

Culture, Barriers, and Enablers of Primary Health Care Quality Improvement in Kenya

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This thesis is submitted in partial fulfilment of the requirements for the award of degree of Doctor of Philosophy. The candidate has already achieved 180 credits for assessment of taught modules within the blended learning PhD programme.

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I declare that this thesis is my own work and has not been submitted for
the award of a higher degree elsewhere.

Abstract of the Thesis

Culture, Barriers, and Enablers of Primary Health Care Quality Improvement in Kenya.

Introduction

Improving the quality of primary health care (PHC) is an urgent priority, given millions of deaths attributable to poor quality health services. Yet, little is known about the culture of teams involved in PHC Quality Improvement (QI) in Kenya, and the related barriers and enablers.

Aim

To describe the culture of teams involved in PHC QI and explain how PHC QI is enabled or constrained in the Kenyan context.

Methods

First, an integrative review of the literature synthesised evidence on the culture, barriers to and enablers of PHC QI in low- and middle-income countries (LMIC). Secondly, a focused ethnographic study, inspired by critical realism (CR), made use of participant observation, qualitative interviews, and document reviews. The data were analysed thematically to explore the culture of PHC QI. Framework analysis helped describe barriers to and enablers while retroductive reasoning provided viable explanations linking observed constraints and wider social structures.

Findings

Most of the findings from the integrative review came from sub-Saharan Africa. The themes related to the microsystem and individual health worker levels, those intrinsic to the QI intervention, the organisation and team implementing QI, the larger health system, external environment including wider social structures, and the execution of QI intervention. The review found many similarities and few contrasts across varied country contexts. Importantly, barriers and enablers are closely related and dialectical, likely affecting and affected by each other. Building on the review, this research explores three themes of culture of PHC QI (manifestations of knowledge and practices, underlying values and attitudes, and overarching structures) in three categories, namely micro-culture, sub-group culture, and organisation-wide culture patterns. The research also describes the barriers and enablers of PHC QI, innovatively drawing from the consolidated framework for implementation research (CFIR) and the model for understanding success in quality (MUSIQ). Through retroduction, the research points to poor governance in Kenya's complex devolved

health system as a major hindrance to building a culture-of-quality and the main underlying barrier for PHC QI.

Conclusion

The study found no institutionalised culture buttressing PHC QI, with many barriers. This study extends knowledge of PHC QI culture by developing two novel, adaptable and transferable models for future research. The study makes viable recommendations to transform PHC quality, given existing constraints.

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My journey towards this PhD in public health is the culmination of a childhood dream, which became clear the day I joined high school. I had promised myself to go all the way to a PhD if I completed high school because many people believed that I would never complete my schooling due to various challenges. Twenty-six years later, here I am!

My grandmother Clarice believed I could achieve anything I wanted to. In old age, she became a community health worker, joined adult education classes, and acquired literacy skills to enable her to serve her community. She is my inspiration. The other is my mother, Margaret, who has much faith in the power of education. Because of her belief in the transformative power of education I have kept going in the hope it will bring new opportunities. Thank you, mummy. To Siobhan and Sellecke, may this inspire you to go even further.

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I also owe my research accomplishments to those that participated in the study, either in teams or as individuals, at various levels of Kenya's health system.

This work is dedicated to the many health workers in Kenya who struggle daily to provide quality primary health care services in Kenya under challenging circumstances. Keep going.

Declaration

I, Camlus Otieno Odhus, declare that this thesis is my own work and has not been submitted in substantially the same form for the award of a higher degree elsewhere. The literature review has been published in PLOS Global Public Health journal as a peer-reviewed research article:

<https://journals.plos.org/globalpublichealth/article?id=10.1371/journal.pgph.000275>

6. Other manuscripts reporting the study's methodology and findings have been submitted to journals for publication, pending peer review.

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Chapter 1. Introduction

1.1 How this research was conceived

My interest in healthcare quality improvement (QI) developed while I was collaborating closely with local health stakeholders to implement Kenya Quality Model for Health assessments as part of efforts to strengthen primary health care (PHC) in western Kenya. Assessment after assessment revealed an all too familiar pattern of weak systems, gaps in care processes, inequitable and abysmal health outcomes. I further noted that many initiatives aimed at tackling the poor quality of primary health care did not continue long enough to yield sustained gains. Such initiatives were hardly owned or driven by the Ministry of Health and county governments (relying mostly on external donors) and were implemented in too few sites to result in population-wide health gains. During field visits with government colleagues, citizens decried lack of medicines and long waiting times in search of quality PHC services. My own cousin and a professional colleague - barely in their twenties – both died during childbirth. The causes of death were believed to be poorly managed and delayed referral for appropriate obstetric emergency care. Health workers too complained that they were too few and overworked with limited tools and equipment to deliver quality care. Managers, on the other hand, blamed the unacceptable situation on chronic underfunding of primary health care. Through these experiences, it seemed clear to me that urgent steps are needed to raise the quality of PHC in Kenya. Moreover, the new vision for primary health care agreed by world leaders at Astana in Kazakhstan in 2018 and the Constitution of Kenya signal the need to guarantee access to the highest attainable standard of health for all. But I needed to know more.

This PhD opened a window to study QI by immersing myself in fieldwork at Kenyan PHC hospitals in county health departments. I thus embarked on a journey of exploration. First, I wanted to understand QI by describing the culture of teams and or committees of health workers driving PHC QI, before explaining how and why these efforts are falling short. I, therefore, sought to identify and describe how local, national, and wider forces may be shaping QI in Kenya's complex and multi-tiered health system - inspired by CR - in the hope that key decision makers may take note and act.

1.2 Research aim and focus

The aim of this research is to promote understanding of QI initiatives in publicly provided PHC in Kenya by describing the culture, micro, meso, and macro level barriers and enablers, and how these interact to explain the prevailing situation. Although barriers and enablers to QI have been described in the literature on LMICs, as summarized in Chapter 3 of this thesis, very few studies have investigated these in Kenya. No study has so far described the culture of teams tasked with driving QI in any PHC settings in Kenya. To realise this aim, the study had three specific objectives:

- a) To identify the shared experiences, attributes, knowledge, beliefs, values, attitudes, and practices of quality improvement teams in different public primary health care settings in Kenya.
- b) To describe the barriers to and enablers of quality improvement in primary health care in Kenya from the perspectives and experiences of health workers and other decision makers.

- c) To explain how quality improvement in primary health care in Kenya is enabled or constrained.

1.3 Rationale for the research

Quality improvement in PHC settings in Kenya falls to diverse teams consisting of frontline health workers, sub-national managers, and national level stakeholders. It is guided by the Kenya Quality Model for Health (Ministry of Health, 2014a) which covers QI for various levels of PHC from facilities to the community. However, those involved in QI have so far not been successful at ensuring widespread infusion of quality care practices across the country (Giessler et al., 2020). This is particularly the case in under-resourced publicly delivered primary health services (Otieno et al., 2020) , considered critical for the achievement of universal health coverage in Kenya (Ministry of Health, 2020).

This research is crucial for Kenya's health system because it directly provides useful insights to address gaps in PHC service quality, and ultimately, better health outcomes. Strengthening QI implementation in PHC can lead to better health for the population and enhance potential cost savings by minimizing ineffectual improvement interventions, thereby accelerating Kenya's progress toward universal health coverage (Mohamoud & Mash, 2022). By illuminating QI culture, barriers and enablers, this research helps minimize failures in QI, ensuring that its benefits are realized, scaled up and sustained within the Kenya health system.

A key rationale for this research lies in its potential contribution to bridging gaps in PHC access and equity. PHC in Kenya exhibits disparities in access, workforce shortages, and infrastructure gaps, especially in rural and underserved areas (Kumar

et al., 2021). This research sought to identify and document the significant gaps constraining QI interventions to inform targeted interventions to reduce inequities in PHC and inform much needed service delivery improvements. Moreover, this research set out to spotlight opportunities to improve PHC outcomes through strengthened QI. Available evidence has shown that effective QI interventions at the community level of PHC – for example - can increase uptake of timely antenatal care, hospital deliveries, and adherence to healthcare standards, leading to reductions in maternal and infant mortality (Kumar et al., 2021). By highlighting constraints in PHC QI, this research will help health systems managers in Kenya to negotiate increased investments needed to assure better health outcomes. Considering financial constraints already documented in PHC in Kenya (Karimi et al., 2025) and elsewhere (Olago et al., 2023), there is need to promote greater efficiency in PHC services. By providing recommendations to improve PHC QI, this research points health systems decision makers to areas that require strengthening to ensure PHC services are not just effective but also cost-effective. Investing in PHC in Kenya has been shown to be highly cost-effective, with every US\$1 invested potentially saving up to US\$16 by averting disease and reducing the need for expensive hospital care (Mwai et al., 2023). Conversely, failed QI implementation leads to persistent service gaps, wasted resources, and poor health outcomes, as has been widely documented (Das et al., 2018). Addressing barriers to QI —such as weak leadership, inadequate funding, and lack of community engagement— once identified, will ensure that QI efforts are effective and sustainable. Besides, in the era of (emerging and re-emerging) pandemics, successful QI for PHC can help build a more resilient health system that

is better equipped and ready to respond to public health threats and crises, as called for by the declaration of Astana (WHO, 2018).

Practitioners and key decision makers require high quality scientific evidence to promote, sustain and institutionalise QI for better experience of care and to attain the desired health outcomes from ongoing investments in primary health. Exploring the culture of QITs at public primary health care facilities could contribute greater understanding of the changes needed to inculcate a culture of quality. Furthermore, a detailed description of how QITs work, and how these collide with or hinge on health systems context and wider societal forces in Kenya could help explain the slow progress in achieving the constitutional right to the highest attainable standard of health.

1.4 Summary of research design and methods

The research commenced with an integrative review that synthesised research on the culture, barriers and enablers of QI in PHC in LMICs. A focused ethnography then used qualitative methods to explore QI culture, barriers, and enablers in the Kenyan context.

1.5 How this thesis is organised

This thesis is organised in seven chapters.

Chapter 1: Introduction. The opening chapter sketches how this research was conceived before laying down the aim and objectives, and research rationale.

Chapter 2: Background. This chapter provides a detailed background information, putting the research in context contemporaneously and geographically. After running through the governance and political arrangements in relation to health systems in Kenya, the chapter outlines common approaches, frameworks and tools

used in QI before defining key terms. It closes by raising pertinent concerns regarding QI in PHC in Kenya.

Chapter 3: Literature Review. The literature review follows the steps of an integrative review commencing with problem identification and culminating in a synthesis (display) of systematic review results. The chapter goes on to discuss the findings, strengths, and weaknesses, before concluding with a reflection on the systematic review process.

Chapter 4: Research Design, Methodology and Methods. This chapter outlines the selected ethnographic research approach and its rationale. Before this, the critical realist underpinnings are described and defended. It then outlines the qualitative methods used. It explores issues of rigour and trustworthiness and ends with a reflection on the research design and methods applied.

Chapters 5 & 6: Findings: Quality Culture, Barriers, and Enablers. Findings from the analysed documents (ethnographic artefacts), participant observation notes, and qualitative interviews are covered here. These are integrated to answer the research questions.

Chapter 7: Discussion, Recommendations and Concluding Reflections. Opening chapter seven is a succinct description of the study's contribution to knowledge of PHC QI. Findings are then synthesised and compared to existing literature and integrated to address the aims of the research comprehensively. The chapter concludes by reflecting on the thesis research, after considering implications for future research, policy, practice and recommending actions to transform PHC QI in Kenya.

Chapter 2. Background Information

2.1 Defining QI and PHC

Quality improvement (QI) is a widely used but variably defined concept in healthcare and other fields. While there is broad agreement that QI involves systematic efforts to enhance health outcomes, care processes, and health systems, there is no single, universally accepted definition. QI is commonly described as the combined and ongoing efforts of all stakeholders—professionals, patients, researchers, and other decisionmakers—to make changes that lead to better patient outcomes, improved health system performance, and ongoing professional development (Batalden & Davidoff, 2007; Grant et al., 2023; Macgillivray, 2020). QI is characterized by systematic (e.g., root cause or problem analysis), iterative approaches (such as Plan-Do-Study-Act cycles), data-driven measurement (pre-, during and post-intervention), and active involvement of those closest to the issue i.e., health workers and healthcare managers (Grant et al., 2023). QI is distinct from, but related to, quality assurance, supervision, training, audit, and research, focusing on continuous improvement rather than one-time evaluation (Matthews & Hilbig, 2023).

The literature highlights ongoing debates and contextual differences in how QI is understood and applied. One such issue is the lack of consensus because there is no universally agreed-upon definition of QI, and the term is applied differently across contexts, disciplines, and countries (Mercuri, 2019). The other challenge is that what counts as “quality” and “improvement” can differ based on local needs, cultural values, and power dynamics, especially between high-income and emerging/developing economies (Batalden & Davidoff, 2007). Thirdly, there exists a

wide overlap between QI and other approaches, i.e., the boundaries between QI, quality management, and research are often blurred, leading to confusion and disagreement about what activities count as QI (Batalden & Davidoff, 2007; Mercuri, 2019). Lastly, efforts like the SQUIRE guidelines aim to standardize QI reporting, particularly QI research, but even these acknowledge the complexity and multidimensionality of QI work (Ogrinc et al., 2016). The field of QI continues to grapple with contextual differences, overlapping concepts, and ongoing debates about what forms QI and how it should be reported (Davidoff et al., 2008).

Having considered ongoing debate and given the lack of consensus, this research adopted a working definition of QI in PHC as applicable in Kenya, aligned to existing guidelines (AHRQ, 2023; WHO, 2023). Accordingly, 'quality improvement' or QI was defined to include systematic data-driven approaches, methods, tools, and techniques which draw from a history of performance improvement in the Japanese manufacturing industry that seek to strengthen, enhance, or better one or more dimensions of quality of health care. Dimensions of quality of care include safety, patient-centeredness, effectiveness, timeliness, efficiency, equity and integration (WHO, 2023). Although QI in its narrow sense involves deliberate and systematic cycles of measurement and action focused on specific aspects of health care (Institute of Healthcare Improvement, IHI, 2023), these dimensions call for a more broader, systems oriented formulation of QI, more so in the context of health systems complexity or interconnectedness. It is with this understanding that supervision, audit and financing arrangements, among others, are included in this research on QI in the context of PHC.

Primary health care is also elusive to define but in Kenya generally encompasses preventive, promotive, curative, surgical, rehabilitative, and palliative health services delivered by providers in primary health care networks, PCNs (Ministry of Health, 2021). This, according to the government, is aimed at improving population health in a patient-, family-, and or client-centred manner at levels one to four of the Kenya health system (Ministry of Health, 2021). Globally, the World Bank, the World Health Organization and others (Barış, et al., 2021) define PHC rather broadly as “a health- and social-service delivery platform or system uniquely designed to meet communities’ health and healthcare needs across a comprehensive spectrum of services—including health services from promotive to palliative—in a continuous, integrated, and people-centered manner.” PHC services are often attuned to the prevailing socioeconomic, political and historical contexts of communities, in addition to the financial and health workforce considerations in the given country setting (WHO, 1978).

2.2 The right to quality health care

Kenyan law declares that “every person has a right to the highest attainable standard of health, which includes the right to health care services” (Kenya Constitution, 2010). This right is reflected in international legal frameworks e.g. the Universal Declaration of Human Rights and the International Covenant on Economic, Social and Cultural Rights and is not unique to Kenya. But this right remains unfulfilled in part due to the poor quality of primary health care (Kruk et al., 2017; Kumar et al., 2021; Mbugua et al., 2021; Olago et al., 2023). The government of Kenya’s Ministry of Health has – in acknowledgement of this undesirable situation – put in place guidelines aimed at improving the quality of primary health care

systematically. An overarching guideline is the Kenya Quality Model for Health (Ministry of Health, 2014a) and its related implementation frameworks. If the realisation of the right to quality health care remains elusive, it is not documented why efforts to improve the quality of health care have so far not led to sustained, widespread or institutionalised interventions in public primary health care settings where most Kenyans seek or obtain healthcare.

2.3 High quality health systems

High quality health systems have been identified as critical to the attainment of global sustainable development goals related to health and are increasingly seen as a prerequisite for ensuring healthy lives and wellbeing (Kruk et al., 2018). Good and equitable health is also regarded as a foundation for prosperous societies where people's rights can be fulfilled (Kruk et al., 2018). The impact of COVID-19 pandemic on health systems inspired calls for resilient, dynamic, and high-quality health systems capable of delivering equitable primary health care (Barış, et al., 2021). But disagreements remain regarding what it means to deliver the highest attainable standard of health and how the right to health can be realised for all citizens (Kinyenje et al., 2022; Kruk et al., 2017; Omeje, 2023). Nimako and Kruk (2021, p.e1758) define high-quality health systems as those that “consistently deliver health care that can maintain or improve health for all and generate people's trust while offering financial protection from high costs.” Thus, high-quality health systems espouse a *culture of quality*.

They (Nimako & Kruk, 2021) then proceed to lay out four synergistic “simple rules” or core tenets operating in a high-quality health system: *clear aims* (a well-articulated value-based vision of healthcare), *reinforcing resources* (concerted and

progressive inputs and investments that strengthen pillars of the health system), *constraints* (systems that ensure evidence-based practice, respectful care, patient safety and sound clinical governance), and *incentives* (a mix of behavioural and socio-economic rewards that reinforce the desired practices among health care actors). It is not hard to see the place of QI – operating at micro-, meso-, and macro-levels – within these normative and practical considerations. First, QI is premised upon every patient’s life being of value, thus, the need to alleviate pain and sickness through evidence-based healthcare (Odell et al., 2019). As well, QI requires systematic, data-driven and gradual strengthening of the health system, and the incentivisation of desired practices towards a *culture of quality* (Tlili et al., 2020).

Having highlighted the need for health systems to move towards a culture of quality, it is now important to elaborate on its meaning. Although challenging to define and without universal consensus, a “culture of quality” was operationalised to comprise the shared values, attitudes, and practices within primary health care institutions that prioritise continuous improvement, evidence-based care, and accountability at all levels. While research from Kenya is limited, studies from similar resource-constrained settings in Sub-Saharan Africa and elsewhere provide a robust conceptualisation relevant to the Kenyan context. A culture of quality has been described as the most intangible yet crucial element of quality improvement, encompassing the collective commitment of staff to provide high-quality care, even with resource constraints (Patterson et al., 2021). It is driven by leadership, people-centered care, collaboration, motivation & rewards, and ownership—all working together to embed quality as a core organizational value operating in daily PHC

practice (Kandasami et al., 2019). This culture is not just about tools or protocols, but about behavioural change and consistent demonstration of quality-oriented values at every level of PHC (Camacho-Rodriguez et al., 2022; Odell et al., 2019). In resource-constrained settings like Kenya, a culture of quality needs to address structural barriers (e.g., staffing inadequacies and shortages of commodities and supplies) and support health workers in adapting to challenges without normalizing poor or harmful practices (Coles et al., 2020; Macgillivray, 2020). Accordingly, enabling national policies, strong leadership, and active learning (e.g., peer-to-peer, mentorship) are essential for institutionalising and sustaining a culture of quality, as summarised in *Figure 1* (Alshehry, 2019; Berhanu et al., 2024; Boughaba et al., 2019).

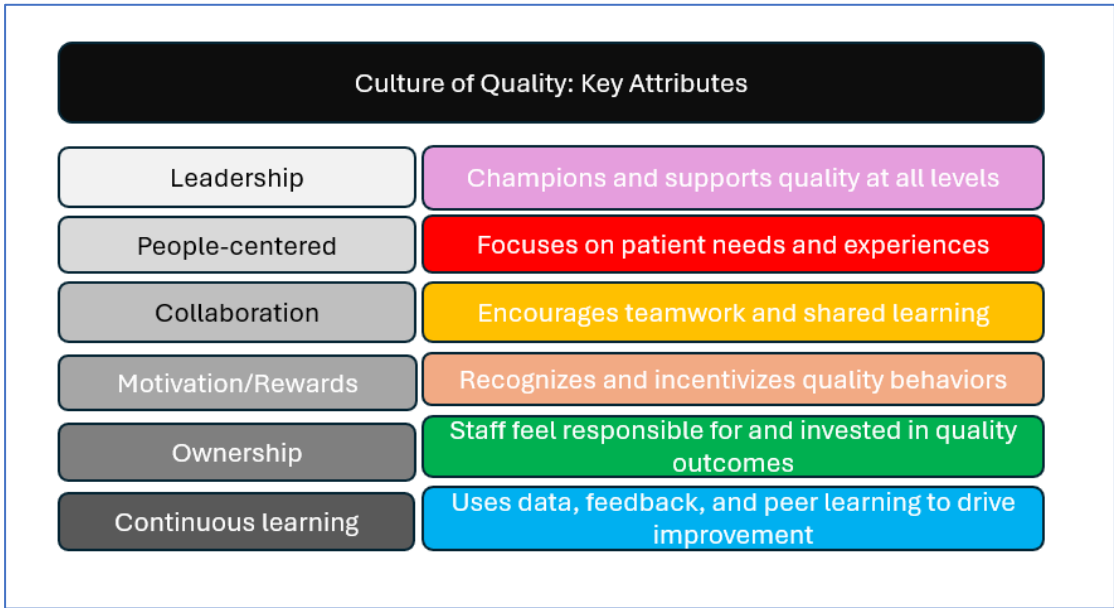


Figure 1: Key elements of a culture of quality (adapted from Kandasami et al. (2019) and Patterson et al. (2021))

However, achieving health system improvement is anything but simple. While clear aims are articulated in laws, policies and plans which Kenya has in plenty, adequately resourcing health systems requires negotiation and support from donors, ministries of finance, and employers - not to mention politicians - and a social covenant among

citizens. Incentive mechanisms (or rewards) and constraints (or sanctions) are needed, in part, because public servants are neither entirely “knights” driven by altruistic motives nor are they “knaves” obsessed only by self-interest (Bevan, 2010; Le Grand, 2010). Setting up incentive mechanisms requires strong goodwill from leaders, health workers, protracted labour arrangements and careful systems thinking, to avoid perversion (McPake et al., 2014; MCPake & Hanson, 2016). Similarly, enforcing constraints remains tricky in the public service sector unless staff (labour) unions, market forces and professional regulatory authorities are fully aligned (McPake et al., 2014).

2.4 Devolved governance of health care in Kenya

Health care in Kenya is the joint concern of both national and county governments under the devolved governance arrangement in place since 2013. County governments, equivalent to federal units found in many countries with decentralised governments, have the powers to plan, organize, deliver, and monitor health care status and services, including primary health care. Thus, counties have obligations for maintaining the primary health care workforce, commissioning infrastructure and equipment, purchasing medicines, and collecting and reporting health statistics. The national government’s Ministry of Health reserves the responsibility of setting out health policy, guidelines, and standards which are subsequently implemented by counties’ departments of health in addition to running the few national (tertiary) referral hospitals. But the relationship between the two levels of government is frequently cold and acrimonious. Counties often accuse the national government of encroachment on their roles and functions, and delays in disbursement of shared tax revenue by the national treasury, which constrains the counties’ ability to plan and

deliver (quality) health services (Gichuki, 2020). Notably, the national government spends much more on health care than all 47 county governments combined, giving it substantial leverage in promoting Nimako and Kruk's (2021) simple rules, with far reaching ramifications for QI in PHC.

County government health departments are headed by a county executive committee member (CECM, a political appointee) who is tasked with providing overall leadership and direction for a coordinated delivery of health services. The CECM coordinates closely with the national government on behalf of the county through national caucuses set up for inter-governmental relations. This county "minister" (CECM) for health is deputized by a county chief officer for health who is responsible overall for resource management (people, finances, other assets) as the chief accounting officer for the department, and the most senior county civil servant. Directly below the chief officer is the county director for health, legally considered the technical head of the department who oversees the county health management team, a body of various health cadres comprised of senior managers of health programmes and specialists. Together, the county health management team ensures that operational and strategic plans are developed, implemented, and monitored, including QI work plans. Further down, the county health management team is replicated at the constituency (or district) level as the sub-county health management team. It is this sub-county team that is directly responsible for backstopping the primary health and care workforce in their daily operations, technically and administratively, in close consultation with the county-level management.

2.5 Kenya's Health Policy Framework

The Kenya Health Policy Framework 2014-2030 (Ministry of Health, 2014b) outlines how the country will achieve the highest attainable standard of health in fulfilment of the provisions of the Constitution, national laws, and local and global development blueprints. The Kenya Health Policy Framework is accordingly underpinned by the need to support realisation of the right to health and to ensure a healthy population as the foundation for national economic development (Ministry of Health, 2014b). Signifying clear links to health care quality improvement, health policy in Kenya makes provision for equitable, people-centred, efficient, participatory, multi-sectoral, and accountable health services (Ministry of Health, 2014b). Reflecting the devolved context, the health policy envisages ongoing collaboration and consultations between national and county governments among its key principles. Health services in Kenya, according to the health policy, are delivered in a multi-tiered system, ranging from level one to level six. Level 1 is the community, organised around households, with up to 10 community health workers (essentially volunteers, renamed as 'promoters' by the new government in 2023), serving approximately 5,000 persons. Level 2 are dispensaries, and together with Level 3 (health centres), are commonly called primary care facilities. Level 4 are re-purposed district hospitals renamed primary health care referral facilities and along with levels 1, 2 and 3 comprise the primary health care network. Level 5 are secondary referral facilities that serve many counties in regional groupings while Level 6 are national tertiary referral and teaching facilities mandated to serve the whole country irrespective of their physical location. This research focused mostly on Level 4 hospitals although the open nature of the primary health care system with

dialectics among multiple health system actors and layers means that several aspects of QI at other levels (see *Figure 2*) of primary health care could not be neatly excluded.

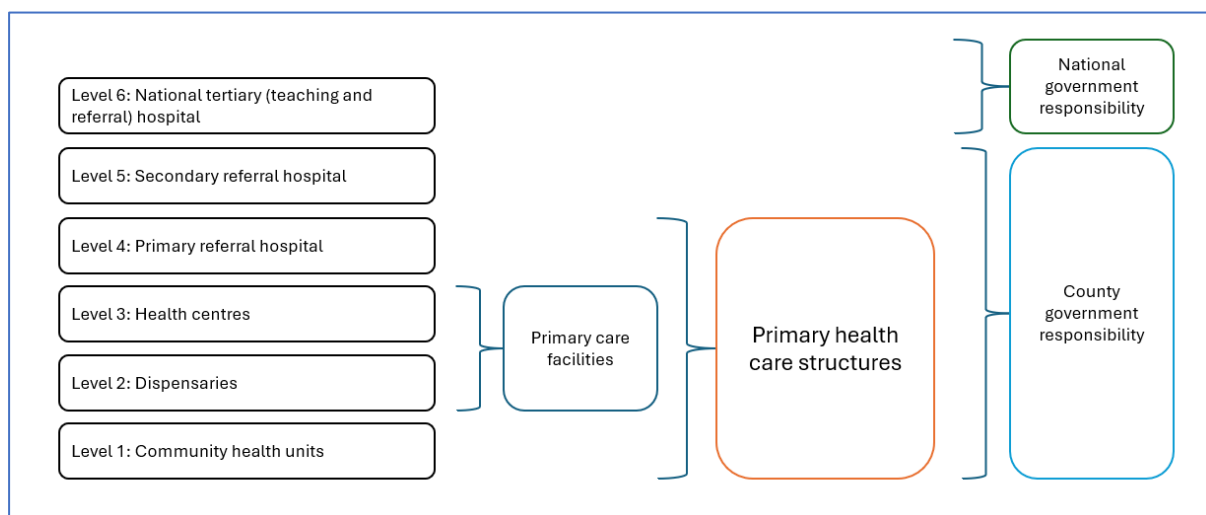


Figure 2: Organisation and levels of Kenya's devolved health system

The orientation of the health system in Kenya tracks the domains (or pillars) of the health system first advanced by the World Health Organization, namely, health financing, health leadership, health products and technologies, health information, health workforce, service delivery systems, health infrastructure, and research and development (Ministry of Health, 2014b). The policy's orientations and principles are expected to result in better access to care, improved care quality and greater demand for care. These in turn should lead to the elimination of communicable diseases; a halt and reversal of the rising burden of non-communicable diseases; and reductions in the incidence of violence and injuries. Also expected are expansion of essential health care; minimisation of exposure to health risk factors; and fostering stronger collaboration with the private sector and other sectors. The Kenya Health Policy Framework, therefore, guides all counties in planning and delivering healthcare and promotion of health in line with the country's constitutional

provisions that envisage one country, Kenya, with 48 governments (one central government plus 47 semi-autonomous, decentralised county governments).

2.6 Quality-of-care guidelines and frameworks

Kenya has many guidelines and frameworks that cover a range of areas related to QI and assurance standards for primary health care. First introduced in 2001 as the Kenya Quality Model (KQM), it provided a conceptual framework for QI in health services and systems (Ministry of Health, 2011). KQM had three stated aims: to enhance adherence to standards and guidelines; to strengthen health systems structures, processes, and outcomes through the dissemination of quality management principles and tools; and to ensure that health services meet the expectations of patients and clients in a culturally appropriate manner (Ministry of Health, 2011). However, KQM was deemed a failure and in 2009 after a government review, it was revised and renamed the Kenya Quality Model for Health (KQMH), expanding it beyond public health and clinical practice orientation to include leadership and management support for quality health service provision (Ministry of Health, 2011). Since then, KQMH has undergone several iterations and been implemented to varying degrees across the country's approximately fifteen thousand health facilities and ten thousand community health units.

Typologies of existing guidelines and standards for health care quality in Kenya can be described based on the levels of services whose quality they target (e.g. integrated community case management for community health services) or patient cohorts targeted (e.g. paediatric and child health services, or maternal and newborn health services). Such guidelines and standards also concern service packages (e.g. antenatal care, emergency obstetric care, reproductive health, HIV/AIDS prevention,

care and treatment, malaria case management etc., to mention but a few). QI activities often tend to focus on ensuring compliance with such guidelines and standards under the general purview of good clinical practice.

However, more system-wide QI guidelines and standards are articulated in the KQMH. KQMH takes a systematic approach to quality improvement. It attempts to address quality gaps using a systems lens (tracking the status of health systems pillars or orientations identified in the Kenya Health Policy), while measuring the achievement of policy outputs and objectives using a mix of routine administrative health service data, secondary data, and primary data (Ministry of Health, 2014a). Using measurements from KQMH, health facilities are categorised using a star rating ranging from zero (abysmal quality of care) to five (excellent performance). The measurements leading to these ratings, crucially, are tailored to the level of service delivery thus different quality of care assessment metrics exist for Levels 1 - 6. Each level corresponds to an expected level of resourcing (inputs), structures and systems to assure quality and health outputs and outcomes (Ministry of Health, 2014a). Ratings are meant to motivate stakeholders to raise the quality bar, or to maintain it where it is already sufficiently high. Ratings also ought to be used to gauge how much providers of health care should be reimbursed by insurers, an incentive practice which is yet to take root (Ministry of Health, 2020). KQMH is predominantly adopted by government-owned (public) health facilities and, therefore, more relevant to this research. However, it is not the only such framework.

Other health service providers, especially privately-owned ones, tend to embrace either of two international alternatives: *SafeCare* Standards (Johnson et al., 2016) or the International Standards Organization's ISO 9000 Series (Singels et al., 2001).

Irrespective of quality-of-care and quality assurance frameworks, the approaches, underpinning theories, and tools to ensure improvements in the quality of health services are near-similar, and these are described next.

2.7 Quality dimensions and quality improvement approaches, frameworks and tools

2.7.1 Dimensions of quality

Quality Improvement is based on many philosophies and aims to enhance various dimensions of healthcare delivery including timeliness, efficiency, effectiveness (evidence-based practice), equity, patient-centeredness, and safety, according to the World Health Organization (WHO, 2023) and the Agency for Health Care Research and Quality (AHRQ, 2023). This implies that many approaches and tools are required to achieve the goals of quality improvement, with a wide range of options and room for disagreement regarding what exactly is meant by “quality improvement” or QI, and how QI can be measured, monitored, evaluated, or researched (Batalden & Davidoff, 2007).

2.7.2 QI philosophy and frameworks

The Kenya Quality Model for Health and the various other models in use across the country draw inspiration from the Japanese philosophy of manufacturing industry excellence known as Total Quality Management (TQM) with principles of 5S-Kaizen and stepwise approach of continuous quality improvement (CQI) (Ministry of Health, 2014a).

TQM with its eight elements entail a laser focus on customer satisfaction; involvement of all employees; focus on processes with inbuilt steps, checklists and quality measures; and systems integration bringing many vertical sub-systems together (Donabedian, 2005). TQM also includes systems and strategic orientation

with alignment of activities to the organisation's vision, mission and goals; continuous improvement bolstered by the need to stay competitive, with business process analytics and creativity; data-driven decision making; and effective communication throughout the organisation both routinely and during moments of change (Reznikovich, 1994).

One of the enduring frameworks is Donabedian's Structure–Process– Outcome (Donabedian, 2005). This framework is among the well-known globally and emphasises measurement for improvement by focusing on structures (systems or pillars that hint at capacity to provide quality care), processes (based on available evidence, assesses ways to deliver care for the sick or maintain health for the healthy) and outcomes (health impact based on patient outcomes and population health).

2.7.3 QI approaches and initiatives

While the quality-of-care dimensions and QI philosophy assume a normative and global character, each country and county health system are free to adopt its desired approaches to implement context appropriate initiatives for QI. Perhaps the front runner is the ubiquitous plan-do-check-act, (PDCA or Deming cycle) and its many variants (assessment-improvement-model or AIM; diagnose, intervene, verify, assess or DIVA; and plan-do-study-act or PDSA). Whatever the iteration, the popular four-step version (Madu & Kuei, 1993) for problem-solving, learning, and improvement involves: (1) the *planning* phase where the quality problem is defined, and possible causes and solutions hypothesized; (2) *doing*, where solutions or action points to address the problem are implemented; (3) *checking*, here the results are evaluated to establish whether the problem has been effectively tackled or if it recurs; and (4)

action, whereby the solution is institutionalised if deemed successful and a new problem identified or a re-analysis of persistent ones done, leading to a new iterative cycle (Madu & Kuei, 1993). Another common approach to QI is 5S Kaizen.

5S originates from Kaizen which emphasizes continual improvement, and stands for sorting or *seiri* (to put away unnecessary appliances or parts in the workplace), setting in order or *seiton* (to assign a specific storage or workspace for everything), shining or *seiso* (to maintain a clean workspace), standardising or *seiketsu* (to adopt a best practice throughout the workplace), and lastly sustaining or *shitsuke* (to institutionalise and make this best practice the new norm to avoid backsliding) (American Society for Quality, 2024). This approach to improving the quality of health care has been widely adopted and incorporated in guidelines and standards with emphasis on changing practices by adopting new ways of doing things (Kleinman & Dougherty, 2013). But the extent to which new ways (be they evidence-based guidelines or new management approaches) are widely adopted and sustained remains to be seen in Kenya.

Clinical audits in PHC are systematic processes where health professionals review and evaluate their clinical practices against explicit standards or guidelines, with the goal of improving patient care and outcomes (M. Shaw, 2002). It is an integral part of quality assurance systems in primary health care, used alongside practice development plans, guidelines, and protocols to ensure high standards of care (Alhatm, 2010). Effective clinical audit often involves collaboration among various health professionals within primary care teams, supporting a broader quality assurance program (Khan et al., 2020). The clinical audit process is cyclical—identifying areas for improvement, implementing changes, and re-auditing to assess

progress—helping practices move from audit to sustained quality service delivery processes (Omair et al., 2025).

Along with clinical audits, standards-based audits and criterion-based audits are often implemented as audit and feedback cycles and are widely used in PHC to drive quality improvement (Kongnyuy & Uthman, 2009; White et al., 2024). These methods involve systematically measuring clinical practice against explicit standards, providing feedback, and implementing changes to enhance care quality (Kongnyuy & Uthman, 2009; White et al., 2024). The audit cycle typically includes selecting a standard, measuring current practice, reviewing findings, implementing changes, and re-measuring to assess improvement (White et al., 2024). Both standards-based and criterion-based audits use explicit, measurable criteria to assess care (Kongnyuy & Uthman, 2009) while audit and feedback refers to initiatives that provide clinicians with performance data and structured feedback to encourage improvement (Omair et al., 2025). Together, these cycles are used to improve adherence to clinical protocols, consultation skills, diagnosis accuracy, and management of common conditions in PHC settings (Omair et al., 2025)

Topic specific initiatives

A range of audit and review tools—maternal death surveillance and response (MDSR), perinatal death reviews, near miss audits, appreciative inquiry, and confidential enquiries—are used to improve the quality of primary health care (PHC), especially for maternal and newborn health. Maternal/Perinatal Death Surveillance and Response (MDSR/MPDSR) involves systematic identification, review, and response to maternal and perinatal deaths (Cetin et al., 2022; Khader et al., 2019). They foster learning, vigilance, and implementation of recommendations, especially

when conducted in a blame-free environment with strong leadership. Effective cycles lead to improved care quality and reduced mortality, while poor implementation can result in under-reporting and disengagement (Cetin et al., 2022). Perinatal Death Reviews, like MDSR, identify avoidable factors in perinatal deaths and recommend changes (Khader et al., 2019). They are most effective when integrated into broader quality improvement packages, including training and leadership development (Khader et al., 2019). Near Miss Audits review cases where women nearly died but survived (near miss). They provide insights into system failures and successes, helping to identify gaps in care and prioritise training and protocol adherence (Heitkamp et al., 2022). Confidential Enquiry uses external, often anonymized, expert review of deaths or near misses to identify modifiable factors and system-level recommendations, leading to more robust and actionable findings than local reviews alone (Okafor et al., 2022). While less frequently studied, Appreciative Inquiry focuses on identifying and amplifying strengths and successful practices within teams, complementing traditional deficit-based audits. Maternal and perinatal death reviews, near miss audits, and confidential enquiries are evidence-based strategies that improve primary health care quality by identifying modifiable factors, informing targeted interventions, and fostering a culture of learning. However, their effectiveness depends on supportive leadership, a blame-free environment, and integration with broader quality improvement efforts (Cetin et al., 2022).

Also intricately linked to 5S-Kaizen, TQM and CQI, are approaches to QI that share similar elements to support healthcare quality improvement. These include quality improvement collaboratives (QICs) that bring several peer QI teams to share

learnings and experiences and jointly brainstorm and solve problems); Six Sigma and Lean Six Sigma which closely mirror 5S-Kaizen; Standard-Based Management and Recognition, SBM-R – conceived by American NGO, JHPIEGO, for performance and quality improvement; Benchmarking (where peers visit each other to learn best practices on-site); and client-oriented provider-efficient, COPE – promoted by yet another American NGO, ENGENDER Health (Adamu, Uthman, Gadanya, & Wiysonge, 2019; Al-Rifai, 2024; Atmaca & Girenes, 2013; Dohlie et al., 2000).

2.7.4 QI Tools and techniques

Hospital teams, however, have freedom to draw upon the various techniques and tools in the toolbox in the day-to-day QI implementation and practice. With such elaborate approaches to QI deeply rooted in management (manufacturing and production) philosophy (Reznikovich, 1994) as well as systems thinking (Donabedian, 2005), many tools have been devised to simplify health care quality improvement. These are also codified in KQMH and other health systems guidelines and standards. At each phase, QI embraces tools such as fish-bone analysis and the 5Whys (Ministry of Health, 2011), and a few of the common tools are described in turn. Root cause analysis (RCA) is a structured, systematic process used to identify the underlying causes of adverse events, errors, or problems, with the goal of preventing their recurrence (Caole, 2005). Rather than focusing on immediate symptoms, RCA seeks to uncover the fundamental factors—often systemic or process-related—that lead to undesirable outcomes (Contreras, 2010). By addressing the underlying causes, RCA helps organizations implement effective corrective actions, reducing the likelihood of similar incidents happening again (de Vasconcelos et al., 2021). It is widely used in healthcare, aviation, and other high-risk industries to enhance safety, quality, and

reliability by learning from errors and near-misses (Caole, 2005). Shifting the focus from individual mistakes to broader system or process weaknesses, promoting sustainable organizational learning and improvement is a key element of RCA (de Vasconcelos et al., 2021).

Fishbone analysis, also known as the *Ishikawa diagram* or cause-and-effect diagram, is a graphical tool used to systematically identify, organize, and analyse the potential causes of a specific problem or event (Coccia, 2020). The diagram resembles the skeleton of a fish, with the main problem at the "head" and various categories of causes branching off as "bones" (Coccia, 2020). Major categories of potential causes (such as people, methods, machines, materials, environment, and measurement) branch off the central "spine," with more specific causes added as smaller branches (Fisher et al., 2020). The tool helps teams brainstorm and visually map out all possible root causes of a problem, facilitating a comprehensive analysis rather than focusing on symptoms or isolated issues (Fisher et al., 2020). Widely used in healthcare, business, engineering, and quality improvement, fishbone analysis supports root cause analysis and the development of targeted solutions (Luo et al., 2018). It encourages a structured approach to identifying and categorizing causes, reducing the risk of overlooking contributing factors (Phillips & Simmonds, 2013). The visual format supports team discussion and consensus-building, making it easier to engage multiple stakeholders in problem-solving (Luo et al., 2018). By clarifying the root causes, organizations can develop more effective action plans to address underlying issues and improve outcomes (Phillips & Simmonds, 2013).

Problem Trees, Process Mapping, Force Field Analysis, and Driver Diagrams in Quality Improvement

In quality improvement, problem trees clarify what to address, process mapping shows where issues occur, force field analysis evaluates change feasibility, and driver diagrams organize and drive targeted interventions (Antonacci et al., 2020; Xu & Dang, 2020). Together, these form a comprehensive, iterative approach to effective system change through continuous quality improvement. *Table 1* below shows the linkages that exist among these tools in support of QI.

Table 1: Connections among common QI tools

Tool	Main function	How it connects to other QI tools
Problem Tree	Identifies root causes/effects	Inform process mapping and driver diagram development
Process Mapping	Visualizes current processes	Clarifies where root causes impact workflows
Force Field Analysis	Assesses change readiness	Prioritizes interventions identified in other tools
Driver Diagram	Links aims, drivers, interventions	Synthesizes findings from all previous analyses

Problem trees help QI teams to visualize the root causes and effects of a central problem, breaking down complex issues into manageable components, making it easier for teams to clarify what needs to be addressed before selecting improvement strategies (Xu & Dang, 2020). By creating a visual representation of the steps, flows, and stakeholders in a process, process maps help QI teams to identify where problems occur, highlight inefficiencies, and provide a shared understanding of current practice (Xu & Dang, 2020). Process mapping often follows problem tree analysis, as they help clarify how root causes manifest in everyday workflows and

care processes. Force Field Analysis assists teams in planning interventions (change strategies to be tested) by understanding what will help or hinder improvement efforts (Siriwardena & Gillam, 2022). After mapping processes and identifying root causes, force field analysis helps prioritize which changes are most feasible and likely to succeed (Siriwardena & Gillam, 2022). Lastly, driver diagrams come in to visually link the overall aim of a project to the primary and secondary drivers (factors) and specific interventions needed to achieve improvement. These diagrams provide a structured framework for planning and tracking improvement initiatives (Siriwardena & Gillam, 2022). Thus, driver diagrams synthesize insights from problem trees, process maps, and force field analysis, helping teams to translate them into actionable strategies.

Through QI, change ideas or intervention areas and strategies aim to improve health care processes, outcomes, and systems (Batalden & Davidoff, 2007). Such ideas or strategies are often generated through brainstorming or reference to ‘best practices’ in management, policy or practice, documented research, evidence-based guidelines, expert knowledge, intuition, and trial and error; and a few of those prioritised and implemented (Ministry of Health, 2011). Run charts (visual displays) have also gained recognition to track changes in system performance to determine if the implemented change or solution is working during the check/study phase (Ministry of Health, 2011). *Figure 3* summarises the main QI frameworks, approaches

and tools.

Dimensions of quality	QI Philosophy and Frameworks	Features of QI	Approaches and Initiatives	Tools and techniques
Timeliness Efficiency Effectiveness Equity Patient-centeredness Safety	<u>Philosophy:</u> Total quality management (TQM) <u>Frameworks:</u> Lean Six sigma (also considered an extension of TQM) Donabedian's structure-process-outcome	Systematic Data-driven (measurement) Analytical e.g., root cause identification Action-oriented i.e., testing possible solutions, refining, scaling or sustaining proven ones Focus on change	<u>Approaches</u> Plan-do-check-act (Deming) / Plan-do-study-act cycles Assess-improve model Diagnose-intervene-verify-assess 5S Kaizen Continuous quality improvement QI collaborative Benchmarking Client-oriented provider efficient <u>Themed Initiatives</u> Standards-based recognition/ Audit/ Criterion-based audit Clinical Audit Maternal/perinatal/newborn/ pediatric death review (near-miss audit) Appreciative enquiry Confidential Enquiry into maternal deaths	Brainstorming Problem (tree) analysis Fish bone Root cause analysis (5 Whys) Prioritisation matrix Run chart Pareto chart Process mapping Force-field analysis Driver diagrams

Figure 3: A summary of main quality improvement frameworks, tools and approaches

2.8 Quality improvement in primary health care in Kenya

The preceding sections described the why (need for and aims), the what (various dimensions and principles) and the how (approaches and tools) of quality improvement. Attention now shifts in this penultimate section to the who (actors and agents) in quality improvement, particularly in the Kenyan context.

At the national level, the Ministry of Health maintains a unit responsible for health standards, norms and quality assurance which supports other units within the ministry to develop policies, norms, and standards for the planning, delivery, financing, and delivery of health services across the nation. This department is also directly responsible for the provision of quality assurance services and the formulation and implementation of the Kenya Quality Model for Health and the endorsement of other certification and accreditation frameworks (e.g. SafeCare standards and Joint Inspection Commission) for use in Kenya. At the counties where much of health service delivery (and all primary health care services) takes place, the

county health management team and subcounty health management teams are expected to put in place technical working groups for quality improvement, according to KQMH guidelines (Ministry of Health, 2014a). Within hospitals (levels 4 and 5) the duty to assure and to improve the quality of health care rests with a QI team (QIT), or QI committee (QIC) (Ministry of Health, 2014a). Depending on the size of a hospital, a QIT can be convened to provide oversight to the entire hospital or at the departmental level e.g. surgery, maternity, newborn unit, radiology and imaging, or specialized clinics. At the department, these are known as work improvement teams or WITs. For primary health care facilities (dispensaries and health centres) which are smaller with fewer staff, QI teams are sometimes called WITs and have more limited roles that focus on, for example, infection prevention and control or documents and records management. QITs and WITs are comprised of the health facility manager (medical superintendent or nurse/clinical officer in-charge), departmental, unit or section heads, operations, and administrative staff such as procurement, finance, and health records. The non-health workforce such as the head of security, kitchen, or central stores can also be co-opted into QITs and WITs (Ministry of Health, 2014a). This team is expected to meet regularly, often monthly, or more frequently, and making use of QI tools, techniques and approaches, identifies and analyses quality problems linked to the dimensions of quality-of-care. The QIT or WIT proposes, prioritises and implements solutions, monitors change or improvement, and reports back to or seeks inputs from the higher levels of the health system on their activities (Ministry of Health, 2014a). Notably, QI in PHC can be orchestrated at the lowest levels of care provision (service delivery points), be implemented at scale (system-wide), or occur at multiple levels concurrently or

sequentially, and target a single or multiple domain(s) of the health system or facet(s) of quality (Ministry of Health, 2011).

At the time of fieldwork and analysis, authorities in Kenya declared primary health care as a top national priority, enacting swift radical changes in its financing and accelerating the formation of PCNs. In its current resurgent form, primary health care transcends the provision of essential health services to incorporate, even if in an aspirational manner, aspects of community participation in, and multisectoral action for, health (WHO, 2018). QI as happens in primary health care is the central concept discussed in this thesis using a critical realist (CR) and focused ethnographic approach to illuminate its multilayered and complex nature.

Chapter 3: A Systematic Literature Review of the Culture, Barriers to and Enablers of Quality Improvement in Primary Health Care in Low- and Middle-Income Countries

3.0 Introduction

This chapter synthesises literature on barriers to and enablers of primary health care (PHC) quality improvement (QI) in low- and middle- income countries (LMICs). This systematic review was published in PLOS Global Public Health after peer review.

The Agency for Healthcare Research and Quality (AHRQ) contends that QI is critical for population health, positive experiences of patients, and healthcare efficiency (AHRQ, 2023). Therefore, improving the quality of PHC is fundamental to the achievement of health goals in lower- middle-income countries (Kruk et al., 2018). In LMICs, up to eight in every ten people depend on PHC services for their health and care needs (Barış, et al., 2021). Until now, the poor quality of healthcare has generated concerns among practitioners and policymakers (Horton, 2017; Institute of Medicine, 2001). This is because despite more, though increasingly uncertain investments and rapid innovation, health outcomes have stagnated with rising inequalities in many LMICs (Al-Janabi et al., 2018; Barber et al., 2017). The result is wastage, harm, and preventable deaths.

While barriers (constraints or limitations) prevent the realisation of full benefits of QI, enablers (promoters, facilitators, or motivators) can unlock the potential of such interventions. Barriers and enablers range from the individual or micro (e.g. nurse manager knowledge and behaviour), to the institutional-organisational or meso (e.g. hospital resources), and to system-wide and societal or macro influences (e.g. implicit, or explicit social norms, laws and governance arrangements that drive QI culture, priority-setting, and PHC investments).

