OR "health campaign*"[Title/Abstract] OR "wellness program*"[Title/Abstract] OR "global health"[Title/Abstract] OR "international health"[Title/Abstract] OR "health prevention*"[Title/Abstract] OR "health initiative*"[Title/Abstract] OR "health project*"[Title/Abstract] OR "health innovation*"[Title/Abstract] OR "Health Education"[MeSH Terms] OR "national health programs"[MeSH Terms] OR "Health Promotion"[MeSH Terms] OR "Early Medical Intervention"[MeSH Terms] OR "Regional Health Planning"[MeSH Terms]
CONTEXT	Sub-Saharan Africa	"Africa South of the Sahara"[MeSH Terms] OR "Sub-Saharan Africa"[Title/Abstract] OR "Subsaharan Africa"[Title/Abstract] OR "Sub Saharan Africa"[Title/Abstract] OR "West Africa"[Title/Abstract] OR "Central Africa"[Title/Abstract] OR "East Africa"[Title/Abstract] OR "South Africa"[Title/Abstract] OR "Southern Africa"[Title/Abstract] OR "Eastern Africa"[Title/Abstract] OR "Western Africa"[Title/Abstract] OR "Angola"[Title/Abstract] OR "Benin"[Title/Abstract] OR "Botswana"[Title/Abstract] OR "Burkina Faso"[Title/Abstract] OR "Burundi"[Title/Abstract] OR "Cabo Verde"[Title/Abstract] OR "Cape Verde"[Title/Abstract] OR "Cameroon"[Title/Abstract] OR "Central African Republic"[Title/Abstract] OR "Chad"[Title/Abstract] OR "Comoros"[Title/Abstract] OR "Congo"[Title/Abstract] OR "Cote d'Ivoire"[Title/Abstract] OR "Democratic Republic of the Congo"[Title/Abstract] OR "Djibouti"[Title/Abstract] OR "Equatorial Guinea"[Title/Abstract] OR "Eritrea"[Title/Abstract] OR "Eswatini"[Title/Abstract] OR

		"Ethiopia"[Title/Abstract] OR "Gabon"[Title/Abstract] OR "Gambia"[Title/Abstract] OR "Ghana"[Title/Abstract] OR "Guinea"[Title/Abstract] OR "Guinea-Bissau"[Title/Abstract] OR "Kenya"[Title/Abstract] OR "Lesotho"[Title/Abstract] OR "Liberia"[Title/Abstract] OR "Madagascar"[Title/Abstract] OR "Malawi"[Title/Abstract] OR "Mali"[Title/Abstract] OR "Mauritania"[Title/Abstract] OR "Mauritius"[Title/Abstract] OR "Mayotte"[Title/Abstract] OR "Mozambique"[Title/Abstract] OR "Namibia"[Title/Abstract] OR "Niger"[Title/Abstract] OR "Nigeria"[Title/Abstract] OR "Rwanda"[Title/Abstract] OR "Sao Tome and Principe"[Title/Abstract] OR "Senegal"[Title/Abstract] OR "Seychelles"[Title/Abstract] OR "Sierra Leone"[Title/Abstract] OR "Somalia"[Title/Abstract] OR "South Africa"[Title/Abstract] OR "South Sudan"[Title/Abstract] OR "Sudan"[Title/Abstract] OR "Swaziland"[Title/Abstract] OR "Tanzania"[Title/Abstract] OR "Togo"[Title/Abstract] OR "Uganda"[Title/Abstract] OR "Zambia"[Title/Abstract] OR "Zimbabwe"[Title/Abstract]
CONCEPT	Scaling Up	"scale-up"[Title/Abstract] OR "upscal"[Title/Abstract] OR "scaling-up"[Title/Abstract] OR "spread*"[Title/Abstract] OR "scalability"[Title/Abstract] OR "replicat*"[Title/Abstract] OR "integrat*"[Title/Abstract] OR "cover*"[Title/Abstract] OR "increasing impact*"[Title/Abstract] OR "increasing effectiv*"[Title/Abstract] OR "improving impact"[Title/Abstract] OR "expand*"[Title/Abstract] OR "implement*"[Title/Abstract] OR "adopt*"[Title/Abstract] OR "translat*"[Title/Abstract] OR "disseminat*"[Title/Abstract] OR "diffuse*"[Title/Abstract] OR "scaling down"[Title/Abstract] OR "scale down"[Title/Abstract] OR "descaling"[Title/Abstract] OR "de-implement*"[Title/Abstract] OR "institutionali*"[Title/Abstract] OR "diversif*"[Title/Abstract] OR "expan*"[Title/Abstract] OR "Program Evaluation"[MeSH Terms]
	Quality improvement	"QI"[Title/Abstract] "improv*"[Title/Abstract] OR "improving care"[Title/Abstract] OR "quality of care"[Title/Abstract]OR "care quality"[Title/Abstract] OR "quality assurance, health care"[MeSH Terms] OR "Quality of Health Care"[MeSH Terms] OR "quality improvement"[MeSH Terms] OR "provision of care"[Title/Abstract] OR "experience of care"[Title/Abstract] OR "care experience*"[Title/Abstract] OR "evidence based practice*"[Title/Abstract] OR "routine care"[Title/Abstract] OR "management of complications"[Title/Abstract] OR "complication manag*"[Title/Abstract] OR "information system*"[Title/Abstract] OR "referral*"[Title/Abstract] OR "referral system*"[Title/Abstract] OR "effective communicat*"[Title/Abstract] OR "respectful care"[Title/Abstract] OR "emotional support"[Title/Abstract] OR "competent staff"[Title/Abstract] OR "human resources"[Title/Abstract] OR "resource availability"[Title/Abstract] OR "essential resource*"[Title/Abstract] OR "Information Systems"[Mesh] OR "Evidence-Based Practice"[Mesh] OR "Referral and Consultation"[Mesh] OR "Health Communication"[Mesh] OR

		"Culturally Competent Care"[Mesh] OR "Attitude of Health Personnel"[Mesh] OR "Health Resources"[Mesh]
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