Ongoing debates on the level (individual or population), scope (bounded setting or whole systems), and approaches (evidence-based practice, multidisciplinary) to healthcare QI are unlikely to be concluded soon (Djulbegovic et al., 2019; Mercuri, 2019; Mondoux & Shojania, 2019). The review considered the complexity of PHC QI by being as inclusive as possible, avoiding a one-size-fits-all approach to QI in LMIC contexts. Thus, for this review, QI was conceptualised to include to include systematic data-driven approaches, methods, tools, and techniques which draw from a history of performance improvement in the Japanese manufacturing industry that seek to strengthen, enhance, or better one or more dimensions of quality of primary health care. Dimensions of quality of care include safety, patient-centeredness, effectiveness, timeliness, efficiency, equity and integration (WHO, 2023).

Existing reviews have synthesised evidence on patient safety culture in Latin American Hospitals (Camacho-Rodriguez et al., 2022), and barriers and enablers to the provision of emergency obstetric care in Nigeria (Hussein et al., 2016) and in LMICs (Stokes et al., 2016). Others reviewed interventions to improve anti-retroviral therapy programmes in sub-Saharan Africa (Muhula et al., 2022). One COCHRANE review studied the use of reminders in health care (Pantoja et al., 2019). Notably, an umbrella review (Kringos et al., 2015) described the influence of contextual factors on hospital QI using the Model for Understanding Success in Quality (MUSIQ) tool developed by Kaplan et al. (2012). It found that previous systematic reviews overwhelmingly included studies from high income countries in North America, Europe, and Southeast Asia with very few from Africa and South America. A more recent realist-inspired review (Zamboni et al., 2020) confined itself to a specific type

of QI, namely “QI collaboratives” to investigate its contexts, mechanisms and outcomes but still included only five (out of 32) primary studies from LMICs. Still, other reviews have confined themselves to ‘training and measurement’ (Khurshid et al., 2021) and patient safety education (Belrhiti et al., 2020; Verbakel et al., 2016). No systematic review was found that synthesised literature from LMICs to inform QI policy and practice specifically in PHC.

3.1 Review Aim and Questions

This systematic review aimed to describe the barriers to and enablers of QI within primary health care in low- and middle- income countries. The review sought to answer the following three closely related questions:

1. What are the barriers to and enablers of Primary Health Care Quality Improvement in Low- and Middle-Income Countries?
2. What is the shared knowledge, beliefs, values, attitudes, and practices (collectively called ‘culture’) of LMIC health workers and stakeholders regarding PHC QI?
3. What micro (individual or personal), meso (institutional or organisational) and macro (societal or structural) factors motivate health workers and managers involved in PHC QI in LMICs?

3.2 Review Approach and Methods

3.2.1 Review Approach

Because the review questions required studies from qualitative and mixed methods designs, an integrative approach (Whittemore & Knafl, 2005) was used along with narrative synthesis (Popay et al., 2006). Integrative reviews are suitable for combining studies from disparate methodological approaches and has played a growing role in health services research (Whittemore & Knafl, 2005). The framework

for integrative review commenced with problem identification, proceeded through a literature search, appraisal of data and analysis, before concluding with presentation of findings.

A narrative approach to evidence synthesis relies on ‘storytelling’, as its name suggests, and is commensurate with the overall integrative review approach (Popay et al., 2006). In the present review, this approach was used to enrich the data analysis and presentation stages of the integrative review.

3.2.2 Literature search strategy

A scoping search was first used to check how potentially relevant studies are indexed and the relevant key words and synonyms in databases. It was also used to test and refine the search strategy. An *a priori* search strategy was then developed (Annex Table 3.1) and flexibly applied to each database guided by the SPIDER mnemonic (Cooke et al., 2012) combining key terms “Quality Improvement”, “Primary Health Care” and “Low- middle-income countries” (Appendix 1). The search for literature (primary research studies) was performed in January-February 2023 with the help of a librarian and updated in June-July 2024. MEDLINE, PSYCHINFO, EMBASE and CINAHL were searched using a mix of free-text (key words) and Medical Subject Headings (MeSH terms) using EBSCO interface. TRIP, Academic Search Complete, Web of Science, Scopus and Africa Index Medicus were also searched. Grey literature including dissertations and thesis reports were sought from PROQUEST. WHO (www.who.int) and UNICEF (www.unicef.org) websites and the preprint server, Medrxiv, were also searched. To further reduce publication bias, Overton.io (an open research initiative to expand access to grey literature from LMICs) was also searched. Finally, relevant journals (Health Policy and Planning, Implementation Science,

International Journal for Healthcare Quality, BMJ Open Quality, Journal for Healthcare Quality, BMJ Quality and Safety, and Journal of Health Services Research) and reference lists of systematic reviews on QI were hand-searched for relevant papers.

No date or language filters were applied to searches. Boolean and near field operators were used to appropriately expand and narrow the search. A geographic search filter for LMICs developed by the Cochrane Collaboration's Effective Practice and Organisation of Care (EPOC) group (Sutton & Campbell, 2022) helped exclude high-income countries. The inclusion and exclusion criteria are shown in *Table 2*.

Table 2: Inclusion and exclusion criteria, adopted from SPIDER (adapted from Cooke et al., 2012)

SPIDER element	Include	Exclude
Sample	Facility-based health care workers (HCWs) Community-based health workers Health managers, policymakers, and stakeholders across PHC	Exclude if others included and lumped alongside these in findings.
Phenomenon of interest	QI (not just quality of care or general health systems capacity or situation assessment) Must be primary care or primary health care oriented, reported separately from tertiary and referral levels.	Not QI (does not investigate quality improvement) such as those exploring/assessing experiences, processes or behaviours and practices related to quality of care rather than QI.
Design	Mixed methods and qualitative designs. Mixed methods papers have qualitative data detailing enablers or barriers.	Quantitative design with no discernible data on contextual drivers of QI measured or reported
Evaluation	Intervention to improve quality of health care i.e. efforts introduced to change quality from level X to Y or measured from time X to time Y i.e. a QI initiative rather than just a measurement of quality-of-care.	Economic evaluations with no accompanying contextual data One-off measurement seeking perceptions of stakeholders on quality-of-care rather than on QI intervention/initiative/ project.
Research type	Qualitative data reported separate from quantitative findings in mixed methods. Qualitative research findings qualitatively reported (not quantified in percentages or numerical values). Semi-structured or in-depth Interviews, focus groups, observation, ethnography etc.	Surveys, randomised trials with no process evaluations reporting barriers or enablers of QI initiative or QI project

3.2.3 Study selection

All (n=7,077) studies were imported into Rayyan systematic review management (<https://rayyan.ai/>) where (n=4,110) duplicates were removed. Titles and abstracts (n=2,967) were screened by two reviewers independently and included (n=227) if they were deemed relevant. Conflicts throughout the selection process were resolved by consensus. At full text review, studies were read multiple times and subjected to inclusion and exclusion criteria derived from the SPIDER mnemonic (Cooke et al., 2012). A key consideration was the information power of the primary research report to contribute answers to the review question(s). Eventually, 50 studies were included. *Figure 4* (PRISMA flow chart) shows the screening cascade (Moher et al., 2015).

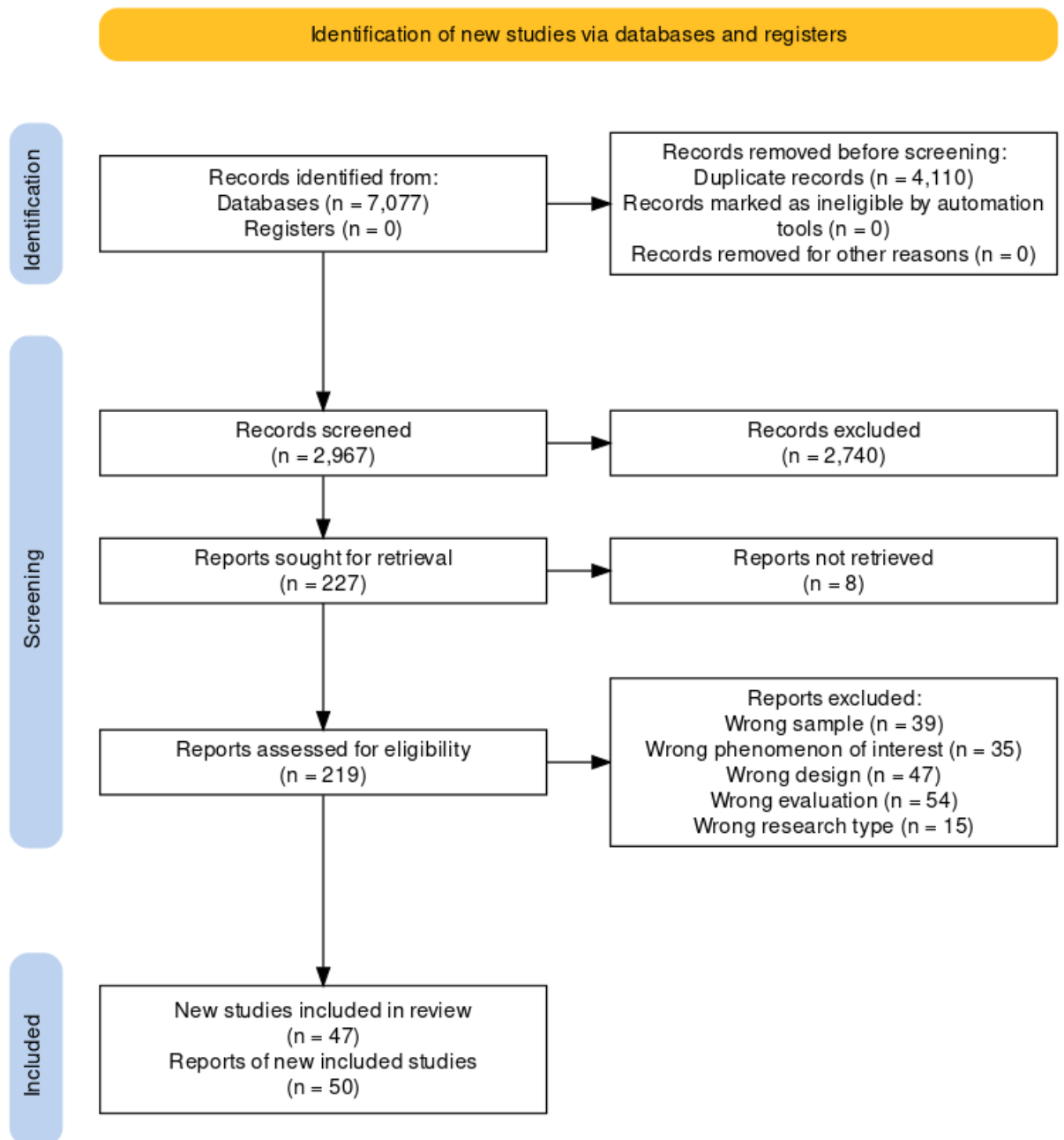


Figure 4: PRISMA flow chart

3.2.4 Assessment of study quality and relevance

The Mixed Methods Appraisal Tool, MMAT, checklist (Hong et al., 2018) was used to critically assess the quality of all 50 included full text studies prior to data extraction.

In keeping with best practice for integrative reviews and narrative synthesis, no scoring was done, and no study was excluded from the analysis based on the results of the critical appraisal, but the strengths and limitations of each study were

considered in the ensuing synthesis. Appendix B contains the appraisal prompts and results.

3.2.5 Data extraction

This author extracted data from all 50 reports while a second reviewer independently extracted data from half of all included studies. A comparison showed no major inconsistencies. The bespoke data extraction form hosted in Microsoft Office Forms online documented QI theory (of change), description of the QI intervention, study setting, sample and population, barriers, and enablers, elements of QI culture, and actors' motivations. Data on study conclusions, limitations and strengths, and recommendations (where available) was also included.

3.2.6 Data Analysis

Analysis started by synthesising individual papers to tease out the most relevant answers for the review questions (Appendix C). Data analysis involved the use of two frameworks commonly applied in QI research. It then proceeded to cross paper synthesis using two relevant, complementary and congruent frameworks.

Rationale for using MUSIQ and CFIR

The Model for Understanding Success in Quality (MUSIQ) developed by (Kaplan et al., 2012) was predominantly used, complemented with the Consolidated Framework for Implementation Research, CFIR, (Damschroder et al., 2022). The MUSIQ model is a context-appropriate analytical framework designed to identify and explain the factors influencing the success of QI initiatives in healthcare. Its use is particularly justified for literature synthesis of QI in PHC in LMICs for several reasons. MUSIQ systematically identifies more than 25 contextual factors at multiple system levels (microsystem, organization, external environment) that directly or indirectly affect QI success (Kaplan et al., 2012). In LMICs, where resource constraints,

leadership, team dynamics, and external influences are highly variable, MUSIQ helps unpack how these factors interact to enable or hinder QI (Reed et al., 2018). The framework provides a structured way to categorise and synthesise evidence on barriers and enablers of QI. This organization supports clearer identification of actionable insights for policymakers and implementers. By using a common set of contextual domains, MUSIQ enables comparison across diverse studies and settings, supporting generalisable conclusions about what drives QI success or failure in PHC (Reed et al., 2018). Empirical studies have shown that MUSIQ's contextual factors are significantly associated with QI outcomes, confirming its relevance for analysing QI success and failure (Boatman et al., 2025; Kaplan et al., 2013).

Equally, the CFIR is a widely recognised, comprehensive framework for analysing factors that influence the implementation of QI initiatives (Damschroder et al., 2022). Its use as an analytical framework in literature reviews of QI in PHC in LMICs is strongly justified. CFIR systematically organizes determinants of implementation across five domains: intervention characteristics, outer setting, inner setting, characteristics of individuals, and process (Damschroder et al., 2022). This breadth allows for nuanced analysis of the complex, multi-level barriers and enablers that are especially relevant in LMIC PHC settings, where context is highly variable and resource constraints are common (Means et al., 2020). CFIR has been successfully adapted and applied in LMICs, with studies highlighting its utility in capturing both universal and context-specific factors affecting QI (Adamu et al., 2020). Using CFIR enables structured synthesis of evidence, making it easier to compare findings across diverse studies and settings, and to identify actionable strategies for QI. Further,

CFIR supports rapid-cycle evaluation and the generation of practical recommendations for implementers and policymakers (Keith et al., 2017). Together, MUSIQ and CFIR are highly congruent and commensurate frameworks for analysing barriers and enablers to QI in PHC, especially in LMICs. Both frameworks helped to systematically organise contextual factors at multiple levels, and recent research demonstrates their complementary use in synthesising evidence on QI implementation. Both frameworks address similar domains, such as microsystem/team factors, organisational context, external environment, intervention characteristics, and implementation processes. While MUSIQ emphasises the dynamic interaction between context and QI success, CFIR provides detailed constructs for implementation processes and individual characteristics, making them complementary for incisive analysis (Kirk et al., 2016). Studies have used both frameworks together to capture a full spectrum of contextual and process-related factors, enhancing the rigor and depth of reviews and evaluations (Dewan et al., 2021). Thus, MUSIQ and CFIR are highly compatible and can be used together or interchangeably to analyse barriers and enablers to QI in PHC, providing a robust, multi-level understanding of context and implementation (Wong et al., 2023).

Atlas.ti version 9 (ATLAS.ti Scientific Software Development GmbH, Berlin) was used to manage data and facilitated analysis.

Analysis

First, study characteristics were summarised by authorship, year of publication, study aim or research question, study design, QI focus, and geographic setting. These were then classified and grouped by geographic region, country income status and

study topical focus. This allowed systematic comparison of studies and integration of their findings. Next, deductive codes from MUSIQ and CFIR were applied to the data extracted from studies in addition to new (inductive) codes. Codes were then grouped into categories before displaying tables, matrices, and diagrammatically for comparisons and contrasts. Afterwards, themes were narratively synthesised into an overall picture to address the review's aims. Verification of results was done by going back to primary studies to ascertain the link with eventual conclusions.

3.3 Findings

3.3.1 Characteristics of included studies

Fifty primary research studies were included in the analysis (*Table 3*). Twenty-eight deployed mixed methods design while 22 were qualitative. Signifying increasing interest in PHC QI since 2010 by researchers, 41 of the studies were published in the last five years (2018 to date) while only nine were reported between 2012 and 2017. Forty-one of the studies were from sub-Saharan Africa (SSA), seven from Asia and two from Latin America (Costa Rica and Haiti), as shown in *Annex Table 3.2*. All seven studies based in Asian countries came from lower middle-income settings (India: 3; Indonesia, Tajikistan, Papua New Guinea, and Sri Lanka: one each). In total, research reports covered 45 SSA countries. A close examination revealed that two publications (Baker et al., 2018; Tancred et al., 2018) were likely from the same QI intervention in Tanzania and Uganda and a further two publications (Eboreime et al., 2018, 2019) were from the same QI project in Nigeria.

Table 3: Characteristics of studies included in the review

Author, Year	Country/ setting	Topic	Purpose	Research design
Ayele et al. (2019)	Northern Ethiopia: Tigray region	Maternal and perinatal death surveillance and response (MPDSR)	To assess the implementation status of MPDSR and its associated factors as well as explore the barriers and facilitators of MPDSR implementation and operation in Tigray region, Northern Ethiopia.	Mixed methods: quantitative (facility-based cross-sectional study) and qualitative (in-depth interviews and focus group discussions) approaches.
Baker et al. (2018)	Southern Tanzania: Tandahimba district	Understanding QI from perspective of health workers	To investigate how different components of a collaborative QI intervention were understood and experienced by health workers and therefore contributed positively to its mechanisms of effect.	Qualitative process evaluation with semi-structured interviews.
Basenero et al. (2022)	Namibia: three regions with high burdens of HIV—Khomas, Ohangwena, and Zambezi	Integrating Hypertension and HIV/AIDS care	In this work, we report the implementation of a QIC—the Namibia Project for Retention of Patients on Anti-Retroviral Therapy (NAMPROPA)—whose objective was to improve uptake of hypertension (HTN) screening and treatment in routine HIV care in Namibia.	Mixed methods.
Bogren et al. (2021)	Democratic Republic of Congo: South Kivu Province	Maternal and newborn health: health worker training	To explore contextual factors influencing a training intervention focusing on health care practice during childbirth.	Qualitative research design, and data was collected through focus-group discussions (FGDs).
Bradley et al. (2012)	Ethiopia: 4 regions	Rural primary health care	We sought to generate hypotheses about factors that may explain the variation in performance across primary health care units.	An in-depth qualitative study, drawn from a longitudinal study
Chandani et al. (2017)	Malawi and Rwanda	Supply chain systems for community health workers (CHW) child health commodities	This paper will discuss the results of scaling proven, simple demand-based resupply procedures, using mobile technology and traditional methods for communication, and establishing multilevel, performance-driven QI teams in Malawi and Rwanda, and the potential contributions these interventions had on supply chain outcomes for CHWs.	A mixed-method approach; qualitative data was collected using a case study methodology, and quantitative data was collected.

Coulibaly et al. (2020)	Mali: 3 of the 10 Health Districts in Koulikoro region	Performance-based financing (PBF)	How is PBF implemented and adapted to the socio-political, health and institutional contexts in Mali?	Qualitative multiple case study approach.
Demes et al. (2021)	Haiti: Northern Department	A fingerprint initiative to curb absenteeism	To explore QI interventions in the context of Haiti by assessing the process and outcomes of the implementation of the fingerprint initiative in three health facilities in the Northern Department.	Exploratory and qualitative descriptive study.
Djellouli et al. (2016)	Burkina Faso: Kaya district Kenya: Kwale County (Matuga constituency) Malawi: Ntchisi district Mozambique: Chiuta district	Maternal and Child Health - post natal care	This evaluation aimed to uncover how the interventions implemented resulted in increased uptake, frequency of delivery and quality of evidence-based postpartum care and what worked, for whom and within which contexts.	Case Study design and realist evaluation methods using mixed methods.
Eboreime et al. (2018)	Nigeria: Kaduna state	Decentralised primary health care planning	To explore the role of actors and context in the implementation and sustainability of diagnose-intervene-verify-act (DIVA) by comparing experiences between Nigerian local government areas (LGAs) (analogues of districts) in Kaduna state.	An integrated mixed methods approach.
Eboreime et al. (2019)	Nigeria: Kaduna state	Decentralised primary health care planning	To evaluate the effectiveness of DIVA as a model for improving health system performance through integrated PHC operational planning in Kaduna, Nigeria.	Embedded mixed methods evaluation.
Gage et al. (2022)	Zimbabwe: Centenary, Chipinge, Mwenezi, Binga and Mangwe districts	Continuous QI through performance-based financing (PBF)	To evaluate the CQI pilot in Zimbabwe: first, what is the effect of the continuous quality improvement (CQI) model on quality of care and second, what factors enabled or impeded quality improvements during CQI implementation?	Mixed methods approach quantitative analyses of the PBF quality checklists using quasi-experimental design. And qualitative analyses of document reviews, in-depth interviews, and FGDs.

Giessler et al. (2020)	Kenya: Four government health facilities in Nairobi and Kiambu Counties	Maternal health (patient-centered care)	Study focuses on the experiences of both clinical and non-clinical staff who took part in a QIC focused on improving patient-centered care for Maternal Health and Family Planning in public facilities in Kenya.	Descriptive qualitative exploration using semi-structured interviews.
Horwood et al. (2023)	South Africa: KwaZulu-Natal province	Electronic clinical decision-making support systems (CDSSs): electronic integrated management of childhood illnesses (eIMCI)	To track eIMCI uptake and prospectively explore their experiences of eIMCI implementation in primary health care (PHC) clinics in one district in Kwa Zulu Natal.	Longitudinal mixed methods study, which was nested within a randomized controlled trial (RCT).
Hounsou et al. (2022)	Benin	Maternal and perinatal survival	To examine whether, and to what extent, implementation of the four components of MPDSR took place in Benin and identify lessons for improving MPDSR implementation going forward	Retrospective, mixed-methods study.
Hutchinson et al. (2021)	Uganda: Kayunga District	Malaria surveillance	The aims were: (1) to describe the context in which, and the processes through which, the collaborative improvement (CI) intervention effected change; (2) to identify any factors that support or undermine CI; and (3) to investigate for any unintended consequences of the CI intervention.	Qualitative study.
Jaribu et al. (2016)	Southern Tanzania, Ruangwa district, located in Lindi Region	Institutional childbirth services	We used in-depth interviews with health workers at various levels in the health system to explore their perception of the QI intervention and to identify facilitators and barriers in relation to QI implementation.	Qualitative study with in-depth interviews.
Kim et al. (2019)	Uganda: Busia and Oyam districts	Quality improvement collaborative (QIC) for community-based family planning (CBFP)	To identify the factors that were supportive of the CBFP QIC implementation, as perceived by the collaborative actors and in relation to the Bruce Framework.	Descriptive mixed methods process evaluation design: desk review of program documents, extraction of program monitoring data, and qualitative research methods.

Kinney et al. (2020)	Four sub-Saharan African countries: Rwanda, Tanzania, Zimbabwe, Nigeria	Maternal and perinatal death surveillance and response (MPDSR)	The aim of this study was to systematically assess the level of implementation of MPDSR in four sub-Saharan African countries, applying a standardised scoring methodology, and to describe common facilitators and barriers to sustainable MPDSR practice.	Mixed methods: Qualitative and quantitative data collection methods - observations, review of documents and semi structured key informant interviews.
Kinney et al. (2022)	South Africa: Western Cape	Perinatal death audit programme	To understand the 'how' or 'why' of sustained implementation, allowing for comparison across settings to gain insights on factors influencing sustained implementation of perinatal audit.	Multiple Case study.
Lall et al. (2020)	South India: Kolar, Karnataka State, in three government healthcare facilities	Non-communicable diseases: service reorganisation	We critically analyse the implementation process using implementation and QI frameworks to identify contextual factors that may have resulted in the differential uptake of interventions at the different PHCs.	Mixed methods: Case experimental design with observation and the implementation of interventions.
Limato et al. (2019)	Indonesia: 3 Puskesmas in Cianjur district, West Java province	Primary health care quality improvement	This study aimed to contribute to improving health service quality in the primary health care system in Indonesia.	Qualitative: in-depth interviews.
Lokossou et al. (2019)	Benin: Savè-Ouèssè (SAO) health zone	Community health workers: motivation, retention, and performance	To present the results of implementing the QAF approach at the community level in the Savè-Ouèssè (SAO) health zone in Benin and to examine the perceptions of the actors involved in the implementation and operation of AQRs to strengthen the local components of health systems.	Mixed-methods approach that included a quantitative (analysis of indicator trends) and a qualitative study.
Mantell et al. (2022)	South Africa: The City of Tshwane, Gauteng Province and Bojanala in Northwest Province	Ward-based primary healthcare outreach teams	This paper examines program implementation and barriers and successes from the perspectives of the NDoH, implementing partners, facility-level staff, and the OT.	The process evaluation used a parallel convergent mixed-methods design, with concurrent collection of qualitative and quantitative data at multiple levels.

Manzi et al. (2014)	Rwanda: Kirehe and Southern Kayonza districts	Child health (mentorship)	Study sought to inform program implementers and policy makers of the key components needed and potential barriers and resistance which can be addressed proactively when implementing similar health facility-based mentorship interventions.	A qualitative study using focus group discussions (FGDs) and in-depth interviews.
Mutambo et al. (2020)	South Africa: KwaZulu-Natal Province	Child-friendly spaces (child-centred HIV care)	To explore the experiences of health care workers (HCWs), primary caregivers (PCGs) and HIV seropositive children on the use of child-friendly spaces in PHC facilities in KwaZulu-Natal	Qualitative explorative, descriptive, and contextual design.
Nahimana et al. (2021)	Rwanda: Kirehe and South Kayonza districts in the Eastern Province	Newborn care	We describe the work to integrate key elements of the All Babies Count (ABC) program into routine systems and the results evaluating 12 months sustainability of improvements seen during the ABC program. We also explored factors related to the success and challenges of sustainability.	Mixed methods convergent sequential design. Quantitative evaluation using a pre-post design. Focus group discussions and in-depth interviews.
Odusola et al. (2016)	Nigeria: Kwara State	Hypertension prevention and care using health insurance	To explore perspectives of insurance managers and primary care staff on factors that might inhibit or facilitate the implementation of high-quality hypertension care in practice.	Qualitative design and semi-structured individual interviews.
Olaniran et al. (2022)	Nigeria: Lagos health system	Maternal and neonatal health and patient experience and satisfaction	Seeking to contribute to the evidence base about how and why QI works, investigated implementation of the national healthcare QI intervention and how this was adapted in the Lagos health system.	A qualitative study using a multiple-case study design. Combined an exploratory approach, and an explanatory approach.
Pallangyo et al. (2018)	Tanzania: Dar es Salaam city area	Maternal and child health (postpartum care)	To explore the strategies used by facilitators and health care providers (HCPs) within a facilitation intervention to improve postpartum care (PPC) in government-owned health institutions in Ilala suburb in Dar es Salaam, Tanzania.	A qualitative design with FGDs and intervention documentation.

Patterson et al. (2021)	Malawi: facilities that provided basic or comprehensive childbirth services.	Quality of care and QI culture	To identify what would be necessary to foster organisational cultures in Malawi closer to the hypothetical “culture of quality” outlined in the public health literature.	Ethnographic data was generated through observation and semi-structured interviews.
Pesec et al. (2021)	Costa Rica: nationwide	Health care reforms: collection and use of data for quality improvement	To identify the sources of PHC data in Costa Rica’s healthcare system and describe how these data are used for quality improvement.	Qualitative methodology with in-depth, in-person semi-structured interviews.
Quaife et al. (2021)	Ethiopia: 7 intervention districts matched with 7 comparison districts (woredas)	Health worker knowledge and motivation	This study used quantitative and qualitative data to evaluate whether and how the Ethiopia Health Care Quality Initiative affected health worker knowledge and motivation, and if effects differed by cadre.	We used mixed methods, combining a repeated quantitative survey with supporting in-depth qualitative interviews.
Schierhout et al. (2021)	India: West Godavari District in rural Andhra Pradesh state	Digital health interventions and cardiovascular disease (CVD)	This study aims to identify variation in outcomes and implementation of SMARTHealth India, a cluster randomised trial of an ASHA-managed digitally enabled primary healthcare (PHC) service strengthening strategy for CVD risk management, and to explain how and in what contexts the intervention was effective.	Realist evaluation and an explanatory sequential mixed method.
Schuele & MacDougall, (2022)	Papua New Guinea: Madang and Morobe Provinces	Accreditation of lower-level health facilities to higher level facilities	To critically examine driving and restraining forces in the implementation process of the NHSSs; understand how hidden power relations work in the implementation process; and assess agenda setting to influence change.	Qualitative with semi-structured interviews and FGDs.
Stover et al. (2014)	Ethiopia: Amhara and Oromiya Regional Health Bureaus	Maternal Newborn health, MNH (district level improvement)	Describes the methods by which and the extent to which maternal and newborn health in Ethiopia partnership (MaNHEP) was able to develop the capacity of coaches and teams to support continuous improvement in Community MNH care.	Mixed methods: Surveys and individual interviews

Sukums et al. (2015)	Tanzania: Lindi rural district Ghana: Kassena-Nankana district	Antenatal/ intrapartum care and performance-based incentives	This study aimed to describe health workers' acceptance and use of the electronic clinical decision support system (eCDSS) for maternal care in rural primary health care (PHC) facilities of Ghana and Tanzania and to identify factors affecting successful adoption of such a system.	Longitudinal mixed methods study.
Tancred et al. (2017)	Southern Tanzania: Tandahimba district	Maternal and newborn health at community level	To understand the perceptions and motivations for the behaviours of both those engaged in implementing QI and those affected by their problem-solving strategies.	A mixed methods process evaluation.
Tancred et al. (2018)	"Sothorn Tanzania: Tandahimba district Uganda: Mayuge district"	Community maternal newborn child health	Describes the experience implementing EQUIP's QI approach at the community level for increased demand for maternal and newborn health services and improved community-level maternal and newborn care practices.	Qualitative data as part of in-depth mixed methods process evaluation.
Tayebwa et al. (2020)	Rwanda	Maternal and perinatal death surveillance and response (MPDSR)	To assess experiences in implementing maternal and perinatal death review, and/or integrated MPDSR processes in Rwanda by identifying factors that have affected its implementation	Mixed methods with qualitative and quantitative data.
Thekkur et al. (2022)	Sri Lanka: nine provinces of the country	Primary Healthcare System-Strengthening	To assess if primary medical care institutions (PMCI) were re-organised according to the standards endorsed by the MoH and to explore the challenges perceived by the healthcare workers (HCWs) implementing this project	An explanatory mixed-methods study with quantitative component (cross-sectional descriptive study) and a qualitative component.
Tibehaho et al. (2021)	Uganda: 13 districts	Institutionalizing continuous quality improvement (CQI)	To understand how the continuous QI processes introduced by the Community and District Empowerment for Scale-up (CODES) project was institutionalised at the district level.	Qualitative research design: District documents relevant to the CQI process were also reviewed.

Tiruneh et al. (2020)	Ethiopia: Selected rural areas	Maternal newborn health (MNH)	To evaluate the effect of the participatory community QI strategy on improving MNH care behaviours and practices in selected rural areas of Ethiopia.	Mixed-methods research. Used before-and-after cross-sectional survey. The qualitative method included.
Umunyana et al. (2020)	Rwanda	Management of birth asphyxia	The study aimed to show that a capacity development package focused on mentorship as part of a larger strategy would contribute to improved clinical skills QI and better neonatal outcomes for birth asphyxia at scale.	Mixed methods before-after design.
Vail et al. (2018)	India: Bihar state	Newborn resuscitation	To characterize the logistical, cultural, and structural barriers to the use of evidence-based practices (EBPs) in immediate neonatal care, defined as care required during the immediate transition to post-natal life, and Neonatal resuscitation.	Qualitative using semi-structured interviews.
Visser et al. (2018)	South Africa: Greater Tzaneen sub-district (municipality) of Limpopo province	HIV/AIDS care and treatment: nurse-monitored care (task shifting)	To evaluate the quality of care provided at three selected nurse-initiated management of antiretroviral treatment (NIM-ART) facilities in the Greater Tzaneen sub-district of Limpopo province and, to explore the effects of clinical mentoring and support on improving the quality of care.	A mixed methods study that used concurrent quantitative and qualitative research methods was conducted.
Wakida et al. (2019)	Uganda: Mbarara district, about 270 km by road, southwest of Kampala	Clinical practice guidelines (CPG) implementation: mental health disorders	This study aimed to assess the feasibility and acceptability of an educational intervention towards improvement of the PHC practitioners' uptake of the CPG in integrating mental health services into PHC in Mbarara district, southwestern Uganda.	Descriptive cross-sectional qualitative study.
Werdenberg et al. (2018)	Rwanda: Kirehe and Southern Kayonza districts	Newborn health	Reviews the implementation process and implementation outcomes of the All Babies Count (ABC) initiative including feasibility and fidelity, acceptability, self-reported changes in health care worker (HCW) attitudes and practice of QI, QI project implementation and the resulting change package.	Mixed methods: quantitative surveys, and qualitative data from FGDs and review of program documents.

Werner et al. (2021)	Tajikistan	Business Plans (health facility management tools)	The objectives: (a) to describe the history, process of implementation and consolidation of Business Plans in the Tajik health system by means of the ExpandNet/WHO framework, (b) to identify barriers and facilitators to scale up and based on that (c) to extract lessons learnt related to scaling up health innovations.	Qualitative.
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3.3.2 Cultural aspects of PHC QI in LMICs

Culture, comprised of shared norms, values, knowledge, attitudes, language, artefacts, and practices, was found to play an important role in HCWs efforts to improve the quality of primary health care (PHC). For example, QI efforts appeared to thrive in PHC settings with strong culture of using data to orchestrate healthcare improvements, where health workers' attitudes shift to focus more on the needs of patients (e.g. the desire to alleviate pain and reduce suffering), and where HCWs learn better and systematic approaches to solving problems (Giessler et al., 2020; Odusola et al., 2016; Patterson et al., 2021; Tibeihaho et al., 2021). Additionally, culture of quality manifested in HCWs being able to work across disciplinary boundaries, where QI stirs up healthy competition, and where participants reported collective responsibility for cohesion, meritocracy, a strong sense of taking responsibility for failure and success, and high standards in the PHC setting or workplace (Ayele et al., 2019; Patterson et al., 2021). Micro-culture such as working with unsupportive colleagues where workload is not shared and characterized by a rejection of quality checklists (Djellouli et al., 2016) negatively affected QI. In Indonesia, Limato et al. (2019) conducted 28 in-depth interviews in West Java Province to conclude that health workers at government-owned PHC facilities had a general tendency to reject transparency and accountability, which led to the failure of a QI initiative premised on performance-based financing. Evidence on workplace culture's role in boosting or dooming QI interventions also came from other studies in multiple LMIC contexts (Baker et al., 2018; Coulibaly et al., 2020; Horwood et al., 2023; Hutchinson et al., 2021; Kinney et al., 2022; Kinney et al., 2020;

Mantell et al., 2022; Manzi et al., 2014; Pesec et al., 2021; Tayebwa et al., 2020; Thekkur et al., 2022; Tiruneh et al., 2020; Vail et al., 2018; Visser et al., 2018).

QI interventions flourish in organisations and teams with the right norms and where culture is supportive. Examples of positive culture's effect on QI included new way of solving intractable problems and regular team reviews that are focused on quality of care (Tibeiha et al., 2021). Other aspects of culture included finding ways to cope with scarcity when resources were inadequate (Patterson et al., 2021). Culture of quality at the organisation level includes regular data analysis that drives action and improvement cycles, with feedback loops built around effective communication where QI progress is shared with stakeholders who in turn are responsive. But this wasn't always the case.

Culture unsupportive of PHC QI reported in the literature included normalised absenteeism by HCWs in Haiti (Demes et al., 2021) and waning concern for common adverse PHC outcomes like neonatal deaths in India (Vail et al., 2018). Adversarial relationships between managers and HCWs, and a perverse lack of accountability where no follow up is done to ascertain status of agreed QI work plan targets (Djellouli et al., 2016; Kinney et al., 2020; Thekkur et al., 2022) constrain the ability of PHC to meet patient and client needs.

Strong social norms affect individual health workers and managers, and shape contexts of health systems where QI is meant to happen. As an example, Hounsou and colleagues (2022) used a retrospective mixed methods approach to explore implementation of MPDSR in Ethiopia and found that a culture of blame had a chilling effect in the reporting and audit of maternal deaths; a similar finding to Ayele et al. (2019) in

Ethiopia who also used mixed methods with administrative MPDSR data and in-depth interviews to report that health workers feared litigation and blame by relatives of deceased PHC clients. However, in Mali, Coulibaly and colleagues (2020) documented positive collaboration among health care workers (HCWs) due to societal norms that encourage competitiveness. The inherent competitiveness inspired HCWs to put in their best effort in QI implementation.

External pressures and incentives sometimes combined synergistically with socioeconomic policies to enable PHC QI. This was the case in Tajikistan where the government introduced, rather serendipitously, a new health financing policy providing for per capita payments for PHC. The policy reduced financial barriers in the provision of services. However, the QI research literature also reported areas where new policies had negative unintended consequences like the introduction of user fees in Rwanda which led to financial difficulties for women seeking ante-natal care, a component of a newly introduced QI package (Nahimana et al., 2021). Expectedly, Wedernberg et al. (2018) also reported socio economic challenges for patients that hindered access to PHC services in Rwanda.

3.3.3 Themes: barriers and enablers of PHC QI in LMICs

Barriers to and enablers of QI in primary health care at micro, meso- and macro- level were distilled into six themes, guided by MUSIQ and CFIR frameworks, and are described here. Themes, as summarised in *Figure 5*, are closely related, and mutually interacting as health constitutes a complex open system.



Figure 5: Summary of key QI elements constituting themes

Research studies documented QI efforts for various PHC intervention bundles like digital health, HIV/AIDS, malaria, maternal newborn health (MNH), non-communicable diseases (NCDs), and broader primary health care systems strengthening (PHC-SS), as summarised in *Annex Table 3.3*. Initiatives to improve healthcare quality, such as continuous quality improvement (CQI), quality improvement collaborative (QIC), and maternal perinatal death surveillance and response (MPDSR) using various frameworks and models were also reported (*Annex Table 3.3*). Barriers to PHC QI on these topics are detailed in *Annex Table 3.4*.

Theme 1: Microsystem and individual health worker(s) motivation

This theme focuses on the willingness and commitment of individual health workers to make improvements, and their ability and self-efficacy regarding change efforts.

Evidence on this theme came from good quality studies, rated using MMAT. Twenty-two

studies in Sub-Saharan Africa (SSA) countries of Nigeria, South Africa and Uganda, Benin, Ethiopia, Rwanda, Kenya, Mali, Tanzania, and Zimbabwe illuminate this theme. Two studies based in Latin American countries of Haiti and Costa Rica also contributed. From Asia, studies came from Indonesia, Sri Lanka, India, Tajikistan, Papua New Guinea. Health workers and other primary health care stakeholders reported that job satisfaction arising from participating in QI activities was an important source of motivation, encouraging them to increase efforts and stirring up their desire to address the community's health needs. Added to this, health workers felt extrinsically motivated by financial and non-financial incentives as was the case in Nigeria where Odusola and colleagues (2016) found that such inputs bolstered efforts to expand services for hypertension prevention. In Haiti, health workers perceived an initiative to reduce absenteeism favourably because they thought it promoted openness in a performance-based financing scheme (Demes et al., 2021). On the other hand, lack of recognition for their efforts lowered motivation levels. However, other motivators included a strong desire to help one's community and appreciation of a strong justification for a proposed QI project, as was the case in these PHC settings.

Individual health workers' motivation also arose out of observation of positive changes in the PHC setting due to QI, underscored by grateful clients/patients. Leadership by PHC facility and district QI mentors who remained committed and were able to showcase the use of context-specific data for QI was also found to enable QI. On the contrary, HCWs did not like overlapping QI data streams. Because of this, they perceived, wasted time that they would otherwise spend caring for their patients.

Studies also reported the importance of buy-in by health workers and their managers into proposed QI interventions. This was signified by health workers embracing a spirit of personal sacrifice in response to public recognition, including by PHC clients from the community. Further, studies reported that QI teams often embraced QI because they had grown dissatisfied with pre-existing dismal quality of PHC services and felt an intrinsic agency to create change (Coulibaly et al., 2020; Djellouli et al., 2016; Horwood et al., 2023; Manzi et al., 2014; Schuele & MacDougall, 2022).

Self-efficacy and capability to undertake QI was also highlighted in studies. A high level of technical and managerial proficiency acquired over time whilst implementing QI initiatives, Giessler et al. (2020) and Pesec et al. (2021) reported, promoted effective production, analysis, and use of PHC data for improvement. Moreover, participants in QI felt empowered and competent following training sessions which also served to help develop an understanding of their roles and responsibilities in QI (Lall et al., 2020) leading to increasing levels of comfort with QI approaches and methods (Tibehaho et al., 2021). Health workers reported that they could not spare time to attend QI meetings due to clinical engagements leading to constrained QI. Other barriers reported in the literature included the sense of despair as QITs gave up on QI initiatives when faced with multiple obstacles. An example of this came from a convergent mixed methods process evaluation of CQI in South Africa by Yapa et al. (2022) where health workers got discouraged by layers of managerial approval for resources required for their QI project. In such cases and across multiple PHC contexts, QI tasks were perceived to be time consuming - reducing HCWs' confidence in the QI initiative - and abandoned (Chandani

et al., 2017; Coulibaly et al., 2020; Eboreime et al., 2018; Horwood et al., 2023; Hutchinson et al., 2021; Kinney et al., 2020; Lall et al., 2020; Lokossou et al., 2019; Mantell et al., 2022; Nahimana et al., 2021; Pallangyo et al., 2018; Pesec et al., 2021; Quaife et al., 2021; Schuele & MacDougall, 2022; Stover et al., 2014; Sukums et al., 2015; Tibeihaho et al., 2021; Tiruneh et al., 2020; Umunyana et al., 2020; Vail et al., 2018).

Health workers developed personal skills through their participation in QI initiatives. Skills such as empathy and enhanced communication with PHC clients reportedly led to deeper connections with fellow health workers but also clients. This facilitated QI. Still, familiarity with patient-centered approaches to PHC, regular review meetings where gaps and root causes to poor service quality were discussed facilitate QI work. Internal supervision where knowledge was shared, and additional skills acquired were reported in the literature as important enablers. On the other hand, HCWs in PHC who felt inadequately skilled in technical and clinical aspects and in the use of technology reported difficulties engaging effectively in QI (Baker et al., 2018; Horwood et al., 2023; Sukums et al., 2015; Umunyana et al., 2020).

Theme 2: Attributes of quality improvement intervention

Component attributes of QI interventions also tended to affect QI negatively and positively. Studies (20 in total) in SSA contributing to this theme came from Tanzania, South Africa, Ethiopia, Rwanda, Nigeria, and Benin, Kenya, Mali, Namibia, Zimbabwe, Malawi, Burkina Faso, Mozambique, and Ghana. In Asia, Indonesia, Tajikistan, Sri Lanka, Papua New Guinea and India were all included, comprising six studies in all. Demes and

colleagues (2021) in Haiti and Pesec et al. (2021) in Costa Rica round up the list of studies on this theme.

Baker et al. (2018), Coulibaly et al. (2020), Eboreime et al. (2019), Horwood et al. (2023), Kinney et al. (2022), Mantell et al. (2022), Schuele & MacDougall (2022), and Stover et al. (2014) all document that QI implementation is enabled when health workers and managers perceive an intervention to be effective e.g. by observing the desired outcomes for patients and successful acquisition of new skills. A relative advantage accrues when implementers view a new QI initiative as better than current practice and when the intervention is designed to foster collaboration among a diverse team of workers, and even PHC clients. In contrast, QI is constrained when a QI project does not lead to any tangible improvement or is seen to bear negative or unanticipated consequences like creating an administrative burden for already overstretched HCWs that may manifest in burgeoning reporting channels. Another barrier reported in the literature was QI interventions that were too narrowly defined as technical fixes and neglected other contextual and health systems barriers.

Cost, scalability, and sustainability aspects of QI relate closely. As enablers, the design of a QI intervention needs to make provision for long-term work to sustain changes while ensuring that its costs do not overwhelm the PHC system's capacity (Demes et al., 2021; Kinney et al., 2020; Limato et al., 2019; Pesec et al., 2021). At the same time, QI is scalable when QI interventions are perceived to be easily transferable to a new area of work within a PHC setting, to other health workers, or even to other health facilities by adopting incremental changes (Chandani et al., 2017; Eboreime et al., 2019; Kim et al.,

2019; Stover et al., 2014; Tancred et al., 2018; Tibeihaho et al., 2021). Additionally, QI interventions are supported by health workers and health facilities when perceived to be sustainable, i.e. when participants feel confident of continued implementation beyond the planned intervention period (Demes et al., 2021; Eboreime et al., 2018; Kinney et al., 2022; Mantell et al., 2022; Pesec et al., 2021; Stover et al., 2014; Wakida et al., 2019; Werner et al., 2021; Yapa et al., 2022).

The significance of designing QI interventions in a manner that ensures that health workers see alignment between the proposed QI package and their everyday work responsibilities (job expectations in the PHC practice setting) while complementing participants' and health system's values was addressed by Ulrike Baker and colleagues (2018) in their qualitative process evaluation of QI in Southern Tanzania and Mary Kinney and her counterparts (2022) who used multiple case studies to understand sustainability of MPDSR in South Africa. Good examples of enablers regarding trialability pointed to QI interventions that had been adapted and pre-tested to suit local conditions (Tancred et al., 2018). Conversely, barriers included new interventions that are difficult to integrate into routine PHC practice. Tellingly, interventions requiring substantial modifications to service delivery workflows and an array of new skills for practitioners, and do not explicitly build on existing initiatives tended to be constrained (Coulibaly et al., 2020; Djellouli et al., 2016; Eboreime et al., 2018, 2019; Olaniran et al., 2022; Pallangyo et al., 2018; Schierhout et al., 2021; Werdenberg et al., 2018; S. S. Werner et al., 2021).

Paying attention to preferences of PHC clients when designing QI interventions that affect them was thought to enable QI in addition to health workers' inputs and was outlined by Mutambo and colleagues (2020) who explored HCWs' perspectives during the set-up of child-friendly spaces in PHC clinics in KwaZulu-Natal, South Africa. However, Umunyana et al. (2020) in Rwanda and Olaniran et al. (2022) in Nigeria reported that QI interventions that do not allow implementers to make or suggest adaptations might lead to such initiatives being viewed as alien and imposed, constraining their roll out. Djellouli et al. (2016) , Limato et al. (2019) Tancred (2018), Thekkur et al. (2022), and Quaife et al. (2021) found that QI projects considered feasible, timely, and suitably aligned to local priorities were widely embraced, contributing to successful implementation.

Theme 3: Organisation and implementing team

This theme, categorised as the meso level, describes evidence from 15 different countries in SSA reported in 36 different research articles. The SSA countries include Uganda, Rwanda, Ethiopia, Burkina Faso, Mozambique, and Mali that are low-income settings; lower middle-income countries of Benin, Ghana, Kenya, Malawi, Nigeria, Tanzania and Zimbabwe; and South Africa and Namibia being upper middle-income settings.

Ensuring that leaders, managers, QI teams and other stakeholders buy into QI initiatives in primary health care emerged strongly from the literature. Baker and colleagues (2018), in Southern Tanzania, found that HCWs were more receptive to CQI and welcomed on-job-training meant to bolster their skills. This was echoed by Coulibaly and colleagues (2020) in Mali where positive reception of a performance-based financing

scheme for improving PHC services was noted among the initiative's strengths.

Elsewhere, adequately preparing the team prior to introducing QI and having point persons to champion QI in the health facility and primary health care network were important enablers. Managers and team members who did not mind taking up additional or new responsibilities and an enthusiastic team that readily and publicly committed to PHC QI were also important enablers (Giessler et al., 2020; Odusola et al., 2016; Tibeihaho et al., 2021; Wakida et al., 2019). In areas where there was little buy in, such as in Papua New Guinea (Schuele & MacDougall, 2022), middle managers used their hidden powers to oppose QI. While in Indonesia (Limato et al., 2019) where 'ego programming', the tendency to self-exclude from an initiative was documented, some HCWs declined participation, leaving QI initiatives faltering. Organisations also rejected QI outright, with some declaring proposed interventions to be unsuitable without due consideration. This happened in Uganda (Hutchinson et al., 2021) and in decentralised PHC settings where middle managers absconded duty and did not cooperate or support frontline HCWs with QI efforts in Rwanda and Malawi (Chandani et al., 2017).

The maturity of an organisation in undertaking QI was reportedly facilitated by accreditation processes which inspire a virtuous cycle of QI. Organisations undergoing accreditation are expected to plan for QI, allocate budgets and subsequently avail resources needed to enhance the quality of PHC services over time (Schuele & MacDougall, 2022). But the presence of concurrent and similar QI programmes in the same organisation might introduce fragmentation and bring about confusion regarding organisational priorities, key barriers (Limato et al., 2019). Lack of institutional

knowledge, where implementers do not fully understand organisational bureaucracies, can also hamper QI (Werner et al., 2021) where planned changes are complex and systemwide. QI teams with short tenure due to high staff turnover appeared to reduce organisational maturity for QI implementation, e.g. in Benin where QI team members took up new jobs elsewhere. A lack of community support and irregular monetary incentives also affected longevity of teams (Lokossou et al., 2019).

Using pre- and post-test research designs with interviews and focus groups, the role of leadership in facilitating QI was reported by Limato and colleagues (2019) in Indonesia and Nahimana and colleagues (2021) in Rwanda where leaders owned and steered interventions. In contrast, Hounsou and colleagues (2022) using mixed methods reported that a lack of interest by managers constrained MPDSR in Benin. Senior leaders, especially, need to actively embrace and publicly show support for QI for it to succeed as health workers do not wish to second guess their bosses' allegiances (Bradley et al., 2012; Demes et al., 2021; Mutambo et al., 2020; Tancred et al., 2017; Tayebwa et al., 2020; Yapa et al., 2022). While such champions can drive change within organisations and foster acceptance of QI initiatives, taking on too many roles contributed to a lack of focus and became a distraction for QI work. Weak leadership by governments in LMICs means that QI stewardship and monitoring was frequently left to donors and external partners, and this is in part because of lack of clarity in QI leadership arrangements and high turnover of leaders. In Ethiopia, for example, leadership constantly changed hands (Tiruneh et al., 2020). Similarly, Eboreime and colleagues (2018) linked weak leadership to organisation culture unfavourable for QI,

which proved detrimental to efforts to strengthen PHC quality in Kaduna state in Nigeria.

Physician involvement in QI also acted as an enabler and a barrier, depending on the context. Physicians assume leadership and help build other health workers' skills.

However, Lall et al. (2020) in Karnataka State in India found QI constrained in situations where the physician over-asserted authority and ignored other team members' contributions. Findings by Vail et al. (2018) in Bihar, also in India, highlighted the important gap left when doctors did not take up their roles as QI mentors in the context of management of birth complications for newborns, with fatal consequences.

Positive team experiences from successful legacy QI projects also reportedly produced domino effects e.g. in Tanzania where Pallangyo et al. (2018) saw cross-pollination of ideas when successful initiatives were shared across institutions. Incidentally, both Kinney et al. (2020) in South Africa and Lall et al. (2020) in South India found that strong social networks among health workers can foster QI while less cohesive teams report worse outcomes. Strong teams also reported better, inclusive decision-making from the start of a QI project and balanced top-down and bottom-up approaches in decision making. Here, diversity was a strength as everyone was involved. A good example came from Uganda where Hutchinson and colleagues (2021) used qualitative methods to study collaborative improvement (CI) for malaria surveillance. They report that CI was undertaken by small, committed teams who willingly involved patients and volunteers. Conversely, barriers to QI arose when team leaders did not genuinely involve others like non-technical (auxiliary) staff, who felt sidelined.

Elaborating on the importance of subject matter specialists for advancing QI initiatives, Wakida and colleagues (2019) in Uganda found that participants received excellent support from a mental health specialist with good knowledge of clinical practice guidelines. Such SMEs can join champions to bolster QI. The development of skills and knowledge also benefits when trained team members report back to fellow HCWs. This enabled key QI tools such as Pareto charts, root cause analysis, and approaches like PDSA cycles to percolate in the team for a shared understanding (Stover et al., 2014; Umunyana et al., 2020), with regular on-job training (Yapa et al., 2022). One-off training that leaves QI team members without adequate knowledge and skills needed to implement QI was characterised as a barrier (Stover et al., 2014).

Theme 4: Health systems support and capacity

Availability, adequacy, and distribution of resources needed to deliver primary health care services to communities were key contextual drivers for QI reported in studies. Weaknesses in PHC systems pillars for sustained QI signified inadequate health systems capacity. These include gaps in staffing, supplies and commodities, equipment and devices, physical space and infrastructure, data infrastructure and reporting, learning and knowledge systems, management of patient referrals, and leadership and governance. Some enablers of and barriers to QI under this theme e.g. those relating to leadership and management and to staff training and development, inevitably affect and are affected by those discussed in the other themes in this review. Tellingly, no country among the LMICs studied reported adequate or excess levels of resourcing for QI. Consequently, most of this theme describes barriers to QI rather than enablers.

Forty-two studies highlighting various aspects of health systems support and capacity came from 13 different Sub-Saharan Africa countries. There were also five studies conducted in four Asian countries (India, Indonesia, Sri Lanka and Tajikistan) and two studies from Latin America (Haiti and Costa Rica).

The first health systems barrier to QI in LMICs concerns a dearth of health workers in primary health care delivery structures. Low numbers, frequent leave of absence, and rapid turnover of staff led to high workloads and were reported as important constraints to QI (Ayele et al., 2019; Baker et al., 2018; Basenero et al., 2022; Chandani et al., 2017; Djellouli et al., 2016; Horwood et al., 2023; Hounsou et al., 2022; Hutchinson et al., 2021; Kinney et al., 2020; Mantell et al., 2022; Manzi et al., 2014; Nahimana et al., 2021; Sukums et al., 2015; Tancred et al., 2017; Tayebwa et al., 2020; Thekkur et al., 2022; Wakida et al., 2019; Werdenberg et al., 2018). Where staff were available, aligning job descriptions and incentives appeared in the literature as a potential enabler of QI.

Well-designed hospital infrastructure can aid intuitive flow of clients, encourages health workers to undertake certain tasks that are important for quality of care such as handwashing or waste segregation, or even providing oversight to acute cases in the newborn unit from the nurses' station. On the other hand, literature pointed to sub-optimal infrastructure (poorly designed) and or limited physical spaces as barring improvement actions (Bogren et al., 2021; Coulibaly et al., 2020; Djellouli et al., 2016; Mutambo et al., 2020; Pallangyo et al., 2018). This manifested as lack of much needed laboratories and pharmacy stores in Sri Lanka (Thekkur et al., 2022), for example.

Studies discussed the role of medical equipment and data infrastructure in relation to QI (Baker et al., 2018; Coulibaly et al., 2020; Mantell et al., 2022; Mutambo et al., 2020; Quaife et al., 2021; Sukums et al., 2015; Thekkur et al., 2022; Umunyana et al., 2020; Werdenberg et al., 2018; Yapa et al., 2022). Participatory and data-driven QI activities, revising data and tools to ensure harmonisation of reporting systems were found to facilitate QI. Inadequate patient records at the primary health care facility level as well as a lack of equipment, on the other hand, were mentioned as constraining attempts to enhance PHC service delivery and quality. As with equipment and staffing, stockouts of essential supplies and medicines was also reported as barrier to QI in PHC settings in LMICs including but not limited to Sri Lanka (Thekkur et al., 2022), India (Schierhout et al., 2021), Ethiopia (Bradley et al., 2012), Nigeria and Tanzania (Olaniran et al., 2022; Sukums et al., 2015) and Rwanda (Manzi et al., 2014).

Studies in 19 documented financial resource limitations for quality improvement, underscoring its importance as an impediment to QI across many LMIC contexts.

Meanwhile, Tayebwa and colleagues (2020) and Umunyana et al. (2020) in Rwanda, Basenero et al. (2022) in Namibia, Schierhout et al. (2021) in India, and Coulibaly et al. (2020) in Mali described the need for strong patient referral systems because continuity of care is integral to quality PHC. Other enablers uncovered took the form of continuing (medical/health/nursing) education (Odusola et al., 2016) and knowledge exchange platforms (Gage et al., 2022; Pesec et al., 2021; Tiruneh et al., 2020; Wakida et al., 2019; Werner et al., 2021). Knowledge exchange platforms, it was reported, could enhance chances of successful QI by breaking down silos and fostering the integration of care

packages. Inadequate patient referral systems, they reported, affected QI where the initiative aimed to enhance care integration and linkage within PHC networks.

As previously reported under microsystems and QI team and organisation support, facilitative and regular follow up and mentorship enabled QI to happen in LMICs.

Facilitating aspects such as feedback from the district health management team and mentorship for frontline HCWs supported skills-building and enabled implementers to brainstorm solutions to challenges. Unsurprisingly, QI implementing teams found unpredictable follow up and punitive supervision geared towards fault-finding undesirable for PHC QI.

Theme 5: External environment and structural factors

The external environment forms a larger context in which QI interventions are implemented. It transcends the social, economic, political, legal, and other normative aspects that shape societal and national health systems and may indirectly or directly affect execution of QI projects or initiatives. In this review, external incentives and societal pressures that drive change, macro-level allocation of resources and other externalities, and in-grained community characteristics such as social norms reportedly affected QI implementation in varied ways. Such structural factors are not enacted or imposed by social actors intending to shape QI interventions (although they may end up doing just that) but to address other intractable systemic or societal concerns. Thus, it is important for QI implementers, researchers, and policy makers to be aware of these and to make necessary adjustments to their QI programmes, where possible.

Evidence on external environment and structural barriers and enablers that affect QI implementation came from 19 countries reported in 31 studies. Sub-Saharan Africa

(SSA) contributed 26 studies from 14 countries while Asia had five countries' experiences reported in three studies.

Inclusion of PHC business plans in the national health strategy in Tajikistan, signalled high level prioritisation by the government and was cited as having enabled PHC systems strengthening (Werner et al., 2021). On the other hand, Eboreime and colleagues (2018, 2019) in Nigeria reported that the government at state and national level had not prioritised PHC improvements and largely left the implementation of PHC systems strengthening interventions to donors, placing constraints on the relevant state PHC development agencies (Eboreime et al., 2019). Interestingly, weak coordination between the central government and semi-autonomous peripheral governments constrained QI scale up in Tajikistan.

Other external issues are more intractable. Impassable or unmotorable roads impede access to PHC clinics for communities and make it difficult for QI supervisors to undertake regular visits. Shaky internet constrains health workers' use of online learning materials. Extended power failures make life difficult for both managers and health workers alike. Good telephone connectivity may enable QI by making it easier for mentors to check in with frontline implementers without the necessity of long, costly road travel. At the same time, good roads make travel within PHC networks easier for communities, QI teams and supervisors. While responsibility for these structural issues does not lie within the health system, their inadequacies have the effect of introducing bottlenecks in quality improvement, especially in LMICs where resources are scarce. Added to these, weather conditions, unsafe work environments, conflict, and security

threats, further complicate matters, and may even see an exodus of skilled health workers besides diverting resources away from life-saving quality PHC. Expanding the list of challenges to QI that was found in the literature is the onset of COVID-19 pandemic which disrupted PHC in Sri Lanka, as was possibly the case globally in early 2020. Nahimana and colleagues (2021) add to this long list of protracted constraints detailing how a prolonged drought and famine and the resulting refugee crisis, as happened in eastern Burundi, rolled back progress in improving PHC in Kirehe district in Rwanda.

Quoting program and policy stakeholders in South Africa, Joan Mantell and colleagues (2022) cite fragmentation in PHC design as a key systems constraint for quality improvement. Also, policies that limit access to PHC budgets as part of larger health systems configuration further constrained QI in LMICs. Conversely, Manisha Yapa and colleagues (2022) report that availability of key guidelines and tools, and according to Werner et al. (2021), national policies e.g. those that give a high visibility to PHC indeed fostered a supporting environment for PHC-focused QI.

Elsewhere, sub-optimal government policies and guidelines e.g. failure to integrate clinical decision support systems (CDSS) across the entire health system rather than in one or few vertical programmes was a key constraint contributing to non-use by trained health workers (Horwood et al., 2023). Mutambo et al. (2020) also observed that a government policy forbidding the clattering of walls in public buildings had the unanticipated consequence of limiting the ability of QI implementers to decorate a children's clinic. The QI team had hoped to encourage play and boost service uptake by

making the clinic space attractive to children. Both studies were conducted in South Africa.

Theme 6: Execution of quality improvement intervention

No QI intervention is going to attain the desired objective unless implemented effectively. Although this theme is being presented last, it is perhaps the most insightful. Execution includes elements of dosage and reach, and how the QI intervention is executed to achieve the intended results.

The twenty-two studies that underly this theme came from 17 countries. Eighteen of those studies originated from thirteen countries in Sub-Saharan Africa whereas four studies from Asia were derived from four different country contexts. Of the 17 countries, six were low-income countries, nine were lower middle-income countries and two were upper middle-income countries.

Dosage (frequency and intensity) and reach (coverage) of QI interventions largely determine whether a QI change package is successful or not. Thus, reaching adequate numbers of implementers with knowledge and skills, whether by offering training sessions repeatedly or targeting and delivering them when most participants are available, were deemed important enablers (Baker et al., 2018; Limato et al., 2019; Yapa et al., 2022). Notable enablers included results-oriented QI work plans, executed in a participatory manner, periodic verification of QI implementation, and the use of feedback data from PHC facilities. Other facilitating factors from the literature were rolling out a QI package incrementally - where subsequent sessions build on earlier ones in a responsive manner (Coulibaly et al., 2020; Manzi et al., 2014; Mutambo et al., 2020; Quaife et al., 2021; Tancred et al., 2018; Thekkur et al., 2022; Umunyana et al., 2020; S.

S. Werner et al., 2021). Contrary to these not unfurling all planned aspects of QI interventions and late roll out besides implementing only a few aspects posed major hindrances. This scenario signalled a lack of fidelity to the specific QI's design and intent (Djellouli et al., 2016; Eboreime et al., 2018; Hounsou et al., 2022), and its potential failure. Research attributed this to the lack of clear implementation plans, overly ambitious QI work plans, and skewing QI implementation from original plans under pressure from funders, exacerbating the challenges of QI implementation.

Already described earlier, supervision and mentorship were identified by the health workers among the biggest enablers of QI during the execution stage, according to Umunyana et al. (2020). Baker and colleagues (2018) also reported positive impressions of health workers from being visited at their host health facility by mentors and supervisors. However, such visits needed to be reflexive (questioning own stance, habits, values, attitudes) and reflective (learning from everyday experiences) to enable QI. In the case of tech-driven QI such as electronic integrated management of childhood illnesses (eIMCI), promptness with which implementation challenges were addressed also counted as an enabler for improved practice. Non-implementation of support supervision and limited training for implementers constrained QI (Horwood et al., 2023). When health workers do not practice new skills gained from QI for extended periods, they potentially forget QI techniques, underscoring the importance of ongoing support and mentorship (Coulibaly et al., 2020; Thekkur et al., 2022; Yapa et al., 2022). Being humble and non-judgmental as a mentor-supervisor, Manzi and colleagues (2014) reported, was preferred by PHC health workers following interviews and focus group

discussion in Rwanda. Such mentors or supervisors assumed a wide range of roles such as facilitators, trainers, coaches, and role models (Pallangyo et al., 2018), enabling QI implementation. They could also act as champions, identifying blockers at various levels of the organisation early enough and converting them to project champions, thereby bolstering QI implementation (Ayele et al., 2019; Basenero et al., 2022; Kinney et al., 2022; Schierhout et al., 2021; Tayebwa et al., 2020; Werdenberg et al., 2018).

Engaging communities and targeting multiple stakeholders were further identified in research reports as key enablers, where QI implementers needed to work collaboratively with community resource persons and opinion leaders and make use of local knowledge to tailor their communication. As an enabler, engaging with a diverse array of QI stakeholders during implementation was specifically outlined by Kinney et al. (2022) in South Africa, Basenero et al. (2022) in Namibia, and Coulibaly et al. (2020) in Mali. A boycott of QI by communities happened in some instances where their local leaders had not been meaningfully involved in QI implementation. Also, QI activities geared towards improving access and quality of PHC services were hampered because clients kept off due to previous negative experience of care, and because of limited risk communication by service providers. Nevertheless, reminders in home-based records for patients, where applicable, facilitated good communication between health workers and their clients (Ayele et al., 2019; Basenero et al., 2022; Coulibaly et al., 2020; Kinney et al., 2022; Kinney et al., 2020; Pallangyo et al., 2018; Schierhout et al., 2021; Werdenberg et al., 2018).

Among others, Ayele et al. (2019) and Olaniran et al. (2022) found that QI implementation succeeded if it included enhancements in documentation of care processes, and when stocks of key commodities were tracked and reported regularly. Conversely, failure by implementers to keep track of the availability of drugs and other stocks, aside from the actual stockout, constrained implementation. Further, QI efforts had higher chances of success if limitations on staff time and competing tasks were factored in, as earlier described. Failure to consider these may mean that some staff miss numerous QI meetings and training sessions, thereby failing to contribute adequately or gain the desired skills to do so, and others become disillusioned and altogether cease participation in QI initiatives (Yapa et al., 2022).

3.4 Discussion

3.4.1 Contributions to knowledge, policy and practice

This review aimed to identify the barriers and facilitators to QI in PHC settings of LMIC contexts. The review supports the notion, overall, that many contextual barriers minimize the effectiveness and sustainability of QI interventions in these settings. At the same time, the review identified several enablers of PHC QI. Barriers and facilitators affected the inherent characteristics of the QI intervention and the immediate (micro) context. Other aspects include the implementing team and host organisation at meso level, the larger health systems context, and at macro level, the societal and structural factors. Also, the review found a varied and fragmented culture of PHC QI in LMICs. These findings are important for those that design, promote, implement, regulate, and fund QI. They are also important for users and clients of PHC services in LMICs. The findings point to how effectiveness of QI interventions can be enhanced to support the

attainment of PHC objectives of equitable, accessible, acceptable, timely, effective, and patient-centered care; and more broadly, health systems and societal development goals.

Reflecting on the review process, one of the challenges faced in selecting studies for inclusion concerned the definition of QI for which there is still no consensus. A second dilemma surfaced around the definition of PHC – and subsequent isolation of QI interventions in PHC - especially given the interconnectedness of PHC and tertiary (even secondary) care in any given health system. Consequently, decisions were made that both optimized sensitivity of the review and minimized selection bias, noting the lack of consensus, especially regarding the definition of QI. The review thus included studies where actors at the micro, meso and macro levels actively sought to better the quality of PHC using diverse approaches. Quality healthcare was broadly defined as that which is safe, effective, people-centered, timely, equitable, integrated, and efficient, following the World Health Organization (WHO) guidance (WHO, 2023). Accordingly, QI was conceptualized as any deliberate intervention that aimed to enhance any, some or all these aspects of healthcare quality. The definition of PHC included clinical interventions of curative, rehabilitative and palliative nature, public health interventions meant to improve health at the population level including preventative interventions, and policy level interventions meant to affect health systems domains (financing, human resources, commodities and supplies, infrastructure etc.), if they targeted positive changes in health planning, resourcing, delivery, and outcomes at the district level and

below. This inclusive, broad approach makes the review highly relevant to the diverse real-world LMIC contexts in which QI implementation takes place, including in Kenya.

3.4.2 Use of frameworks (MUSIQ and CFIR)

The systematic review, in analysing data from included studies, adopted the Model for Understanding Success in Quality, MUSIQ (Kaplan et al., 2012) that is congruent with the Consolidated Framework for Implementation Research, CFIR (Damschroder et al., 2022). This review used complementary concepts and categories from both frameworks to code and later organise the findings thematically. *Table 4* is a cross-matching of categories derived from MUSIQ and CFIR frameworks against the final themes resulting from this present review.

The review found that various barriers and enablers of QI in PHC in LMIC contexts relate to all the broad categories proposed by MUSIQ and CFIR frameworks, with many being inter-related, reflecting the complexity of health systems. The miscellaneous category under MUSIQ includes considerations related to the trigger for QI and whether QI tasks are strategic to the organisation and were subsumed under the others in the present review.

Table 4: Cross-matching of themes from the review against MUSIQ and CFIR

Themes from the Review	Broad Contextual factors in MUSIQ model	Concepts in CFIR framework, operationalised
Microsystem of QI implementation QI intervention attributes Organisation and team implementing QI	External environment Organisation QI support and capacity Microsystem QI Team	Intervention characteristics: source of change strategy, advantage proffered by QI project over other competing priorities, adaptability of change strategy, trialability of change strategy, complexity of change initiative, quality of change project, cost of change, quality and strength of evidence backing change strategy/QI project. Outer setting: alignment of QI project with patient needs and resources, connection of QI

Health systems support and capacity for QI External environment and structural factors influencing QI implementation Execution of QI intervention	Miscellaneous (Trigger: event that necessitates urgency for QI project; Strategic importance of QI task to hospital or county)	efforts with broader organisation and institution, influence of peers, policies and incentives to back QI. Inner setting: Structural characteristics (The social architecture, age, maturity, and size of an organization), implementation climate (tension and readiness for change, compatibility and alignment, relative priority of change initiative, incentives for QI, QI goals and feedback articulated, learning climate to support QI), Readiness for QI implementation (leadership engagement in QI, available resources for QI, access to information/knowledge on QI) Individual characteristics: knowledge and beliefs of QI team members, self-efficacy of QI team members, individual stage of change of team members, individual identification with hospital and team (alignment of values). Implementation process for QI: planning, engaging (opinion leaders, internal implementation leaders, champions, external change agents) evaluating, and reflecting/review/learning sessions). Additions proposed by Means et al (2020): Characteristic of systems (non-government or non-hospital sponsor priorities, set up of hospital, source of resources for QI, continuity of support to QI, alignment of QI to hospital/county strategies) Addition to Intervention characteristics (perceptions of scalability, sustainability) Addition to Inner setting (QI team attributes, collective efficacy of QI team) Addition to Outer setting (community characteristics i.e. how patients and clients collaborate with QI team on change projects, where indicated).
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Accordingly, MUSIQ and CFIR proved useful for organising the large amount of data

derived from 50 diverse studies from equally varied countries and PHC settings.

Additional concepts to the CFIR framework (Means et al., 2020) further helped with the synthesis and integration.

3.4.3 Comparison with other reviews

The results of this review echo those from an earlier umbrella review (Kringos et al., 2015) which included reviews with primary research studies on the effectiveness, performance, and effects of quality management strategies in hospitals. Kringos et al. (2015) found 56 reviews focused almost exclusively on South-East Asia, Europe, and North America, with negligible research on the Americas and sub-Saharan Africa (SSA) contexts. Like this present review, Kringos and colleagues found that 35 of the 56 studies frequently reported contextual factors using the MUSIQ framework. The reported barriers and enablers included external environment, organisation, QI support and capacity, microsystems, and QI team categories (Kringos et al., 2015).

A more recent realist review (Zamboni et al., 2020) explored factors that affect the effectiveness of quality improvement collaboratives (QICs), among the topics covered in the present review. Having synthesised the findings of 32 research abstracts, Zamboni et al. (2020) reported that factors inherent in external support, QI team, macro or structural aspects of implementation contexts can enable or constrain QICs, not unlike this review.

Like most previously published systematic reviews on QI that have tended to focus only on hospitals, Stokes and colleagues (2016) synthesised research on barriers and enablers related to maternity care in LMICs. With a more limited database search covering only MEDLINE and CINAHL, they included nine studies, all of which were based in SSA. Seven of the studies reviewed by Stokes et al. (2016) discussed clinical audits and feedback, like the five in this review that focused on maternal and perinatal death surveillance and response (MPDSR). A key finding of theirs, consistent with this present

review, was that intrinsic motivation of HCWs was a driver of the implementation of clinical guidelines. However, the present review included more diverse PHC settings.

3.5 Strengths and limitations

3.5.1 Strengths

The search for literature was comprehensive, covering all major health databases, grey literature repositories, selected websites, and even specialty journals. Moreover, no limiters were applied during search and retrieval. The selection of studies was guided by the review question and definitions adopted a broad and inclusive approach while guarding against scope creep - the tendency for reviews to balloon in size and become unmanageable. Studies were systematically screened and appraised for quality by two reviewers independently. Data extracted from 50 per cent of studies was compared between two independent reviewers for consistency. Together, these measures ensure that the review is relevant, with a low chance of bias, while being applicable across wide LMIC contexts. The review also included studies with a range of methods applicable to process evaluations that elicit contextual barriers to and enablers of QI initiatives in PHC. This was necessary to answer the review question comprehensively. Of note, this review found relatively recent articles and covered almost all countries in sub-Saharan Africa, seven in Asia and two in Latin America, making it the most comprehensive of its kind so far. Lastly, the application of MUSIQ and CFIR frameworks that are widely used in reviews and primary research on QI supported rigorous and transparent analysis.

3.5.2 Limitations

Some limitations exist, nevertheless. Few studies were included in Latin America and Asia, the other continents with many LMIC countries. However, similarities in the

contextual barriers to and enablers of QI in PHC irrespective of country context emerged during analysis, and are seemingly shared across LMICs in Africa, Asia, and Latin America. Still, policymakers and practitioners should carefully consider the context of included studies before transferring the review's conclusions to their unique PHC contexts. There are ongoing debates regarding evolving definitions of QI, and some researchers may avoid referring explicitly to QI. Such studies could have been missed. To mitigate this, a broad and inclusive definition that reflects the complex and interconnected nature of social, clinical, and public health interventions in the health system was applied to the review.

3.6 Conclusion

This is the first review of its kind that synthesises research on QI from LMICs with a focus on PHC. The review found many similarities and few contrasts among varied country contexts. Importantly, barriers and enablers are closely related and dynamically dialectical, likely to affect and affected by each other. The review found that relatively few studies explored the external environment of PHC QI and the structural barriers and enablers. The only study conducted in Kenya focused on health facility level barriers and enablers. This review also documented the evidence base on PHC QI culture, without a study from Kenya. Thus, this thesis sought to address three notable knowledge gaps: 1) to explore both the dominant and the less visible or little understood aspects of the culture of PHC QI teams in Kenya; 2) to comprehensively describe barriers and facilitators of PHC QI, going beyond the health facility-level to promote a more holistic, multi-level and more systematic understanding of these; and 3) to explain and explicate

why and how PHC QI is constrained. The methods including data generation and analysis, and explanatory frameworks described in the subsequent chapters (methodology, findings and discussion) respond to these three concerns, building on the literature review. This research was necessary to build the evidence base for PHC policymakers and implementers of QI to address persistent challenges and reduce constraints to QI implementation in Kenya as part of efforts to strengthen PHC and move towards quality healthcare.

Chapter 4. Research paradigm, methodology and methods

4.1 Introduction

In this chapter, I discuss my philosophical position and justify my choice of a critical realist (CR) paradigm and focused ethnographic design, as well as qualitative methodology. I then move on to the methods used to collect data, approach to sampling and recruitment, ethics processes, data analysis techniques, and measures to safeguard rigour and trustworthiness. I will conclude by reflecting on the fieldwork process.

4.2 Philosophical position: ontology and epistemology

This study is inspired by CR philosophy, with its realist ontology and relativist epistemology (Bhaskar & Hartwig, 2016). Using a critical realist metatheoretical worldview provided many advantages over a constructivist standpoint for this focused ethnographic study of PHC QI. First, CR would prove useful for uncovering not just what happens (what the QI culture, barriers and enablers are) empirically but also why it happens i.e., the realities at play beyond the empirical observations. CR enabled this study to explore the interplay between PHC and wider health systems and social structures and the QI teams as agents of change or inertia in the transformation of PHC quality (Decoteau, 2017). Thus, a CR approach enabled the research to move beyond surface-level descriptions of barriers and enablers and subjective meaning-making (often the focus of constructivism) to bring out the deeper hidden causal and contextual issues that shape QI (Shaw et al., 2018). Secondly, CR was found to be helpful as a framework for explicitly theorising how the PHC context interacts with the layered social, organizational and systemic structures, at various levels (Shaw et al., 2018). This allowed for the development of explanations that clarify how, why, when and what

conditions in Kenya and in the specific PHC contexts impede QI, making it to fail, and this is also helpful for ensuring transferability of findings across settings (Jagosh, 2019), contrary to most constructivist interpretations. Thirdly, CR links macro-level structures (e.g., policies, resources) with micro-level agency (e.g., staff actions, patient experiences), providing a more holistic and actionable understanding of QI processes (Sturgiss & Clark, 2020). This is crucial in PHC, where both systemic constraints and individual actions shape improvement efforts. Thus, by applying a CR lens, the potential for this research to inform policy and practice was enhanced, increasing its real-world usefulness and relevance (Wiltshire, 2018). In summary, using a critical realist worldview with the focused ethnographic approach enabled deeper, more transferable, and causally robust explanations of barriers and enablers which arguably surpasses the descriptive and interpretive limits of constructivist and or interpretivist approaches (Decoteau, 2017; Edgley et al., 2016; Wiltshire, 2018).

PHC QI comprises real things that exist independently in the intransitive domain: there are buildings, equipment, people (clients or patients, health workers and managers), finances, documents and records, and institutional systems akin to social structures. All these affect, individually and collectively, healthcare quality and outcomes, acting at the real, the actual and empirical levels of CR's laminated ontology, with generative powers (Gorski, 2013). Accordingly, because the people involved exercise their agency, the PHC setting is also social, and different actors construe events therein differently (Alderson, 2021; Bhaskar et al., 1998). CR provides the study's paradigm for examining the roles and relationship of agents, culture and societal structures in shaping the quality of PHC

(Danermark et al., 2005; Given & Saumure, 2008; Vincent & O’Mahoney, 2017). This researcher has a strong commitment to PHC while QI seeks to positively influence how health care is delivered. Promoting flourishing and reducing (absenting) suffering are key transformational claims of CR (Bhaskar, 2008) embraced by this research.

Ontological realism, epistemological relativism, and judgmental rationality, collectively known as the *trinity* of CR (Bhaskar & Hartwig, 2016) are all central in this study. While PHC comprises of things that exist in the domain of the real, the need to tap into all three layers of reality is even more critical. At the empirical level, participants shared experiences, knowledge, beliefs, and perspectives pointing to the micro- and meso-level barriers and enablers of PHC QI. Health systems are complex (Pinzon et al., 2022). Thus, reaching beneath the empirical to the actual layer is helpful in pointing out the state of quality improvement, i.e. what actors or stakeholder are doing (Archer et al., 1998). At the real layer exists mechanisms that are activated by social structures or macro contexts that interact with agents (participants) and their shared culture in a dialectical fashion, with generative powers that constrain or enable PHC QI (Hartwig, 2007). Thus, the aims of this study called for a CR approach because events at the real layer require retrodution – finding out what the world must be like and linking higher-level influences or natural or physical laws and social structures to observed patterns during analysis (Mukumbang et al., 2021). Examples of how CR’s layers of reality were operationalised in this research are shown in *Figure 6*.

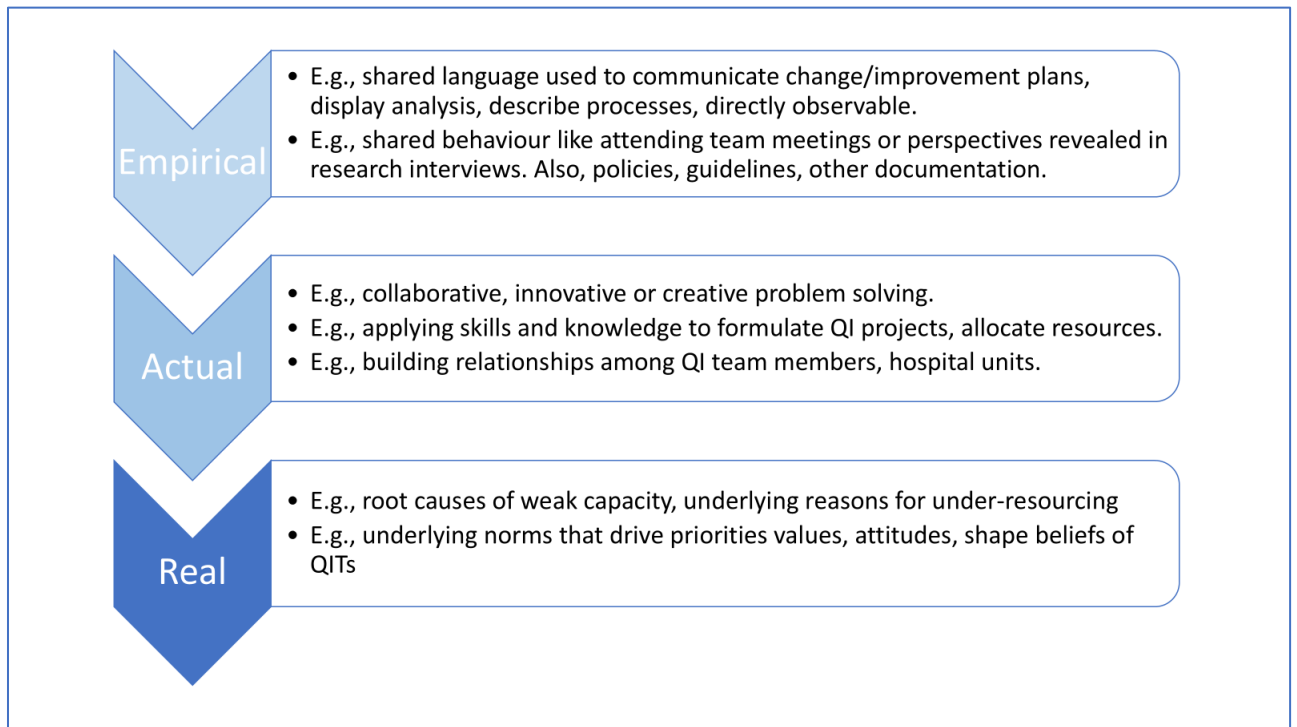


Figure 6: CR's layered reality and PHC QI

Epistemological relativism is also helpful because in seeking to describe the prevailing culture of hospital-based QI teams involved in shaping PHC in Kenya, the need to embrace subjective perceptions of which aspects of knowledge, attitudes, values, beliefs, and practices are shared cannot be understated. Contradictions are inherent in such an endeavour where the researcher seeks to learn from participants in the field, but such contradicting viewpoints must be embraced rather than discounted in favour of objectivity. Doing QI is a complex undertaking where efforts often fall short, and success is not guaranteed, given varying contexts and diversity of actors involved and resources (financial, cognitive, social) from which they draw in everyday practice (Morrow et al., 2012). Each perspective is unique, each hospital different, and likewise each county. The philosophical position embraced by this researcher in seeking to understand how QI happens in real-world settings is to learn what happens rather than

what should happen (as spelled out in QI guidelines). In doing so, epistemological relativism became a useful concept.

The third aspect of the trinity is judgmental rationality, which entails adjudicating among competing explanations for the way things are, to coherently and intelligibly propose practical action, informed by context and grounded in reality (Sawyer et al., 2010). Using judgmental rationality, the researcher conducted analysis and recommended actions to address gaps in PHC QI (Bhaskar & Hartwig, 2016). This enabled the most compelling explanations, backed by strong evidence, to be advanced. Most notably, PHC being part of the health system is emblematic of an open system, where there is no single truth or hard boundaries in what constitutes PHC QI culture. Consequently, there may be no universal set of values, attitudes, or beliefs, and the different layers of the health system interact and are affected by external influences (Boughaba et al., 2019). The actions of health workers involved in QI as agents are thus constantly shaped by external forces, but they also retain their agency. Judgmental rationality was important in sifting through multiple explanations in the present study of why things are the way they are, following rigorous and iterative retroductive theorising, and for sustaining the usefulness of eventual study findings for QI practitioners, health systems managers, and policy decisionmakers (Fletcher, 2017).

4.3 Why focused ethnography?

This study adopted a focused ethnographic (FE) approach (Roper & Shapira, 1999) because FE can help describe observed activities while the researcher triangulates their interpretations with those of group members in interviews to arrive at credible

explanations. FE signals the use of multiple approaches to data collection and analysis and is congruent with the CR tenet of judgmental rationality which calls for researchers to weigh multiple competing explanations of social phenomena (Mukumbang et al., 2021). FE entails spending short, intermittent and intensive periods of time in the study setting undertaking data collection, often in parallel with data analysis (Higginbottom et al., 2013). FE often “focuses on small elements of one’s own society” (Higginbottom et al., 2013) and in this study, such small elements are PHC referral hospitals nested within sub-counties across three separate counties’ health departments in Kenya. Focused ethnography supports data generation from social agents in their naturalistic settings to address the research questions (Roper & Shapira, 1999), which this study’s objectives required. FE has previously been used to generate data that illuminated “how care and care processes can be improved” (Higginbottom et al., 2013), a core concern for this study. In this research, using FE assisted the researcher to learn about QI directly from key actors or change agents (health workers and managers) acting as key informants. More generally, ethnography allows for both the *emic* (immersive data generation) and the *etic* (outsider data analysis) perspectives which contributed to the study’s rigour (Roper & Shapira, 1999; Wallace et al., 2022).

4.4 Rationale for using qualitative methodology

Qualitative research is scientific inquiry that is preoccupied with qualities or attributes of social reality (Bourgeault, 2010). Qualitative methodology here is congruent with both CR and focused ethnographic approach. Through qualitative methodology, the research involved naturalistic inquiry in hospital settings to promote understanding of

PHC QI in line with the study's aims and questions (Denscombe, 2010; Hadi & José Closs, 2016; Mays & Pope, 2000). Qualitative research uses methods of data generation which are flexible and sensitive to the social context in which the data are produced (Tomaszewski et al., 2020). Such methods entail prolonged and repeated engagements between the researcher and participants, and the researcher is often seen as the main instrument of data generation (Fetterman, 2010; Van Maanen, 2013).

4.5 Reflexivity and positionality

Given the philosophical underpinning of epistemological relativism and the need for judgmental rationality, and the selection of ethnographic design and a qualitative methodology, a reflexive approach was crucial for maintaining rigour and transparency in this research. Jacobson & Mustafa (2019) urge qualitative researchers to map and reflect on their social identity in a transparent manner before, during and while reporting on their work. According to Jacobson & Mustafa (2019) such grounding – religious, political, social, academic, and professional – inevitably affects interactions with participants, lines of inquiry, and data analysis. Thus, I briefly explain my positionality, considering this research.

I am a Black middle-aged male Kenyan. As a public health practitioner working for a large multilateral entity, I am on the frontline of efforts to re-organise PHC, in line with Kenya's international development obligations (e.g. the sustainable development goals) and declarations (e.g. Astana 2018). This position somehow shaped my curiosity and decision to research quality improvement, aside from other factors, with a strong belief that expanding healthcare access without accompanying enhancements to quality might

be considered unhelpful and even unacceptable. I have also had a long-running professional interest in health equity and a strong belief in the right to health. During fieldwork I understood that my professional networks may have made it easier for me to access research participants besides making me both an insider and outsider to the Kenya health system. I am an insider because I have a license and have practiced public health in Kenya all my life, accumulating much experience on the subject matter over 15 years. But I am also an outsider because I have never worked within the confines of a hospital or been in government employment. Still, my experiences have given me a close view of the state of quality in PHC in Kenya. All these mean that I was extra careful during participant recruitment, to avoid coercion, real or perceived, and data collection and analysis, to avoid projecting my own pre-conceived notions of enablers and barriers to QI in these settings. On the contrary, I sought to listen keenly, actively and with humility to public sector health workers and managers, to triangulate findings with multiple sources of information, and actively reflect on and document my feelings and experiences in the field and during analysis. It also means that I took my ethical obligations more seriously to ensure that participants did not confuse my prior and ongoing professional roles with the present academic research pursuits. My outsider status allowed some distance from research participants during ethnographic observations; enough to notice the mundane details and drove my curiosity and learning during fieldwork. During analysis, my background enabled me to remain pragmatic, considering what was sensible and questioning what did not make sense while seeking explanations of emerging barriers and enablers of PHC QI.

Externally facing activities also supported reflexivity and enabled sense-making. These included discussions with supervisors. Every two weeks, the researcher met with supervisors and shared progress and approaches to analysis, as well as analytical products (raw write ups and mind maps). Supervisors helpfully made comments, asked questions to draw out deeper meanings and this enriched the analysis. A key part of these fortnightly discussions was their role in minimising bias and laying out possible effects of the researcher's positionality on the analysis.

4.6 Data Collection

4.6.1 Study population

The study was conducted in Kenya. For this research, QITs, rather than entire hospitals, were the population of interest, along with selected managers in the host county health department who also have quality assurance roles in PHC. Fieldwork was conducted in three counties in Kenya, namely, Nairobi City (urban setting, population: >4 million, capital city of Kenya); Kisumu (largely rural, population: >1.2 million, hosts Kenya's third largest city) and Kakamega (largely rural, population: >2 million, agrarian) in 2023-2024. Whether urban, peri-urban, or rural, all counties in Kenya have in the past reported challenges with quality of PHC resulting in premature deaths and preventable morbidity (Kenya National Bureau of Statistics, 2022). Nairobi City County has 12 government hospitals of its >1100 health facilities. Kisumu County has 21 government hospitals out of its >200 health facilities. Kakamega County has 25 government hospitals out of nearly 180 health facilities. The public (government-owned) Level 4 hospitals included in the research are all PHC referral hospitals. Sampling across contexts provided opportunities for generating a rich mix of data. This data addressed the research question while

producing practically useful conclusions for PHC practitioners and other decision makers.

4.6.2 Data collection: participant (group) observation

The first data collection method entailed observation sessions at three hospitals and in-depth interviews with thirty-four participants who form part of QI team/committee meetings using a participant-as-observer technique (Observation guide is contained in *Appendix M*). Participant-as-observer means that the researcher sits through the sampled meetings or events and contributes to the discussion or other group interactions (Taylor et al., 2016). It is different from non-participant observer which is discrete, covert and maybe deemed unethical or controversial (Taylor et al., 2016). This approach also differs from observer-as-participant, a technique whereby the researcher is present at an event but remains passive, commonly called a 'fly-on-the-wall' or 'shadowing' (Gibbons et al., 1986). The participant-as-observer approach was selected because: (1) it was untenable for the researcher to sit through a meeting without being drawn into the conversation as some participants could start second-guessing his motives; (2) it seemed culturally inappropriate or rude to deflect all questions from committee members when invited to contribute talking points; (3) passively sitting through committee meetings which tended to be highly interactive might have seen the researcher miss opportunities to seek timely clarifications that yielded rich perspectives from the group, avoiding misconstruals; and (4) reflexively participating in group activities is a time-tested approach to setting participants at ease and proved useful for such naturalistic inquiry. But the main reason for including observation as a data

collection approach lay in its ability to point the researcher to shared practices, structures and patterns of interaction among group members (Morse, 2016). In this study, how QI projects are conceived, characterized, proceed and are concluded were gleaned through this method. During meeting sessions, the researcher adopted a non-judgmental, no blame approach to learning and reflection (Roper & Shapira, 1999). These team meetings were neither audio- nor video-recorded hence the researcher took copious notes of proceedings contemporaneously during team/committee meetings, complemented with official meeting minutes or reports (past and present) where the team agreed to avail those, quality policies and relevant standard operating procedures. Additional field notes were taken at the end of each day, and this is described later in this section. Apart from practical inhibitions for recording (prohibitive cost of purchasing, operating, and manipulating video equipment), such equipment may have been intrusive because many hospitals hardly even have surveillance cameras. Audio-only recording was not embraced as it was difficult for the researcher working alone to simultaneously document whose voice is captured especially when the discussion was heated. Whatever the case, the aim of observation in the proposed study was not compromised without video/audio recording. Ethnography has tended to rely mostly on observation and field notes as the main method of collecting rich data on participants' way of life in their natural settings (Walshe & Brearley, 2020). Field notes and documentation were important during data generation and subsequent analysis. On top of the partial field notes made with pen and paper while observing meetings and conducting interviews, the researcher made more complete and longer

version of field notes, making direct entries into the electronic field notebook (using MS Word software). These partial *on-the-go* notes comprised what was seen and heard, with short phrases incorporating quotes and keywords from participants in a small pocket notebook. The researcher then made longer versions of field notes at the end of each day in two separate entries in a computer. In the first entry, a running commentary of observed meetings tracked observed meetings in summary. Half of this summary captured venues, dates, actors involved, key issues, conversations among participants, interesting or curious observations, and other minutiae. The other half comprised analytic ideas: interpretations and researcher's perceptions of patterns and concepts; researcher's conversations with people and personal feelings about the day's experiences and further areas to pursue (additional questions) for upcoming meetings or interviews. Drawings and sketches as well as meeting minutes or reports were added here. In the second more reflexive notebook, a journal was maintained. This research diary focused more on the researcher's own reactions to participants and processes (events) in the research settings, as well as the researcher's feelings and emotions. These personal notes were useful for evaluating the researcher's response to specific situations during fieldwork and documented the researcher's "emotional and intellectual balance" (Werner & Schoepfle, 1987, p.274), which is key to rigorous qualitative inquiry. All notes were kept confidential and did not use any identifiers. Outlining how data were generated and the researcher's interactions with participants helps with assessments of how these affected the eventual research conclusions (Roper & Shapira, 1999).

4.6.3 Data collection: In-depth interviews

Interviews are widely used in qualitative research (DeJonckheere & Vaughn, 2019; Edwards et al., 2014; Spradley, 1988; Stuckey, 2013), including in CR inspired ethnographies (Brönnimann, 2022; Mukumbang et al., 2020). A flexible guide for in-depth (key informant) interviews was developed and enriched after the initial exploratory phase of fieldwork when the researcher had opportunity to get more familiar with the research context and participants. The interview guide was flexible and allowed the researcher to probe and prompt, seeking in-depth accounts, while also adding or varying questions to test emerging explanations and clarify patterns. Key informants were purposively selected based on their ability to share rich insights into their experiences, knowledge, beliefs, values, and practice patterns in efforts to improve the quality of PHC, picking up from issues observed in the meetings of the quality (improvement) committees or teams and previous interviews. Picking up from observed areas meant that the researcher was also more familiar with various interview participants. By constructively using this familiarity, it was possible to explore participants' worldviews, clarify and build upon group meetings and prior interviews, to paint a more holistic picture of QI experiences and culture. Various iterations of interview guides are contained in *Appendix L*. Nonverbal cues, like how fast they speak, making or avoiding eye contact, and bursting out in laughter or tears may signify underlying unresolved or un verbalized feelings (Higginbottom et al., 2013), and such were noted. Thus, this qualitative ethnographic study inspired by CR considered interviews as an active process of listening and questioning, providing access into insider accounts of QI in primary care settings in Kenya. CR lens also came in handy by enabling

the researcher to tailor and adapt interview guides to answer emerging questions from the ensuing analysis, and to question hypothesised root causes and underlying constraints of QI in PHC. Interview topic guides were informed by mid-range theory and relevant frameworks to make them fit for purpose. Two such theories take the form of complex systems and notably, Nimako and Kruk's (2021) hypothesised simple rules operating in high-quality health systems. These sought to tease out how these operated in the PHC context in Kenya to constrain or promote QI. These include: (1) *clear aims* i.e., opportunity for actors to articulate their values and vision of PHC; (2) *reinforcing resources* i.e., extent of inputs and investments to strengthen pillars of PHC system; (3) *constraints* i.e., existence of systems that ensure evidence-based practice, respectful care, patient safety and sound clinical governance), and (4) *incentives* i.e., deployment of behavioural and socio-economic rewards and how these reinforce the desired practices among hospital teams.

All interviews were conducted in English and audio-recorded upon consent by participants.

4.6.4 Sampling and sample size

In focused ethnographic studies, the researcher makes connections by sight (observing what people do or don't) and hearing (listening to what is said (Ploder & Hamann, 2021). In CR what is not said – what is absented - is also important (Taylor et al., 2016). Asking questions informally as an active participant-observer to clarify what is heard or formally during individual in-depth interviews helps with drawing connections in the sample (Taylor et al., 2016). Accordingly, for this study, the two main sources of data

were people (health workers alone during interviews and or at team meetings), and events (QI committee interactions). Artefacts (QI-related documents, reports and meeting minutes) were also included. With the objective being to understand, describe and explain QI in public PHC settings through the people involved, two types of samples for data collection were drawn in each county, and these are described in sequence.

First, QI committees at all three hospitals were observed repeatedly through the researcher's participation in their meetings. An initial exploratory phase of fieldwork (first contact) was useful in sharpening the observation and interview guides. The researcher could not be at every hospital to observe every committee sitting. Thus, the first contact with hospital QI teams helped him to understand the salient activities to be sampled for participatory observation. This sampling was based on relevance to the study question and objectives, as well as the importance attached to such activities by the participants themselves. Subsequently, the researcher asked the QI team leader to share meeting schedules for fieldwork planning.

Next, people were sampled. Informants who were willing to be a part of the research effort by sharing their rich shared values, beliefs, knowledge, and practices were purposively selected based on the inclusion criteria in *Table 5*. The researcher adopted the role of *investigator-as-learner* while individual interviewees assumed the role of key informants. Information-rich sources were theoretical sampled to generate adequate data for exploratory and explanatory analysis (Robinson, 2014). For this study, purposive sampling, both to ensure theoretical saturation with optimal variability was appropriate, guided by the research question and objectives (Flick, 2014; Mason, 2002). The study

sought to engage between 20 and 35 participants as key informants. It was estimated that approximately 10 interviews per fieldwork site (county and hospital) would generate adequate data, reaching a point beyond which no new insights would be forthcoming from additional interviews considering the uniqueness and the interconnectedness of the devolved health systems set up). Sample sizes in qualitative studies have tended to be small and flexible e.g. ranging from 30 to 60 individual interviews in ethnographic PhD studies (Mason, 2002; Robinson, 2014). For this study, interviews would be complemented by document reviews (QI artefacts) and in-person participation (observation) of QI meeting sessions with detailed notetaking.

Table 5: Inclusion and exclusion criteria

Quality Improvement Committees	Individual key informants
<u><i>Inclusion</i></u> Hospital-based quality committee. Public or government-owned hospitals. Facility falls within PHC network. Committee most active or functional (confirmed by county leaders or documentary evidence e.g. minutes of meetings, photos, reports)	<u><i>Inclusion</i></u> Member of quality committee from a participating primary care hospital. Willing to share insights and experiences. Direct experience of or involvement in QI activities. Manager at sub-county or county level actively involved in improving quality of PHC services. Above eighteen years old (not a minor)
<u><i>Exclusion</i></u> Based in a health centre, dispensary, or hospital outside PHC network (tertiary hospital). No confirmation of activity by quality committee last three months preceding the study.	<u><i>Exclusion</i></u> Inactive member of a participating quality committee, no direct knowledge or experience of QI processes or committee work. Minor, under eighteen years old. Worked in the respective county primary health system for less than three months before the interview (limited view of quality culture).

4.6.5 Research ethics and approvals

The researcher obtained prior approval from Lancaster University's Faculty of Health and Medicine Research Ethics Committee (FHMREC), see *Appendix E*. In Kenya, the

research was reviewed and approved by the ethics committee of Jaramogi Oginga Odinga Teaching and Referral Hospital (*Appendix F*). Fieldwork commenced after a research permit was received from the National Commission for Science, Technology and Innovation in Kenya. Additionally, each of the three counties gave administrative approval to conduct research at their affiliated institutions.

4.7 Recruitment and informed consent

In consultation with the respective county health department's leadership, a recruitment letter (*Appendix G*) and a participant information sheet for QITs (*Appendix H*) was sent to hospitals, addressed to the hospital manager, inviting them to participate. Follow up communication was sent after two weeks in case of non-response. The email explained that the researcher sought to observe QI team/group meetings as they deliberate upon improvements in PHC processes, systems, and outcomes rather than clinical consultations or treatment sessions. The communication also made it explicit that some committee members may be approached after their meetings for individual interviews. Those health facilities that expressed interest were contacted and any issues clarified. The eventual three participating hospitals were those that (a) expressed interest to participate in the research, and (b) were deemed to be the best exemplars of PHC QI by the county health office where more than one hospital expressed interest. This second criterion was important because the researcher needed to learn from hospital QI teams and those that were inactive or dormant would not have provided suitable avenues to learn about QI culture, practice, barriers and enablers. As earlier explained, an exploratory phase saw the researcher visit the hospital

to get familiar with the setting and people and negotiate consent (*Appendix J*) ahead of data collection sessions. This way, the researcher had consent prior to the day of the observation/participation in committee meeting. On the day of the meeting, the researcher arrived early, obtained the meeting agenda, and attended the meeting as a participant-observer (asking questions informally to clarify any unclear observations) after written consent. Following from the committee meetings, the researcher purposively approached potential key informants for interviews and shared a participants information sheet (PIS), in *Appendix I*. For those willing to participate, interviews were then scheduled at a convenient day, time, and place (private offices in the same hospitals where participants worked as QI team members). For PHC/QI managers (not hospital-based), recruitment emails and PIS were shared via direct email to eligible county and sub-county health management team members' individual emails with follow up after two weeks. Those expressing interest were then contacted and further information provided, after which interviews were arranged at a time and place convenient to each participant after written consent (*Appendix K*). For these non-hospital workers, interviews took place at their respective offices during working hours.

4.8 Data Analysis

4.8.1 Preparing data

This study used inductive thematic analysis (Clarke & Braun, 2017), framework analysis see Adamu et al. (2019) for example, and retroductive reasoning (Fletcher, 2017; Mukumbang et al., 2021), combining elements of ethnographic analysis and inspired by CR. The analysis process is summarised in *Figure 7*.

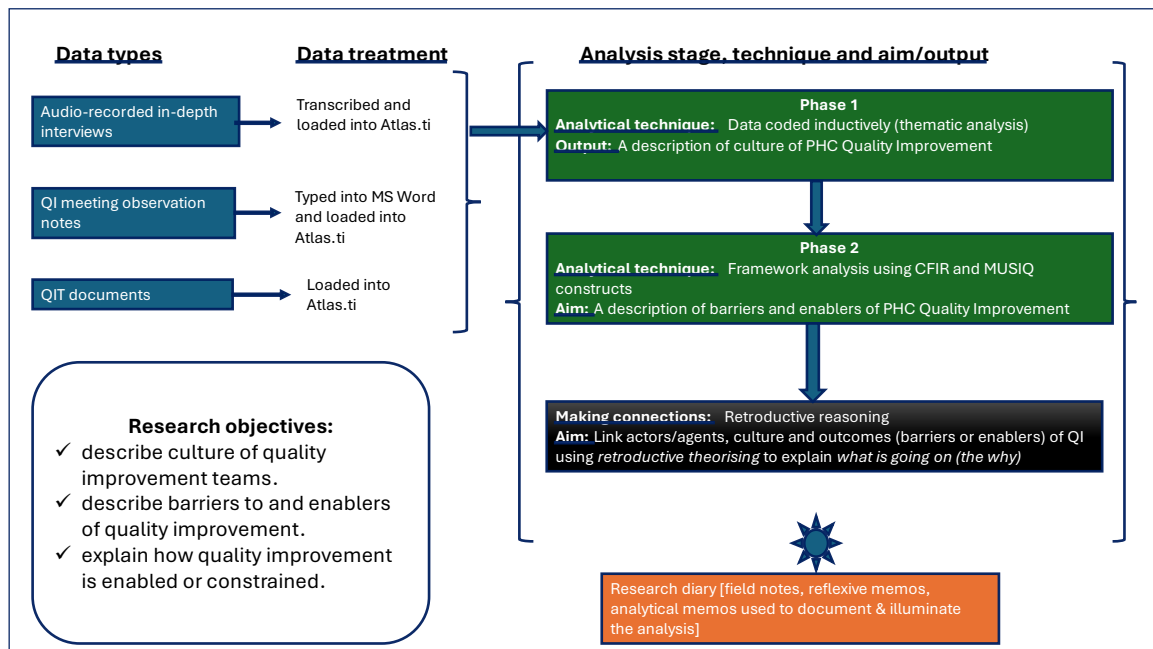


Figure 7: Phased data analysis guided by research objectives

During transcription the researcher also noted analytical ideas that came to mind (so-called ‘light-bulb moments’) such as interesting quips, repeated or emphasized points, moments of laughter or surprise, and points to clarify in subsequent interviews. Notes documenting proceedings of QI meetings were typed into MS Word and loaded into Atlas.ti. The additional data collected in the form of relevant documents (team minutes, reports, tools, and procedures associated with quality improvement) were also loaded into Atlas.ti in readiness for analysis (sample Atlas.ti interface is shown in *Appendix N*). Reflexive notes and analytical memos were not treated as data but were referred to throughout the analysis to help give context to the data and to the researcher’s interpretations. Analysis aimed to organise and make sense of data generated to answer the research question (Roper & Shapira, 1999; Van Maanen, 2013).

4.8.2 Inductive thematic analysis

Analysis was iterative rather than linear, and started during fieldwork: carefully sampling interviewees, documents and meetings to attend. Through theoretical sampling, subsequent interviews built on prior ones and aimed to expand understanding of QI culture, barriers and enablers in PHC. Also, sampling aimed for maximum variability in responses, aiming to test various “theories” of why QI remains constrained in Kenyan PHC settings by obtaining diverse perspectives. Analysis then progressed during transcription and concurrently between fieldwork and actual immersive analysis after each time spent doing fieldwork.

In this phase one of analysis, steps described by Clarke & Braun (2017) were followed.

Analysis started when the researcher immersed themselves in the material to gain familiarity during transcription. Transcripts were read and re-read, and initial ideas noted down. Next, all transcripts were coded, as the researcher highlighted and labelled interesting quotes that spoke to the various aspects of QI culture (practices, behaviours, attitudes, values, beliefs, knowledge etc.). After this, the researcher teased out preliminary themes, grouping relevant codes into categories and naming these accordingly. In the next step, themes were reviewed, some codes moved across categories, and categories compared with each other to check for consistency and coherence. At this stage, themes were once more checked against component codes and against the entire dataset to check that nothing had been missed or misplaced. In the penultimate stage, themes were renamed and described in form of short analytical memos in Atlas.ti, documenting their attributes (why this name, what do they include, what is excluded, relations to other themes). Finally, the preceding analysis culminated

in a narrative report with salient quotes used to illustrate the various themes. At this stage, general statements were combined with specific instances to make one unified story on QI culture in PHC settings in Kenya.

4.8.3 Deductive framework analysis

In phase 2, a codebook in MS Excel was drawn using concepts from the CFIR

(Damschroder et al., 2022; Means et al., 2020) and MUSIQ (Kaplan et al., 2012).

Together, MUSIQ and CFIR are highly congruent and commensurate frameworks for analysing barriers and enablers to QI in PHC, especially in LMICs. Both frameworks helped to systematically organise contextual factors at multiple levels, and recent research demonstrates their complementary use. Both frameworks address similar domains, such as microsystem/team factors, organisational context, external environment, intervention characteristics, and implementation processes (Dewan et al., 2021). While MUSIQ emphasises the dynamic interplay between context and QI success, CFIR provides detailed constructs for implementation processes and individual characteristics, making them complementary for in-depth analysis (Reed et al., 2018). Studies have used both frameworks together to capture a full spectrum of contextual and process-related factors, enhancing the rigor and depth of analysis (Adamu et al., 2020; Gardner et al., 2018). Thus, MUSIQ and CFIR provided a robust, multi-tiered description of QI implementation in PHC contexts in Kenya. This codebook was then imported into Atlas.ti and used deductively to label and categorise the data. All transcripts were read once more and coded. These were then grouped into the overarching themes that denote the micro-, meso- and macro-level barriers and

enablers of PHC QI. Provision was made for open coding for those barriers and or enablers that did not fit neatly into two frameworks before the analysis was written up with thick contextual descriptions and illustrative quotes.

4.8.4 Applying a Critical Realist Lens to the Analysis

The analysis applied a critical realist lens in several ways. First was the acknowledgement that hospitals and the health system in which they reside are social structures, which interact with other elements in open fashion. This saw the analysis consider such interactions and feedback loops, rather than treating hospitals and QI teams as closed systems operating deterministically. Also, the analysis adopted a level of scale (levels of society) lens (Bhaskar & Hartwig, 2016), which include (a) the sub-individual (psychological) level e.g. thought patterns and beliefs of PHC managers, (b) the individual (biographical) level e.g. experience of fatigue, exhaustion and personal circumstances, (c) the micro-level e.g., interactions between QI team members, (d) the meso level e.g., analysing functional roles between powerful county decisionmakers and QI coordinators or hospital managers, (e) the macro level e.g., in understanding the sectoral plans, budgets and fiscal conditions of the Kenyan health system in which hospitals and QI teams operate, and (f) the mega level e.g., in exploring how global market forces shape QI directly and indirectly, through the work of donors and the operations of health labour markets (outmigration of skilled workers). Through this sociological imagination (McEwan et al., 2023), the micro was linked to the macro/mega, working through various layers.

Another way the analysis reflects CR lens was in the application of retroduction.

Retroduction (or retroductive theorising) is a critical realist approach that seeks to move beyond surface-level descriptions to identify the underlying mechanisms and real causes of observed phenomena (Mukumbang et al., 2021), in this case, constraints and barriers to (and possible promoters or facilitators of) quality improvement in PHC. The retroduction process drew from Amber Fletcher's (2017) argument for flexibility, which does not require the mandatory use of a heuristic tool (like context-mechanism-outcome or CMO, and its many adaptations) that is common to realist evaluations. Accordingly, retroductive theorising proceeded along the lines proposed by Thapa and Omland (2018) and adapted by Mukumbang et al. (2021): (1) exploring QI events through early participation at meetings and at interviews with QIT members and health systems managers; (2) identification of the actors and entities involved in QI and PHC and progressively expanding understanding of their interactions through subsequent interviews and document reviews (theoretical and maximum variation sampling); (3) abductively seeking different theoretical perspectives and competing explanations of why QI is promoted or constrained (asking *what the world must look like for this to happen*) during analysis; and (4) proposing plausible yet simple (though not simplistic) explanations linking mechanisms and conditions obtaining in the PHC context in Kenya that constrain QI. Notably, in stage 3 of this process, the simple rules for high quality health systems (Nimako & Kruk, 2021) and existing health systems frameworks (both previously described in chapter two) were handy. Bhaskar (2016) would refer to this as enlightened common sense, arguing that the best explanations of social phenomena are

not necessarily the most complicated. The retroductive process applied in this analysis was non-formulaic, flexible and iterative (Fletcher, 2017, Thapa and Omland, 2018).

4.9 Rigour and trustworthiness

A key concern for this research is whether research findings and conclusions mirror the reality of participants studied and the meanings they give to QI processes and events.

The aim of ethnography is to examine people's behaviours and thought patterns in their natural environment (Atkinson & Hammersley, 2007). Yet, the mere presence of a researcher has been known to affect how participants behave or what they say (Taylor et al., 2016). This research relied on participants to share their truths; thus, steps were taken to ascertain the veracity of participants' accounts. One way that trustworthiness of this research was enhanced was by carefully outlining how participants, events and written documents were selected and the rationale (Roper & Shapira, 1999). Openness to negative and positive observations or findings regarding values, beliefs and experiences in QI rather than reporting only preferred or similar (uniform) themes (Van Maanen, 2013) is another way by which trustworthiness was maintained. Lengthy time spent in the field undertaking observations and interviews increased the likelihood of detecting inconsistent beliefs, actions and values among participants compared to the researcher's interpretations (Spradley, 1980, 1988). Over time, participants became familiar with the researcher's presence, making it more likely that they behaved and spoke as they normally would in the absence of foreigners (Spradley, 1980, 1988). The researcher maintained a respectable distance between himself and study participants. This was done by constantly clarifying his research role in the field, given ongoing

familiarity with study participants (Jacobson & Mustafa, 2019). The need to preserve trust, negotiate and renegotiate consent, and (re)emphasise confidentiality were central considerations. This was particularly important as few participants were followed-up for mini-interviews to clarify issues, a common approach in ethnographic research (Rinaldo & Guhin, 2022). Thus, constant vigilance and a reflexive stance were important in three ways. First, it helped me to manage my prior knowledge and experiences in the research field (Jacobson & Mustafa, 2019). Second, these helped me to guard from going native: the tendency to become too familiar and casual during fieldwork because of extended field engagement (Thompson, 2019). Lastly, it protected study participants from divulging sensitive information outside the research interview and QI meetings by avoiding engagements outside the research context. I practiced reflexivity by using multiple techniques. First, *noting* and *memoing* were important to my fieldwork practice (Montgomery & Bailey, 2007). Miles and Huberman (1994, p.74) referred to memos as small “conceptual epiphanies” that later lead to theoretical understandings. Besides, using memos has been reported to contribute profound and useful understanding of data (Ravindran et al., 2020). I kept notes in a research diary, where I noted the immediate contexts of fieldwork, the sights, sounds, smells, and pretty much anything that came to mind, that affected my feelings, my perceptions, my interpretations of study participants and their perspectives. I took note of meeting venues and interviews. I also noted mundane things such as participants keeping eye contact, averting eye contact, and swinging in their seats. Others such as changes in tone of conversation, and whether I thought a participant to be cagey, moderated (self-censoring), carefully

picking words or sharply forthright also got documented. Second, I documented my state of mind before, during and after interviews such as whether I got disrupted, distracted, curious, inquisitive, absorbed, detached and possible reasons why. I also noted my immediate reactions to the interviews and meetings: whether I enjoyed a session, and additional questions that came to mind, either to be clarified from subsequent fieldwork, or to be picked later during analysis. Third and finally, I made use of analytical (theoretical) memos, notes taken during transcription and data analysis, to keep track of my ongoing sensory and perceptive interaction with data. This aspect is explicated under data analysis. Thus, through *noting* and *memoing*, I have been able to keep an audit trail, allowing me to remain true to the aims of this research, and guard against my prejudices seeping into the study (as this is a topic about which I am passionate), while remaining transparent with my subjective role as the key instrument of data generation and analytical tool.

In this study, multiple data collection approaches on QI further allowed for triangulation, enhancing confirmability of eventual findings (Cyr, 2016; McEvoy & Richards, 2006). Reaching theoretically generalizable conclusions in the ethnographic analytical phase and extending this using selected CR concepts also deepened the study's transferability.

It is acceptable to find contrasting perspectives that reflect authentic experiences and perspectives of participants (Rolfe, 2006). Such authentic perspectives, however contrasting, have been allowed to come out in this research. Besides, multiple interactions with participants enabled the researcher to check interpretations with

research participants – as data analysis continued simultaneously with data generation (Fetterman, 2010). Notwithstanding its strengths, this may itself pose a problem e.g. when participants forget or have a rethink about earlier perspectives after the research has progressed (Rolfe, 2006) but no such case was noted. Applying CR means that researcher's observation notes and participants accounts that reflect empirical accounts are objectively verifiable with multiple sources, making these realities more dependable (Edwards et al., 2014; Vincent & O'Mahoney, 2017). Through retroduction which saw the research go beyond the surface level empirical observations, these accounts may also reveal events at the underlying and deeper layers of reality.

This two-phased analytical approach is considered rigorous for broad theoretical generalizability or transferability beyond the immediate ethnographic contexts, but the resulting knowledge is still contingent and fallible (Fletcher, 2017). One strength is the expectedly better policy and practice relevance of the resulting analysis, which goes beyond subjective and highly situated accounts of participants common in purely ethnographic research (Edwards et al., 2014). The study utilized other approaches to ensure rigour and quality including credibility through prolonged engagement in the field, repeated observation, triangulating interviews and observation, and checking transcriptions with interviewees; transferability (by purposively sampling participants and thick descriptions of ethnographic cases); dependability (being consistent by discussing and obtaining peer feedback throughout the analysis); and confirmability (through ongoing reflexivity) and using participants' quotes to report findings (Shenton, 2004).

Summary

This chapter discussed the study's CR underpinnings, ethnographic approach and qualitative methodology. It also covered recruitment, data collection, data analysis and issues of rigour and trustworthiness, including reflexivity which is critical to ethical fieldwork and rigorous analysis. In the next chapter, the findings from the analysis are described, encompassing PHC QI culture, barriers, and enablers.

Chapter 5: Findings: Culture of Primary Health Care Quality Improvement

5.1 Introduction

Findings from this research are presented in two chapters, each corresponding to the first two research questions. In this chapter, the culture of PHC QI is described. In the next chapter, barriers to and enablers of PHC QI that have diminished its expected outcomes in the Kenyan health landscape are presented. Data collection took place between July 2023 and March 2024. All interviews too place were in English. Fieldwork ceased after adequate data was obtained for analysis, recognising the flexible nature of ethnographic research (Gibbons et al., 1986) where data collection may conclude sooner or later, provided the aims of the research are not compromised. As described in the ensuing section, data collection proceeded in tandem with analysis. After commencement of fieldwork, participants were theoretically sampled to provide additional perspectives to those arising out of previous interviews (documents and observed meetings), while keeping the aims of the research in mind. This purposive and theoretical sampling informed recruitment and gave room for participants to challenge, clarify, extend, or reinforce emerging findings. It was determined that adequate data had been obtained when no new perspectives were emerging from ongoing analysis and thus, theoretical saturation was deemed to have been reached.

5.2 Interview participants' profile

Thirty-one participants with diverse professional and training backgrounds were included in the study. Three of the included health workforce cadres, namely nurses (6), doctors (11), and clinical officers (7) form the core workforce for PHC in Kenya. Other

participants were pharmacists (2), health records and information officers (2), and one nutritionist. Participants' background information is summarised in *Table 6*. Twenty participants were female while eleven identified as male. Included were twelve participants from Kisumu County, eleven from Nairobi City County, and eight from Kakamega County. While fourteen participants had county level jobs, five were based at sub-county, and nine at hospitals. Two participants held dual appointments for county and hospital level work, and one served at both county and hospital level. Participants had work experience of between four and thirty years, with one to eleven years spent in their current role conducting or managing QI and or PHC. No participant declined to answer questions, and equally no one terminated an interview prematurely.

All interviews were conducted in person at participants' places of work (respective hospitals as their natural QI settings) and ranged from 30 minutes to 90 minutes long.

Interviews were conducted in English, audio-recorded (after obtaining consent) and transcribed in preparation for analysis.

Table 6: Profile of research participants

Participant	Male/ Female	County	Level in health system	Professional affiliation	No. of years in service (years in current role)
001	Female	Kisumu	Sub-county	Clinical officer	10 (1)
002	Male	Kisumu	County	Medical officer	15 (5)
003	Female	Kisumu	County	Nurse	22 (4)
004	Female	Kisumu	County	Clinical officer	19 (11)
005	Female	Kisumu	Sub-county	Medical officer	5 (3)
006	Female	Kisumu	Hospital	Medical officer	7 (3)
007	Female	Kakamega	Hospital	Nurse	14 (5)
008	Female	Kakamega	Hospital	Clinical officer	15 (8)
009	Male	Kakamega	Sub-county	Nurse	13 (3)

010	Female	Kisumu	County	Pharmacist	16 (3)
011	Male	Kisumu	Hospital	Clinical officer	13 (3)
012	Female	Kakamega	County	Medical officer	9 (2.5)
013	Male	Kakamega	County/ Hospital	Pharmacist	13 (4)
014	Female	Kisumu	Hospital	Nutritionist	4 (4)
015	Male	Kisumu	Hospital	Nurse-midwife	13 (6)
016	Male	Kakamega	Hospital	Clinical officer	7 (2)
017	Female	Kakamega	Hospital/Sub- County	Health records and information officer	13 (5)
018	Female	Kisumu	County	Clinical officer	27 (7)
019	Male	Nairobi	County	Medical officer	14 (2.5)
020	Female	Nairobi	County	Medical officer	10 (1)
021	Female	Nairobi	County	Medical officer	30 (10)
022	Male	Nairobi	County	Medical officer	10 (1)
023	Female	Nairobi	Hospital	Medical officer	5 (1)
024	Female	Nairobi	County	Medical officer	10 (1)
025	Male	Kakamega	County	Nurse	20 (5)
026	Male	Kisumu	County	Medical officer	4 (2)
027	Female	Nairobi	County	Nurse	30 (8)
028	Female	Nairobi	Sub-county	Pharmacist	6 (6)
029	Male	Nairobi	Hospital	Clinical officer	7 (4)
030	Female	Nairobi	Hospital/Sub- County	Nurse-midwife	16 (6)
031	Female	Nairobi	Sub-county	Health records and information officer	13 (6)

There were no discernible differences among the three counties with regards to willingness of participants to engage in interviews, which were entirely voluntary. Most participants were enthusiastic during interviews with only a few exceptions which, understandably, was due to time constraints on the part of busy managers.

5.3 Participation in QI meetings

As part of this focused ethnography, the researcher participated in QIT meetings at hospitals across the three counties. The researcher attended four monthly QI meetings at a hospital in Kakamega County, three meetings at a hospital in Kisumu County, and one meeting at the site in Nairobi City County. The number of meetings attended in Kakamega County reflect how active and cohesive the hospital QI team (QIT) was. The team met regularly and communicated their schedules to the researcher. Minutes of meetings were also kept neatly and made available. This high level of engagement, it will be shown in findings, could be seen in the success of the QI team's project during the period of fieldwork. Conversely, in Kisumu County, the QI team was less active and less cohesive. In Nairobi City County, even though only one meeting was attended, the team kept extensive records, including an online portal/dashboard of their many QI projects, signalling a high level of engagement. During the meetings, the researcher was both observer (learning from participant QI team interactions) and participant (contributing to discussions during meetings). Meetings lasted between forty-five minutes and two hours and had between six and thirteen members participating across the three ethnographic sites. Prior to attending meetings, consent was negotiated with the QI team chairperson and respective hospital managers, and subsequently with all QI team members present at the start of the meeting. None declined consent. Separate consent was negotiated for subsequent meetings.

5.4 QI documents and artefacts

As already mentioned, in addition to interviews and participation at QI team meetings, the researcher gathered relevant documents that hospital QI teams were willing to

share, hereafter called artefacts. Artefacts included QI team meeting minutes (for sessions attended and those missed mainly due to short notices), documentation related to QI projects, a hospital's mission and statement, and in one county - a newly released QI charter was made available.

5.5 Themes illuminating culture of QI

The first research question - what are the shared experiences, attributes, knowledge, beliefs, values, attitudes, and practices of QI teams in different public PHC settings in Kenya? - aimed to describe the culture of PHC QI teams. Three themes addressing this research question are summarised in *Figure 8* and detailed in *Table 6*. Themes were derived from interviews, participation in and observation of QIT meetings, and documents/artefacts reviewed. The first theme describes how QI culture manifests in team practices, language, behaviours and experiences, arising from their team behaviour and discourse. The second theme outlines the prevailing attitudes, beliefs, debates, and values regarding QI. These underlying beliefs and values drive the behaviours and practices described under the first theme. The third theme brings to fore the underlying or overarching QI structures. Each of these themes are comprised of the sub-themes (categories) of micro-culture, sub-culture and organisational or systemic culture. While the themes pertain to the shared aspects of QI culture in PHC, the sub-themes indicate the extent to which these are shared by QI team members (micro-culture), entire teams or homogenous groups of practitioners (sub-culture), and organisations and systemic level.

<u>Themes/ sub-themes</u> <u>(culture of QI teams)</u>	Micro-culture	Sub-culture	Organization & systemic culture
Enactment of QI culture in everyday work	Dominant: Championing change & improvement, coordinating. Less prominent: Circulating meeting minutes/records.	Dominant: Ranking, scoring, rating and recognition. Less prominent: Making QI projects/progress visible on hospital 'talking walls'.	Dominant: CME, OJT, mentorship, Data analysis & use, Scheduling & supervision, Infection prevention and control, Rewards & incentives. Less prominent: Benchmarking, Referring, Advocating.
Attitudes and values shape engagement with QI	Dominant: Embracing accountability and dedication to QI. Less prominent: Trust, frustrations, fatalism ('it's in God's hands'), Solution-oriented.	Dominant: (Not) awarding excellence, Hospital leadership neglect of QI, Siloed work. Less prominent: Ensuring continuity, Collaborative decision making, Politics overrides standards, Blame and punishment, Low-lying fruits.	Dominant: Client/patient-oriented, Integration, Need for motivation, Over-reliance on partners, Prioritisation, Quality problems are pervasive. Less prominent: Invest in quality, Information filters down, Clearing queues.
Structural drivers of QI	Dominant: Creating change/ difference Less prominent: Performance appraisals and performance-based contracting.	Dominant: none Less prominent: Clinical governance, Community level QI, Evolution of QI, Program quality efficiency, Task shifting, Total quality management (TQM).	Dominant: Insufficient finances and budgets, Multi-dimension quality, KQMH, Management and leadership. Less prominent: International standards, Kaizen, Nosocomial infections, HSS, PDSA.

Figure 8: Themes and categories describing QI culture

QI: quality improvement; CME: continuous medical education; OJT: on-job training; KQMH: Kenya Quality Model for Health; HSS: health systems strengthening; PDSA: plan-do-study-act cycles

Figure 8 presents the themes in summary. Perforated boundaries around the themes and categories imply interactions between and among the various layers within an open system framework. Broad themes and categories are more transferable while the specific findings are more contextually situated. This diagram summarises the elements of QI culture that featured prominently and dominated discussions and interviews and those that featured less prominently, drawing from fieldwork in all three research sites.

Table 7: Themes and sub-themes detailing QI culture

Themes (Cultural dimension)	Categories related to Culture of QI in PHC		
	Micro-culture	Sub-culture	Organisational/System level culture
Enactment of QI culture in everyday work	Championing change and coordination dominate. Somewhat prominent are ways of building and seeking support by communicating needs, attending meetings, escalating issues, and minimising/avoiding duplication. Some concerns around competing tasks.	Assessments dominate and entail ranking, scoring, and rating units/hospitals Somewhat prominent are care planning & use of dashboards to display information. Across, QI teams abhor improvisation.	Critical training and skills building approaches for QI in and across counties include continuing medical education, mentorship, and on-job-training. Use of data and problem analysis are also key, besides online and digital platforms, developing and using schedules, and supervision.
Attitudes and values shape engagement with QI	Accountability, dedication to QI, and aspiring to some ideal level of PHC quality dominate. Honesty, a sense of personal responsibility, selflessness, fatalism.	Beliefs and values around the need to award excellence and leadership's neglect of QI as well as frustrations with siloed work dominate.	QI teams, hospitals and counties have a strong client/patient-centeredness. Integration, need for incentives to engage in QI, overreliance on NGOs to support QI activities, efforts to prioritise problems and interventions, need for team collaboration and cohesion were also critical.
Structural drivers of QI	Seeking to create change/ make a difference dominates but developing change strategies and change ideas exhibited less.	Least spotlight on clinical governance, Community level QI, Task shifting, and Total quality management	Key social structures underpinning the work of QI teams emerged as financing and budget arrangements; global dimensions of quality of care; the Kenya Quality Model for Health; and PHC/QI management and leadership organs.

Table 7 presents the three themes and sub-themes describing QI culture in more detail.

Top-down: starting with elements that are more visible and explicit are manifest cultural elements such as how QI actors behave, what QI teams do, and practices in PHC QI across organisation settings. The attitudes and values driving these behavioural practices follow. Beneath the values, attitudes and behaviours are underlying social structures that provide the context for the firing of generative mechanisms which in turn exercise causal powers, making the observed culture supportive or unsupportive of QI.

Across: each theme is organised around three categories: micro-culture with least shared elements; sub-culture, where elements are shared across certain groups e.g. nurses use Kardex to document care processes; and organisational or systemic level elements cut across entire counties and even all three counties in some cases, e.g. dimensions of quality found in various standards and guidelines. Within each category are the dominant aspects of culture that featured prominently, intermediate elements (somewhat dominant), and those that barely surfaced (least dominant). It should be remembered that these categories exist on a continuum, affect and are affected by each other, in true complex adaptive or open systems fashion.

An illustrative picture of the QI for each of the three hospitals is provided in *Table 8*.

Table 8: QI Picture for the Three Hospitals

Salient aspects of QI	Hospital 1 (Kisumu County)	Hospital 2 (Kakamega County)	Hospital 3 (Nairobi City County)
QI Team membership	All hospital departments included in membership, with nutritionist, maternal child health clinic in charge, HIV clinic manager, nursing services manager, medical officer in charge, lab officer, pharmacist listed as members. Nursing services manager chairs, and in	Clinical officer in charge (also called medical superintendent) sits in. The Nursing Officer in charge chairs. The health records officer is secretary but does not attend regularly. Hospital is newly upgraded and lacks a medical officer. QIT membership comprises 15 people:	Led by a Clinical Officer as chair, Lab technician as secretary. The medical officer in charge attends. Moist staff members in QI team were seconded by non-government partners. QIT has 10 members drawn from maternity, laboratory, pharmacy, outpatient, HIV clinic,

	their absence, the clinical officer in charge. There is a high turnover of medical officers (met 3 different ones over the duration of fieldwork). QIT has 6 and 10 members.	medical superintendent, nursing officer in charge, health records and information officer, nutritionist, lab officer, pharmacy technologist, immunisation program nurse, sub-county reproductive health coordinator as mentor/coach, data clerk for a maternal and child health cash transfer programme, a community health assistant who doubles up as hospital public health technician, three clinical officers, and the nurse in charge of the mother child clinic (MCH); mainly heads of hospital departments.	maternal child health clinic, medical superintendent, administrator, and health records.
QI Meetings	Hospital-wide QI team meets ad hoc (no schedule or predictability), morning hours. HIV clinic work improvement team meets often and in the afternoons.	Meets regularly, with a fortnightly schedule but meetings happen monthly. Flexibility in case of conflicts with other activities. Morning meetings 8-9am	Meetings are scheduled. Prefer to meet over the lunch break, 12.30-2pm.
QI tools and approach(es)	PDSA cycles, Kaizen board to map 5S, group meetings, brainstorming.	PDSA cycles, root cause analyses, identification and testing of change strategies	PDSA cycles, root cause analyses, pareto charts, change strategies tested, data display dashboards.
QI skills and training	Only the clinical officer in charge had been trained. Sub-county QI coordinator had also been trained but had yet to cascade skills to hospital team.	Team had been trained in QI and received ongoing coaching.	The coordinator had been trained and other QIT members received on-the-job coaching. Medical superintendent not trained in QI.
Previous QI projects	Not very clear but hinted at improving sanitation.	Improving coverage of post-partum family planning; Reducing missed opportunities during immunisation (well-child) visit.	Improving viral load testing uptake; Improving the uptake of IPT (isoniazid preventive therapy) prophylaxis for TB; Improving cervical

			cancer screening at MCH; Strengthening viral load suppression through ART for adolescents with HIV.
Current QI projects	Improving triage for children under five years at the outpatient department. Change projects last about a year on average.	Improving the coverage and client experiences of first and fourth antenatal care. Change projects last 3 months, on average.	Strengthening intensive case funding for TB. Improving triaging of all OPD clients. Enhancing the quality of records and documentation in maternity (partographs); Achieving viral load suppression in adolescents and youths 24 years and below. Multiple concurrent change projects, most have a 6-month timeline.
Reporting and documentation	Few and scattered records.	Neatly filed records with QI minutes, analytical notes and reports available.	Paper records available. Online dashboard displaying and tracking QI projects from problem analysis to completion are also available.
Management & support - Hospital management - Sub-county management - County management - National Ministry of Health	Hospital hosts sub-county management team, which includes QI focal person but no evidence of interactions. Hospital management is supportive of QI but does not regularly attend meetings. The County health office provides supervision but no evidence of recent QI mentorship, coaching or supervision. No recent visit by Ministry of Health officials, however, a	Hospital hosts sub-county management team, which includes QI focal person; the subcounty reproductive health focal person attends QI meetings and is an active contributor to discussions around ongoing QI project. The hospital manager attends QI meetings and is actively involved; rallies team and budgets resources. The county health office and QI focal person visits to provide mentorship and	Hospital hosts sub-county management team, which includes QI focal person; high interaction, such as perusal of records and provision of guidance/feedback to QIT. The county QI manager and larger county government have embarked on a journey of institutionalizing a culture of quality by instituting annual awards presided over by the highest elected official in the county to recognise active QI teams and successful QI

	regional technical working group on HIV care and treatment visits regularly to support HIV-leaning QI work. NGO provides most of the support.	coaching as part of training. The Ministry of Health has not provided any supervision or training recently. NGO provides most of the support and follow up.	projects. This is backed by assessments of all health facilities county-wide. The Ministry of Health provides tools for assessments of QI projects and quality of care gaps although these require some tweaking / contextualisation.
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5.5.1 Theme 1: Enactment of QI culture in everyday work

Nothing is more influential than everyday actions and habitual patterns when it comes to QI and its cultural manifestations. These cultural aspects matter for clients of PHC who have high expectations that their health problems will be addressed, and health policymakers aiming to achieve population level impact. This theme describes QITs' shared language, behaviours, practices, and experiences in their attempts to raise the quality of PHC provided in public hospitals.

QI Micro-cultures

One of the most important things that QIT members do is to champion change and improvement, from interviews and documents analysed. Being a champion, according to participants, can take the form of rallying others to tackle a specific quality problem or supporting a change idea. It also includes inspiring team members when things are not going to plan, convening meetings, leading brainstorming sessions to generate ideas, or coordinating efforts across work improvement teams. It means consistently attending QIT meetings, ensuring continuity, escalating concerns when intervention is needed

from higher up the PHC leadership, or leading problem analysis to identify causes, according to study participants.

And I will go, before I attend another meeting, I will ask her: Have you done some follow-ups? If yes, then we should have results, because if we sit and again discuss the same thing, and at the same time we are doing nothing, possibly that's why nothing is moving forward. – Interview 017, Kakamega.

In Kakamega, the QIT coordinator kept minutes diligently, and each meeting started off with a reading of the record of previous meeting, identifying outstanding actions, and receiving updates from those tasked with implementing various change ideas or strategies, as illustrated by this excerpt of my observation notes.

The Nursing officer in-charge of the hospital chairs the meeting. They call the meeting to order with an opening prayer before asking participants to introduce themselves. The meeting's secretary is the health records and information officer. A sub-county officer sits in as a QI mentor/coach as I will later learn. Three clinical officers each represent the comprehensive care clinic (HIV/AIDS services), the inpatient and outpatient departments. The chairperson reads out verbatim from a printout a record of the previous meeting's minutes, holding a spring file close to their face. The last meeting was held on May 3rd, 2023. In the end, the chairperson asks for someone to 'confirm' the minutes as a true record of the day's events. A participant shouts, "I confirm" from the back of the room and another quickly "seconds". The meeting proceeds to address matters arising, which are framed as "outstanding action points" requiring updates from task leaders.

Figure 9: Observation notes - Kakamega

QI Sub-cultures

From the study, QI teams engage in various iterative and collective practices, all focused on assessing the quality of PHC, which were described using various terminology. First,

#	Potential performance gaps to be addressed	Issue seen as important*	Realistic scope (Control)*	Likelihood of success via QI*	Potential Impact of QI Project*	Total Ranking
1	VIRAL SUPPRESSION	1	1	3	3	8 4
2	TB SCREENING	3	2	2	2	10 2
3	ART RETENTION	4	3	5	5	17 1
4	INDEX CLIENT TESTING	2	2	1	1	6 5
5	CaCx screening	2	2	2	3	9 3
	Work Plan					

Figure 10: Excerpt from prioritisation matrix, Nairobi.

QITs score PHC

services by

assigning

numerical values

to various levels of attainment during assessments, using standard or adapted checklists.

At the same time, scores were used to rate whether hospitals and services meet certain

standards or not. Next, they undertake some form of ranking by listing the assessed services or units in order from best to worst (or first to last), according to a QI project report, confirmed by key informant interviews. It was clear that scoring, rating, and ranking serve to document desirable practices, identify gaps in knowledge, skills, resources, and health outcomes to pinpoint where improvement is needed.

It was the one quality problem ranking top. TB screening was scored 10 and was number 2 (came in second). Cervical cancer screening was scored 9. – Interview 029, Nairobi.

In Nairobi City County, unlike Kakamega and Kisumu where countywide award and recognition for QITs was absent according to key informants, this process of scoring, rating and ranking was used to single out teams or team members to be provided recognition as part of the county's excellence awards.

The hospitals were properly assessed. Such that if you are rated the best, you really are the best. Others can't complain. We did the assessment. After the assessment, we wrote a report. – Interview 030, Nairobi.

However, in all three counties, these practices were applied as part of the PDSA cycle where problems and proposed remedies in form of change strategies were prioritised, as resources weren't always adequate to pursue all options, according to interviewees.

Organisational/systemic QI culture

All health services and processes require the right mix of knowledge and skills, and PHC QI is no different. The centrality of knowledge was asserted by county and sub-county managers, hospital managers and QIT members, like this county manager in Kisumu.

You know you need to train the staff. They need to have knowledge about quality and how to go about improvement. – Interview 003, Kisumu.

Knowledge and skills for PHC are especially critical in driving QI culture because they shape clinical and non-clinical practice, and how health workers interact among themselves and with clients. In this study, it emerged that PHC QI culture was often driven by multiple knowledge dissemination and skills enhancement approaches. First and most prevalent across all study settings is continuing medical education (CME). Participants described CME in detail. A CME lasts 30 to 60 minutes, takes many forms, and includes practical skills demonstration sessions led by more experienced colleagues or subject matter experts. CMEs take the form of overview topical lectures followed by question-and-answer sessions to provide clarity. CMEs are planned with a weekly schedule, as was the case in Kisumu and Kakamega counties, or are convened ad hoc, based on need, as was mostly the case in Nairobi.

There is a CME coordinator... During a CME session, someone can give a recap of how to do a neonatal resuscitation in case. That is what we often do. Partners' support for CMEs mostly is usually tea, snacks or we sign for lunch allowance. – Interview 001, Kisumu.

To demonstrate the dominance of CMEs in PHC QI culture, the researcher observed QITs suggesting it in their project meetings to help teams achieve desired improvements, and it also came up in interviews with nearly all key informants as a key undertaking by QITs. Because they are open to everyone in the hospital, CMEs were highlighted as a common way of building PHC teamwork, but where there were no incentives like refreshments, they often did not happen. Other aspects of QI culture, from interviews and observed meetings, manifest in the form of repetitive and cyclic actions, starting with teams setting objectives and targets for QI projects, followed by implementation and periodic reviews to check progress. Reviews, according to participants, point them to additional

actions such as on-job training or CMEs or coaching sessions and on-site observation of PHC practices for learning and improvement.

We have data review meetings every month, so through data review meetings we also identify whether we are doing well or we are not doing well. – Interview 007, Kakamega County.

Throughout, emphasis is placed on documentation, collection, analysis and display of data, including on hospital walls (talking walls) and in online dashboards, which comprise the other ways that QI culture manifests across the studied settings. This documentation and data display is, however, representative of wider health systems culture, transcending PHC or QI. From the researcher's many years of experience in the Kenya context, such cultural artefacts serve to communicate hospital achievements and needs to internal and external audiences. It is instructive that through the ages humans have kept records in one form or another. QI records, which include artefacts analysed as part of this study, comprise handwritten or typed minutes of meetings, QI project reports detailing problems, change ideas and project progress. Furthermore, the type of record depends on the specific QIT and its coordinator, besides the demands of external partners and county/sub-county managers, according to participants. For example, the QIT in Kakamega kept neat hard copy minutes and made less use of digital aids, while the one in Nairobi did the opposite.

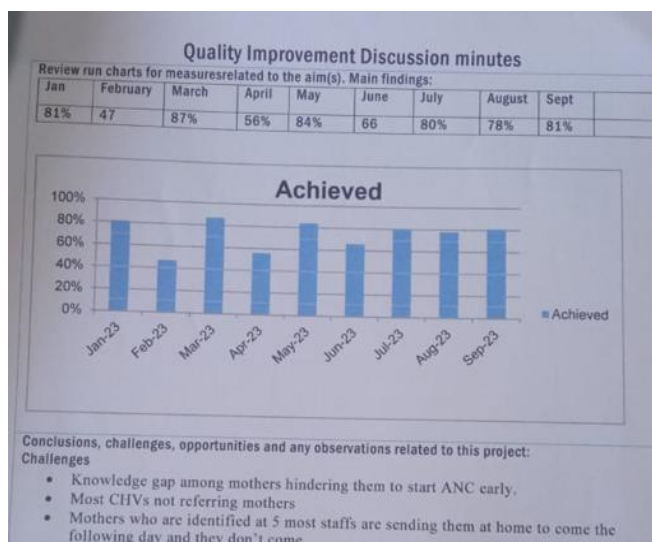


Figure 11: Typed QI team minutes, Kakamega

Process measure
Indicator: rate of ANC
Numerator: 29
Denominator: 62
Data source: MCH 2019 data

P of PDSA - change 1st cycle

Describe objectives - low uptake of 1st ANC change being tested To increase no. of 1st ANC visits

predetermined H-T/O - 70% 29/62

Need not start gap formation of COT implementing plan for collecting data work plan collection of data on weekly basis from MCH 405 & from CHWs

DO

Run the #4 - community participation

Describe what happens - monthly meetings of COT team

Collect data - reminding place & date of next visit

Who will run the #4 when when

COT multidisciplinary team Feb to June Kaseh

DO (include any observations)

Lesson learnt from test cycle who can achieve more as team using COT resources

Study

Daily Health education to mothers

Scheduling of mothers in case

Compare outcomes - Hospital provided post

Figure 12: Excerpt from a handwritten QI team record, Kakamega

In all instances, information from these records did not often flow freely among QITs and the various stakeholders, and the study found a widely shared assumption - at variance with reality - that “*information will just filter down*” (Interview 019, Nairobi) to those that need it. A lack of shared information led to knowledge gaps in QIT meetings, debates about team (non)achievement and possible reasons for these. The resultant picture is that of ineffective QI implementation.

5.5.2 Theme 2: attitudes and values shape engagement with QI

Attitudes, beliefs, and values matter to QI culture because they are in many respects the underlying drivers of practices and behaviour that QITs display. This study, on this theme, shows that many values and attitudes exist among QIT members, with some variably shared across counties and PHC contexts. Many of these values are contradictory, or held by a minority of QI actors, making them unable to drive widespread practice in favour of the expected culture of quality in the studied PHC contexts.

QI Micro-culture

Among the attitudes and values considered critical by some in QITs is accountability, defined by participants as a willingness to take responsibility and to be answerable for actions committed or omitted. QIT members across all three counties touted their dedication to QI by signalling their belief in some ideal level of PHC quality, with anything else considered unacceptable and undesirable.

I think the issue of the quality statement starts with the Constitution of Kenya. And it talks about the highest attainable standard of health that should be delivered. – Interview 019, Nairobi.

Nonetheless, there were more contradictions than consensus on the extent to which team members espoused values needed for effective QI practice. For example, where some managers singled out some QIT members for selfishness in evading team meetings, other managers claimed to be selfless in their efforts to empower QITs. Both honesty and lack of it (saying one thing and doing another) also filtered through interviews. Lastly, being solution-oriented was pitted against fatalistic attitudes (believing that PHC outcomes were predetermined) by interviewees. QITs believed strongly that county governments needed to invest in quality by putting in resources to

strengthen PHC and for QI implementation and were frustrated when little or no support was forthcoming from the wider health system. A good way to illustrate the underlying attitudes and belief systems of QIT members is seen in how a culture of logic and reasoning among some teams is applied to their work, from the analysis. For instance, teams in Nairobi and Kakamega progressed through their plan-do-study-act (PDSA) cycle by systematically identifying and analysing problems, prioritising solutions based on available resources, and by implementing, evaluating and iterating change ideas.

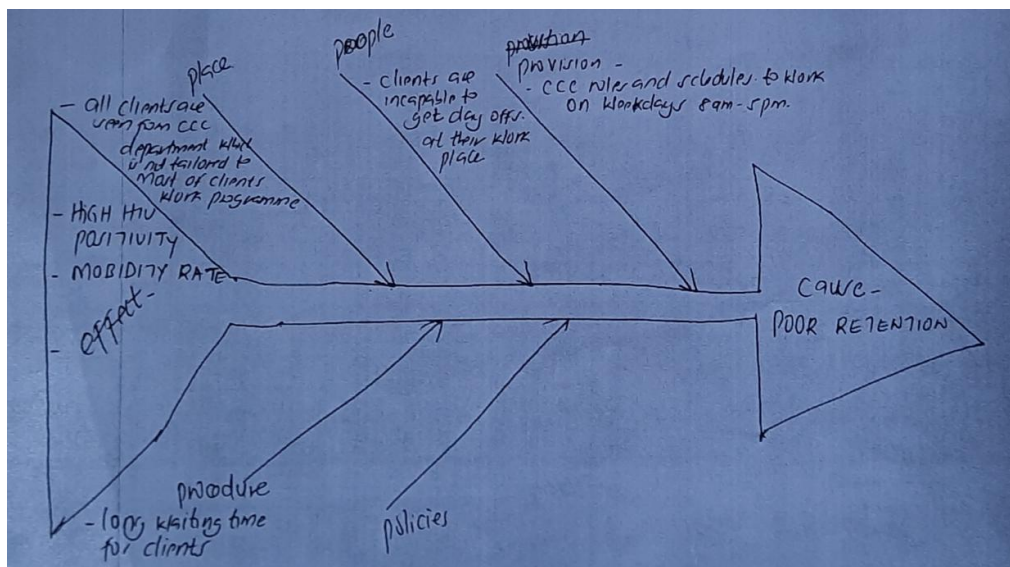


Figure 13: QI artefact showing fish-bone diagram used to analyse root causes of a quality problem – Nairobi City County

Follow up of planned PDSAs	
(P of your PDSA or other action points)	Status update (D & S of your PDSA)
Plan 1: Mapping of pregnant mothers	To be done monthly by CHPs(ongoing) CHA having the information
Plan 2: Outreaches	Done twice monthly
Plan 3: Screening of mothers in all service delivery points	Ongoing. For the month of October 2 mothers were referred from CCC, 4 referred from OPD 3 referred from the ward for the month of September 2023
Plan 4: Strengthen linkage and referral from the community units	Its ongoing though some HCWs not owning referrals from the community

Figure 14: Excerpt of follow up actions generated using iterative reasoning for P (plan) and D (do) and S (study) phases of a PDSA cycle – Kakamega County

When a change strategy did not yield the desired result, teams re-grouped to analyse what might have been missed, or explored what they could do differently, before concluding their projects. But this was not always the case. In many instances, QITs resigned to fatalistic attitudes, *“leaving things in God’s hands”* (Interview 11, Kisumu), feeling helpless but hopeful, given limited resources to provide services. Such an attitude does not sufficiently account for the QI actor’s agency and can be seen as a way of avoiding responsibility and accountability for quality, pointing instead to the intervention of a supernatural force. However, other QIT members were solution-oriented and even tried to improvise – re-purposing equipment and supplies - especially in the face of sub-optimal working conditions.

We don't have waste management that is well organised for the health facilities. Our infrastructure is wanting. There's a lot of improvisation which should not happen. Improvisation affects quality. – Interview 020, Nairobi.

Others questioned why they were expected to align with a culture of improvisation, where perennial shortage of supplies or equipment, for example, always left health

workers to cope with inadequacies. This tendency to improvise points to the absence of a culture of quality in PHC and in the long-term, unsustainable.

QI Sub-culture

All QITs decried a siloed (disjointed and uncoordinated) way of working. In Nairobi, where the team had not met for some time, and in Kisumu where meetings happened but were poorly attended, siloed ways of working within their hospitals, it arose, was quite entrenched.

Then you'll come to HIV care, they'll focus on TB. They'll focus on the other small other areas, so you find we have silos. – Interview 006, Kisumu

Such siloes eroded team collaboration and facility-wide change efforts. In Kakamega, on the contrary, team members embraced integrated work, believing that PHC clients just needed quality services, irrespective of who provided it or where it was delivered. For example, the team in Kakamega aimed to improve the proportion of pregnant women who attend antenatal care (ANC). At their hospital, pregnancy testing was offered wherever an eligible woman encountered PHC services, not just at the ANC clinic. Consensus was built during the QI meetings, which was reflected in meeting records as shown in previous excerpts of documents).

Because when we are discussing data review we are looking for areas where we've done well and what led us to do well and where we did not perform well, we want to see what the challenges were, and we come up with a way forward. – Interview 007, Kakamega.

A culture of consultative decision making existed, mostly in Kakamega County, where QIT members made efforts to attend meetings, contribute to discussions, and own agreed action points. Other teams, e.g. in Nairobi City County and Kisumu County were hierarchical. In both contexts, for example, the hospital in-charge hardly participated in

QIT meetings, and some team members saw this as a signal to the low status of QI activities. In interviews, an in-charge explained that they were simply too busy and had left others to take lead, while the others clarified that they had not been trained in QI and therefore had no clear expectations or understanding of their role in QI. A culture of blame and punishment, rather than learning from past mistakes, was found in some cadres of health workers present across QITs. Although not entrenched, this tendency to blame others affected QI actions such as the maternal and perinatal death surveillance and response (MPDSR) by demoralising health workers involved in clinical care.

Unfortunately, MPDSR is supposed to help identify gaps, but as it is structured, health workers feel that it is kind of punitive. It is fault finding. – Interview 010, Kisumu

MPDSR is an approach to improving the quality of maternal and child health services by auditing and reviewing deaths and near-misses to learn lessons and identifying opportunities to improve care processes, clinical practice, and health systems. Accordingly, a culture of blame and punishment runs counter to the objectives of MPDSR in the context of QI.

QI culture at organisational/systemic level

All LMIC health systems grapple with issues of poor quality of health care, requiring those in charge to prioritise needed improvements to address such quality problems. Likewise, all LMIC health systems must consider the cost of making prioritised improvements while aiming for efficiency by keeping such costs low. One example of how QITs sought to attain efficiencies was by embracing the 80-20 rule (also known as the *Pareto Principle*) which claims that up to 80 per cent of quality problems or observed outcomes can be tackled through action on 20 per cent of root causes. Pareto's principle

emerged as both a guiding philosophy and a call to prioritise for QITs working with limited resources.

Complex problems would require maybe a different approach, maybe a Pareto Analysis, which looks at you know, maybe in terms of materials, methods, environment, the different categories. – Interview 013, Kakamega.

Across the three counties, QIT/hospital culture focused on meeting the needs of PHC clients and patients, which teams sought to address through integrated care. This focus on clients is not surprising, however, as all health workers are trained to serve their patients unequivocally. In many respects, the health system is a service-oriented industry. Running counter to client-focused service delivery but quite prevalent across the study settings was a belief by managers that health workers tended to focus on clearing queues without providing quality PHC services, which they termed as '*just managing numbers*' (Interview 020, Nairobi). This belief by managers brings out the conflicting expectations patterned by the location of QI actors in the PHC hierarchy observed in this study. Managers who are slightly removed from frontline service delivery do not grapple directly daily with the challenges of being too few or having limited supplies within the hospital to provide quality PHC services. Nonetheless, health workers expressed an outsized need for intrinsic motivation to engage with QI during interviews. Such motivation was derived from payments in kind (e.g. refreshments and lunches for participation in QIT meetings), for which there was an overwhelming reliance on partners and collaborators external to county governments.

For people, get some refreshments, some kind of motivation. It motivates people to come and learn... Normally at times refreshment can be in terms of cash, I see they're given KSH300-500 to come, and they'll flock to the place. – Interview 011, Kisumu.

Thus, over-reliance on external partner support for QIT meetings and appetite for incentives and inducements to engage with QI processes were prominent attitudes emblematic of QI culture. In all meetings attended, the researcher observed participants signing attendance sheets or asking for payments in cases where the QIT coordinator had not availed of these.

5.5.3 Theme 3: structural drivers shape QI

QI culture is embedded in existing and evolving social and physical structures that provide overarching frames that define expectations for QIT members and PHC managers, the study found. These structures are important because they signal what QITs should focus on, incentives and disincentives, how QITs should approach their tasks, and the tools/techniques available to them. More importantly, structural aspects of culture transcend specific QI contexts and play a role in encouraging or impeding the institutionalisation of the elusive culture of quality within workplaces. Therefore, structures encompassing all levels of the health system also inevitably shape PHC QI culture, given emergent health systems interactions. Structures uncovered by this study came in the form of different approaches, management and leadership arrangements, models, philosophies and guidelines for advancing PHC quality.

This theme shines a spotlight on the role of such structures in shaping QI culture, some of which were explicit, such as the Kenya Quality Model for Health, budgets, finances and various types of standards and guidelines. Others were implicit or less acknowledged by QITs, such as task shifting and quality policies/statements/charters. Because all members from the same QIT or county managers did not display similar

understanding of these structures, it is hard to conclude that any institutionalised QI culture exists at this level.

QI Micro-culture

If championing change manifested as an important job for individual QI coordinators, creating change and transforming PHC services surfaced as a key and universal imperative for QITs. In keeping with known QI approaches, QITs orchestrated change by identifying and implementing change strategies or ideas. These change ideas or strategies form the core of QI projects, as this study established. A change idea could be simple, such as conducting a health education session to sensitise PHC clients regarding timeliness of ANC visits in Kakamega.

Now that we have maintained good performance for some time now, we can pick another primary health care indicator, but we are not dropping this change idea totally, we're just picking another, so we work alongside this one as we continue to improve performance here in our hospital. – Interview 007, Kakamega.

A change idea could also be complex, such as getting HIV positive clients to keep clinic appointments for anti-retroviral therapy in a low-income area of Nairobi City County. In QIT meetings where the researcher participated, team members fixated on change ideas and change strategies, spending several meetings of discussion on attempts to identify the most appropriate one. This excerpt of field notes from a QIT meeting in Kakamega shows the centrality of implementing agreed change ideas to the QI teams.

Regarding the strategy of having community health promoters (CHPs) to map pregnant women and refer them to the health facility for antenatal care, a QIT member says that the community health volunteers are already mapping and referring pregnant women to local health facilities, for a reimbursement of KES150 (approximately USD1) per new referral. A heated discussion regarding the usefulness of CHPs and the fact of them needing a monetary incentive to refer PHC clients to this hospital.

“What recognition do these CHPs need from us?” asks a nurse

“Who was told about this concern that CHPs have with health workers?”, poses another.

“Have the issues been ironed out or not?”

The meeting moves on to discuss another change strategy: working with traditional birth attendants (TBAs) to identify pregnant women and refer them (accompany them) to the health facility. However, the TBAs would need to be incentivized to do this because they charge clients for services delivered at their homes. This change strategy generates a heated conversation when the chairperson mentions that there are many TBAs in the surrounding villages, while other team members disagree and claim there is just one or two. A QIT member is of the opinion that CHPs are TBAs, kicking off another controversy.

Figure 15: Excerpt from Observation Notes - Kakamega

This notion of ensuring change or improved PHC performance was reinforced by some interviewees who indicated their main reason for being part of QIT was to make a positive difference. However, the hospital’s capacity did not always support this aspiration.

QI Sub-culture

In all three counties, QITs sought to promote good clinical practice by constantly sharpening health worker skills prior to shifting tasks, i.e. training lower cadres to take up tasks they wouldn’t handle traditionally. An example is the QIT in Nairobi who went ahead to undertake additional QI practices.

We strengthen QI, we ensure that the teams are functional, up and running. And how do we do this? We do a lot of mentorship sessions to health facilities. We undertake training in quality improvement. Training courses are periodic. We might not have everyone coming in for training but do sensitization like the one you are seeing today. Where we cannot do sensitisation, we carry out CMEs or continuous medical education which are QI specific to the hospitals. – Interview 027, Nairobi.

Community QI targeted services delivered at the household level, and the programme quality efficiency (PQE) saw QI being tailored to support activities like active case finding in the Tuberculosis programme. Although total quality management (TQM) featured in

QIT discourse as a desirable endpoint, key informants agreed that QI implementation within their hospitals and respective counties had not reached a level where QI was pervasive or institutionalised. A QI manager asserted that *“quality improvement is not what QITs claim to do but really what they do”* and that *“a quality culture is not yet existent”* (Interview 030, Nairobi), questioning what they considered a variance between actors’ claims and team efforts.

Organisational/systemic culture

In all health systems and organisations, finances are required, and these resources are made available through some form of budgeting and work planning processes. Similarly, all health systems organise themselves in such a manner that there are managers and leaders at various levels of the organisation, tasked with varying roles. This study found that finances and budgets are important overarching structures for shaping the behaviours and actions of QI teams. This is vital because all change ideas for QI projects are prioritised and implemented based on available financial and other resources, and how to finance QI work plans was frequently discussed at QIT meetings and in interviews – highlighting its centrality.

When there are no finances, there is no improvement. Finances is more like the oil that lubricates the engine. You might have a new car but if your engine the oil has leaked... In the findings of the quality assessment which we have done, changes can only be made by having funds. – Interview 003, Kisumu

Beyond this, finances and resources matter to QI because of their effect on health systems strengthening - enabling the health system to fulfil its mission - a requirement for a culture of quality to become institutionalised. Overall, the study found that the Kenya Quality Model for Health (KQMH) provides the overarching framework for the

work of QI teams at public PHC hospitals. KQMH helped managers in constituting QITs and WITs, provided suggestions on how to identify quality problems and the selection of change ideas.

The person also needs to be trained to know how to use this KQMH ... They were trained on KQMH, but they were not taken through the digital health platform. – Interview 030, Nairobi.

It was observed that KQMH also guided the teams in the development of standard operating procedures which are step-by-step outlines of routine or repetitive actions at PHC service delivery points. Apart from this, KQMH was useful to QI Teams for skills building, with its elaborate training approach on QI processes and techniques, although

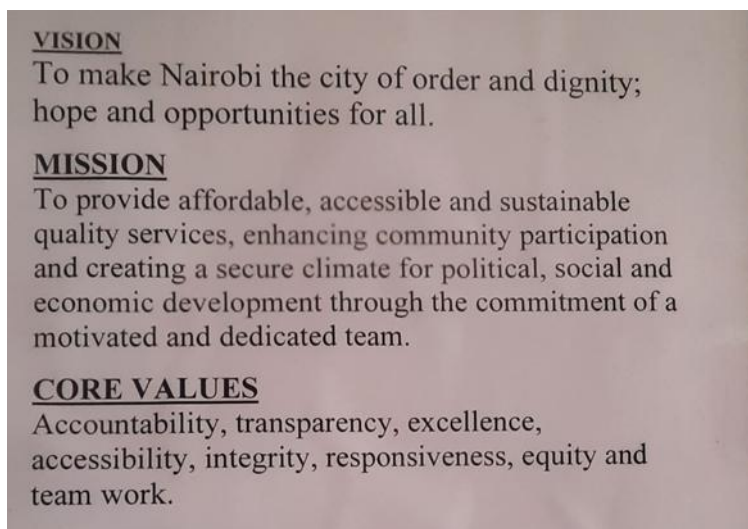


Figure 16: Excerpt from a Hospital Quality Statement - Nairobi

very few QIT members and managers at county and sub-county reported having been trained on it. KQMH, the study found, prevailed across all counties and hospitals studied because it is preferred and promoted by the national

Ministry of Health and is not

proprietary. Importantly, KQMH encouraged counties and hospitals to have quality policies and quality statements, and in a hospital in Nairobi City County, a strategic document highlighted the counties' commitment to quality (see excerpt).

The strategy emphasises values and responsibilities of QITs, which further points to how these overarching structures seek to influence QI culture in PHC teams. However, interviews revealed that these quality-centric aspirations in strategic documents and policies did not result in the expected values or practices in health workers. Even in Kisumu County where a QI charter was unveiled while fieldwork was ongoing, a close analysis revealed a mismatch between the charter's stated intentions and how QI is conducted, aligned to this QI manager's reflections.

What really stresses a quality improvement manager at the county level is a lack of a culture of quality improvement, the perspective that quality is an added responsibility... the things people take for granted are elements of quality improvement which is an integral responsibility. – Interview 002, Kisumu.

While the quality charter for Kisumu County, for example, explains that QI is an integral part of hospital worker roles, interviewees from hospital QI Teams often viewed QI functions as additional work for which they needed extra facilitation, compensation, and recognition.

5.6 Elaborating key feedback loops in PHC QI culture

Loop 1: Practices, behaviours and language of QI teams

In the first of several feedback loops, QI teams champion change, which increases inherent team and intrinsic coordination across hospital departments. Assessments of quality of care provided at hospitals also encourage continuous medical education to enhance provider and team skills, problem analysis to identify root causes and prioritisation of solutions across hospitals, supporting QI culture. On the other hand, championing change had a negative feedback loop with improvisation practices, as health workers abandoned this practice after realising that it was not aligned with

quality management strategies. However, enhancing coordination had positively affected CME, mentorship, scheduling, supervision, problem analysis and on-job training; practices that benefited from better coordinated QI teams, moving towards a culture of quality.

Another key practice that increased the use of dashboards, CMEs, mentorship and supervision is quality of care assessments, in which QI teams engage as part of wider health systems efforts to identify gaps in the care provided to PHC patients for remediation. Assessments in turn led to better care planning, following incisive root cause analyses and in a bid to improve PHC quality, QI teams adopted more patient-centered and integrated approaches to service delivery - including task shifting - to ensure a comprehensive menu of PHC services, boosting QI culture.

Use of dashboards to track QI implementation, specifically, and data use across the hospital, more generally increased teams' ability to champion and to create the required changes, while improvisation in the context of inadequate supplies and commodities exerted a negative effect on the various dimensions of PHC quality, in a negative feedback loop which had the outcome of hindering QI culture.

Practices such as engaging with CMEs, mentorship, on-job training, supervision, and coaching all seemed to increase QI team's and health workers' skills, which in turn increased hospital scores, ranking and quality rating, based on the various dimensions of healthcare quality. Besides, scheduling was reported to increase the likelihood of managers undertaking supervision at PHC facilities and the regularity of QI team

meetings which in turn increased the engagement among QI team members, fuelling QI culture.

Loop 2: attitudes and values of QI actors

Although unseen but uncovered from interviews, when team members valued accountability, their dedication to QI initiatives and honesty in analysing quality-of-care gaps increased. In a mutually reinforcing manner, a strong sense of dedication and honesty also increased the levels of accountability in QI teams, with many team members embracing QI as a personal responsibility and a core part of their job, which in turn increased their sense of dedication and accountability, enhancing QI culture.

Another attitude that increased dedication of team members to QI was selflessness, while reducing the tendency to work in siloes. However, fatalistic beliefs increased siloed working behaviour, and in the case of managers, lessened their engagement with QI teams as they felt they could make less of a difference, also lessening patient-centeredness, integration and care planning. This negative feedback loop extended to task shifting because managers and team members who felt more helpless reported decreased agency and did not feel inspired to build the capacity of other cadres of staff to deliver additional services, where unavailable, hindering QI culture.

Client-centeredness or patient-centeredness were found to increase finances and budgets in settings where health workers in QI teams believed that making a difference in clients'/patients' lives was an integral part of their work because satisfied PHC patients recommended these health facilities to relatives and others in their social

networks, leading to more income for the hospital. Closely tied to this was integration which reduced siloes while increasing patient-centeredness but in contexts where health workers relied on monetary and in-kind incentives as key motivations to drive change, managers and leaders saw QI team members as lacking in honesty and dedication or were themselves unaccountable to their teams, impeding QI culture.

Over-dependence on external sponsors to fund QI projects was thought by QI actors to reduce progression towards a culture of quality due to limited sustainability of QI efforts as it encouraged the health system to allocate less funds, kept QI budgets lean and limited an integrated approach to service delivery. With this also came reduced hospital and QI team autonomy, less internal accountability, and weaker management authority in settings where external sponsor priorities overshadowed local hospital priorities, with increased siloes, projectisation of change initiatives, verticalization of QI within specific hospital departments (like HIV/AIDS treatment centres), and misaligned priorities, in a mutually reinforcing negative feedback loop.

Loop 3: overarching structures driving QI culture

The overarching reason given by QI teams for engaging in QI was the necessity to create change by shifting hospital priorities and influencing the behaviour of fellow health workers to adhere to quality-of-care standards and guidelines, and to meet the diverse needs of PHC clients and patients. The need to create change increased the frequency and urgency of testing change strategies, which in turn speeded up the rate of change, in settings where other cultural enablers existed to support and sustain change efforts.

Thus, creating change made QI team members to believe they were making a difference, which enhanced clinical governance, which drove resources allocation to QI, which in turn saw teams take up more change projects, which enhanced their ability to deploy resources accountably, which facilitated the collective hospital's attitudes and practices towards the desired culture of quality, with change champions aiming to inculcate a culture of continuous improvement.

On the other hand, task shifting was perceived to increase interprofessional competition because health workers felt the need to guard their turfs from intrusion. Task shifting was also seen as a form of improvisation and an excuse for health systems leaders and national decision makers to avoid investing resources in PHC and QI by avoiding the employment of additional health workers at the required level of skill. Thus, task shifting reduced the feeling by QI teams that they were making a difference or creating positive change, especially in the context of sub-optimal engagements in policymaking and limited dissemination of policies around task shifting, as misunderstandings fuelled fears of intrusion and professional turf-wars.

Total quality management or TQM as a governing philosophy was found to inspire better clinical and management practices and influenced attitudes that prioritised quality improvement. It also reduced a sense of fatalism by making QI teams believe that they needed to play an active role in instituting the necessary improvements in PHC quality by applying the needed skills, providing a backdrop for hospitals to move towards a culture of quality, thereby inspiring QI culture.

In the context of inadequate investments in PHC and limited resources for PHC QI, hospitals depended on external sponsors, which, as earlier mentioned, promoted siloes and improvisation, limited managers ability to act and or make decisions, and encouraged prevalent defeatist/fatalistic attitudes, with less quality management practices observed in such settings, undermining QI culture.

Both the existence of the Kenya Quality Model for Health (KQMH) and various management and leadership structures were seen to underlie efforts to promote a culture of quality, by encouraging QI practices like regular self-assessments, data use, providing frameworks for accountability, problem analysis and patient-centeredness, providing key examples of positive feedback loops in the studied counties, hospitals and QI teams. *Figure 17* depicts some of the important feedback loops, where + indicates positive effect or increase/enablement. Arrows point to the affected concept.

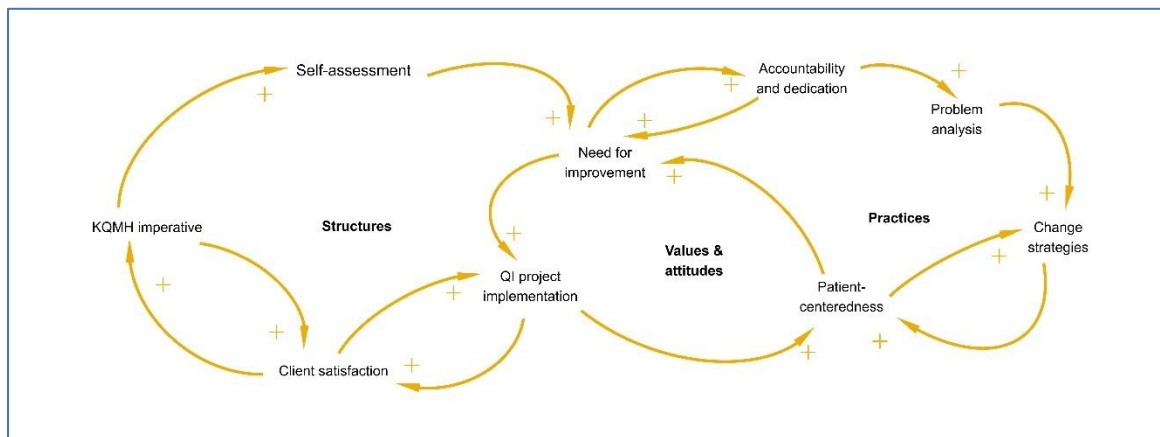


Figure 17: Feedback loops in QI culture

Thus, in the context of poor quality PHC care, QI teams were motivated by their values and attitudes of patient-centeredness, the need for improvements, and accountability,

leading them to analyse problems and to prioritise and implement change strategies. These motivations and practices were driven by existing QI frameworks and national imperatives such as KQMH and client satisfaction which encouraged self-assessment and reflection feeding into the implementation of QI projects. This encouraged QI teams to embrace change and move towards a culture of quality. Conversely, in settings where health workers had contrary beliefs and PHC QI structures hindered reflection and self-assessment, QI teams did not exhibit the desired behaviours and practices emblematic of a culture of quality, which remained hindered.

Summary

These findings suggest that PHC QI culture transcends QI actors, varies by context, is manifest in behaviours and actions, is shaped by prevalent attitudes, values and by overarching structural features. Existing QI culture reveals multiple contradictions and commonalities within and between QITs, hospitals and counties. In all, the culture of PHC QITs within context is complex, manifestly erratic, and inherently ineffective.

Chapter 6: Findings: Barriers to and Enablers of Primary Health Care Quality Improvement

6.1 Overarching Theme and Categories (sub-themes)

Further analysis sought to promote a comprehensive understanding of the barriers to and enablers of PHC QI. This theme is elaborated using seven categories of findings.

While *Figure 17* shows the relative positioning of categories (core, intermediate, or distal), *Table 9* outlines the specific enablers and barriers identified in the sampled hospital QITs, sub-counties and county health systems. These findings emanate from the totality of interviews, observed QIT meetings, and QI artefacts or documents gathered from the field and included in the analyses. It is important to note that the positioning of themes reflect their relative level (micro is core, meso is intermediate, distal is macro) in the health system. The levels range from individual QI practitioners to the organisational, to wider systemic and societal concerns that affect QI and how or whether it is implemented successfully. Accordingly, the seven categories associated with the themes identified in this study are (1) QI intervention attribute, (2) Execution of QI intervention, 3) microsystem and individuals, (4) QI team, (5) PHC systems support, (6) Organisational issues, and (7) External environment and wider social structures. The respective barriers and enablers are described under each of these seven categories.

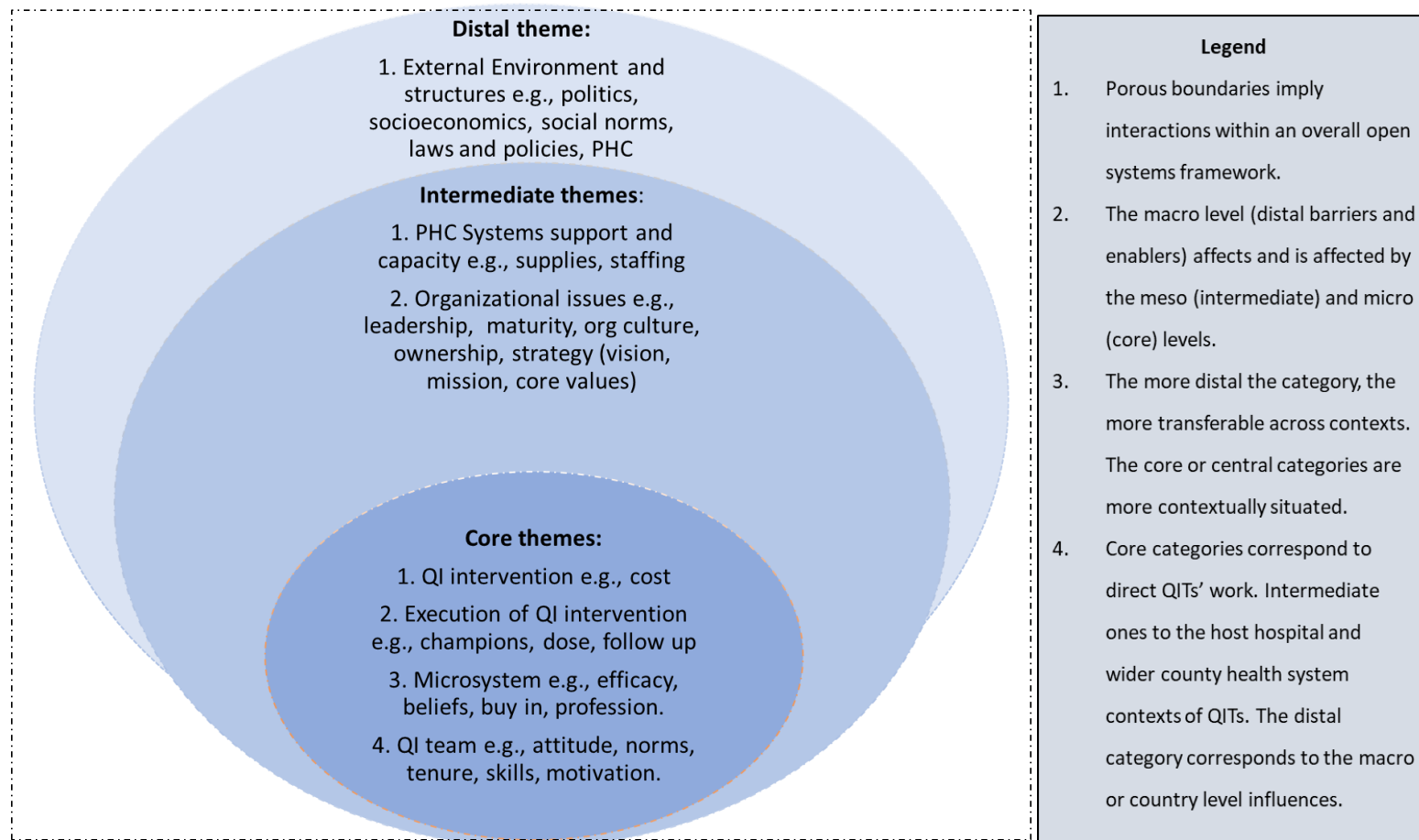


Figure 18: Locating barriers and enablers of PHC QI in a laminated system

Acronyms:

PHC: primary health care; QIT(s): quality improvement team(s)

Table 9: Enablers and Barriers of PHC QI in Kenya

Enablers of and barriers to PHC QI	Relation to PHC QI and level
QI Intervention attribute(s): <u>Enablers:</u> Feasible within hospital decision and resource scope; multiplier effect of change strategy; change drives performance; phased introduction and gradual scale up; free tools for resource-constrained teams. <u>Barriers:</u> Change requires decision or resources beyond hospital's scope; long time lag before observable outcomes; rigid tools (cannot be adapted); lengthy assessments fatigue participants.	Core (central), micro level
Execution of QI intervention(s): <u>Enablers:</u> Practical coaching sessions (demos, simulations, direct observation); continuing medical education sessions (CMEs) are regular, timed, inclusive & coordinated; accountable change champion; leadership by head of departments; relevant cadres of staff involved; on-site data reviews using online dashboards; QI skills available and transferable. <u>Barriers:</u> Skills gap; lack of commitment; failed implementation demoralise teams; weak linkage between work improvement teams (WITs) and quality improvement teams (QITs); competing tasks; lack of clear guidelines and tools for CMEs; QIT scheduling gaps.	Core (central), micro-level
Microsystem and individual QI actors: <u>Enablers:</u> Prior experience of QI; strong interpersonal relationships among key actors; taking personal responsibility; delegating authority to capable people; a hospital in-charge understands (trained in) QI; collaborative decision making; the right kind of (can-do) attitude; feelings that one is making a positive difference. <u>Barriers:</u> Failure to recognise quality gaps; refusal to collaborate; viewing QI as additional responsibility; lack of role models; disinterest (not my thing); lack of data management skills; inadequate peer and supervisory support for change idea.	Core (central), micro-level
Hospital QI team(s): <u>Enablers:</u> Ability to apply lessons across projects; regular skills building & competence; self-assessments & action; integration of QI and PHC; active QI team; change managers communication clearly; QI team supports WI team; data-driven team engagements; performance scorecards. <u>Barriers:</u> Wrong perceptions of QI; low morale among QI teams; lack of quorum for team meetings; unclear lines of accountability; lengthy meetings discourage attendance.	Core (central), micro-level

PHC system support and capacity for QI: <u>Enablers:</u> Budget support and funding; health information system digitisation; empowered, experienced & committed leadership; availability of trainers/coaches/mentors; regular coordination sessions; awards for excellence; Health human resource strengthening; autonomy for hospitals to engage sponsors. <u>Barriers:</u> Haphazard and uncoordinated funding; limited ownership of QI; health worker inadequacies (turnover, skills, distribution, density); over-reliance on external sponsors; inadequate coordination platforms; stock-outs and equipment gaps; sub-optimal supervision arrangements; low awareness of national policies & guidelines; infrastructure gaps.	Important, intermediate, meso-level
Organisational aspects: <u>Enablers:</u> Sustainability planning (phased implementation); quality data and performance assessments; availability of policies & guidelines; supportive values and vision; clinical audits (processes and outcomes); management support. <u>Barriers:</u> Poor remuneration and high attrition; managers view QI as unimportant; no quality culture; informal appointments for QI managers; high expectations, limited initiative for skills building.	Important, intermediate, meso-level
External environment and structures: <u>Enablers:</u> Targeted external support; sector strategies, plans & budgets; electronic Kenya Quality Model for Health (eKQMH); mobilising and engaging communities; external partner tracks performance; innovation, integration & efficiency; oversight & regulation of professionals; government manifesto prioritises PHC. <u>Barriers:</u> Poor care-seeking practices; limited inter-county collaboration; political pressures; unhelpful hierarchies and bureaucracy; donor bias for vertical programmes; corruption, diversion and wastage and wider resource constraints.	Important, distal, macro-level

6.1.1 Category 1: QI intervention attribute(s)

At the micro level, relevant attributes of interventions that are central and which constrain or enable PHC QI came up in interviews, were discussed at QI team meetings, and contained in documents. The feasibility of a QI intervention (its ease of deployment), complexity (number of related components), complementarity and alignment to existing work, design and packaging (user-friendliness), adaptability (to different contexts), perceived scalability (start small and expand), cost considerations, trialability (can be tested before rolling out) and perceived sustainability were identified as possible barriers and enablers. Further, whether activities form part of job expectations, strength and quality of evidence underpinning the identified change initiative, and client preferences also came up as key considerations.

QI teams shared how they often had to prioritise whatever change initiative they pursued. As part of this prioritisation process, teams assessed the feasibility of QI interventions using many parameters, with feasibility taking centre stage. For example, some teams would not take on projects requiring resources and decision outside their purview.

The feasibility of having more human resource being employed you may require much discussion because the wage bill is high, and the revenue is low, and everything is hard. – Participant 025, Kakamega

But feasibility was not considered in isolation. Teams also had to explore the cost and sustainability of QI interventions, among other considerations. Claims made in interviews were largely backed by excerpts from documents, with QI team minutes and

project reports shared from online dashboards revealing the analytical processes involved in assessing feasibility.

And then the costs, when we looked at the cost, we realized that we needed zero cost to carry out the project. – Participant 007, Kakamega

And if you're talking about sustaining and being able to take it over, we can't take it over the way it was being run, it is very expensive. – Participant 018, Kisumu

Trialability was considered hand in hand with scalability. As teams tested their chosen projects, they rolled them out, tentatively at first, before expanding and repeating the cycle over time. This, they felt, gave them room to adapt QI projects to respond to evolving challenges and provided them with space to innovate and improve – key enablers, as can be seen in these interviews from Nairobi.

We started with very humble beginnings in 2018, very humble. We were doing paperwork then with the collaboration with stakeholders we've gone as far as now doing online assessment. – Participant 021, Nairobi.

Our facilities are not perfect, but as they look at their gaps and they identify day by day and identify what to put in place we have seen gradual improvements in the possibilities. – Participant 027, Nairobi.

Hearing these testimonials, it was evident that interview sessions provided rare opportunities for participants to reflect on their experiences and surface their feelings regarding involvement in QI. It also made the researcher put themselves in the shoes of QI implementers who are daily faced with these complex decisions. Some of the strategies used by participants to enable QI entailed inclusion of activities in annual work plans for PHC services, making QI activities part of their day-to-day work.

I participate in AWP's to make sure that some of the key issues that need to be done at the primary healthcare level is actually put in our planned activities. – Participant 025, Kakamega.

6.1.2 Category 2: Execution of QI intervention

Keeping to the micro level and similarly central to QI, participants shared how the dose (intensity) and reach (coverage) of change initiatives, the QI champions, coordinators and mentors, support systems for implementers, supervision, communication and follow up visits and monitoring all play key roles in enabling or constraining QI. As well, skills and knowledge transfer (coaching, mentorship, on-the-job training), data analysis and use (reporting, reviews), targeting of QI and change projects, application of QI principles and approaches and fidelity to the change processes came up. Continuous medical education sessions or CMEs featured prominently as an approach to ensuring QI. Community awareness and engagement, involving multiple actors, competing commitments, digital and online tools (dashboards), problem analysis and statement, leadership, changes to patient and client workflows, and feedback mechanisms are additional facets that facilitate or constrain QI implementation.

Discussing the introduction and expansion of the electronic Kenya Quality Model for Health (eKQMH) assessments-improvement cycles by QI teams in Kisumu County, a county manager shared how they aimed to saturate county hospitals, reaching all seven.

We started with the seven county hospitals, the seven big hospitals, the seven hospitals. One hospital per subcounty and we have succeeded in doing those and we continue to do those assessments, including to the Sub- County hospitals or smaller hospitals and health centres and dispensaries. – Participant 002, Kisumu.

This approach, shared by other QI teams, is meant to ensure that change is felt far and wide, and requires rapid skills enhancement and optimization of available resources to achieve improvement at scale. Targeting all the largest hospitals and progressively reaching health centres and dispensaries proved a good approach to attain high dosage

of this QI approach across the PHC system. However, this would not be possible without continuous training, supervision, follow up, leadership and concerted review and use of data, as explained by other participants.

As well I do supervision, on-job training and data quality audits, sometimes for supply chain, sometimes for general issues, health facility assessments that we do from time to time. – Participant 028, Nairobi.

“We have mentorship programs that run during different times as scheduled, and we have to go through the process of looking into registers.” – Participant 001, Kisumu

Data was also used to identify areas requiring skills enhancement for QITs and other PHC practitioners, and identified gaps addressed through continuous medical education (CME) sessions where hospital-based workers are brought together for short lectures and discussions or demonstration sessions. The centrality of CMEs to hospital QI was echoed by managers at county and sub-county alike who saw good planning as an essential ingredient for their success.

An effective CME happens when it is well planned. It should be planned. It must be planned. – Participant 025, Kakamega.

Because of the extent to which CME pervades QI practice, the researcher sought to understand what its enablers might look like. Across PHC settings, participants were unanimous that ample and convenient sitting space, proper timing, advance preparation by session facilitators, inclusive mobilization of participants, and meeting a prior identified need were important enablers. Lack of standard operating procedures and failure to provide incentives such as refreshments for attendees were some notable barriers to effective CME engagements.

As digital tools take root in Kenya's PHC system, it was unsurprising that participants mentioned the use of dashboards as a key enabler. Online and web-based QI dashboards not only made it easier for QIT's work to be visible, but it also enabled supervision for supervisors juggling multiple roles and peer learning across teams, further illustrating the interconnectedness. Still, weak digital skills constrained their use, with incomplete data.

I received them digitally. They just screenshot and send to me... right now we have the digital platform for reporting on QI and if you go to these facilities, you find some know, some don't know. – Participant 030, Nairobi.

6.1.3 Category 3: Microsystem and individual QI practitioners

Still keeping to the micro level themes that are core to QI, the research uncovered how the perceived capability (self-efficacy), improvement culture (constantly exploring opportunities for upgrades), and the motivation to create change signalled by participants desire to help their communities can act as barriers or enable QI.

Furthermore, computer literacy in the digital era, knowledge and skills gaps that turn away from or invite health workers to make change, health worker buying into change initiative(s), experience(s) of QI implementation both positive and negative and tension for change (a confluence of many opposing factors) also affect how QI practitioners and managers adopt, support or evade change in the form of QI. The role of leadership at personal level was highlighted.

From interviews and documents reviewed, some programmes were reportedly fairing much better than others in inculcating a culture of quality and improvement in PHC services. One such programme is HIV/AIDS, and to some extent, TB and Leprosy

programme, besides clinical laboratories. The HIV/AIDS programme, for example, has benefitted from many years of strict donor conditions requiring teams to meet certain performance and quality standards, including having active work improvement teams, regular CMEs, and mentorship and coaching to address identified service delivery gaps.

I feel like because the HIV program has been heavily under the eye of the donor, for that reason, then quality, it's part of the culture because the program has very clear deliverables and if things are not going the way they should then something has to be done. – Participant 012, Kakamega.

While a well-built improvement culture is a boon to QI, overall, as it drives attitudes, perceptions and practices of QITs and hospital teams, this external incentive alone does not create strong conditions for sustained change. As donor influence fluctuates, teams require strong self-efficacy and a confidence in their own ability to orchestrate improvements. Thus, strong self-efficacy, buoyed by newly acquired knowledge and skills were identified as key enablers for ongoing QI.

That prompted us to sit down and try to think out of the box. And because most of us had learned about KQMH we thought, 'why shouldn't we apply this KQMH aspect? Why can't we implement that which was done in the industrial sector in India and in Japan, where Kaizen was midwifed? – Participant 009, Kakamega.

Further, prior positive experiences of QI bolstered continuing initiatives because QIT members felt energised and encouraged to replicate their past success, as individual health workers bought into QI. Evidence of buy-in and ownership of QI include feelings that QI is not an added responsibility but a core responsibility, besides identification of instances where QI came in handy to make work easier. While managers push workers to be problem solvers, interviewees also shared how negative experiences were turned into opportunities to implement change.

The recent conversation there is the desire to have every single person receive quality services. I think we have had a disadvantage of unfortunate incidents that we are moving (away) from. We are starting from a point of a problem has happened then we are working backwards to create systems so that we help to ensure that doesn't happen again. – Participant 010, Kisumu.

You need to change your mentality in terms of looking at an object and looking at barriers. Because the statement that we tell them is that 'you become a valuable employee, and you become an individual brand, when you look at a problem and actually solve it'. Rather than look at a problem and say that I can't perform, or I can't improve my Key Performance Indicators because of these barriers, you know. – Participant 019, Nairobi.

6.1.4 Category 4: The Hospital Quality Improvement Team

Wrapping up the micro level are barriers and enablers related to a team's QI skills,

attitude and norms, social networks and interpersonal relations, required incentives and motivation for QI, and team leadership. Others include mentorship and training (OJT), the extent and nature of physician involvement in team activities, team tenure (duration served together), subject matter expertise of QIT members, prior QI experience, decision making approaches and the QI team's diversity and composition (mix of knowledge and skills). All these are considered core to QI implementation in PHC.

While all these barriers and enablers were highlighted in interviews, two were highlighted more frequently: the role of QIT attitude, and incentives and motivations in driving QI efforts. Frontline health workers who are members of QITs rarely cited attitude as a key barrier to QI. In contrast, managers frequently mentioned attitude as a key barrier across all study counties. Attitude, it was reported, can be seen in lack of commitment to high standards, and failure to follow basic procedures and processes even after knowledge and skills gaps had been addressed. While a manager in Nairobi felt that their QIT was doing its best, they blamed a lack of commitment for QI on subpar attitude. In Kisumu, a PHC manager blamed lack of embrace for data use by fellow

managers to drive improvement on weak attitudes. In both instances, also echoed in Kakamega County, inertia by QITs was singled out as a strong barrier to QI.

And poor commitment. Yeah, because I think most human beings like the status quo, for things to remain as they are. So, it's mostly been with their attitude towards quality improvement. – Participant 023, Nairobi.

Some of these things since the training may be done so many times, it narrows down to individual efforts for them to actually go into the system and use the data. – Participant 026, Kisumu.

The second concern that participants feel is derailing QI is how incentives and inducements are used to motivate QITs. Neither Kisumu County nor Kakamega County had initiated a countywide recognition scheme for QITs in contrast to Nairobi City County where an awards and recognition initiative has been implemented for at least five years (at the time of fieldwork). This topic elicited some of the strongest and most varied opinions within and across the study settings, as can be seen in these interview excerpts. First, most incentives took the form of light refreshments or meals during and after QIT meetings. Secondly, most incentives come from external sponsors, such as NGOs and are not budgeted by government, making them unpredictable. Third, these incentives are seen as mandatory, if meetings are to happen, partly because of the timing of meetings (over lunch-hour or breakfast time). Fourth, the size of incentives is not uniform across hospital QITs. Fifth, there is a lack of unanimity regarding the adequacy of in-kind and financial incentives to motivate hospital QITs, with some arguing for a mix, others for mostly financial incentives, and others for more focus on knowledge and skills in addition to meals/snacks, monetary allowances, and trophies and other recognition schemes.

They (NGOs) will support also with snacks or some of them may even decide instead of giving you snacks or drinks, people (participants) will sign for like lunch allowance for KES500 (USD3). – Participant 001, Kisumu

These sentiments were corroborated by the researcher's field observations. For the QIT meeting attended, I observed that two sets of forms were circulated: an attendance record and another with provision to sign for an allowance or to indicate that some (non-monetary) benefit was received, even if expected soon. While the first form had hospital branding, the second one often had the brand identity of a sponsoring entity such as an NGO. Perhaps not wanting to take responsibility for unavailability of expected incentives, a county manager thought hospitals should take charge of motivating and recognising their own QITs:

At facility level quality improvement is best instituted, monitored, evaluated and awarded and rewarded at the source, not at the county or subcounty level. – Participant 002, Kisumu.

A lack of snacks elicited complaints from hospital QITs to visiting managers:

Maybe there's demotivation, because the last time I was there to check on them, they were like, "you know, we're just doing these things. And there's not even any refreshment or tea/snacks", you know. – Participant 003, Kisumu.

And as can be seen from these early interviews, managers were aware of the need to instil a culture of quality by incentivising QI efforts:

Then we also want to institutionalize and build quality in the whole health sector. And maybe finally, we recognize and reward the quality champions to give them some motivation. – Participant 002, Kisumu.

A hospital-based manager in Nairobi, though acknowledging the county's efforts, emphatically disputed claims from a county level manager that the awards scheme was sufficient in motivating hospital QITs, preferring a mix of incentives:

The awards you can see behind me were won in 2022. In 2022, they were a bit motivated, but I wouldn't say entirely. I wouldn't say staff are entirely motivated by

awards. In 2023 we barely got any new awards. We just got a few. Yeah. Do awards motivate the staff? Not entirely. There is more to it than just awards. People would want to meet and if they are probably off-duty, be compensated for that. Or something as basic as just some tea or some food. That never happens. They must squeeze time from their schedules, from the very few off-days to meet, do the one hour or 2 hours. And they just go home like that. It's always the small extra things that keeps people motivated. But more structure in terms of if we have a QI team, a way of having them recognised whether we get the awards or not, I think that will go a long way. It would be something someone would be proud of, that they were part of a QI team, part of the QIT of this hospital, and there was some form of recognition. – Participant 023, Nairobi.

A lot is expected from QITs in terms of time devoted to QI activities by, for example, being called upon to meet outside of regular working hours. QITs expect the health system to demonstrate that this extra effort is appreciated and considered important in both words and deeds.

6.1.5 Category 5: PHC system support and capacity for QI

The research also identified important meso level issues that constrain or promote QI in Kenya. Among these are the systems support and capacity, such as availability of health workers (turnover, rotation, leave of absence, workloads), data infrastructure, essential commodities and supplies, physical infrastructure, space, and equipment to deliver services and provide care. Others include resource availability, continuity and sources, workforce interest in QI, referral systems and networks, and opportunities for provision of integrated care. These important barriers and enablers were thought to come immediately after the core issues in QI implementation and form intermediate considerations for PHC QI.

Hospitals are part of wider health systems, and the significance of capacity and support provided to QI by the health system requires no emphasis. The barriers and enablers described in this theme, it might be said, are the least surprising of findings because

health systems and their pillars (or building blocks) – and how these interact to produce health outcomes – form the immediate backdrop of QI implementation. In this study, respective county health systems form the immediate environment of hospital and QIT work, and the strengths or weaknesses in the system building blocks inevitably affect the functioning of QI teams. This was also the single area where participants cited mostly barriers to QI implementation and very few enablers, pointing to overwhelming weaknesses in a nascent and ever evolving PHC system.

We must have strong building blocks in terms of health system. – Participant 019, Nairobi.

Participants decried the shortage of health workers, with frequent rotations disrupting continuity of improvement, hard to explain transfers within the county and subcounty that also tend to be unpredictable, and uncoordinated leaves of absence that lead. These combine to make health workers – the core of QIT membership – unavailable for QI work and overburdened with high workloads. Burnout was often cited as a product with a resulting disinterest in QI.

Across all counties, commodities and supplies to deliver PHC services were reportedly frequently out of stock, imposing constraints on how much QITs can raise the level of quality of services delivered. While much had been done to construct new facilities and expand existing physical infrastructure with the decentralisation of health care in Kenya, managers and workers still reported insufficient space to provide needed PHC services, with most hospitals frequently termed as being hollow for lacking health workers, equipment, and supplies. This hollowness is especially because hospitals have been

rebranded and upgraded (at least on paper) without concomitant investment in the required infrastructure.

Referral systems were also reportedly weak, and deaths had been reported due to delays in accessing or providing the required level of care. Lastly, interviews revealed gaps in data infrastructure and the need to digitalise PHC facilities to support the aim of delivering person-centred integrated care through primary health care networks (PCNs). After all, PCNs were reportedly the biggest initiative by government to improve PHC but which is yet to achieve its stated aims or providing equitable, affordable, accessible, and coordinated universal health care.

This quote summarises the state of PHC and is indicative of the country health system:

Because quality of care is broad, I will start with the human resource. As much as I said there's an increase in human resources, but the human resources are not enough... We need nursing officers, clinical officers, and pharmacists. They are not accessible in the lower-level facilities. And that is our primary healthcare level. Another quality concern for me is about space. By this I mean infrastructure. We don't have enough infrastructure. When patients come to the health facilities some of them must share beds. And if I'm having a mother who has just delivered, and they are sharing beds with another patient infection prevention & control is zero. Another thing is commodities. So, the patients will come but not get the medication they need. If you don't have enough human resources, there is no way you can improve the time that patients stay in the health facility. Going back to infrastructure again, you know buildings and maintenance and all that. So, you'll find a theatre with a broken door. So yeah, infection prevention and control aren't there. So, those are gaps which we are trying to address. But if you ask me, we are not there yet. – Participant 024, Nairobi.

6.1.6 Category 6: Organisational aspects

Organisational contexts at meso (hospital, sub-county, or county) level pose unique constraints to or enable QI. Evidence from the study indicates that buy in and ownership, organisation culture, leadership, maturity of QI in the organisation and sponsorship of change initiative(s) by senior leaders are important concerns. Others

include the size and type or ownership arrangements of a health facility, and whether a QI task is of strategic significance for the organisation. Like the systems support and capacity for QI, these important barriers and enablers comprise intermediate (meso level) considerations for PHC QI implementation.

How buy in and ownership at the level of the hospital, sub-county and county enables or constrains QI was explored in interviews. A hospital manager felt that all their health workers had bought into QI and supported it, with those that were members of QITs joining meetings.

They were meeting every other week and the whole, the whole body of the staff bought into it. – Participant 023, Nairobi.

However, when pressed further, it was clarified that this level of ownership was faltering, with a lack of resources and poor motivation constraining the level of buy in.

It's not easy in a poor resource setting like this to have a very motivated team that buys into teamwork. – Participant 023, Nairobi.

A lack of consistent leadership support for QI was also cited as another barrier to QI within the organisation, both at hospital and county levels. This lack of management support discouraged QI champions. Another manager agreed, noting that the county was lagging partners' (NGOs) efforts in supporting QI.

The management has lagged and is no longer joining you the change agents. – Participant 003, Kisumu.

You will find that even if we have meetings, majority, you'll find the stronger (QIT) ones are the partner-supported (QIT) ones. Maybe they need to embrace it. Or we need to embrace it together; we are the county. – Participant 006, Kisumu.

Perspectives on the extent to which organisation culture and maturity that enabled QI existed or had been built over time differed within and across counties. For example, in Nairobi City County where QI was first introduced in 2014, some managers thought

(much like Kakamega) that using QI for performance management was a key enabler.

Yet, another manager disagreed, explaining that there was little widespread culture of QI beyond the responsible unit (QI division). Whatever the case in each county, QI has received mixed reception, and many barriers have prevented universal institutionalisation despite ongoing investments in KQMH training and skills building, and eKQMH assessments.

The M&E unit will give us the targets and when we are doing the quarterly performance review, we can see these specific indicators are not doing very well. So that feeds to the quality improvement units and we can discuss with the teams and identify the QI projects that they should undertake. – Participant 021, Nairobi.

People need to know that it is not just the division of quality improvement, each unit should have its own quality improvement team. Like if even if it is NCD, it needs to have that so that when we mention QI someone thinks about another person. – Participant 024, Nairobi.

QI began in Nairobi, that is in 2014, it has been a journey. At first, people were viewing QI as an extra work or a partner-initiated activity. With time people are now embracing QI. I can attest to this: when we started, we had very few functional quality improvement teams and work improvement teams. – Participant 027, Nairobi.

QI took root, interviews revealed, when related tasks were considered a strategic priority to the hospital or county. A good example was when Kakamega County undertook a QI training, with was followed by gradual but concerted establishment of QITs and WITs because it was thought that QI might help enhance the performance levels of hospitals and sub-counties.

We decided to form our quality improvement team. And then our departmental work improvement teams (WITs). And it's from those WITs we identify those areas that we are not performing very well. – Participant 009, Kakamega.

Elsewhere, QI was used to support the roll out a differentiated care approach for patients in the HIV programme because there was need for reductions in the burden of

hospital visits by patients (collection of ARVs) and to improve treatment adherence, using a patient-centred approach.

6.1.7 Category 7: External environment and structures

The research identified many macro level barriers and enablers of PHC QI. National reception and buy in, funding, financing and budgets, external funding agent priorities, programme silos, staffing (employment) limitations within employment and labour conditions, community characteristics and social norms, and overlap/ duplication of resources were reported. Also, external motivators, external project sponsorship, prevailing frameworks and models, existing guidelines and standards, policies, laws and regulations, and management and leadership came up from interviews, meetings attended and analysed documents. Funding agencies and corporations, ICT infrastructure, road and physical access add to the long list of barriers and enablers at this overarching and intractable level. This last group of barriers and enablers, still as important as the preceding ones, were found to occupy the outer bounds of PHC QI implementation by QI teams and, therefore, termed distal.

Availability of national frameworks, guidelines, and policies which provide for QI (in HC) emerged as an important enabler, providing a supportive environment in the country. Counties such as Kisumu picked up on this and developed their own charter, which was mentioned in interviews and shared as a QI artefact.

That is the overall aim of the guideline, the framework, and the manual. So those are the ways quality improvement is done at the national level and how we do it here at the county level. – Participant 002, Kisumu.

I have been able to put up a quality charter which was not there and I'm launching this charter. – Participant 003, Kisumu.



Figure 19: Excerpt from Kisumu County Quality Improvement Team Charter (November 2023)

Overwhelmingly, the Kenya Quality Model for Health (KQMH) and its electronic version used for assessments (eKQMH) were the predominant reference/resource materials for QI implementers. In Kenya, the national Ministry of Health retains responsibility for development of policies and for quality assurance, policing adherence to guidelines and standards. Some participants faulted the extent of dissemination of national policies, something they thought was constraining QI due to low awareness and uptake of invisible standards/guidelines.

I know back then it was just around the time when KQMH was being rolled out in the country so there was a lot of heavy investment on training staff. – Participant 012, Kakamega.

We refer to KQMH. Yeah, I mean the Kenya quality model for health. – Participant 004, Kisumu.

Kenya quality model for health was developed and implemented by the national government. Afya House (Kenya MOH Headquarters) has been able to train coaches at the county level. Based on the Kenya quality model for health implementation framework, there are coaches and inspectors – Participant 014, Kakamega.

“... as you know we use the KQMH tool.” – Participant 021, Nairobi.

I think if we follow the document to the latter, it will improve the quality of care in our facilities. The only issue is that we make good policies but disseminating them is where we have a gap, hence we cannot achieve what is intended in those policies. – Participant 024, Nairobi.

External funding, motivation for undertaking QI and project sponsorship, as has been mentioned previously, plays an important role in QI in PHC and throughout the health system in Kenya. The study found that a multiplicity of external funders active in the QI space is both a barrier and an enabler. A barrier because it threatens sustainability and QITs must cater to the whims of private or external sponsors whose goals are sometimes at odds with those of the public health system. An enabler because it allows QI to continue in some form, for the time being.

Insurance companies will support also with snacks or some of them may even decide instead of giving you snacks or drinks, people (participants) will sign for lunch allowance for KES500 (USD3). – Participant 001, Kisumu.

They're highly funded and now it's usually partner driven, like now we have USAID-funded Boresha Jamii... They may come; they want to maybe implement CQI activities in the health facility. Because it is partner-funded we are being followed up, we are being capacity-built. You just must be active. But I think we also need to have CQI in all departments. – Participant 008, Kakamega.

Like in this instance early on during fieldwork, where a participant was discussing the role of partners in QI, my insider-outsider role surfaced frequently in interviews during fieldwork. This reminded me of the need to continually clarify my role in the research. I encouraged participants to speak freely, as it didn't matter whether they mentioned my employer favourably or not. This reassurance helped put participants at ease, eliciting detailed responses.

For organisations, we have the ones that have been there for long that support children. Let me say like UNICEF, that has been there to support children for a long time. – Participant 001, Kisumu.

Shifting foreign aid inflows was driving some unexpected positive changes in the country health system such as ongoing HIV programme integration while also posing risks to the same programme which has been over-reliant on donor funding for many decades.

We were begging, as government, for the partner to maintain the staffing levels and the partners were saying the budget will just not allow. We really had to think about what to do as a programme and that is also one of the biggest reasons why we have been training the mainstream service providers to support HIV programme service delivery. – Participant 012, Kakamega.

Also, just the bit that we need to be self-reliant because we are told that there is going to be a reduction in foreign aid, until the program is handed over to the government. We really must find a way of having it integrated within our health system. – Participant 018, Kisumu.

Finally, no matter the nature and gravity of other barriers to PHC QI, all participants always summed up their frustrations with a turn to financing and budgeting. Without the required financial resources, QITs were ill-equipped to address glaring quality gaps. Inadequate finances, interviewees suggested, pervades the entire Kenya health system, and presents perhaps the largest structural challenge to QI. This barrier is important because it almost guarantees that QI initiatives will not be expanded or sustained when NGO sponsors pull out at the end of their funding cycle and the government has not allocated resources to take the programme forward. Lack of finances to support QI, participants also felt, was due to mis-prioritisation by key decision makers.

From our assessments and the data, the number one domain which affects quality is health financing because it affects nearly every other thing in the health system. When there are no finances, there is no improvement. Finance is like the oil that lubricates the engine. You might have a new car but if your engine oil has leaked...! I think that's the analogy I would give. Because when you have finances, you can comfortably do infrastructure maintenance. You can purchase medicines if your stocks have run out. You can refer patients, and so on. Health financing is to me the bottleneck to quality improvement. – Participant 002, Kisumu.

We do plan for a lot of QI activities but because of limitation in financial resources, we actually get very little. That is where the challenge is. We cannot do the much that we want to. – Participant 005, Kisumu.

6.2 Elaborating key feedback loops

Loop 1: knowledge, skills and motivation of QI team members

When the knowledge and skills of QI team members is enhanced by means of regular mentorship and through continuous medical education (CME) sessions on-the-job, their confidence and self-efficacy grow, leading to more effective QI implementation. Team members can identify and analyse quality problems, propose and prioritise change strategies, and plan and implement QI projects better. As the team implements more QI projects, more of which have a greater chance of success, they gain more confidence, leading them to take on new projects and to become better champions for change in the hospital setting. As the feedback loop grows, team members value meetings and engagements more, encouraging even better participation by others in the immediate PHC setting, with greater ownership and participation in QI projects. As the pool of change champions grows, QI is better reflected in plans and attracts more resources, as the hospital benefits from better care outcomes and satisfied patients/clients and staff morale is boosted. Teams get even more interested in CMEs, mentorship and on-job training, boosting skills further, and sustaining QI momentum.

Subject matter experts (SMEs) who are more experienced clinical and QI experts then undertake more regular refreshers to reinforce skills and plan induction/orientation sessions for new QI team members. The involvement of respected SMEs such as regional technical working group members also helps QI to get the attention and interest of hospital managers and county health leadership, making it more likely for QI budgets to be drawn, and resources availed for implementation. On the other hand, insufficient skills of QI team members limited their ability to engage in QI initiatives, ultimately dimming QI implementation.

As QI implementers use existing data to identify quality gaps and use data to better prioritise change strategies in an evidence-informed manner, their data use skills grow, further boosting their confidence in QI, while also enhancing their effectiveness as change agents. In this manner, more change ideas are identified and change strategies tested. And the cycle continues, sustaining ongoing improvements in PHC quality.

Loop 2: management and leadership

The skill and motivation of QI team leaders also emerged as key node in the feedback loop around management and leadership capacity to drive QI. In hospitals where managers had knowledge of QI and felt adequately skilled to engage with QI team members in problem identification, analysis and prioritisation, an atmosphere of trust and accountability was observed among the QI team, and hierarchical hurdles in decision making were reduced. This in turn meant that more QI team members felt empowered and accountable to each other, and to the wider hospital community of health workers, who embraced QI implementation. As other departments were involved, the sub-county and county management noted the visibility of QI in such settings and tended to carry out more support supervision sessions, further increasing the prioritisation of QI, in a mutually reinforcing feedback loop. Supervision had another dividend: it highlighted gaps in quality of care and recommended areas of improvement, while following up on previously identified gaps, improving the QI team's accountability and commitment for project implementation. Supervision, by identifying clear quality of care gaps and recommending action points, further signalled the need to allocate resources to address these gaps, and moved the county and sub-county managers to act.

However, where QI team leaders were not formally appointed and their roles acknowledged, hospitals struggled to implement or sustain QI, as the leader struggled with low morale and did not sufficiently mobilise team members to engage with QI.

Loop 3: health systems support and resources

The availability of budgetary support and resources enabled implementation of QI projects and supported skills building. Although inadequate, resources enabled mentorship and CME sessions, training in KQMH, and digitisation of health information systems which facilitated better prioritisation and accountability. Further, resources for annual recognition and excellence awards (e.g. in Nairobi City County) signalled that QI was a priority for managers across the health systems hierarchy, while also boosting morale of high performing teams, leading to greater ownership and sustainment of QI activities. This feedback loop was essential for maintaining engagement with and driving continuous improvement.

Besides skills enhancement, resources were also critical for hiring staff, leading to lesser workloads, which enabled more health workers to engage with QI and minimise competing tasks. On the other hand, where resources were lacking, health workers decried poor remuneration and had to improvise as equipment failed. This saw patients dissatisfied, targets were not met, and the hospital and wider county lost potential income as patients stayed away. This in turn sustained resources scarcity, and without external injection of funds, QI activities were constrained. But high workloads and low morale among health workers also had another negative effect: many highly skilled

health workers were reported to have left the public services for private practice or emigrated to high-income countries, reducing the pool of experienced subject matter experts, lessening the health systems capacity to undertake skills enhancement for new staff, and even higher workloads for those opting to stay. This feedback loop meant that that QI implementation remained strained in many of the PHC settings that had inadequate resources, in a vicious cycle. In this setting, KQMH assessments did not have any meaningful impact as QI teams and managers all felt disempowered and hamstrung. Accordingly, QI meetings did not happen regularly, coordination was limited, workflows could not be redesigned to better serve patients, infrastructure could not be improved, and dependence on donors grew, constraining further the QI team and hospital's ability to make decisions autonomously. As donor dependence grew, teams felt unable to prioritise and practice and the health system allocated even less resources for QI purposes, reinforcing existing gaps and constraining QI further. Donor (external sponsor) priorities took centre stage, and where these weren't aligned with broader hospital plans, QI implementation was done in vertical siloes, activities exclusionary rather than participatory (as only a few selected QI team members could participate), and the broader health system missed an opportunity to institutionalise QI. As small, disjointed improvements proved fragile and unsustainable, hospital teams soon defaulted to status quo, patient needs remained unsatisfied, and staff morale dwindled. Completing the feedback loop, resource shortages remained, and QI implementation was reportedly constrained.

Still on resources and support for QI, the availability of evidence-based policies and guidelines such as the KQMH and other programme/intervention-specific QOC standards provided a framework for teams to undertake detailed assessments, identify quality gaps and to justify investments in QI, ensure it was prioritised. Such guidelines and frameworks also provide tools for planning, monitoring and evaluation of QI, acting as key enablers. But teams reported a lack of specific standard operating procedures, e.g., for continuing medical education, as a key gap that meant they could not evaluate how well they were doing, constraining their ability to fully unlock the full potential for CMEs as a core skills building approach. This, along with poor and uncoordinated or incomplete dissemination of policies, guidelines and standards both meant less skills and inadequate (technical) resources for QI, also constraining implementation. However, in PHC settings where the county's mission and core values clearly prioritised quality, these allowed for innovation, testing new interventions, and ongoing learning, which were helpful for efforts to build a culture of quality.

Loop 4: larger context and external environment of QI implementation

Political pressure was reported to interfere with health workers' ability to perform their functions by instilling a culture of fear (avoiding victimization) among key health systems decision makers, as local politicians legislate, provide oversight to the health department and preside over resource allocation. Local (county-based) politicians placed unrealistic demands including asking for specific health workers to be deployed where there already were enough, leading to inequitable distribution of already inadequate health workers. Besides making it hard for managers to balance resource use, this shortage of

health workers meant high workloads, resulting in low morale and burnout. As morale worsened, some experienced managers and health workers left the public service, accelerating skills flight and brain drain, which in turn led to fewer skilled workers and further increasing the burden of the now fewer workers. This negative loop undermined QI efforts and made it difficult to sustain improvements. At the same time, the political pressure to allocate resources skewed infrastructure developments and equipment deployment, making it difficult for health workers to provide quality services. This further contributed to low morale, and some health workers were forced to improvise, with more patients feeling dissatisfied. Skewed health budgets also meant less resources for actual QI work for already stretched teams.

On the other hand, PHC was established as key national government priority and included in its elections manifesto. As PHC was increasingly prioritised by national political leaders, it was included in health sector plans, budgeted, and additional resources availed to counties for implementation. In turn, county leaders and managers got aligned and rallied QI teams to support this emerging initiative, although to varying effects at hospital level, considering the complexity of competing factors. National resource allocation meant less dependence on donors and more sustainable QI, at least as perceived by county PHC managers. Thus, the external environment was found to be intricately connected to health systems support and capacity for QI, the ability of managers and leaders to drive QI, and to ability and skills of QI teams to implement change and sustain QI. But this research uncovered a far more insidious societal force that has a far reaching and implicit consequence for QI implementation.

Corruption, entwined with fraud, waste and abuse of limited financial and other health sector resources - nationally and within counties - was blamed overall for health systems inefficiency and less resources at the frontline, leading to less staff, inadequate equipment, supplies and infrastructure, leading to poor quality and more pressure on health workers and PHC managers. This undesirable state of PHC quality is blamed for patient outcry, even more politicization of healthcare, increasing staff attrition leading to high workloads and limited QI implementation in the public health sector as health workers and managers, despite enabling national policies, guidelines and plans, increasingly perceive QI to be less of a political priority because ultimately, little to none of proposed changes get implemented or sustained. In this environment, QI's potential to enhance quality and restore confidence in PHC keeps sliding, vital skills among QI teams, leaders and managers are lost, and the quality of PHC remains low. *Figure 20* depicts key feedback loops that result in QI being constrained or enabled, with + indicating a positive or incremental effect on while – indicates a negative or detrimental effect. Arrow points to the affected.

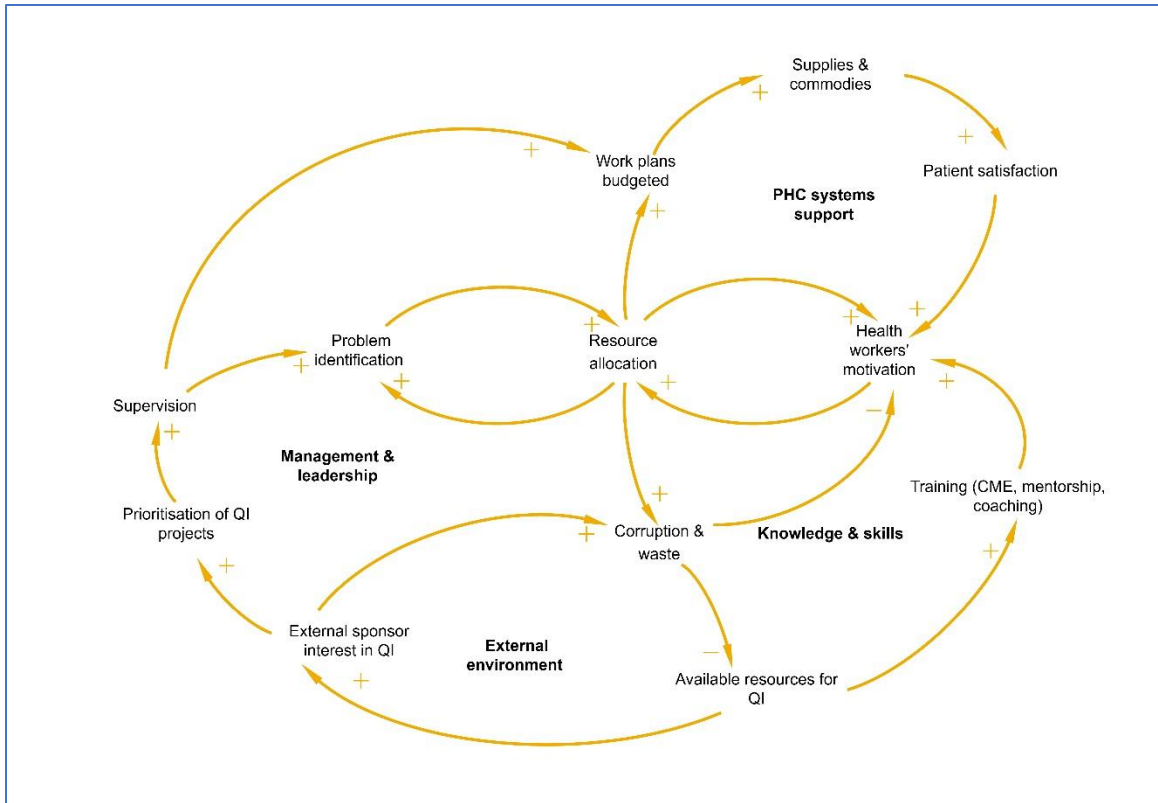


Figure 20: Key feedback loops that constrain of enable QI implementation in PHC

To conclude, key context (C), mechanism (M) and outcome (O) configurations can now be elaborated, tracing the systemic feedback loops. First, in the context of weak knowledge and skills among QI teams, the provision of training through CMEs, mentorship and coaching by supervisors and subject matter experts allowed teams to build skills, increasing their motivation and self-efficacy (capacity and confidence), which enabled them to engage meaningfully with QI projects. Secondly, in the context of inadequate supplies, medicines and equipment, both patients and health workers felt unmotivated by sub-optimal PHC services, occasioning the need for better resourcing of PHC work plans and budgets to encourage QI work, and where work plans remained under-resourced, QI tended to be constrained. Thirdly, in the context of a devolved or

highly decentralised PHC setting such as Kenya, where managers at sub-county and county play critical roles in monitoring PHC quality, supervision played a key role in highlighting gaps and initiating the development of improvement/action plans, serving to identify problems and to focus the attention of counties and hospitals on PHC standards. This focus was critical in unlocking the resources needed to address identified gaps, informing hospital budgets and QI teams' work plans. Where hospital teams mobilised adequate resources for the budgeted plans, QI implementation was enabled, but otherwise constrained. Finally, in a PHC context where public sector health workers remained unmotivated due to poor working conditions, low and often delayed salaries, and where practitioners perceived high workloads due to an inequitably distributed health workforce attributable to corruption, fraud, mismanagement and wastage, highly skilled health workers tended to exit the system in search of better wages in the private sector and in high-income countries abroad, exacerbating workloads, worsening patient outcomes, reducing the availability of subject matter experts, and further worsening political pressure on the remaining few health workers as patients complained of poor quality services. In this context, PHC was found to be constrained despite the best efforts of external sponsors, partners, funders and donors and health outcomes stagnate.

Summary

Together these findings provide important insights into the nature of constraints affecting QI implementation in PHC in disparate study settings and potentially across Kenya. Absent any coherent and widely embedded culture of quality, weak leadership and management, and limited buy in and ownership of QI initiatives were key threads at

the micro, through meso, to the macro levels. Four categories of barriers and enablers emerged as being core to QI, namely, the attributes of a QI intervention, actual implementation or execution of QI, individual health worker attributes, and those linked to a hospital's QI team. The next two categories of barriers and enablers - the health systems support and capacity for QI, and host organisation - largely comprise the meso-level in this analytical framework. These, coming after the core aspects but positioned before the distal considerations occupy the intermediate space of influence on QI implementation in PHC. Finally, the macro-level external and structural barriers and enablers shape PHC QI implicitly and explicitly, even if occupying a distal position in relation to frontline PHC QI implementation.

Chapter 7: Discussion and conclusion

This chapter discusses the findings in relation to existing literature and the theses' contribution to knowledge before concluding with some recommendations for QI (and PHC) practitioners, policymakers, and researchers. A personal reflection is included, looking back at the PhD journey.

7.1 What this research adds to knowledge of PHC QI

7.1.1 A novel framework/model describing QI culture

This study found no existing unified culture of PHC QI. Instead, diffuse and contradictory aspects of culture, including the shared knowledge, practices, behaviours, attitudes, norms, beliefs and artefacts exist and vary by county and hospital context. These contradictions are expected and point to ongoing and emergent processes of cultural formation. Three themes, namely manifest (apparent) behaviours and practices, values, attitudes and beliefs, and structural aspects of QI culture were each categorised into micro-cultures, sub-cultures, and organisational/systemwide cultures. The creative 3X3 framework used to describe QI culture can inform future research on the topic. A generic version of the novel 3X3 framework that can be adapted to different contexts is presented in *Figure 21*.

		Level or extent of shared culture		
		Micro-culture	Sub-culture	Organisation & systemic culture
Categories of QI culture	Manifest culture: practices, behaviours, knowledge, skills, artefacts	1	2	3
	Prevailing attitudes, beliefs and values	4	5	6
	Underlying or overarching structures	7	8	9

Figure 21: Adaptable 3X3 matrix to describe Quality Improvement culture

In the model, which takes the form of a 3X3 matrix, the vertical axis shows the three ways in which QI culture can be categorised. The visual hints at social and health systems structures being the foundation of QI culture, shaping the next category (actors' attitudes, beliefs, and values). These shared attitudes, beliefs and values in turn shape QI culture and manifest in behaviours and practices of those involved with QI. Horizontally, the three levels trace the extent to which the various categories of QI culture are shared, with increasing institutionalisation as one moves from micro-culture, through sub-culture, towards organisational and systemic culture. Ideally, a culture of quality can be said to be in place when underlying or overarching social structures lead to organisation-wide or system-wide practices, knowledge, skills, values, and attitudes that support improvements in PHC quality. Still, it is important to remember that the various

categories and levels interact (represented by broken lines) and exist on a continuum (the arrows).

7.1.2 A comprehensive approach to understanding enablers of and barriers to PHC QI

On the question of barriers to and enablers of PHC QI, this study found seven broad categories at play. QI intervention attributes, execution of QI projects, individual QI actor characteristics, the hospital QI team, health systems support and capacity, organisational issues, and external environment all play a role in enabling or constraining PHC QI. While past studies have focused on the outcomes of QI interventions, this study has highlighted the complex and interrelated considerations at micro, meso and macro levels that are core, intermediate and distal to QI implementation. To the best of my knowledge, it is the first study undertaken in Kenya that distils these barriers and enablers, and in this manner, making it possible for policymakers, key decision makers and implementors to better plan and prioritise deployment of resources to support QI. Further, the application of critical realist retroductive thinking brought rigour to the findings, going beneath the surface to make explicit the hidden but real barriers at play in PHC QI on various planes. Once more, the transferable framework used to organise themes (barriers and enablers) is novel and can be adaptable to easily digest complex contextual issues, promoting uptake of evidence by decisionmakers.

7.2 Synthesis of findings

7.2.1 PHC QI Culture

This study found no unified or systematic culture driving PHC QI. However, different elements of PHC culture could be discerned from interviews and the various documents reviewed including QI team minutes, QI project reports and a QI charter found in one of

the counties. The researcher participated in QI team meetings, which provided opportunities to observe the shared behaviour, knowledge, attitudes, norms, and beliefs underpinning QI practice. Culture has been defined in ethnographic studies to include the language, artefacts, and symbols shared within a given community (Wallace et al., 2022). Given the variety of cultural attributes in this focused ethnographic study, these were organised as micro-culture (shared among a few individuals), sub-culture (shared between groups of individuals with a common professional or practice background, management or leadership rung, or a given hospital setting, for example), or organisational or systemic culture (shared widely within the county health system, for example).

In the first instance, this study found visible manifestations of PHC QI culture. Such examples of shared practices, behaviours and knowledge include being champions, actively rallying others to adopt QI, coordinating efforts, ranking, scoring, rating, recognising best practice, and disseminating information using “talking walls”. In addition, acquiring or sharing knowledge and skills by use of continuous medical education, on-job-training, mentorship, and support supervision, scheduling tasks, doing infection prevention and control, and claiming and giving rewards and incentives featured. Lastly, QI team members benchmark, undertake health education, make referrals, and engage in advocacy.

Other studies (Giessler et al., 2020; Odusola et al., 2016; Patterson et al., 2021; Tibeihaho et al., 2021) similarly document knowledge sharing and skills building as an integral aspect of PHC QI culture, although little is known about the extent to which PHC

QI teams make use of other cultural resources like ranking, scoring, rating, championing and coordinating in LMIC settings. Sharing knowledge and skills is not surprising because through it teams develop a shared understanding of QI techniques and approaches, including problem identification, problem analysis, brainstorming and prioritisation of change strategies, and monitoring when implementing change ideas (Baker et al., 2018; Coulibaly et al., 2020). Teams are often selected without prior training and must acquire these while performing their duties (Schuele & MacDougall, 2022; Wakida et al., 2019).

The second broad set of PHC QI cultural attributes are shared attitudes, beliefs, debates, and value systems within and across QI teams. These include an embrace of accountability, commitments, or dedication to change, being solution oriented, collaborative decision making and being competitive. Negative connotations of culture such as siloed work, not believing that excellence should be awarded, acting neglectfully, focusing too much on blaming and punishing others. There is also a pervasive belief that information will just filter down, a tendency to rush patients through (clearing queues) and over-relying on external partners rather than internal resources.

A study in Indonesia (Limato et al., 2019) found that health workers rejected a QI initiative that sought to introduce performance-based incentives because it would enhance accountability, shining a spotlight on lateness and absenteeism at work. Other studies (Ayele et al., 2019; Patterson et al., 2021) found that being competitive (wanting to be better) and taking responsibility for one's actions were key to PHC QI culture in other LMIC settings. Healthy competition is especially stirred up when rewards and incentives regularly come into play, pitting teams against each other. In Nairobi City

County, for example, teams are regularly assessed, rated and best performers rewarded and recognised. In this context, teams reportedly wanted to be better than their peers to win accolades from their leaders.

The third and final theme focused on social and other structures that transcend knowledge, beliefs, shared values, and practices. Here, the imperative to make a difference by creating change, leaning into performance appraisal, and contracting, task shifting (offloading some less technical responsibilities to other cadres of staff), looking to national policies and frameworks (e.g. QMH) and international standards. QI practice is inevitably shaped by national guidelines and standards frameworks, which set the boundaries within which teams work and define expectations of conduct and rules of procedures. In contexts where workloads aren't equitably distributed and checklists prove burdensome, studies (Djellouli et al., 2016) found the similar culture among health workers: a tendency to disregard national guidelines.

7.2.2 Comparison with existing literature

Many studies have documented barriers to and enablers of PHC QI in LMICs. In this CR focused ethnographic study (CRES) of PHC QI, the attributes of QI intervention, how its executed, characteristics of those implementing, and the QI team were found to be core in enabling or constraining QI, the micro level. Following these, the organisation (e.g. Hospital or sub-county) and the larger county health system capacity formed the meso level or intermediate elements that facilitate QI, or not. Lastly, the macro-level barriers and enablers consisted of the structural and external environment like the existing policies and guidelines, labour and employment conditions, and financing arrangements.

Absence of key enablers was observed at QI meetings and discussed in interviews and was important for understanding how QI is affected by resource gaps and systems deficiencies.

In this study, QI interventions that are perceived to be scalable, sustainable, less complex, and can be trialled before being replicated in other sites were considered favourably by QI teams and their managers. As demonstrated in this study, in Haiti, South Africa, Costa Rica and Indonesia (Demes et al., 2021; M. Kinney et al., 2022; Limato et al., 2019; Pesece et al., 2021), research indicated that health workers implementing QI were more likely to adopt interventions that brought them some advantage (like, making their work easier) in addition to being feasible and less costly. Conversely, other studies in LMIC settings in Africa (Tanzania, South Africa, Ethiopia, Rwanda and Nigeria) and beyond (India, Indonesia, Tajikistan, Sri Lanka and Papua New Guinea) have documented how QI teams are quick to abandon those interventions that they find burdensome and misaligned to their daily responsibilities (Baker et al., 2018; Coulibaly et al., 2020; Horwood et al., 2017; Mantell et al., 2022). This tendency to stop QI implementation could be minimised through effective communication, role clarity, setting clear expectations, projecting objectivity, and instituting processes to support to QI teams.

As important as the intervention's attributes are to its execution, fidelity to the design and intentions of rolling out QI interventions matter to their implementation outcomes. In published literature, twenty-two studies from seventeen countries discussed barriers and enablers related to the manner of execution of QI. Elements like dosage and reach,

scope, quality, time taken, and cost affect whether and how the intervention achieves the intended results. In this study, teams at two of the three sites visited and where the researcher undertook ethnographic work devoted little time to problem analysis and prioritisation, resulting in ill-devised change strategies. Change ideas that required huge outlay of funds e.g. hiring health workers were quickly dropped as the scope of work was revised. It was commendable that most QI managers sought to saturate their county with QI skills by adopting an incremental approach. Notwithstanding, all counties still reported skills gaps, an indication that the dosage of QI training and the reach remained sub-par, constraining the abilities of QI teams.

No doubt the characteristics of implementers, the individuals involved with QI, whether managers, frontline workers, or semi-skilled casual labourers co-opted into QI teams, enable, or constrain QI. Studies have documented the relative importance that health workers place on extrinsic motivation financial and non-financial incentives, recognition schemes and intrinsic motivation like wanting to help better the health and wellbeing of one's community (Lall et al., 2020). In Nigeria, as reflected in this study, health workers derived their motivation for involvement in QI from monetary and non-monetary incentives (Odusola et al., 2016). Odusola and colleagues (2016) discovered that such approaches helped promote buy-in within an initiative to enhance preventive services for hypertension. Scholars have argued that public sector workers are neither knights - motivated to act in the public good – nor knaves – tending to act in self-interest – when explaining the role of incentives (Le Grand, 2010). Across Kenya, QI teams sought various types of incentives due to what they saw as added work, but the level of compensation

sought (lunch allowance, snacks, or refreshments) was often small and did not offer any pecuniary advantage.

Leadership of the hospital QI team, decision making, collective efficacy, tenure and interpersonal relationships were highlighted too. Collaborative decision making, getting accustomed to working together and hospital leaders (physicians) joining their teams in driving QI emerged as key enablers. On the other hand, rapid staff transitions disrupt the flow of work as new team members build rapport afresh, hospital leaders' neglect of QI through non-participation at QIT meetings and sour relationships among teams were singled out as barriers. Further, good buy in from the team, having the requisite skills and expertise, and prior experience all counted in favour of QI implementation. In Southern Tanzania Baker and colleagues (Baker et al., 2018) found that health care workers (HCWs) were more receptive to continuous quality improvement (CQI) and welcomed on-job-training to bolster their skills. Coulibaly and colleagues (2020) in Mali found that positive reception of a performance-based financing scheme for improving PHC services facilitated its adoption.

Numerous studies (Lokossou et al., 2019; Nahimana et al., 2016; Schuele & MacDougall, 2022; Werner et al., 2021; Yapa et al., 2022) show that the organisational context of PHC QI implementation and the health systems support and capacity play crucial roles in influencing adoption, sustainability, scale up and the eventual success of change initiatives. These, buttressed by wider societal and structural attributes such as governance, political and socioeconomic policies, laws and regulations, and budgeting and financing arrangements inevitably affect QI implementation in varied ways. The

literature review showed how in the context of a decentralised system of government similar to Kenya's, PHC QI was constrained by many layers of decision making when invisible middle-level managers withheld support, aggrieved by the central government (Werner et al., 2021). Even though this study did not find a similar occurrence in Kenya, there were numerous reports of dissatisfaction with the national government for not disseminating policies and guidelines, late and insufficient funding, and the county government shared blame for absence of supplies and inadequate numbers of health workers.

7.2.3 Comparison of themes from this study with CFIR and MUSIQ models

The MUSIQ model (Kaplan et al., 2012) and CFIR (Damschroder et al., 2022) primarily framed the analysis, helping to organise themes related to barriers and enablers of PHC QI. Accordingly, the broad themes from this study are compared with main themes in CFIR and MUSIQ to reveal the eventual connections between the deductive frameworks and the main findings from the study. Side by side, many of the study's findings trace the key themes and sub-themes found in MUSIQ and CFIR as shown in *Table 10* below.

Table 10: Cross-matching themes and sub-themes to MUSIQ and CFIR

Themes from this study	Broad Contextual factors in MUSIQ	Concepts in CFIR - operationalised
QI intervention attributes		
Execution of QI intervention	Miscellaneous (Trigger: event that necessitates urgency for QI project;	<u>Intervention characteristics</u> : source of change strategy, advantage proffered by QI project over other competing priorities, adaptability of change strategy, trialability of change strategy, complexity of change initiative, quality of change project, cost of change, quality and strength of evidence backing change strategy/QI project.
Microsystem and individuals implementing QI	Strategic importance of QI task to hospital or county)	
Team implementing QI	Microsystem	<u>Outer setting</u> : alignment of QI project with patient needs and resources, connection of QI efforts with broader organisation and
Health systems support and capacity for QI	QI Team	

Organisational issues	QI support and capacity	institution, influence of peers, policies and incentives to back QI.
External environment and structural factors	Organisation	<u>Inner setting:</u> Structural characteristics (The social architecture, age, maturity, and size of an organization), implementation climate (tension and readiness for change, compatibility and alignment, relative priority of change initiative, incentives for QI, QI goals and feedback articulated, learning climate to support QI), Readiness for QI implementation (leadership engagement in QI, available resources for QI, access to information/knowledge on QI)
	External environment	<u>Individual characteristics:</u> knowledge and beliefs of QI team members, self-efficacy of QI team members, individual stage of change of team members, individual identification with hospital and team (alignment of values). <u>Implementation process for QI:</u> planning, engaging (opinion leaders, internal implementation leaders, champions, external change agents) evaluating, and reflecting/review/learning sessions). Additions proposed by Means et al (2020): Characteristic of systems (non-government or non-hospital sponsor priorities, set up of hospital, source of resources for QI, continuity of support to QI, alignment of QI to hospital/county strategies) Addition to Intervention characteristics (perceptions of scalability, sustainability) Addition to Inner setting (QI team attributes, collective efficacy of QI team) Addition to Outer setting (community characteristics i.e. how patients and clients collaborate with QI team on change projects, where indicated).

Evidently, five of the themes contained in MUSIQ and three themes from CFIR align neatly with those from this study. Notably, the inner and outer setting themes from CFIR align with the organisation, health systems support and capacity and external environment. From MUSIQ, the miscellaneous theme which contains aspects such as a

task being of strategic importance to the organisation was absorbed into the organisational issues for this study, where it closely fits. Means and colleagues (2020) proposed additional areas to the CFIR meant to make it more adaptable to LMIC contexts, which were factored in the analysis. A new theme proposed includes systems characteristics such as external agent priorities, system architecture, resource source, resource continuity, and strategic policy alignment (Means et al., 2020). These were adapted and integrated in the health systems support and capacity theme for this study. Other additions proposed by Means and colleagues (2020) to existing CFIR themes include perceived scalability, perceived sustainability, team characteristics, collective efficacy, community characteristics, and decision making, also considered in the analysis. In keeping with the pragmatism advocated by Means et al. (2020), Damschroder et al. (2022) and Kaplan and colleagues (2012) for their models, the researcher used their best judgement of local health systems context and insights from the systematic review in the analysis when generating themes, drawing from these two dominant QI and implementation science frameworks.

7.2.4 Explaining constrained PHC QI through a CR lens

The WHO estimates that 20% to 40% of resources for health go to waste, asserting that better stewardship would vastly enhance governments' ability to provide quality healthcare (WHO, 2010). Using retroduction, this study links macro level barriers that are often distal to frontline QI practice to the proximal challenges faced by QI teams at PHC referral hospitals. Many studies tend to focus only on hospital level factors and the effectiveness of QI, ignoring the intractable structural reasons that constrain PHC QI and

shape healthcare in ways directly unobservable. Social structures such as governance arrangements and neoliberal economics – taking expensive commercial loans that only get costlier due to foreign currency fluctuations – which are then wasted to corruption given weak governance lead to a tightening fiscal space and stagnation of health spending in the country (Kenya Anti-Corruption Authority (now EACC), 2010; Spyromitros & Panagiotidis, 2022) . The result is widespread discontent by health workers, out-migration and strikes, which impose more pressure on the health system. Without the needed supplies and commodities to render services and inconsistent pay as national government delays disbursement to counties in this devolved health context, health workers involved in QI struggle to cope and cannot implement their action plans adequately. Concomitantly, demands for incentives rise, and left unmet, the culture of QI fails to take root. CR's layered ontology and depiction of laminated systems (Archer et al., 1998; Bhaskar, 2014) provided a useful framework to uncover the real barriers to PHC QI in Kenya.

On average, Kenya spent KES3.1 billion (USD 24 million) daily on debt repayment, approximately USD6 for every USD10 of tax collected since 2022. As well, debt hit 69.7 per cent of GDP in January 2024 (Kenya Government, 2024a). The government's own budget policy statement asserts the need to enhance prudent management of resources, arguing for firm budget ceilings and expenditure cuts or austerity measures. Healthcare is not spared. While the government spent eight per cent on health in 2017/18, it plans to spend only six per cent each year between 2023/24 and 2026/27 despite rising needs (Kenya Government, 2024b). The amount of Kenya's resources lost

through fraud, waste, abuse, and misuse is hard to pinpoint but has been estimated at one third of the national budget (Shiundu & Makinia, 2023), aligning with WHO's estimates for health sector resource leakages. Besides, the national treasury consistently delays funding to counties as revenues struggle to match expenditure demands, occasioning regular cashflow constraints and public discontent (Kenya Government, 2022; Omulo, 2023).

The health sector in Kenya faces many challenges. For example, health workers declared a labour dispute with the government in early 2024 regarding the latter's failure to honour a collective bargaining agreement (CBA). The CBA provided better terms of employment after a lengthy strike in 2017. Included in the CBA were demands for adequate drug supplies and equipment, besides better pay. Unsurprisingly given prevailing conditions, the World Health Organisation lists Kenya alongside other sub-Saharan countries like Nigeria and Ghana among countries that are losing health workers to richer countries, notably Australia, the United Kingdom, and Canada (Yonga, Muchiri & Onyino, 2012). The loss to society of one Kenyan doctor that migrates to the UK, the US, Canada, or Australia has been estimated at USD517,931 (Kirigia et al., 2006).

This study found many constraints to PHC QI that are related to weaknesses in the health system and the national macro environment. Although other barriers related to skills, knowledge, attitude, values, practices of QI teams at PHC settings, upstream barriers such as lack of funding and commodity stock outs were singled out by participants as the main constraints. The Ministry of Health assessed all 15,000 health facilities in Kenya in 2023 to determine the level of resourcing (availability of

infrastructure, health workers, medicines and equipment, and service delivery packages) as part of the national scale up of PCNs. It found that only two per cent of health facilities out of the open 12, 375 assessed were offering the entire package for outpatient services defined in national guidelines - the Kenya Essential Package for Health (Ministry of Health, 2023). With just 2 per cent of facilities able to deliver outpatient services to the required standard, PHC faces many challenges that invariably constrain QI. These challenges range from inadequate finances, stockouts of medical supplies, few health workers, and insufficient infrastructure, among others (Ministry of Health, 2023).

Importantly, four interconnected feedback loops influence QI in PHC settings in Kenya, resulting in constrained QI implementation. First, enhancing QI team members' knowledge, skills, and motivation through mentorship and continuous medical education (CME) boosts their confidence and effectiveness, creating a positive cycle of improvement and engagement. Second, strong management and leadership — particularly knowledgeable and empowered QI leaders — cultivate trust, accountability, and cross-departmental participation, which drives QI prioritisation and sustainment. Third, adequate health systems support and resources, such as budgets, equipment, and guidelines, enable QI activities, reinforce skill-building, and foster morale, but shortages lead to high workloads, staff attrition, and reliance on external donors, which can fragment and undermine QI efforts. Fourth, the larger context, including political pressures and corruption, often disrupts resource allocation and staff distribution, causing inefficiencies, low morale, and weakened QI initiatives, despite supportive

policies. When national prioritization and resource allocation align with PHC goals, QI has a greater chance of success. However, persistent issues like corruption and negative politicisation constrain QI, contributing to ongoing challenges in retaining skilled staff and improving the quality of PHC in the public health sector in Kenya.

Although the culture of teams and actors involved in QI implementation is still forming, with no observable patterns, this research documented existing feedback loops between attitudes, practices and behaviours of QI teams on one hand, and overarching structures that influence these practices and shape attitudes. In Kenyan PHC QI teams, positive feedback loops were observed where accountability and dedication reinforce each other, fostering honesty and personal responsibility in quality improvement efforts.

Selflessness strengthens team commitment and reduces siloed working, while fatalistic attitudes and over-reliance on external sponsors create negative loops—weakening accountability, hospital autonomy, and integration, and promoting verticalised, project-based approaches. Patient-centeredness and integration support financial sustainability by increasing client satisfaction and referrals, though reliance on incentives was found to undermine team members' honesty, commitment and accountability for QI. Overarching structures like the Kenya Quality Model for Health (KQMH) and leadership frameworks enable positive loops by promoting regular self-assessment, data-driven decision making, and clinical governance. Conversely, task shifting and limited investment in PHC fuel interprofessional competition and defeatist attitudes, reducing engagement and quality management. Overall, the presence or absence of enabling attitudes and underlying structures shapes the culture and effectiveness of QI teams in crucial ways.

7.3 Strengths and limitations

This research provides insights into the culture of teams involved in PHC QI and the constraints and enablers of their work. It comes at a time when the government of Kenya and global institutions (e.g. the United Nations) have framed PHC as a key priority, aiming to attain universal health coverage goals by 2030. A strength of this research is that it has illuminated aspects of QI that are under-researched, given much of the literature has tended to investigate the effectiveness of QI and quantifiable outcomes. In Kenya, little, if anything, has been documented regarding how those outcomes are achieved, or why not.

The other key strength of this research lies in its use of multiple data generation approaches, which enabled it to explore the topic holistically, triangulating three sources of information. The study used qualitative interviews, participation at QI meetings, and review of relevant artefacts to catalogue the culture of QI teams and the barriers to and enablers of PHC QI. This approach made it possible to verify and reach rational conclusions from varied standpoints, enhancing the possibility that the ensuing analysis and findings presented provide a comprehensive understanding of the experiences of those involved in PHC QI.

In Kenya, and by WHO standards, doctors, nurses, and clinical officers are considered the core of the health workforce (Ministry of Health, 2015). Through this study, the researcher engaged with a diverse group of participants at the core of the health workforce who are critical in driving forward PHC QI, leading to strong recommendations to strengthen and institutionalise PHC QI. Another strong attribute of the study is the

diversity of participants included in the interviews, and varied PHC contexts.

Furthermore, fieldwork was conducted in three county contexts that reflect the diversity of Kenya's devolved health system and proceeded for an extended duration, revealing a nuanced picture of PHC QI culture.

At a time when the government of Kenya's own assessments reveal widespread inequalities in the quality of PHC provided across the country (Ministry of Health, 2023), and public finances are constrained, with ongoing governance challenges, working within a CR paradigm has enriched the analysis. This was done by applying retroductive thinking to uncover underlying structures that constrain PHC QI as culture, barriers and enablers are both contextually bounded and transcendent, reaching beyond the immediate fieldwork settings (Shenton, 2004). This research has accordingly identified important actions to transform how QI is practiced for better PHC outcomes in Kenya. The key themes around which findings related to the culture of PHC QI are organised and the proximity mapping of PHC QI barriers and enablers provide transferable frameworks that are potentially applicable beyond this study. The findings, overall, are consistent with the global literature, aligning with the MUSIQ model and the CFIR framework.

As the study was focused on public (government-owned hospitals) in three counties, given previously described challenges with publicly delivered healthcare at government-owned facilities, it did not include privately owned health facilities. Private hospitals may have more resources for QI at their disposal. Kenya has a liberal healthcare market with a significant private healthcare segment. In this competitive private health care market,

the need to turn out profits may mean strong incentives to provide high quality healthcare, but also to avoid implementing expensive quality-of-care guidelines to keep costs low (Aberese-Ako et al., 2016; Bertone et al., 2016; Nyawira et al., 2022). Future research can undertake similar work focused on other parts of the health system, for example, with private facilities.

Although the study included diverse PHC settings, Kenya's devolved context brings added complexity in how PHC is organised, the level of resourcing, leadership, and management structures and these may affect micro- and sub-cultures of QI. In this ever-changing context, each of the 47 counties is unique but these share most aspects such as overall financing arrangements for PHC and the national PHC and QI policy frameworks. The findings in this study should, therefore, be read and interpreted with caution outside of the study settings.

7.4 The point is to change it: Implications for policy, practice, and future research

This research provides valuable insights into how QI is practiced in the context of Kenya's PHC system, using fieldwork in three different hospitals/counties. It sheds light on how PHC QI is constrained or enabled at the micro, meso and macro levels and documents cultural practices, experiences, values, attitudes, and norms of QI teams. In adopting a CR approach, the research extends the existing inadequate understanding of PHC QI, showing how and why practitioners, managers and leaders deviate from assumed QI models and policy guidance, and the conditions sustaining the sub-optimal quality of PHC in the country. The findings may be useful to health workers, QI teams, hospital managers, sub-county and county decision makers, national policymakers, health

stakeholders and to funders, donors, and sponsors. It is relevant to those in similar settings, including other Kenyan counties and other lower-middle-income countries (LMICs), and adds to the available evidence on the topic. Specific recommendations are made for key PHC QI stakeholders which include policymakers, practitioners and managers of PHC, and funders in *Table 11*.

7.4.1 Implications for policy

The findings highlight gaps and potential areas to strengthen in existing QI financing, policies, and strategies. First, the electronic Kenya Quality Model for Health that forms the foundation of much QI interventions in government-owned health facilities needs to be made more flexible and dynamically applicable to disparate typologies of health facilities, private and public for enhanced uptake. Linkages with other QI models in use in the country could also be made more explicit to help QI teams and county decision makers to make the most of all available options, with limited resources. The country also needs a comprehensive competency framework and scheme of service for QI practitioners and managers. Building a QI-oriented workforce may help foster a culture of quality. Counties will also find it easier to deploy the right expertise to manage QI, ensuring growth and development for those that choose to devote careers to QI work. Lastly, policymakers should consider linking quality improvement and quality of care to PHC and UHC financing arrangements to build sustainability.

7.4.2 Implications for practice

Quality improvement teams lack a discernible cohesive culture. Despite existing national guidance, QITs have adopted their own diverse approaches to QI, with little

standardisation and consistency. Culture, although an evolving and elusive concept, remains relevant to QI (Odell et al., 2019; Patterson et al., 2021; Rice et al., 2018; Stover et al., 2014) and efforts should be made to promote a culture supportive of QI in PHC settings and in the broader health system by use of strong (dis)incentives. This should be supported by explicit systems and organisational commitment to advancing quality, spelt out in clear and publicly visible quality statements, and accompanied by the required level of resources and implementation frameworks. Continuous and expanded skills enhancement, effective monitoring and evaluation, and equitable and fair rewards and recognition initiatives will play a big role in institutionalising a culture of quality.

7.4.3 Considerations for future research

As already mentioned, this research focused exclusively on QI in public (government-owned) PHC institutions, thus, future research could explore the culture of QI teams in private health institutions. Exploring the barriers to and enablers of QI in private health institutions will provide valuable insights, and open avenues for mutual learning within the context of a mixed health system where many Kenyans seek PHC services from both public and private providers. Given prevalent dual practice (George, 2009; Hicks et al., 2021; Umunyana et al., 2020), healthcare presents an open system where health workers are contracted in both public and private institutions, and the two sub-systems are likely to be constantly interacting and mutually reinforcing.

This research has developed a framework for describing QI culture using a 3 by 3 matrix with useful attributes that may transcend immediate (studied) PHC QI settings. Future research can test, refine and expand this framework's applicability across settings. In

addition, this research has extended the understanding of how various categories of barriers to, and enablers of QI relate to each other, picking from the MUSIQ model and CFIR framework. It was found that some (e.g. QI intervention attributes and QI team) are central, and others (e.g. the implementing organisation and health systems support) are important and intermediate to the QI endeavour. Distal elements, while still important in enabling QI include the external environment and broader macro level structures. Future research can explore the usefulness of this model in diverse county settings using mixed methods within embedded implementation research. Such a methodology would allow real world implementation of a QI project cycle while systematically documenting how culture interacts with contextual barriers and enablers to result in quantified QI outcomes.

Table 11: Recommendations to strengthen quality improvement

<u>Hospital QI teams</u> For better quality improvement results: • Ensure seamless information flow and timely communication to all team members. • Create demand for skills enhancement in (QI techniques, methods, tools, and approaches) within and beyond the QIT. • Consistently include QIT activities, achievements, challenges, and lessons in periodic reports to subcounty and county for greater visibility. • Promote a team approach to decision making, implementation and celebration of achievements related to QI/ change projects. • Involve the broader health facility team in QI processes for ownership and continuity of projects.
<u>County QI and PHC managers</u> To institutionalise a culture of quality & continuous improvement: • Plan regular assessments using available tools and support teams to develop QI plans that are implemented and monitored consistently. • Ensure QI activities are included in county, sub-county and hospital work plans, with resources allocated/availed for implementation. • Plan regular skills enhancement and capacity building for QI teams. • Strengthen appointment and deployment of QI coordinators (focal persons) at all levels with clear mandates. • Coordinate the activities of external sponsors (partners/NGOs) to ensure interventions support the broader PHC/hospital vision of quality improvement and are sustainably implemented.
<u>Policymakers</u> For future updates to the Kenya Quality Model for Health (KQMH) and other PHC/QI policies and guidelines: • Provide flexibility for various categories/levels of health facilities and make assessment/improvement tools more user-friendly and adaptive. • Explore options to onboard more facilities on eKQMH through assessments for scaled up uptake. • Include sample terms of reference (TOR) detailing functions of QI coordinators at various levels that counties/partners can adapt; build capacity of QI teams/ hospitals on the same. • Require counties and health facilities to have clear and publicly visible quality policy statements expressing their commitments to quality and QI for better accountability. To build skills and enhance leadership for QI: • Develop and disseminate guidance with adaptable job aids and standard operating procedures for continuing medical education, mentorship and coaching for QI teams. • Develop and implement a national competency and accreditation framework for QI managers with clear career pathways (scheme of service). For better visibility and tracking of QI implementation nationally: • Link QI incentives to universal health coverage and PHC financing arrangements for enhanced sustainability and scale up.

- Progressively integrate and harmonise QI reporting and monitoring dashboards to promote collaborative QI and learning.

Funders/Donors/Sponsors

To **reduce silos** and **foster sustainability**:

- Minimise funding standalone QI projects. Instead, integrate QI activities in PHC interventions as a critical component of effective evidence-based health and systems strengthening.
- Advocate with government (national, county) to progressively take up QI budgets in donor-funded projects as part of transition, exit and sustainability plans.

7.5 Reflections on CR

In all, CR inspired this study in four important ways. First is the recognition that the complex health system in which PHC QI is practiced can only be partly known. This study sought to contribute insights about the reality of PHC QI, even if partial and infallible (Mukumbang et al., 2018, 2021). Accordingly, CR informed the choice of how themes were organised, and findings presented. Second is the acknowledgement that the reality of PHC QI is multi-layered, with many interacting components (Danermark et al., 2005). Thus, analysis to reveal barriers and enablers considered the interactions among many levels, some proximal and other distal to the hospital environment where QI is practiced. Third, CR inspired the thinking that many co-occurring causal processes are active in PHC QI. These enable or constrain efforts by participants, with some of these processes being generative but not directly observable (Bhaskar & Hartwig, 2016). Accordingly, this research applied retroductive reasoning by posing the question: *what must the world be like for the observations made on PHC QI to happen?* (Mukumbang et al., 2021). It found an answer in the wider social structures, namely, national/county governance and macro-economic arrangements at play in Kenya. Lastly, the research came up with actionable recommendations to transform PHC QI practice and policy, based upon CR's aspiration to use knowledge for social transformation (promoting *human flourishing*) (Alderson, 2021; Bhaskar et al., 1998). Critical realists believe that research is transformational when it looks at disparate, complex, dialectical interactions among agents (be they patients or health workers or political decision makers) and structures (wider societal influences) (Edwards et al., 2014).

7.6 Personal reflection

I launched my PhD studies when Kenya was in the tight grip of the COVID19 in 2020.

The future seemed uncertain. Back then, enrolling for a public health PhD seemed like a natural inclination. After all, I had wanted to do so for some time. As I am at the end of this research and the PhD, I would like to pause and reflect on some of the challenges and positive experiences that I have encountered along the way, and how those have impacted my research and practice.

A new government was constituted in Kenya, following general elections in August 2022 which sought to accelerate progress in PHC as a means of attaining universal health coverage. Key among their objectives was to re-orient the health system to deliver PHC by establishing PCNs throughout the country. As PHC gained prominence globally and locally, many participants and stakeholders expressed how valuable my research would be, whereas previously I had been met by curiosity regarding my topic of choice, namely quality improvement. Being aware of the increasing prominence of PHC and PCNs and seizing on the flexibility of qualitative interviews, I included a question on QI in relation to PCNs in the interview guide, which yielded detailed insights from participants and helped keep the study aligned with a rapidly evolving context.

Informal discussions with QI/PHC managers in the counties where I wanted to conduct focused ethnographic fieldwork elicited useful feedback on my research questions in relation to the context of the local health systems context. Throughout this research I have been aware of my positionality as an insider-outsider: collaborating closely with counties as a health partner but never having practiced in a government hospital setting. I started with my own understandings accumulated

over time. By the end of fieldwork, I came away with an entirely different perspective. This has not only allowed me to accomplish my research objectives, but it has also motivated me as a practitioner to keep a focus on PHC and efforts to improve its quality.

My presence as an outsider inspired interviewees to discuss openly, perhaps in the hope that a documentation of their daily challenges might bring relief from decision makers in their counties. I often responded that I could not guarantee anything but would do my best to be fair and comprehensive in my analysis. I compared various viewpoints before coming to conclusions. Also, participants often paused midsentence to ask if they could safely and freely speak before divulging details that would paint their counties, hospitals or team members negatively. I took it as my duty to constantly reassure them of anonymity and confidentiality.

7.7 Conclusion

The culture of QI teams in PHC contexts is complex. QI practitioners express their agency in varied ways, which are shared at sub-group level, or across organisations (hospital/sub-county), and within the health system. PHC QI culture manifests explicitly in behaviours, experiences, and activities of QI teams. It is implied by the values, attitudes, beliefs, debates, and controversies by reflexive agents in the studied PHC contexts and imposes itself upon and is itself shaped by overarching structures and systems within which QI is practiced. Exploring enablers and barriers, the study finds that *absence* is pervasive in PHC QI: absence of material and cohesive cultural resources to support and sustain QI, and the absence of a skilled workforce implementing and leading QI. This absence of an institutionalised culture of

improvement and of the resources and skills needed for QI has negative ramifications and is causally efficacious, acting through multiple pathways to undermine PHC QI.

New themes developed in this study have extended the knowledge of QI culture, barriers, and enablers. This study developed two novel models upon which future research on PHC QI can build. The research shows the need to address barriers to PHC QI by tackling weak governance and negating (or 'absenting', in CR terms) the lack of skills and resources in PHC contexts in Kenya's complex health system.

Without urgent action to improve the quality of PHC, universal health coverage will remain elusive.

References

- Aberese-Ako, M., van Dijk, J. W. M., Agyepong, I. A., & Gerrits, G. J. E. (2016). *Frontline Health Worker Motivation in the Provision of Maternal and Neonatal Health Care in Ghana* (rayyan-933616782) [Wageningen University and Research PP - Netherlands].
<http://proquest.umi.com/login/athens?url=https://www.proquest.com/dissertations-theses/frontline-health-worker-motivation-provision/docview/2521600538/se-2?accountid=11979>
- Adamu, A. A., Uthman, O. A., Gadanya, M. A., Cooper, S., & Wiysonge, C. S. (2019). Using the theoretical domains framework to explore reasons for missed opportunities for vaccination among children in Kano, Nigeria: A qualitative study in the pre-implementation phase of a collaborative quality improvement project. *Expert Review of Vaccines*, 18(8), 847–857. <https://doi.org/10.1080/14760584.2019.1643720>
- Adamu, A. A., Uthman, O. A., Gadanya, M. A., & Wiysonge, C. S. (2019). Implementation and evaluation of a collaborative quality improvement program to improve immunization rate and reduce missed opportunities for vaccination in primary health-care facilities: A time series study in Kano, Nigeria. *Expert Review of Vaccines*, 18(9), 969–991. <https://doi.org/10.1080/14760584.2019.1647782>
- Adamu, A. A., Uthman, O. A., Gadanya, M. A., & Wiysonge, C. S. (2020). Using the consolidated framework for implementation research (CFIR) to assess the implementation context of a quality improvement program to reduce missed opportunities for vaccination in Kano, Nigeria: A mixed methods study. *Human Vaccines & Immunotherapeutics*, 16(2), 465–475. <https://doi.org/10.1080/21645515.2019.1654798>
- AHRQ. (2023). *Quality Improvement in Primary Care*. Agency for Healthcare Research and Quality. <https://www.ahrq.gov/research/findings/factsheets/quality/qipc/index.html>

- Alderson, P. (2021). Structure and agency: Making connections. In *Critical Realism for Health and Illness Research: A Practical Introduction* (1st ed., pp. 65–94). Policy Press Scholarship Online. <https://doi.org/10.46692/9781447354581.004>
- Alhatm, Y. S. (2010). Quality audit experience for excellence in healthcare. *Clinical Governance: An International Journal*, 15(2), 113–127.
<https://doi.org/10.1108/14777271011036364>
- Al-Janabi, A., Al-Wahdani, B., Ammar, W., Arsenault, C., Asiedu, E. K., Etiebet, M.-A., Forde, I., Gage, A. D., García-Saisó, S., Guanais, F., Hansen, P. M., Hovig, D., Jhalani, M., Kruk, M. E., Maliqi, B., Marikar, K., Matsoso, M. P., Pate, M., Peterson, S., ... Thapa, G. (2018). Bellagio Declaration on high-quality health systems: From a quality moment to a quality movement. *Lancet Glob Health*, 6(11), e1144–e1145.
[https://doi.org/10.1016/S2214-109X\(18\)30372-3](https://doi.org/10.1016/S2214-109X(18)30372-3)
- Al-Rifai, M. (2024). *Lean Six Sigma*. <https://doi.org/10.4324/9781032688343>
- Alshehry, A. (2019). Culture of quality in infection prevention of a hospital as perceived by health care workers. *Journal of Nursing Management*.
<https://doi.org/10.1111/jonm.12783>
- American Society for Quality. (2024). *What are the Five S's (5S) of Lean?* Learn About Quality. <https://asq.org/quality-resources/lean/five-s-tutorial>
- Andrew K. Shenton. (2004). Strategies for Ensuring Trustworthiness in Qualitative Research Projects. *Education for Information*, 22(2), 63–75. <https://doi.org/10.3233/EFI-2004-22201>
- Antonacci, G., Lennox, L., Barlow, J., Evans, L., & Reed, J. (2020). Process mapping in healthcare: A systematic review. *BMC Health Services Research*, 21.
<https://doi.org/10.1186/s12913-021-06254-1>
- Archer, M., Bhaskar, R., Collier, A., Lawson, T., & Norrie, A. (1998). *Critical Realism: Essential Readings*.

- Atkinson, P., & Hammersley, M. (2007). *Ethnography: Principles in Practice* (Third). Routledge Taylor & Francis Group.
- Atmaca, E., & Girenes, S. (2013). Lean Six Sigma methodology and application. *Quality & Quantity*, 47, 2107–2127. <https://doi.org/10.1007/S11135-011-9645-4>
- Ayele, B., Gebretnsae, H., Hadgu, T., Negash, D., G/Silassie, F., Alemu, T., Haregot, E., Wubayehu, T., & Godefay, H. (2019). Maternal and perinatal death surveillance and response in Ethiopia: Achievements, challenges and prospects. In *PloS one* (Vol. 14, Issue 10, p. e0223540). Public Library of Science.
- Baker, U., Petro, A., Marchant, T., Peterson, S., Manzi, F., Bergström, A., & Hanson, C. (2018). Health workers’ experiences of collaborative quality improvement for maternal and newborn care in rural Tanzanian health facilities: A process evaluation using the integrated “Promoting Action on Research Implementation in Health Services” framework. *PloS One*, 13(12), e0209092. <https://doi.org/10.1371/journal.pone.0209092>
- Barber, R. M., Fullman, N., Sorensen, R. J. D., Bollyky, T., McKee, M., Nolte, E., Abajobir, A. A., Abate, K. H., Abbafati, C., Abbas, K. M., Abd-Allah, F., Abdulle, A. M., Abdurahman, A. A., Abera, S. F., Abraham, B., Abreha, G. F., Adane, K., Adelekan, A. L., Adetifa, I. M. O., ... Wang, H. (2017). Healthcare access and quality index based on mortality from causes amenable to personal health care in 195 countries and territories, 1990-2015: A novel analysis from the global burden of disease study 2015. *The Lancet (British Edition)*, 390(10091), 231–266.
- Bariş, E., Silverman, R., Wang, H., Zhao, F., & Pate, M. A. (2021). *Walking the Talk—Reimagining Primary Health Care after COVID-19*. The World Bank. <http://hdl.handle.net/10986/35842>
- Basenero, A., Neidel, J., Ikeda, D. J., Ashivudhi, H., Mpariwa, S., Kamangu, J. W. N., Mpalang Kakubu, M. A., Hans, L., Mutandi, G., Jed, S., Tjituka, F., Hamunime, N., & Agins, B. D.

- (2022). Integrating hypertension and HIV care in Namibia: A quality improvement collaborative approach. In *PloS one* (Vol. 17, Issue 8, p. e0272727). Public Library of Science.
- Batalden, P. B., & Davidoff, F. (2007). What is “quality improvement” and how can it transform healthcare? *Qual Saf Health Care*, 16(1), 2–3.
<https://doi.org/10.1136/qshc.2006.022046>
- Belrhiti, Z., Van Damme, W., Belalia, A., & Marchal, B. (2020). Unravelling the role of leadership in motivation of health workers in a Moroccan public hospital: A realist evaluation. *BMJ Open*, 10(1), 1–17. <https://doi.org/10.1136/bmjopen-2019-031160>
- Berhanu, A. T., Tufa, A., Lemma, S., Gonfa, G., Getachew, T., Bekele, D., Kibret, F., Djellouli, N., Colbourn, T., & Marchant, T. (2024). Building a culture of quality in maternal and newborn health: Experience from the quality, equity and dignity network in Ethiopia. *Global Health Action*, 17. <https://doi.org/10.1080/16549716.2024.2433576>
- Bertone, M. P., Lagarde, M., & Witter, S. (2016). Performance-based financing in the context of the complex remuneration of health workers: Findings from a mixed-method study in rural Sierra Leone. *BMC Health Services Research*, 16, 286.
<https://doi.org/10.1186/s12913-016-1546-8>
- Bevan, G. (2010). Performance Measurement of “Knights” and “Knaves”: Differences in Approaches and Impacts in British Countries after Devolution. *Journal of Comparative Policy Analysis*, 12(1–2), 33–56.
<https://doi.org/10.1080/13876980903076187>
- Bhaskar, R. (2008). *Dialectic: The Pulse of Freedom*. Routledge.
- Bhaskar, R. (2014). *The Possibility of Naturalism: A Philosophical Critique of the Contemporary Human Sciences*. (4th ed.).
- Bhaskar, R., Archer, M., Collier, A., Lawson, T., & Norrie, A. (1998). *Critical Realism: Essential Readings* (R. Bhaskar, M. Arche, A. Collier, T. Lawson, & A. Norrie, Eds.). Routledge.

- Bhaskar, R., & Hartwig, M. (2016). *Enlightened Common Sense: The Philosophy of Critical Realism*.
- Boatman, D., Eason, S., Sturgeon-Danley, K., Whitworth, C., & Kennedy-Rea, S. (2025). Adapting the MUSIQ Calculator for Practice Facilitators to Evaluate Primary Care Clinic Performance in a Colorectal Cancer Screening Quality Improvement Project. *Journal of Primary Care & Community Health*, 16, 21501319251327849. <https://doi.org/10.1177/21501319251327849>
- Bogren, M., Mwambali, S. N., & Berg, M. (2021). Contextual factors influencing a training intervention aimed at improved maternal and newborn healthcare in a health zone of the Democratic Republic of Congo. In *PloS one* (Vol. 16, Issue 11, p. e0260153). Public Library of Science.
- Boughaba, A., Aberkane, S., Fourar, Y.-O., & Djebabra, M. (2019). Study of safety culture in healthcare institutions: Case of an Algerian hospital. *International Journal of Health Care Quality Assurance (09526862)*, 32(7), 1081–1097. <https://doi.org/10.1108/IJHCQA-09-2018-0229>
- Bourgeault, I. et al. (Ed.). (2010). *The SAGE Handbook of Qualitative Methods in Health Research*. Sage Publications.
- Bradley, E. H., Byam, P., Alpern, R., Thompson, J. W., Zerihun, A., Abebe, Y., & Curry, L. A. (2012). A systems approach to improving rural care in Ethiopia. *PloS One*, 7(4), e35042. <https://doi.org/10.1371/journal.pone.0035042>
- Brönnimann, A. (2022). How to phrase critical realist interview questions in applied social science research. *Journal of Critical Realism*, 21(1), 1–24. <https://doi.org/10.1080/14767430.2021.1966719>
- Camacho-Rodriguez, D. E., Carrasquilla-Baza, D. A., Dominguez-Cancino, K. A., & Palmieri, P. A. (2022). Patient Safety Culture in Latin American Hospitals: A Systematic Review

- with Meta-Analysis. *Int J Environ Res Public Health*, 19(21).
<https://doi.org/10.3390/ijerph192114380>
- Caole, R. (2005). Root Cause Analysis: A Framework for Tool Selection. *Quality Management Journal*, 12, 34–45. <https://doi.org/10.1080/10686967.2005.11919269>
- Cetin, K., Worku, D., Demtse, A., Melberg, A., & Miljeteig, I. (2022). “Death audit is a fight” — Provider perspectives on the ethics of the Maternal and Perinatal Death Surveillance and Response (MPDSR) system in Ethiopia. In *BMC health services research* (Vol. 22, Issue 1, p. 1214). BioMed Central.
- Chandani, Y., Duffy, M., Lamphere, B., Noel, M., Heaton, A., & Andersson, S. (2017). Quality improvement practices to institutionalize supply chain best practices for iCCM: Evidence from Rwanda and Malawi. In *Research in social & administrative pharmacy: RSAP* (Vol. 13, Issue 6, pp. 1095–1109). Elsevier.
- Clarke, V., & Braun, V. (2017). Thematic analysis. *The Journal of Positive Psychology*, 12(3), 297–298. <https://doi.org/10.1080/17439760.2016.1262613>
- Coccia, M. (2020). Fishbone diagram for technological analysis and foresight. *International Journal of Foresight and Innovation Policy*.
<https://doi.org/10.1504/ijfip.2020.10033239>
- Coles, E., Anderson, J., Maxwell, M., Harris, F. M., Gray, N. M., Milner, G., & MacGillivray, S. (2020). The influence of contextual factors on healthcare quality improvement initiatives: A realist review. *Systematic Reviews*, 9(1), 94–94.
<https://doi.org/10.1186/s13643-020-01344-3>
- Contreras, J. (2010). Root Cause Analysis. *Journal of Clinical Engineering*, 46, 85–88.
<https://doi.org/10.1097/JCE.0000000000000456>
- Cooke, A., Smith, D., & Booth, A. (2012). Beyond PICO: The SPIDER tool for qualitative evidence synthesis. *Qualitative Health Research*, 22(10), 1435–1443.
<https://doi.org/10.1177/1049732312452938>

- Coulibaly, A., Gautier, L., Zitti, T., & Ridde, V. (2020). Implementing performance-based financing in peripheral health centres in Mali: What can we learn from it? *Health Res Policy Syst*, 18(1), 54. <https://doi.org/10.1186/s12961-020-00566-0>
- Cyr, J. (2016). The Pitfalls and Promise of Focus Groups as a Data Collection Method. *Sociological Methods and Research*, 45(2), 231–259. <https://doi.org/10.1177/0049124115570065>
- Damschroder, L. J., Reardon, C. M., Opra Widerquist, M. A., & Lowery, J. (2022a). Conceptualizing outcomes for use with the Consolidated Framework for Implementation Research (CFIR): The CFIR Outcomes Addendum. *Implement Sci*, 17(1), 7. <https://doi.org/10.1186/s13012-021-01181-5>
- Danermark, B., Ekstrom, M., Jakobsen, L., & Karlsson, J. Ch. (2005). *Explaining Society: Critical realism in the social sciences*. Routledge Taylor & Francis. <https://doi.org/10.1177/009430610403300273>
- Das, M. K., Arora, N. K., Dalpath, S., Kumar, S., Qazi, S. A., & Bahl, R. (2018). Improving quality of care for perinatal and newborn care at district and subdistrict hospitals in Haryana, India: Implementation research protocol. *Journal of Advanced Nursing (John Wiley & Sons, Inc.)*, 74(12), 2904–2911. <https://doi.org/10.1111/jan.13791>
- Davidoff, F., Batalden, P., Stevens, D., Ogrinc, G., & Mooney, S. (2008). Publication guidelines for quality improvement in health care: Evolution of the SQUIRE project. *Quality & Safety in Health Care*, 17(Suppl 1), i3–i9. <https://doi.org/10.1136/qshc.2008.029066>
- de Vasconcelos, P. F., de Carvalho, R. E. F. L., Neto, P. H. S., Dutra, F. C. da S., Sousa, V. T. dos S., de Oliveira, S. K. P., & de Sousa Freire, V. E. C. (2021). PATIENT SAFETY ATMOSPHERE IN PRIMARY HEALTH CARE: ROOT CAUSE ANALYSIS. *Revista Mineira de Enfermagem*, 25, 1–7. <https://doi.org/10.5935/1415-2762-20210019>

- Decoteau, C. (2017). The AART of Ethnography: A Critical Realist Explanatory Research Model. *Journal for The Theory of Social Behaviour*, 47, 58–82.
<https://doi.org/10.1111/JTSB.12107>
- DeJonckheere, M., & Vaughn, L. M. (2019). Semistructured interviewing in primary care research: A balance of relationship and rigour. *Family Medicine and Community Health*, 7(2), 1–8. <https://doi.org/10.1136/fmch-2018-000057>
- Demes, J. A. E., Becerril-Montekio, V., Torres-Pereda, P., Jasmin, E. R., Dube, J. G., Coq, J. G., & Nickerson, N. (2021). Analysis of implementation outcomes of quality improvement initiatives in Haiti: The fingerprint initiative. *Rev Panam Salud Publica*, 45, e68.
<https://doi.org/10.26633/RPSP.2021.68>
- Denscombe, M. (2010). *The Good Research Guide for small-scale social research projects* (Fourth). Open University Press.
- Dewan, M., Parsons, A., Tegtmeyer, K., Wenger, J., Niles, D., Raymond, T., Cheng, A., Skellett, S., Roberts, J., Jani, P., Nadkarni, V., & Wolfe, H. (2021). Contextual Factors Affecting Implementation of In-hospital Pediatric CPR Quality Improvement Interventions in a Resuscitation Collaborative. *Pediatric Quality & Safety*, 6(5), e455–e455.
<https://doi.org/10.1097/pq9.0000000000000455>
- Djellouli, N. ;, Mann, S. ;, Nambiar, B. ;, Meireles, P. ;, Miranda, D. ;, Barros, H. ;, & Colbourn, T. (2016). *Final Evaluation of the MOMI Project in Burkina Faso, Kenya, Malawi and Mozambique. Final Report. UR -!www.momiproject.eu* (MOMI Report, Vols. 6 & 7). Institute for Global Health, University College London (UCL) and Faculdade de Medicina da Universidade do Porto (FMUP).
- Djulgovic, B., Bennett, C. L., & Guyatt, G. (2019). A unifying framework for improving health care. *J Eval Clin Pract*, 25(3), 358–362. <https://doi.org/10.1111/jep.13066>
- Dohlie, M., Mielke, E., Bwire, T., Adriance, D., & Mumba, F. (2000). COPE (client-oriented, provider-efficient), a model for building community partnerships that improve care

- in East Africa. *Journal for Healthcare Quality : Official Publication of the National Association for Healthcare Quality*, 22 5, 34–39.
- Donabedian, A. (2005). Evaluating the Quality of Medical Care. *The Milbank Quarterly*, 83(4), 691–729. <https://doi.org/10.1111/j.1468-0009.2005.00397.x>
- Eboreime, E. A., Nxumalo, N., Ramaswamy, R., & Eyles, J. (2018). Strengthening decentralized primary healthcare planning in Nigeria using a quality improvement model: How contexts and actors affect implementation. *Health Policy Plan*, 33(6), 715–728. <https://doi.org/10.1093/heapol/czy042>
- Eboreime, E. A., Nxumalo, N., Ramaswamy, R., Ibisomi, L., Ihebuzor, N., & Eyles, J. (2019). Effectiveness of the Diagnose-Intervene- Verify-Adjust (DIVA) model for integrated primary healthcare planning and performance improvement: An embedded mixed methods evaluation in Kaduna state, Nigeria. *BMJ Open*, 9(3), e026016. <https://doi.org/10.1136/bmjopen-2018-026016>
- Edgley, A., Stickley, T., Timmons, S., & Meal, A. (2016). Critical realist review: Exploring the real, beyond the empirical. *Journal of Further and Higher Education*, 40, 316–330. <https://doi.org/10.1080/0309877X.2014.953458>
- Edwards, P. K., O’Mahoney, J., & Vincent, S. (2014). Studying Organizations Using Critical Realism: A Practical Guide. In *Studying Organizations Using Critical Realism* (1st ed.). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199665525.003.0001>
- Fetterman, D. M. (2010). *Ethnography: Step by step*.
- Fisher, G., Wisneski, J., & Bakker, R. (2020). Root-Cause Analysis. *Strategy in 3D*. <https://doi.org/10.1016/b978-075067150-7/50054-9>
- Fletcher, A. J. (2017a). Applying critical realism in qualitative research: Methodology meets method. *International Journal of Social Research Methodology*, 20(2), 181–194. <https://doi.org/10.1080/13645579.2016.1144401>

- Fletcher, A. J. (2017b). Applying critical realism in qualitative research: Methodology meets method. *International Journal of Social Research Methodology*, 20(2), 181–194.
<https://doi.org/10.1080/13645579.2016.1144401>
- Flick, U. (2014). Mapping the Field. The SAGE Handbook of Qualitative Data Analysis. SAGE Publications Ltd. In *The SAGE Handbook of Qualitative Data Analysis*.
- Gage, A. D., Gotsadze, T., Seid, E., Mutasa, R., & Friedman, J. (2022). The influence of Continuous Quality Improvement on healthcare quality: A mixed-methods study from Zimbabwe. *Soc Sci Med*, 298, 114831.
<https://doi.org/10.1016/j.socscimed.2022.114831>
- Gardner, K., Sibthorpe, B., Chan, M., Sargent, G., Dowden, M., & McAullay, D. (2018). Implementation of continuous quality improvement in Aboriginal and Torres Strait Islander primary health care in Australia: A scoping systematic review. *BMC Health Services Research*, 18(1), 541–21. <https://doi.org/10.1186/s12913-018-3308-2>
- George, A. (2009). “By papers and pens, you can only do so much”: Views about accountability and human resource management from Indian government health administrators and workers. *The International Journal of Health Planning and Management*, 24(3), 205–224. <https://doi.org/10.1002/hpm.986>
- Gibbons, J. A., Hammersley, M., & Atkinson, P. (1986). Ethnography: Principles in Practice. In *Contemporary Sociology* (Vol. 15, Issue 3). <https://doi.org/10.2307/2070079>
- Gichuki, N. (2020). Challenges of devolved health care in Kenya: An analysis of the policy and legislative framework. *KAS African Law Study Library = KAS Librairie Africaine d'études Juridiques*, 7(4), 501–524. <https://doi.org/10.5771/2363-6262-2020-4-501>
- Giessler, K., Seefeld, A., Montagu, D., Phillips, B., Mwangi, J., Munson, M., Green, C., Opot, J., & Golub, G. (2020). Perspectives on implementing a quality improvement collaborative to improve person-centered care for maternal and reproductive health

- in Kenya. *Int J Qual Health Care*, 32(10), 671–676.
<https://doi.org/10.1093/intqhc/mzaa130>
- Given, L. M. ;, & Saumure, K. (2008). The SAGE Encyclopedia of QUALITATIVE RESEARCH METHODS Volumes 1-2. In *The SAGE Encyclopedia of QUALITATIVE RESEARCH METHODS*.
- Gorski, P. S. (2013). “What is Critical Realism? And Why Should You Care?” *Contemporary Sociology: A Journal of Reviews*, 42(5), 658–670.
<https://doi.org/10.1177/0094306113499533>
- Grant, J., McKinley, D., Rashid, M. A., Boulet, J., & Grant, L. (2023). Quality improvement: An argument for difference. *Medical Education*, 57(1), 4–6.
<https://doi.org/10.1111/medu.14958>
- Hadi, M. A., & José Closs, S. (2016). Ensuring rigour and trustworthiness of qualitative research in clinical pharmacy. *International Journal of Clinical Pharmacy*, 38(3), 641–646. <https://doi.org/10.1007/s11096-015-0237-6>
- Hartwig, M. (2007). Dialectics of utopia and the pulse of freedom. *Journal of Critical Realism*, 6(2), 267–285. <https://doi.org/10.1558/jocr.v6i2.267>
- Heitkamp, A., Suh, J., Gebhardt, S., van Roosmalen, J., Murray, L. R., de Vries, J. I., van den Akker, T., & Theron, G. (2022). Every maternal near-miss counts: Need for a national audit in South Africa? A mixed-methods study. *South African Medical Journal*, 112(9), 769–777. <https://doi.org/10.7196/SAMJ.2022.v112i9.16248>
- Hicks, J. P., Allsop, M. J., Akaba, G. O., Yalma, R. M., Dirisu, O., Okusanya, B., Tukur, J., Okunade, K., Akeju, D., Ajepe, A., Okuzu, O., Mirzoev, T., & Ebenso, B. (2021). Acceptability and Potential Effectiveness of eHealth Tools for Training Primary Health Workers From Nigeria at Scale: Mixed Methods, Uncontrolled Before-and-After Study. *JMIR mHealth and uHealth*, 9(9), e24182. <https://doi.org/10.2196/24182>

- Higginbottom, G. M. A., Pillay, J. J., & Boadu, N. Y. (2013a). Guidance on performing focused ethnographies with an emphasis on healthcare research. *Qualitative Report*, 18(9), 1–6. <https://doi.org/10.46743/2160-3715/2013.1550>
- Higginbottom, G. M. A., Pillay, J. J., & Boadu, N. Y. (2013b). Guidance on performing focused ethnographies with an emphasis on healthcare research. *Qualitative Report*, 18(9), 1–6. <https://doi.org/10.46743/2160-3715/2013.1550>
- Hong, Q. N., Gonzalez-Reyes, A., & Pluye, P. (2018). Improving the usefulness of a tool for appraising the quality of qualitative, quantitative and mixed methods studies, the Mixed Methods Appraisal Tool (MMAT). *Journal of Evaluation in Clinical Practice*, 24(3), 459–467. <https://doi.org/10.1111/jep.12884>
- Horton, R. (2017). Offline: Tackling the despair of England’s NHS. *The Lancet*, 389(10066), 238. [https://doi.org/10.1016/S0140-6736\(17\)30127-7](https://doi.org/10.1016/S0140-6736(17)30127-7)
- Horwood, C., Butler, L., Barker, P., Phakathi, S., Haskins, L., Grant, M., Mntambo, N., & Rollins, N. (2017). A continuous quality improvement intervention to improve the effectiveness of community health workers providing care to mothers and children: A cluster randomised controlled trial in South Africa. *Human Resources for Health*, 15, 1–11. <https://doi.org/10.1186/s12960-017-0210-7>
- Horwood, C., Luthuli, S., Mapumulo, S., Haskins, L., Jensen, C., Pansegrouw, D., & McKerrow, N. (2023). Challenges of using e-health technologies to support clinical care in rural Africa: A longitudinal mixed methods study exploring primary health care nurses’ experiences of using an electronic clinical decision support system (CDSS) in South Africa. In *BMC health services research* (Vol. 23, Issue 1, p. 30). BioMed Central.
- Hounsou, B. C., Agossou, M. C. U., Bello, K., Delvaux, T., Benova, L., Vigan Guezodje, A., Hounkpatin, H., & Dossou, J. P. (2022). “So hard not to feel blamed!”: Assessment of implementation of Benin’s Maternal and Perinatal Death Surveillance and Response

- strategy from 2016-2018. *International Journal of Gynaecology and Obstetrics*, 158 Suppl 2, 6–14. <https://doi.org/10.1002/ijgo.14041>
- Hussein, J., Hirose, A., Owolabi, O., Imamura, M., Kanguru, L., & Okonofua, F. (2016). Maternal death and obstetric care audits in Nigeria: A systematic review of barriers and enabling factors in the provision of emergency care. *Reproductive Health*, 13, 47. <https://doi.org/10.1186/s12978-016-0158-4>
- Hutchinson, E., Naviga, S., Nabirye, C., Taaka, L., Westercamp, N., Rowe, A. K., & Staedke, S. G. (2021). Opening the “black box” of collaborative improvement: A qualitative evaluation of a pilot intervention to improve quality of malaria surveillance data in public health centres in Uganda. In *Malaria journal* (Vol. 20, Issue 1, p. 289). BioMed Central.
- IHI. (2023). *Institute of Healthcare Improvement* [Online post]. <https://www.ihl.org/improvement-areas>
- Jacobson, D., & Mustafa, N. (2019). Social Identity Map: A Reflexivity Tool for Practicing Explicit Positionality in Critical Qualitative Research. *International Journal of Qualitative Methods*, 18, 160940691987007. <https://doi.org/10.1177/1609406919870075>
- Jagosh, J. (2019). Realist Synthesis for Public Health: Building an Ontologically Deep Understanding of How Programs Work, For Whom, and In Which Contexts. *Annual Review of Public Health*, 40, 361–372. <https://doi.org/10.1146/annurev-publhealth-031816-044451>
- Johnson, M. C., Schellekens, O., Stewart, J., van Ostenberg, P., de Wit, T. R., & Spieker, N. (2016). SafeCare: An Innovative Approach for Improving Quality Through Standards, Benchmarking, and Improvement in Low- and Middle-Income Countries. *The Joint Commission Journal on Quality and Patient Safety*, 42(8), 350-AP11. [https://doi.org/10.1016/S1553-7250\(16\)42049-0](https://doi.org/10.1016/S1553-7250(16)42049-0)

- Kandasami, S., Syed, S. B., Edward, A., Sodzi-Tettey, S., Garcia-Elorrio, E., Mensah Abrampah, N., & Hansen, P. M. (2019). Institutionalizing quality within national health systems: Key ingredients for success. *International Journal for Quality in Health Care*, 31(9), G136–G138. <https://doi.org/10.1093/intqhc/mzz116>
- Kaplan, H. C., Froehle, C. M., Cassedy, A., Provost, L. P., & Margolis, P. A. (2013). An exploratory analysis of the Model for Understanding Success in Quality. *Health Care Management Review*, 38(4), 325–338. <https://doi.org/10.1097/HMR.0b013e3182689772>
- Kaplan, H. C., Provost, L. P., Froehle, C. M., & Margolis, P. A. (2012). The Model for Understanding Success in Quality (MUSIQ): Building a theory of context in healthcare quality improvement. *BMJ Qual Saf*, 21(1), 13–20. <https://doi.org/10.1136/bmjqs-2011-000010>
- Karimi, J., Hussien, S., Wangia, E., Kimani, M. I., Mohamed, M., Wanda, M., Muganda, R., Ndirangu, R., Mwai, D., Wanjala, M., & Richter, F. (2025). Approaches to implementing and financing primary health care in Kenya: A case of seven counties. *Frontiers in Health Services*, 5, 1298379. <https://doi.org/10.3389/frhs.2025.1298379>
- Keith, R. E., Crosson, J. C., O'Malley, A. S., Crompton, D., & Taylor, E. F. (2017). Using the Consolidated Framework for Implementation Research (CFIR) to produce actionable findings: A rapid-cycle evaluation approach to improving implementation. *Implementation Science : IS*, 12(1), 15. <https://doi.org/10.1186/s13012-017-0550-7>
- Kenya Anti-Corruption Authority. (2010). *Sectoral Perspectives on Corruption in Kenya: The Case of the Public Healthcare Delivery*. Ethics and Anti-Corruption Commission Kenya. <https://eacc.go.ke/default/wp-content/uploads/2018/09/health-report.pdf>
- Kenya Government. (2022). *PUBLIC STATEMENT ON THE STATUS OF PAYMENTS TO COUNTY GOVERNMENTS*. National Treasury. <https://www.treasury.go.ke/wp->

content/uploads/2020/11/1.9.2020-Public-Statement-on-the-Status-of-Payments-to-County-Governments.pdf

Kenya Government. (2024a, January). *THE NATIONAL TREASURY & ECONOMIC PLANNING.*

MONTHLY DEBT BULLETIN. JANUARY 2024. National Treasury.

<https://www.treasury.go.ke/wp-content/uploads/2024/03/January-2024-Monthly-Bulletin.pdf>

Kenya Government. (2024b, June 11). *STATISTICAL ANNEX to the BUDGET STATEMENT for*

THE FISCAL YEAR 2024/2025. National Treasury and Economic Planning.

<https://www.treasury.go.ke/wp-content/uploads/2024/06/Statistical-Annex-to-the-Budget-Statement-for-the-FY-2024-25.pdf>

Kenya National Bureau of Statistics. (2022). *2019 Kenya Population and Housing Census—*

Analytical Report on Mortality Vol.VII (6) (Vol. vii).

Khader, Y., Alyahya, M., & Batieha, A. (2019). Barriers to Implementation of Perinatal Death

Audit in Maternity and Pediatric Hospitals in Jordan: Cross-Sectional Study. *JMIR*

Public Health and Surveillance, 5(1), e11653. <https://doi.org/10.2196/11653>

Khan, T., Alderson, S., Francis, J. J., Lorencatto, F., Grant-Casey, J., Stanworth, S. J., & Foy, R.

(2020). Repeated analyses of national clinical audit reports demonstrate

improvements in feedback methods. *Implementation Science Communications*, 1(1),

106. <https://doi.org/10.1186/s43058-020-00089-3>

Khurshid, Z., Brún, A. De, Martin, J., & McAuliffe, E. (2021). A Systematic Review and

Narrative Synthesis: Determinants of the Effectiveness and Sustainability of

Measurement-Focused Quality Improvement Trainings. *The Journal of Continuing*

Education in the Health Professions, 41, 210–220.

Kim, C., Kirunda, R., Mubiru, F., Rakhmanova, N., & Wynne, L. (2019). A process evaluation of

the quality improvement collaborative for a community-based family planning

learning site in Uganda. *Gates Open Res*, 3, 1481.

<https://doi.org/10.12688/gatesopenres.12973.2>

Kinney, M., Bergh, A. M., Rhoda, N., Pattinson, R., & George, A. (2022). Exploring the sustainability of perinatal audit in four district hospitals in the Western Cape, South Africa: A multiple case study approach. *BMJ Glob Health*, 7(6).

<https://doi.org/10.1136/bmjgh-2022-009242>

Kinney, M. V., Ajayi, G., de Graft-Johnson, J., Hill, K., Khadka, N., Om'Iniabo, A., Mukora-Mutseyekwa, F., Tayebwa, E., Shittu, O., Lipingu, C., Kerber, K., Nyakina, J. D., Ibekwe, P. C., Sayinzoga, F., Madzima, B., George, A. S., & Thapa, K. (2020). "It might be a statistic to me, but every death matters.": An assessment of facility-level maternal and perinatal death surveillance and response systems in four sub-Saharan African countries. *PloS One*, 15(12), e0243722.

<https://doi.org/10.1371/journal.pone.0243722>

Kinyenje, E., Ngowi, R. R., Msigwa, Y. S., Hokororo, J. C., Yahya, T. A., German, C. C., Mawazo, A., Mohamed, M. A., Nassoro, O. A., Degeh, M. M., Bahegwa, R. P., Marandu, L. E., Mwaisengela, S. M., Mwanginde, L. W., Makala, R., & Eliakimu, E. S. (2022). Contribution of quality improvement initiative in strengthening laboratory services in Primary Healthcare Facilities in Tanzania: Findings from 2017/2018 Star Rating Assessment. *medRxiv*, 2022.12.20.22283751.

<https://doi.org/10.1101/2022.12.20.22283751>

Kirigia, J. M., Gbary, A. R., Muthuri, L. K., Nyoni, J., & Seddoh, A. (2006). The cost of health professionals' brain drain in Kenya. *BMC Health Services Research*, 6, 89.

<https://doi.org/10.1186/1472-6963-6-89>

Kirk, M. A., Kelley, C., Yankey, N., Birken, S. A., Abadie, B., & Damschroder, L. (2016). A systematic review of the use of the Consolidated Framework for Implementation

Research. *Implementation Science : IS*, 11(1), 72. <https://doi.org/10.1186/s13012-016-0437-z>

Kleinman, L. C., & Dougherty, D. (2013). Assessing quality improvement in health care: Theory for practice. *Pediatrics*, 131, S110–S119. <https://doi.org/10.1542/peds.2012-1427n>

Kongnyuy, E. J., & Uthman, O. A. (2009). Use of criterion-based clinical audit to improve the quality of obstetric care: A systematic review. *Acta Obstetrica et Gynecologica Scandinavica*, 88(8), 873–881. <https://doi.org/10.1080/00016340903093542>

Kringos, D. S., Sunol, R., Wagner, C., Mannion, R., Michel, P., Klazinga, N. S., Groene, O., & Consortium, D. Uq. (2015). The influence of context on the effectiveness of hospital quality improvement strategies: A review of systematic reviews. *BMC Health Serv Res*, 15, 277. <https://doi.org/10.1186/s12913-015-0906-0>

Kruk, M. E., Chukwuma, A., Mbaruku, G., & Leslie, H. H. (2017). Variation in quality of primary-care services in Kenya, Malawi, Namibia, Rwanda, Senegal, Uganda and the United Republic of Tanzania. *Bull World Health Organ*, 95(6), 408–418. <https://doi.org/10.2471/BLT.16.175869>

Kruk, M. E., Gage, A. D., Arsenault, C., Jordan, K., Leslie, H. H., Roder-DeWan, S., Adeyi, O., Barker, P., Daelmans, B., Doubova, S. V., English, M., Garcia-Elorrio, E., Guanais, F., Gureje, O., Hirschhorn, L. R., Jiang, L., Kelley, E., Lemango, E. T., Liljestrand, J., ... Pate, M. (2018). High-quality health systems in the Sustainable Development Goals era: Time for a revolution. *Lancet Glob Health*, 6(11), e1196–e1252. [https://doi.org/10.1016/S2214-109X\(18\)30386-3](https://doi.org/10.1016/S2214-109X(18)30386-3)

Kumar, M. B., Madan, J. J., Auguste, P., Taegtmeier, M., Otiso, L., Ochieng, C. B., Muturi, N., Mgamb, E., & Barasa, E. (2021). Cost-effectiveness of community health systems strengthening: Quality improvement interventions at community level to realise

- maternal and child health gains in Kenya. *BMJ Global Health*, 6(3).
<https://doi.org/10.1136/bmjgh-2020-002452>
- Lall, D., Engel, N., Devadasan, N., Horstman, K., & Criel, B. (2020). Team-based primary health care for non-communicable diseases: Complexities in South India. *Health Policy Plan*, 35(Supplement_2), ii22–ii34. <https://doi.org/10.1093/heapol/czaa121>
- Le Grand, J. (2010). Knights and Knaves Return: Public Service Motivation and the Delivery of Public Services. *International Public Management Journal*, 13(1), 56–71.
<https://doi.org/10.1080/10967490903547290>
- Limato, R., Tumbelaka, P., Ahmed, R., Nasir, S., Syafruddin, D., Ormel, H., Kumar, M. B., Taegtmeier, M., & Kok, M. (2019). What factors do make quality improvement work in primary health care? Experiences of maternal health quality improvement teams in three Puskesmas in Indonesia. *PLoS One*, 14(12), e0226804.
<https://doi.org/10.1371/journal.pone.0226804>
- Lokossou, V., Sombie, I., Some, D. T., Dossou, C. A., & Awignan, N. (2019). Do quality improvement teams contribute to the improvement of community Health Workers' performance in Benin? *Sante Publique*, Vol. 31(1), 165–175.
<https://doi.org/10.3917/spub.191.0165>
- Luna Pinzon, A., Stronks, K., Dijkstra, C., Renders, C., Altenburg, T., den Hertog, K., Kremers, S. P. J., Chinapaw, M. J. M., Verhoeff, A. P., & Waterlander, W. (2022). The ENCOMPASS framework: A practical guide for the evaluation of public health programmes in complex adaptive systems. *Int J Behav Nutr Phys Act*, 19(1), 33–33.
<https://doi.org/10.1186/s12966-022-01267-3>
- Luo, T., Wu, C., & Duan, L.-X. (2018). Fishbone diagram and risk matrix analysis method and its application in safety assessment of natural gas spherical tank. *Journal of Cleaner Production*, 174, 296–304. <https://doi.org/10.1016/J.JCLEPRO.2017.10.334>

- Macgillivray, T. E. (2020). Advancing the Culture of Patient Safety and Quality Improvement. *Methodist DeBakey Cardiovascular Journal*, 16(3), 192–198.
<https://doi.org/10.14797/mdcj-16-3-192>
- Madu, C. N., & Kuei, C. (1993). Introducing strategic quality management. *Long Range Planning*, 26(6), 121–131. [https://doi.org/10.1016/0024-6301\(93\)90214-Z](https://doi.org/10.1016/0024-6301(93)90214-Z)
- Mantell, J. E., Masvawure, T. B., Zech, J. M., Reidy, W., Msukwa, M., Glenshaw, M., Grund, J., Williams, D., Pitt, B., & Rabkin, M. (2022). “They are our eyes outside there in the community”: Implementing enhanced training, management and monitoring of South Africa’s ward-based primary healthcare outreach teams. *PLoS One*, 17(8), e0266445. <https://doi.org/10.1371/journal.pone.0266445>
- Manzi, A., Magge, H., Hedt-Gauthier, B. L., Michaelis, A. P., Cyamatare, F. R., Nyirazinyoye, L., Hirschhorn, L. R., & Ntaganira, J. (2014). *Clinical mentorship to improve pediatric quality of care at the health centers in rural Rwanda*.
- Mason, J. (2002). *Qualitative Researching* (J. Mason, Ed.; Second). Sage Publications.
- Matthews, A., & Hilbig, A. (2023). Introduction to quality improvement: From corridor conversation to system change. *Emergency Medicine Australasia*, 35.
<https://doi.org/10.1111/1742-6723.14306>
- Mays, N., & Pope, C. (2000). Qualitative research in health care: Assessing quality in qualitative research. *British Medical Journal*, 320(7226), 50–52.
<https://doi.org/10.1136/bmj.320.7226.50>
- Mbugua, S., Gitaka, J., Gitau, T., Odwe, G., Mwaura, P., Liambila, W., Ndwiga, C., K’Oduol, K., Warren, C., & Abuya, T. (2021). Family and provider perceptions of quality of care in the management of sick young infants in primary healthcare settings in four counties of Kenya. *BMJ Open Quality*, 10(3), e001125. <https://doi.org/10.1136/bmjoq-2020-001125>

- Mcevoy, P., & Richards, D. (2006). A critical realist rationale for using a combination of quantitative and qualitative methods. *Journal of Research in Nursing*, 11(1), 66–78.
<https://doi.org/10.1177/1744987106060192>
- McEwan, K., Girling, M., Bate, A., Atkinson, J., Clarke, A., & Dalkin, S. (2023). ‘For Want of a Nail’: Developing a transparent approach to retrodution and early initial programme theory development in a realist evaluation of community end of life care services. *International Journal of Social Research Methodology*, 27, 417–430.
<https://doi.org/10.1080/13645579.2023.2184920>
- McPake, B., Prof, & Hanson, K., Prof. (2016). Managing the public–private mix to achieve universal health coverage. *Lancet*, 388(10044), 622–630.
[https://doi.org/10.1016/S0140-6736\(16\)00344-5](https://doi.org/10.1016/S0140-6736(16)00344-5)
- McPake, B., Scott, A., Edoa, I., & World Bank. (2014). *Analyzing markets for health workers: Insights from labor and health economics*.
- Means, A. R., Kemp, C. G., Gwayi-Chore, M. C., Gimbel, S., Soi, C., Sherr, K., Wagenaar, B. H., Wasserheit, J. N., & Weiner, B. J. (2020). Evaluating and optimizing the consolidated framework for implementation research (CFIR) for use in low- and middle-income countries: A systematic review. *Implement Sci*, 15(1), 17.
<https://doi.org/10.1186/s13012-020-0977-0>
- Medicine, I. of. (2001). Crossing the Quality Chasm: A New Health System for the 21st Century. In *Crossing the Quality Chasm: A New Health System for the 21st Century* (25057539; p. 360). National Academy Press. <https://doi.org/10.17226/10027>
- Mercuri, M. (2019). The “problem(s)” with quality improvement in health care. *J Eval Clin Pract*, 25(3), 355–357. <https://doi.org/10.1111/jep.13154>
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook, 2nd ed.* (pp. xiv, 338). Sage Publications, Inc.

Ministry of Health. (2011). *Implementation Guidelines for the Kenya Quality Model for Health 2011*. Ministry of Health.

http://publications.universalhealth2030.org/uploads/implementation_guidelines_for_the_kenya_quality_model_for_health.pdf

Ministry of Health. (2014a). *Kenya Quality Model for Health* (rayyan-933630726). Ministry of Health.

http://guidelines.health.go.ke:8000/media/Kenya_Quality_Model_for_Health_2014.pdf

Ministry of Health. (2014b, July). *Kenya Health Policy Framework 2014-2030: Towards Attaining the Highest Standard of Health*. Ministry of Health.

https://publications.universalhealth2030.org/uploads/kenya_health_policy_2014_to_2030.pdf

Ministry of Health. (2015). *Kenya Health Workforce Report: The Status of Healthcare Professionals in Kenya, 2015*. Kenya Government. https://taskforce.org/wp-content/uploads/2019/09/KHWF_2017Report_Fullreport_042317-MR-comments.pdf

Ministry of Health. (2020, December). *Kenya Universal Health Coverage Policy 2020 – 2030: Accelerating Attainment of Universal Health Coverage*. Ministry of Health;

<https://repository.kippira.or.ke/handle/123456789/3566>.

<https://repository.kippira.or.ke/bitstream/handle/123456789/3566/UHC-POLICY-2020-2030-FINAL.pdf?sequence=1%26isAllowed=y>

Ministry of Health. (2021, May). *Kenya Primary Health Care Network Guidelines*. Ministry of Health.

Ministry of Health. (2023, September). *Kenya Health Facility Census Report 2023: Towards achievement of universal health coverage*. Kenya Government.

- <https://www.health.go.ke/sites/default/files/2024-01/Kenya%20Health%20Facility%20Census%20Report%20September%202023.pdf>
- Mohamoud, G., & Mash, R. (2022). The quality of primary care performance in private sector facilities in Nairobi, Kenya: A cross-sectional descriptive survey. *BMC Prim Care*, 23(1), 120–120. <https://doi.org/10.1186/s12875-022-01700-3>
- Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Shekelle, P., Stewart, Lesley, A., & PRISMA-P Group. (2015). Preferred reporting items for systematic review and meta-analysis protocols (Prisma-p) 2015 statement. *Systematic Reviews*, 4(1), 1–9.
- Mondoux, S., & Shojania, K. G. (2019). Evidence-based medicine: A cornerstone for clinical care but not for quality improvement. *J Eval Clin Pract*, 25(3), 363–368. <https://doi.org/10.1111/jep.13135>
- Montgomery, P., & Bailey, P. H. (2007). Field Notes and Theoretical Memos in Grounded Theory. *West J Nurs Res*, 29(1), 65–79. <https://doi.org/10.1177/0193945906292557>
- Morrow, E., Robert, G., Maben, J., & Griffiths, P. (2012). Implementing large-scale quality improvement: Lessons from The Productive Ward: Releasing Time to Care™. *International Journal of Health Care Quality Assurance*, 25(4), 237–253. <https://doi.org/10.1108/09526861211221464>
- Morse, J. M. (2016). Underlying Ethnography. *Qualitative Health Research*, 26(7), 875–876. <https://doi.org/10.1177/1049732316645320>
- Muhula, S., Gachohi, J., Kombe, Y., & Karanja, S. (2022). Interventions to improve early retention of patients in antiretroviral therapy programmes in sub-Saharan Africa: A systematic review. *PLoS One*, 17(2), e0263663. <https://doi.org/10.1371/journal.pone.0263663>
- Mukumbang, F. C., Kabongo, E. M., & Eastwood, J. G. (2021). Examining the Application of Retroductive Theorizing in Realist-Informed Studies. *International Journal of*

Qualitative Methods, 20, 160940692110535.

<https://doi.org/10.1177/16094069211053516>

Mukumbang, F. C., Marchal, B., Van Belle, S., & van Wyk, B. (2018). A realist approach to eliciting the initial programme theory of the antiretroviral treatment adherence club intervention in the Western Cape Province, South Africa. *BMC Med Res Methodol*, 18(1), 47–47. <https://doi.org/10.1186/s12874-018-0503-0>

Mukumbang, F. C., Marchal, B., Van Belle, S., & van Wyk, B. (2020). Using the realist interview approach to maintain theoretical awareness in realist studies. *Qualitative Research*, 20(4), 485–515. <https://doi.org/10.1177/1468794119881985>

Mutambo, C., Shumba, K., & Hlongwana, K. W. (2020). User-provider experiences of the implementation of KidzAlive-driven child-friendly spaces in KwaZulu-Natal, South Africa. In *BMC public health* (Vol. 20, Issue 1, p. 91). BioMed Central.

Mwai, D., Hussein, S., Olago, A., Kimani, M., Njuguna, D., Njiraini, R., Wangia, E., Olwanda, E., Mwaura, L., & Rotich, W. (2023). Investment case for primary health care in low- and middle-income countries: A case study of Kenya. *PloS One*, 18(3), e0283156. <https://doi.org/10.1371/journal.pone.0283156>

Nahimana, E., Magge, H., Bizimana, F., Nyishime, M., Lively, C. T., Gilbert, H., Gauthier, B. H., Sayinzoga, F., Nkikabahizi, F., & Hirschhorn, L. R. (2021). Sustainability Assessment of a District-Wide Quality Improvement on Newborn Care Program in Rural Rwanda: A Mixed-Method Study. *Annals of Global Health*, 87(1), 40. <https://doi.org/10.5334/aogh.3205>

Nahimana, E., McBain, R., Manzi, A., Iyer, H., Uwingabiye, A., Gupta, N., Muzungu, G., Drobac, P., & Hirschhorn, L. R. (2016). Race to the Top: Evaluation of a novel performance-based financing initiative to promote healthcare delivery in rural Rwanda. *Global Health Action*, 9, 32943. <https://doi.org/10.3402/gha.v9.32943>

- Nimako, K., & Kruk, M. E. (2021). Seizing the moment to rethink health systems. *Lancet Glob Health*, 9(12), e1758–e1762. [https://doi.org/10.1016/S2214-109X\(21\)00356-9](https://doi.org/10.1016/S2214-109X(21)00356-9)
- Nyawira, L., Tsofa, B., Musiega, A., Munywoki, J., Njuguna, R. G., Hanson, K., Mulwa, A., Molyneux, S., Maina, I., Normand, C., Jemutai, J., & Barasa, E. (2022). Management of human resources for health: Implications for health systems efficiency in Kenya. *BMC Health Services Research*, 22(1), 1046. <https://doi.org/10.1186/s12913-022-08432-1>
- Odell, D. D., Quinn, C. M., Matulewicz, R. S., Johnson, J., Engelhardt, K. E., Stulberg, J. J., Yang, A. D., Holl, J. L., & Bilimoria, K. Y. (2019). Association Between Hospital Safety Culture and Surgical Outcomes in a Statewide Surgical Quality Improvement Collaborative. *Journal of the American College of Surgeons*, 229(2), 175–183. <https://doi.org/10.1016/j.jamcollsurg.2019.02.046>
- Odusola, A. O., Stronks, K., Heniks, M. E., Schultsz, C., Akande, T., Osibogun, A., van Weert, H., & Haafkens, J. A. (2016). Enablers and barriers for implementing high-quality hypertension care in a rural primary care setting in Nigeria: Perspectives of primary care staff and health insurance managers. In *Global health action* (Vol. 9, Issue 1).
- Ogrinc, G., Davies, L., Goodman, D., Batalden, P., Davidoff, F., & Stevens, D. (2016). SQUIRE 2.0 (Standards for QUality Improvement Reporting Excellence): Revised publication guidelines from a detailed consensus process. *BMJ Quality & Safety*, 25(12), 986–992. <https://doi.org/10.1136/bmjqs-2015-004411>
- Okafor, O., Roos, N., Abdosh, A. A., Adesina, O., Alaoui, Z., Romero, W. A., Assarag, B., Aworinde, O., de Bernis, L., Castro, R., Chrifi, H., Day, L. T., Demissew, R., Aceituno, M. G. F., Gadama, L., Gashawbeza, B., Keke, S. G., Govule, P., Gwako, G., ... Bonet, M. (2022). International virtual confidential reviews of infection-related maternal deaths and near-miss in 11 low- and middle-income countries – case report series and

- suggested actions. *BMC Pregnancy and Childbirth*, 22(1), 431–14.
<https://doi.org/10.1186/s12884-022-04731-x>
- Olago, A., Suharlim, C., Hussein, S., Njuguna, D., Macharia, S., Muñoz, R., Opuni, M., Castro, H., Uzamukunda, C., Walker, D., Birse, S., Wangia, E., & Gilmartin, C. (2023). The costs and financing needs of delivering Kenya’s primary health care service package. *Frontiers in Public Health*, 11, 1226163–1226163.
<https://doi.org/10.3389/fpubh.2023.1226163>
- Olaniran, A. A., Oludipe, M., Hill, Z., Ogunyemi, A., Umar, N., Ohiri, K., Schellenberg, J., & Marchant, T. (2022). From Theory to Implementation: Adaptations to a Quality Improvement Initiative According to Implementation Context. *Qual Health Res*, 32(4), 646–655. <https://doi.org/10.1177/10497323211058699>
- Omair, W., Jawaid, M. B., & Imam, A. A. (2025). Exploring the role of audit and feedback cycle in primary healthcare quality improvement. *BMJ Open Quality*, 13.
<https://doi.org/10.1136/bmjjoq-2024-003089>
- Omeje, O. (2023, August 31). Nigeria: Strengthening Community Accountability Mechanisms for Quality Primary Healthcare—A Spotlight On Niger State. *allAfrica.Com*, NA. Gale Academic OneFile.
- Omulo. (2023, April 25). Treasury yet to disburse Sh155bn to counties as financial year-end nears. *Nation Media Group*. <https://nation.africa/kenya/counties/treasury-yet-to-disburse-sh155bn-to-counties-as-financial-year-end-nears-4211606>
- Otieno, P. O., Wambiya, E. O. A., Mohamed, S. M., Mutua, M. K., Kibe, P. M., Mwangi, B., & Donfouet, H. P. P. (2020). Access to primary healthcare services and associated factors in urban slums in Nairobi-Kenya. *BMC Public Health*, 20(1), 981.
<https://doi.org/10.1186/s12889-020-09106-5>
- Pallangyo, E., Mbekenga, C., Olsson, P., Eriksson, L., & Bergstrom, A. (2018). Implementation of a facilitation intervention to improve postpartum care in a low-resource suburb of

- Dar es Salaam, Tanzania. *Implement Sci*, 13(1), 102. <https://doi.org/10.1186/s13012-018-0794-x>
- Pantoja, T., Grimshaw, J. M., Colomer, N., Castanon, C., & Leniz Martelli, J. (2019). Manually generated reminders delivered on paper: Effects on professional practice and patient outcomes. *Cochrane Database Syst Rev*, 12(12), CD001174. <https://doi.org/10.1002/14651858.CD001174.pub4>
- Patterson, P. B., Mumtaz, Z., Chirwa, E., Mambulasa, J., Kachale, F., & Nyagero, J. (2021). Culture's Place in Quality of Care in a Resource-Constrained Health System: Comparison Between Three Malawi Districts. *Qual Health Res*, 31(13), 2528–2541. <https://doi.org/10.1177/10497323211037636>
- Paul O. Y., Henry, M. M., Andrew, W. O. (2012). *Perceptions of medical brain drain among young doctors in Kenya: A cross-sectional survey*. 380(22). [https://doi.org/DOI:https://doi.org/10.1016/S0140-6736\(13\)60308-6](https://doi.org/DOI:https://doi.org/10.1016/S0140-6736(13)60308-6)
- Pesec, M., Spigel, L., Granados, J. M. M., Bitton, A., Hirschhorn, L. R., Brizuela, J. A. J., Pignone, M., Saenz, M. D. R., Schwarz, D., Villegas Del Carpio, O., Wilson, I. B., Zamora Mendez, E., & Ratcliffe, H. L. (2021). Strengthening data collection and use for quality improvement in primary care: The case of Costa Rica. *Health Policy Plan*, 36(5), 740–753. <https://doi.org/10.1093/heapol/czab043>
- Phillips, J., & Simmonds, L. (2013). Using fishbone analysis to investigate problems. *Nursing Times*, 109 15, 18–20.
- Ploder, A., & Hamann, J. (2021). Practices of Ethnographic Research: Introduction to the Special Issue. *Journal of Contemporary Ethnography*, 50(1), 3–10. <https://doi.org/10.1177/0891241620979100>
- Popay, J., Roberts, H., Sowden, A., Petticrew, M., Arai, L., Rodgers, M., Britten, N., Roen, K., & Duffy, S. (2006). Guidance on the Conduct of Narrative Synthesis in Systematic Reviews. In *ESRC Research Methods Programme* (Vol. 1).

- Quaife, M., Estafinos, A. S., Keraga, D. W., Lohmann, J., Hill, Z., Kiflie, A., Marchant, T., Borghi, J., & Schellenberg, J. (2021). Changes in health worker knowledge and motivation in the context of a quality improvement programme in Ethiopia. *Health Policy & Planning, 36*(10), 1508–1520. <https://doi.org/10.1093/heapol/czab094>
- Ravindran, A., Li, J., & Marshall, S. (2020). Learning Ethnography Through Doing Ethnography: Two Student—Researchers’ Insights. *International Journal of Qualitative Methods, 19*, 1–11. <https://doi.org/10.1177/1609406920951295>
- Reed, J. E., Kaplan, H. C., & Ismail, S. A. (2018). A new typology for understanding context: Qualitative exploration of the model for understanding success in quality (MUSIQ). *BMC Health Services Research, 18*(1), 584–14. <https://doi.org/10.1186/s12913-018-3348-7>
- Reznikovich, S. (1994). The Middle East total quality management conference. *Quality Management in Health Care, 3*(1), 16–24.
- Rice, H. E., Lou-Meda, R., Saxton, A. T., Johnston, B. E., Ramirez, C. C., Mendez, S., Rice, E. N., Aidar, B., Taicher, B., Baumgartner, J. N., Milne, J., Frankel, A. S., & Sexton, J. B. (2018). Building a safety culture in global health: Lessons from Guatemala. *BMJ Global Health, 3*(2), e000630. <https://doi.org/10.1136/bmjgh-2017-000630>
- Rinaldo, R., & Guhin, J. (2022). How and Why Interviews Work: Ethnographic Interviews and Meso-level Public Culture. *Sociological Methods & Research, 51*(1), 34–67. <https://doi.org/10.1177/0049124119882471>
- Robinson, O. C. (2014). Sampling in Interview-Based Qualitative Research: A Theoretical and Practical Guide. *Qualitative Research in Psychology, 11*(1), 25–41. <https://doi.org/10.1080/14780887.2013.801543>
- Rolfe, G. (2006). Validity, trustworthiness and rigour: Quality and the idea of qualitative research. *Journal of Advanced Nursing, 53*(3), 304–310. <https://doi.org/10.1111/j.1365-2648.2006.03727.x>

- Roper, J., & Shapira, J. (1999). *Ethnography in Nursing Research*. SAGE Publications Ltd.
- Sawyer, M., Weeks, K., Goeschel, C. A., Thompson, D. A., Berenholtz, S. M., Marsteller, J. A., Lubomski, L. H., Cosgrove, S. E., Winters, B. D., Murphy, D. J., Bauer, L. C., Duval-Arnould, J., Pham, J. C., Colantuoni, E., & Pronovost, P. J. (2010). Using evidence, rigorous measurement, and collaboration to eliminate central catheter-associated bloodstream infections. *Critical Care Medicine*, 38(8), S292–S298.
<https://doi.org/10.1097/CCM.0b013e3181e6a165>
- Schierhout, G., Praveen, D., Patel, B., Li, Q., Mogulluru, K., Ameer, M. A., Patel, A., Clifford, G. D., Joshi, R., Heritier, S., Maulik, P., & Peiris, D. (2021). Why do strategies to strengthen primary health care succeed in some places and fail in others? Exploring local variation in the effectiveness of a community health worker managed digital health intervention in rural India. *BMJ Global Health*, 6.
<https://doi.org/10.1136/bmjgh-2021-005003>
- Schuele, E., & MacDougall, C. (2022). The missing bit in the middle: Implementation of the Nationals Health Services Standards for Papua New Guinea. *PLoS One*, 17(6), e0266931. <https://doi.org/10.1371/journal.pone.0266931>
- Shaw, J., Gray, C., Baker, G., Denis, J., Breton, M., Gutberg, J., Embuldeniya, G., Carswell, P., Dunham, A., McKillop, A., Kenealy, T., Sheridan, N., & Wodchis, W. (2018). Mechanisms, contexts and points of contention: Operationalizing realist-informed research for complex health interventions. *BMC Medical Research Methodology*, 18.
<https://doi.org/10.1186/s12874-018-0641-4>
- Shaw, M. (2002). Principles for Best Practice in Clinical Audit. *Nursing Standard*, 17(4), 29–29.
<https://doi.org/10.7748/ns.17.4.29.s52>
- Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22(2), 63–75. <https://doi.org/10.3233/EFI-2004-22201>

- Shiundu & Makinia. (2023, March 1). A third of Kenya's budget stolen? We checked former senator's claim about much-travelled corruption statistic. *Africa Check*.
<https://africacheck.org/fact-checks/reports/third-kenyas-budget-stolen-we-checked-former-senators-claim-about-much>
- Singels, J., Ruël, G., & van de Water, H. (2001). ISO 9000 series—Certification and performance. *The International Journal of Quality & Reliability Management*, 18(1), 62–75. <https://doi.org/10.1108/02656710110364477>
- Siriwardena, A., & Gillam, S. (2022). Understanding processes and how to improve them. *Quality in Primary Care*, 21 3, 179–185. <https://doi.org/10.1201/9780429084041-9>
- Spradley, J. P. (1980). *Participant Observation* (First). Harcourt Brace Jovanovich College Publishers.
- Spradley, J. P. (1988). The Ethnographic Interview. In *Occupational Therapy in Mental Health* (First, Vol. 8, Issue 2). Harcourt Brace Jovanovich College Publishers.
https://doi.org/10.1300/J004v08n02_05
- Spyromitros, E., & Panagiotidis, M. (2022). The impact of corruption on economic growth in developing countries and a comparative analysis of corruption measurement indicators. *Cogent Economics & Finance*, 10(1), 2129368.
<https://doi.org/10.1080/23322039.2022.2129368>
- Stokes, T., Shaw, E. J., Camosso-Stefinovic, J., Imamura, M., Kanguru, L., & Hussein, J. (2016). Barriers and enablers to guideline implementation strategies to improve obstetric care practice in low- and middle-income countries: A systematic review of qualitative evidence. *Implement Sci*, 11(1), 144. <https://doi.org/10.1186/s13012-016-0508-1>
- Stover, K. E., Tesfaye, S., Frew, A. H., Mohammed, H., Barry, D., Alamineh, L., Teshome, A., Hepburn, K., & Sibley, L. M. (2014). Building district-level capacity for continuous improvement in maternal and newborn health. *J Midwifery Womens Health*, 59 Suppl 1, S91–S100. <https://doi.org/10.1111/jmwh.12164>

- Stuckey, H. (2013). Three types of interviews: Qualitative research methods in social health. *Journal of Social Health and Diabetes*, 01(02), 056–059.
<https://doi.org/10.4103/2321-0656.115294>
- Sturgiss, E., & Clark, A. (2020). Using critical realism in primary care research: An overview of methods. *Family Practice*, 37, 143–145. <https://doi.org/10.1093/fampra/cmz084>
- Sukums, F., Mensah, N., Mpembeni, R., Massawe, S., Duysburgh, E., Williams, A., Kaltschmidt, J., Loukanova, S., Haefeli, W. E., & Blank, A. (2015). Promising adoption of an electronic clinical decision support system for antenatal and intrapartum care in rural primary healthcare facilities in sub-Saharan Africa: The QUALMAT experience. *International Journal of Medical Informatics*, 84(9), 647–657.
<https://doi.org/10.1016/j.ijmedinf.2015.05.002>
- Sutton, A., & Campbell, F. (2022). The SchARR LMIC filter: Adapting a low- and middle-income countries geographic search filter to identify studies on preterm birth prevention and management. *Research Synthesis Methods*, 13(4), 447–456.
<https://doi.org/10.1002/jrsm.1552>
- Tancred, T., Mandu, R., Hanson, C., Okuga, M., Manzi, F., Peterson, S., Schellenberg, J., Waiswa, P., & Marchant, T. (2018). How people-centred health systems can reach the grassroots: Experiences implementing community-level quality improvement in rural Tanzania and Uganda. *Health Policy and Planning*, 33(1), e1–e13.
<https://doi.org/10.1093/heapol/czu070> U3 - Investigator: U Baker; H Balidawa; R Byaruhanga; J Jaribu; D Kajjo; J Kalungi; A Majura; A Mussa; P Okong; Y Sedekia; G Tomson.
- Tancred, T., Manzi, F., Schellenberg, J., & Marchant, T. (2017). Facilitators and Barriers of Community-Level Quality Improvement for Maternal and Newborn Health in Tanzania. In *Qualitative health research* (Vol. 27, Issue 5, pp. 738–749). Sage Publications.

- Tayebwa, E., Sayinzoga, F., Umunyana, J., Thapa, K., Ajayi, E., Kim, Y.-M., van Dillen, J., & Stekelenburg, J. (2020). Assessing Implementation of Maternal and Perinatal Death Surveillance and Response in Rwanda. In *International journal of environmental research and public health* (Vol. 17, Issue 12). MDPI.
<https://search.ebscohost.com/login.aspx?direct=true&db=mdc&AN=32570817&site=ehost-live&authtype=ip,shib&user=s1523151>
- Taylor, S. J., Bogdan, R., & DeVault, M. L. (2016). *Introduction to Qualitative Research Methods—A guidebook and resource* (S. J. Taylor, R. Bogdan, & M. L. DeVault, Eds.; Fourth). John Wiley & Sons, Inc.
- The Constitution of Kenya, 2010, 194 (2010).
http://www.kenyalaw.org/kl/fileadmin/pdfdownloads/Constitution_of_Kenya__2010.pdf
- Thekkur, P., Fernando, M., Nair, D., Kumar, A. M. V., Satyanarayana, S., Chandraratne, N., Chandrasiri, A., Attygalle, D. E., Higashi, H., Bandara, J., Berger, S. D., & Harries, A. D. (2022). Primary Health Care System Strengthening Project in Sri Lanka: Status and Challenges with Human Resources, Information Systems, Drugs and Laboratory Services. In *Healthcare (Basel, Switzerland)* (Vol. 10, Issue 11). MDPI AG.
<https://search.ebscohost.com/login.aspx?direct=true&db=mdc&AN=36360593&site=ehost-live&authtype=ip,shib&user=s1523151>
- Thompson, K. D. (2019). When I Was a Swahili Woman: The Possibilities and Perils of “Going Native” in a Culture of Secrecy. *Journal of Contemporary Ethnography*, 48(5), 674–699. <https://doi.org/10.1177/0891241618811535>
- Tibeiha, H., Nkolo, C., Onzima, R. A., Ayebare, F., & Henriksson, D. K. (2021). Continuous quality improvement as a tool to implement evidence-informed problem solving: Experiences from the district and health facility level in Uganda. *BMC Health Serv Res*, 21(1), 83. <https://doi.org/10.1186/s12913-021-06061-8>

- Tiruneh, G. T., Zemichael, N. F., Betemariam, W. A., & Karim, A. M. (2020). Effectiveness of participatory community solutions strategy on improving household and provider health care behaviors and practices: A mixed-method evaluation. In *PloS one* (Vol. 15, Issue 2, p. e0228137). Public Library of Science.
- Tlili, M. A., Aouicha, W., Dhiab, M. B., & Mallouli, M. (2020). Assessment of nurses' patient safety culture in 30 primary health-care centres in Tunisia. *Eastern Mediterranean Health Journal*, 26(11), 1347–1354. <https://doi.org/10.26719/emhj.20.026>
- Tomaszewski, L. E., Zarestky, J., & Gonzalez, E. (2020). Planning Qualitative Research: Design and Decision Making for New Researchers. *International Journal of Qualitative Methods*, 19, 1–7. <https://doi.org/10.1177/1609406920967174>
- Umunyana, J., Sayinzoga, F., Ricca, J., Favero, R., Manariyo, M., Kayinamura, A., Tayebwa, E., Khadka, N., Molla, Y., & Kim, Y. M. (2020). A practice improvement package at scale to improve management of birth asphyxia in Rwanda: A before-after mixed methods evaluation. *BMC Pregnancy Childbirth*, 20(1), 583. <https://doi.org/10.1186/s12884-020-03181-7>
- Vail, B., Morgan, M. C., Dyer, J., Christmas, A., Cohen, S. R., Joshi, M., Gore, A., Mahapatra, T., & Walker, D. M. (2018). Logistical, cultural, and structural barriers to immediate neonatal care and neonatal resuscitation in Bihar, India. In *BMC pregnancy and childbirth* (Vol. 18, Issue 1, p. 385). BioMed Central.
- Van Maanen, J. (2013). Tales of the Field. In *Tales of the Field* (Second). The University of Chicago Press. <https://doi.org/10.7208/chicago/9780226849638.001.0001>
- Verbakel, N. J., Langelaan, M., Verheij, T. J. M., Wagner, C., & Zwart, D. L. M. (2016). Improving Patient Safety Culture in Primary Care: A Systematic Review. *Journal of Patient Safety*, 12(3), 152–158. <https://doi.org/10.1097/PTS.0000000000000075>
- Vincent, S., & O'Mahoney, J. (2017). Critical Realism and Qualitative Research: An introductory Overview. In C. Cassell, A. Cunliffe, & G. Grady (Eds.), *The Sage*

- Handbook of Qualitative Business and Management Research Methods* (Vol. 4, Issue 3, pp. 57–71). Sage Publications.
- Visser, C. A., Wolvaardt, J. E., Cameron, D., & Marincowitz, G. J. O. (2018). Clinical mentoring to improve quality of care provided at three NIM-ART facilities: A mixed methods study. In *African journal of primary health care & family medicine* (Vol. 10, Issue 1, pp. e1–e7). OpenJournals Pub.
- Wakida, E. K., Obua, C., Musisi, S., Rukundo, G. Z., Ssebutinde, P., Talib, Z. M., Akena, D., & Okello, E. S. (2019). Implementing clinical guidelines to promote integration of mental health services in primary health care: A qualitative study of a systems policy intervention in Uganda. *Int J Ment Health Syst*, 13, 49.
<https://doi.org/10.1186/s13033-019-0304-9>
- Wallace, L. J., MacDonald, M. E., & Storeng, K. T. (2022). *Anthropologies of Global Maternal and Reproductive Health: From Policy Spaces to Sites of Practice* (rayyan-933616697). Springer International Publishing AG PP - Cham.
<http://proquest.umi.com/login/athens?url=https://www.proquest.com/books/anthropologies-global-maternal-reproductive/docview/2619570877/se-2?accountid=11979>
- Walshe, C., & Brearley, S. (2020). *Handbook of Theory and Methods in Applied Health Research: Questions, Methods and Choices* (C. Walshe & S. Brearley, Eds.). Edward Elgar Publishing Limited.
- Werdenberg, J., Biziyaremye, F., Nyishime, M., Nahimana, E., Mutaganzwa, C., Tugizimana, D., Manzi, A., Navale, S., Hirschhorn, L. R., & Magge, H. (2018). Successful implementation of a combined learning collaborative and mentoring intervention to improve neonatal quality of care in rural Rwanda. *BMC Health Serv Res*, 18(1), 941.
<https://doi.org/10.1186/s12913-018-3752-z>

- Werner, O., & Schoepfle, G. M. (1987). *Systematic Fieldwork: Foundations of ethnography and interviewing* (Vol. 1). Sage Publications.
- Werner, S. S., Afandiyeva, G., Karimova, G., Kiefer, S., Abdujabborov, N., Dzhamaalova, M., Bandaev, I., & Prytherch, H. (2021). Scaling up Business Plans in Tajikistan: A qualitative study of the history, barriers, facilitators and lessons learnt. *Glob Health Action*, 14(1), 1947552. <https://doi.org/10.1080/16549716.2021.1947552>
- White, S. A., Mgawadere, F., Gopalakrishnan, S., & van den Broek, N. (2024). Standards-based audit to improve quality of maternal and newborn care—A stepped-wedge cluster randomised trial in Malawi. *PloS One*, 19(9), e0310896. <https://doi.org/10.1371/journal.pone.0310896>
- Whittemore, R., & Knafl, K. (2005). Methodological issues in Nursing Research: The integrative review: Updated methodology. *Journal of Advanced Nursing*, 52(5), 546–553. <https://doi.org/10.1016/j.pmn.2007.11.006>
- WHO. (1978, September 6). *Declaration of Alma-Ata*. International Conference on Primary Health Care, Alma-Ata, USSR.
- WHO. (2010). *The World Health Report. Health Systems Financing: The path to universal coverage*. World Health Organization. https://iris.who.int/bitstream/handle/10665/44371/9789241564021_eng.pdf?sequence=1
- WHO. (2018, October 25). Declaration of Astana. *From Alma-Ata towards Universal Health Coverage and the Sustainable Development Goals*. Global Conference on Primary Health Care.
- WHO. (2023). *Quality of Care*. Quality of Care; World Health Organization. https://www.who.int/health-topics/quality-of-care#tab=tab_1

Wiltshire, G. (2018). A case for critical realism in the pursuit of interdisciplinarity and impact.

Qualitative Research in Sport, Exercise and Health, 10, 525–542.

<https://doi.org/10.1080/2159676X.2018.1467482>

Wong, J., Young, E., Hung, L., Mann, J., & Jackson, L. (2023). Beyond Plan-Do-Study-Act cycle – staff perceptions on facilitators and barriers to the implementation of telepresence robots in long-term care. *BMC Health Services Research*, 23.

<https://doi.org/10.1186/s12913-023-09741-9>

Xu, Z., & Dang, Y. (2020). Automated digital cause-and-effect diagrams to assist causal analysis in problem-solving: A data-driven approach. *International Journal of Production Research*, 58, 5359–5379.

<https://doi.org/10.1080/00207543.2020.1727043>

Yapa, H. M., Dhlomo-Mphatswe, W., Moshabela, M., De Neve, J.-W., Herbst, C., Jiamsakul, A., Petoumenos, K., Post, F. A., Pillay, D., Bärnighausen, T., & Wyke, S. (2022). A Continuous Quality Improvement Intervention to Improve Antenatal HIV Care Testing in Rural South Africa: Evaluation of Implementation in a Real-World Setting.

International Journal of Health Policy and Management, 11(5), 610–628.

<https://doi.org/10.34172/ijhpm.2020.178>

Zamboni, K., Baker, U., Tyagi, M., Schellenberg, J., Hill, Z., & Hanson, C. (2020). How and under what circumstances do quality improvement collaboratives lead to better outcomes? A systematic review. *Implementation Science*, 15(1).

<https://doi.org/10.1186/s13012-020-0978-z>

Appendices

Appendix A: Search strategy

Key Words and Search Terms

Key word	Search terms
Primary Health Care (PHC)	Primary Health Care; Primary care; Primary healthcare; Essential health services; Essential healthcare; District health services; Health Cent*; Dispensar*; District hospital*; Reproductive maternal newborn neonatal child adolescent health; Reproductive health; Maternal health; Newborn health; Neonatal health; Child health; HIV/AIDS; Non-communicable disease*; NCD*; Malaria; TB; Maternal child health; Rural health and other synonyms
Quality Improvement (QI)	Barrier*; limitation*; constraint*; enabler*; promoter*; facilitator*; motiv*; "quality improvement"; QI; quality of care; quality-of-care; QOC
Lower- middle- income countries (LMICs)	Lower Middle Income Countr*; Low Income Countr*; Middle income Countr*; LMIC*; LIC; "Afghanistan; Albania; Algeria; American Samoa; Angola; "Antigua and Barbuda"; Antigua; Barbuda; Argentina; Armenia; Armenian; Aruba; Azerbaijan; Bahrain; Bangladesh; Barbados; republic of Belarus; Belarus; Byelarus; Belorussia; Byelorussian; Belize; British Honduras; Benin; Dahomey; Bhutan; Bolivia; "Bosnia and Herzegovina"; Bosnia; Herzegovina; Botswana; Bechuanaland; Brazil; brasil; Bulgaria; Burkina Faso; Burkina Fasso; Upper Volta; Burundi; Urundi; Cabo Verde; Cape Verde; Cambodia; Kampuchea; Khmer republic; Cameroon; Cameron; Cameroun; central African republic; Ubangi Shari; Chad; Chile; China; Colombia; Comoros; Comoro islands; Iles Comores OR Mayotte; democratic republic of the Congo; Democratic Republic Congo; Congo; Zaire; Costa Rica; "Cote d'Ivoire"; "Cote d'Ivoire"; Cote d'Ivoire; Cote d Ivoire; Ivory coast; Croatia; Cuba; Cyprus; Czech Republic; Czechoslovakia; Djibouti; French Somaliland; Dominica; Dominican republic; Ecuador; Egypt; United Arab Republic; El Salvador; Equatorial Guinea; Spanish Guinea; Eritrea; Estonia; eSwatini; Swaziland; Ethiopia; Fiji; Gabon; Gabonese republic; Gambia; "Georgia (republic)"; Georgian; Ghana; Gold Coast; Gibraltar; Greece; Grenada; Guam; Guatemala; Guinea; guinea Bissau; Guyana; British Guiana; Haiti; Hispaniola; Honduras; Hungary; India; Indonesia; Timor; Iran; Iraq; Isle of Man; Jamaica; Jordan; Kazakhstan; Kazakh; Kenya; "Democratic people's republic of Korea"; Republic of Korea; People's democratic republic"; Latvia; Lebanon; Lebanese republic; Lesotho; Basutoland; Liberia; Libya; Libyan Arab Jamahiriya; Lithuania; Macau; Macao; Republic of North Macedonia; Macedonia; Madagascar; Malagasy Republic; Malawi; Nyasaland; Malaysia; Malay federation; Malaya Federation; Maldives; Indian Ocean Islands; Indian Ocean; Mali; Malta; Micronesia; Federated states of Micronesia; Kiribati; Marshall islands; Nauru; Northern Mariana islands; Palau; Tuvalu ; Mauritania; Mauritius; Mexico; Moldova; Moldavian; Mongolia; Montenegro; Morocco; Ifni; Mozambique; Portuguese East Africa; Myanmar; Burma; Namibia; Nepal; Netherlands Antilles; Nicaragua; Niger;

	Nigeria; Oman; Muscat ; Pakistan; Panama; North Korea; south Korea; Korea; Kosovo; Kyrgyzstan; Kirghizia; Kirgizstan; Kyrgyz republic; Kirgiz; Laos; Lao PDR; "Lao; "Lao people's democratic republic"; Latvia; Lebanon; Lebanese republic; Lesotho; Basutoland; Liberia; Libya; Libyan Arab Jamahiriya; Lithuania; Macau; Macao; republic of north Macedonia; Macedonia; Madagascar; Malagasy republic ; Malawi; Nyasaland; Malaysia; Malay federation; Malaya federation; Maldives; Indian ocean islands; Indian ocean; Mali; Malta; Micronesia; Federated states of Micronesia; Kiribati; Marshall islands; Nauru; northern Mariana islands; Palau; Tuvalu; Mauritania; Mauritius; Mexico; Moldova; Moldavian; Mongolia; Montenegro; Morocco; Ifni; Mozambique; Portuguese east Africa; Myanmar; Burma; Namibia; Nepal; Netherlands Antilles; Nicaragua; Niger; Nigeria; Oman; Muscat; Pakistan; Panama; Papua New Guinea; New Guinea; Paraguay; Peru; Philippines; Philippines; Poland; "Polish People's Republic"; Portugal; Portuguese republic; Puerto Rico; Romania; Russia; Russian federation; USSR; Soviet Union; Union of Soviet Socialist Republics; Rwanda; Ruanda; Samoa; Pacificis lands; Polynesia; Samoan islands; Navigator island; Navigator islands; "Sao Tome and Principe"; Saudi Arabia; Senegal; Serbia; Seychelles; Sierra Leone; Slovakia; Slovak Republic; Slovenia; Melanesia; Solomon island; Solomon islands ; Norfolk island; Norfolk islands; Somalia ; South Africa; South Sudan; Sri Lanka; Ceylon; "Saint Kitts and Nevis"; "St. Kitts and Nevis"; Saint Lucia; "St. Lucia"; "Saint Vincent and the Grenadines"; Saint Vincent; "St. Vincent"; grenadines; Sudan; Suriname; Surinam; Dutch Guiana; Netherlands Guiana; Syria ; Syrian Arab republic; Tajikistan Tadjikistan; Tadjhikistan; Tadjhik; Tanzania; Tanganyika; Thailand; Siam; Tim; Leste; East Tim; Togo; Togolese Republic; Tonga; "Trinidad and Tobago"; Trinidad; Tobago; Tunisia; Turkey; Turkmenistan; Turkmen; Uganda; Ukraine; Uruguay; Uzbekistan; Uzbek; Vanuatu; new Hebrides; Venezuela; Vietnam; Viet Nam; middle east; Westbank; Gaza; Palestine; Yemen; Yugoslavia; Zambia; Zimbabwe; northern Rhodesia; global south; Africa south of the Sahara; sub-Saharan Africa Sub-Saharan Africa; Africa, central; Central Africa; Africa, Northern; North Africa; Northern Africa; Maghreb; Maghrib; Sahara; Africa, Southern; Southern Africa; Africa, eastern; east Africa; Eastern Africa; Africa, Western; West Africa; western Africa; West indies; Indian ocean islands; Caribbean ; central America; Latin America; "south and Central America"; South America; Asia, Central; Central Asia; Asia, northern; north Asia; Northern Asia; Asia, southeastern; southeastern Asia; southeastern Asia; Southeast Asia; southeast Asia; Asia, Western; Western Asia; Europe, eastern; east Europe; Eastern Europe
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Appendix B: Quality Appraisal for Literature Review Using MMAT

Study ID	Study title, authors, year	Are there clear qualitative and quantitative research questions (or objectives*), or a clear mixed methods question (or objective*)?	Do the collected data allow address the research question (objective) ?	What is the research design for this paper or study?	Is the qualitative approach appropriate to answer the research question?	Are the qualitative data collection methods adequate to address the research question?	Are the findings adequately derived from or backed by the data?	Is the interpretation of results sufficiently substantiated by data?	Is there coherence between qualitative data sources, collection, analysis and interpretation ?

1	Perspectives on implementing a quality improvement collaborative to improve person-centered care for maternal and reproductive health in Kenya. Giessler, et al, 2020	Yes	Yes	Qualitative, with purposive sampling	Yes	Yes. 32 in-depth interviews with PHC workers (4 male, 28 female, median age 40, 20 nurses the rest mixed cadres of HRH; 21 diploma the rest degree and certificate, 11 median years in position)	Yes. Using a thematic content analysis approach [18], the researchers developed a codebook based on key themes of the process evaluation.	Yes	Yes. peer debriefing, resolving intercoder discrepancies by consensus; presenting thick descriptions with illustrative quotes helped ensure rigour and trustworthiness.
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2	Enablers and barriers for implementing high-quality hypertension care in a rural primary care setting in Nigeria: perspectives of primary care staff and health insurance managers. Odusola, et al., 2016	Yes	Yes	Qualitative	Yes	Yes, 11 clinic staff and 4 insurance company staff interviewed. Data was collected through in-depth individual interviews, guided by a topic list.	Yes, consistent analysis, processing, ordering, and comparison of the data. Initially inductive analysis. Later deductive analysis.	Yes, the 15 interviews achieved data saturation. Also used a comprehensive theory- and research-based conceptual framework, the Tailored Implementation for Chronic Diseases (TICD).	Yes, Respondent validation; Data saturation; Peer debriefing; Use of TICD framework; Open coding, use of analytical memos, reflexivity are some strategies used to ensure rigour and trustworthiness.
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3	Strengthening data collection and use for quality improvement in primary care: the case of Costa. Pesec et al., 2021	Yes	Yes	Qualitative	Yes	Yes. Conducted in-depth, in-person, and semi-structured interviews.	Yes. 40 key informants from different levels of the Costa Rican health system	Yes. Did not attempt to reach saturation due to diversity of topics. Additionally, reviewed documents provided by key informants and publicly available documents to supplement information from interviews.	Yes. Data to Improvement Pathway and the Adaptive Management Framework to answer our research questions. Additional codes were added inductively as new themes and data streams emerged. Peer debriefing and theory-driven analysis helped with rigour.
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5	Implementing clinical guidelines to promote integration of mental health services in primary health care: a qualitative study of a systems policy intervention in Uganda. Wakida et al, 2019.	Yes	Yes	Qualitative	Yes	Yes. HCs were selected using simple random sampling out of the four HCs that were part of the initial study.	Yes	Yes	Yes. Inductive coding. Data were thematically analyzed with the help of a qualitative software Atlas.ti version 8.
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7	Contextual factors influencing a training intervention aimed at improved maternal and newborn health care in a health zone of the Democratic Republic of Congo. Bogren et al., 2021.	Yes	Yes	Qualitative	Yes	Yes. Data was gathered through 16 FGDs with 61 participants in two periods.	Yes. This followed qualitative inductive conducted analysis.	Yes	Yes. Audit trail, comparison between analysts.
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8	Continuous quality improvement as a tool to implement evidence-informed problem-solving experiences from the district and health facility level in Uganda. Tibeiha et al., 2021.	Yes	Yes. Study participants were purposively selected.	Qualitative	Yes. Semi-structured interviews and document reviews. A deductive process of thematic analysis was used.	Yes. 15 semi-structured interviews.	Yes. Saturation (no new themes); positionality	Yes	Yes. Peer debriefing during coding; use of MUSIQ framework
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11	Culture's Place in Quality of Care in a Resource-Constrained Health System: Comparison Between Three Malawi Districts. Patterson et al., 2021.	Yes	Yes. Ethnographic data were generated through observation of care provision and semi-structured interviews.	Qualitative	Yes	Yes. Coding and data analysis proceeded in stages with clear trail.	Yes	Yes. The analysis linked constraints at the facilities with specific behaviors and justifications participants used, which were taken to constitute elements of organizational culture. Linkages between constraints, responses, and cultural elements were shown.	Yes. Rigour and trustworthiness through extended stay in the field, using an analytical theoretical framework, and reporting with illustrative quotes.
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12	Analysis of implementation outcomes of quality improvement initiatives in Haiti: the fingerprint initiative. Demes et al., 2021.	Yes	Yes. Purposive sampling to select research sites and participant. The health facilities were selected considering the important information they could provide.	Qualitative. Semi-structured interviews (n = 20) and one group discussion (n = 4).	Yes	Yes	Yes. Analysis using an inductive and deductive approach	Yes. The final interpretation of the findings, as presented in this manuscript, emerged through active discussion among the co-authors.	Yes. Constant comparison: triangulation of methods used to advance rigour.
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16	Logistical, cultural, and structural barriers to immediate neonatal care and neonatal resuscitation in Bihar, India. Vail et al., 2018.	Yes	Yes. To capture the broadest possible range of experiences, one mentor from each pair was selected.	Qualitative	Yes	Yes. 18 interviews were conducted with mentors who had cumulative experience at approximately 144 PHCs.	Yes	Yes. Data was analyzed using the thematic content approach.	Yes. Data saturation was reached, and interviews stopped.
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19	Improving institutional childbirth services in rural Southern Tanzania: a qualitative study of healthcare workers 'perspective. Jaribu et al. 2016.	Yes	Yes. Qualitative data using in-depth interviews were collected.	Qualitative	Yes	Yes	Yes. Data were analysed using content analysis focusing on how the QI intervention was structured (PDSA cycle approach, face-to-face workshops, follow-up visits).	Yes	Yes. The first author maintained a research diary in which personal observations were noted during follow-up visits. Data from these observations complemented the findings from the in-depth interviews and allowed for triangulation and a deeper understanding of the context.
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23	Exploring the sustainability of perinatal audit in four district hospitals in the Western Cape, South Africa: a multiple case study approach. Kinney et al., 2022.	Yes	Yes. 41 Key informants were purposefully sampled based on their involvement with perinatal audit	Qualitative	Yes	Yes	Yes	Yes. Thematic analysis was used applying an analysis framework derived from Carl May's extended normalisation process theory, an implementation theory used to consider broader social systems in which interventions are implemented.	Yes. Measures were taken to ensure rigour of the case study approach, such as engagement with stakeholders prior to data collection, voluntary participation of participants, seeking peer and expert feedback, audit trail with clear mapping of the research process and triangulation of data sources.
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25	The missing bit in the middle: Implementation of the Nationals Health Services Standards for Papua New Guinea. Schuele & MacDougall, 2022.	yes	Yes. Semi-structured interviews with 17 health workers and managers and three focus group discussions (FGD) were conducted.	Qualitative	Yes	Yes	Yes. Using thematic analysis as an inductive and deductive process.	Yes	Yes. In presenting the findings, participants' quotes are used from a broad range of interviews to demonstrate trustworthiness of interpretation and evidence for interpretative rigour. This qualitative case study was informed by constructivism and critical theory.
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26	Opening the 'black box' of collaborative improvement: a qualitative evaluation of a pilot intervention to improve quality of malaria surveillance data in public health centres in Uganda. Hutchinson et al., 2021.	Yes	Yes. FGD - 19 nurses, 21 health centre directors KII - 2 IMCI directors, 2 district medical directors	Qualitative	Yes. Ethnographic observations at five health centres, Twenty in-depth interviews and six FGDs with 67 participants	Yes	Yes. The data was triangulated by drawing on ethnographic observations and informal discussions, in-depth interviews with individual health workers, and focus group discussions (FGDs) to ascertain group interpretations.	Yes	Yes
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28	What factors do make quality improvement in primary health care? Experiences of maternal health quality improvement teams in three Puskesmas in Indonesia. Limato et al., 2019.	Yes	Yes. 8 IDIs in April 2016; 20 in April 2017: total 28	Qualitative	Yes	Yes. pre-defined framework of factors that could influence the process of QI as based on the topic guides. Emerging themes were discussed, and the coding was refined based on research team consensus. The coded transcripts were further analysed, "charted" and summarised in narratives for each theme and sub-theme.	Yes. The coding process used open coding	Yes	Yes. RAs checked quality of transcriptions.
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29	Health workers' experiences of collaborative quality improvement for maternal and newborn care in rural Tanzanian health facilities: A process evaluation using the integrated 'Promoting Action on Research Implementation in Health Services' framework. Baker et al., 2018.	Yes	Yes. semi structured interviews were conducted with 16 health workers in 13 health facilities in Tandahimba	Qualitative	Yes	Yes	Yes. Qualitative content analysis was conducted by applying a theory-driven deductive approach.	Yes. All transcripts were sorted into content areas correlating to the four i-PARIHS constructs applied as themes for the analysis. Further analysed deductively applying the characteristics of each i-PARIHS construct as categories.	Yes. i-PARIHS framework
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37	User-provider experiences of the implementation of KidzAlive-driven child-friendly spaces in KwaZulu-Natal, South Africa. Mutambo et al., 2020.	Yes	Yes. convenience sample of HCWs from 40 PHC facilities; participants were selected purposively on the basis of having participated in the programme and their being information rich.	Qualitative	Yes	Yes	Yes. translation process and transcription were done by two researchers to ensure rigour. Conducted a theoretical thematic analysis.	Yes. The trustworthiness of study findings was ensured through credibility, dependability, transferability, and confirmability. To ensure credibility, we used a purposive sample of the users of child-friendly spaces and paid attention to negative cases during analysis.	Yes. The COREQ checklist was used to ensure that the study adheres to quality standards for reporting qualitative research
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40	Scaling up Business Plans in Tajikistan: a qualitative study of the history, barriers, facilitators and lessons learnt. Werner et al., 2021.	Yes	Yes. The interviewees were purposively selected based on their expertise and acquaintance with Business Plans and were contacted via email and telephone by the authors and the EPHC Services Project manager at that time.	Qualitative	Yes	Yes	Yes. qualitative content analysis approach was used to analyze the interview data	Yes	Yes
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41	Implementing performance-based financing in peripheral health centres in Mali: what can we learn from it? Coulibaly et al., 2020.	Yes	Yes. A model of participatory case selection combined with purposive selection sampling strategy.	Qualitative	Yes	Yes	Yes	Yes	Yes. An innovative conceptual framework—the Consolidated Framework for Implementation Research (CFIR) was used.
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47	From Theory to Implementation: Adaptations to a Quality Improvement Initiative According to Implementation Context. Olaniran et al., 2022.	Yes	Yes. Key informants purposively selected. 3 NHQI documents reviewed; 140 facility QI team reports reviewed; 45 Key informants interviewed. 17 non-participant observations of collaborative learning sessions	Qualitative	Yes	Yes	Yes. Thematic analysis (Boyatzis, 1998) entailed a combination of deductive and inductive approaches to data synthesis.	Yes. To identify constructs relating to context, transcripts were reviewed against a priori themes on contextual influence identified from a limited literature review.	Yes. triangulated across these multiple data sources to build trustworthiness
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48	Clinical mentorship to improve pediatric quality of care at the health centers in rural Rwanda: a qualitative study of perceptions and acceptability of health care workers. Manzi et al., 2014.	Yes	Yes. All 21 HCs in Kirehe and Southern Kayonza were included.	Qualitative	Yes	Yes	Yes. The hermeneutic analysis consisted of linking themes to developed codes, thereby capturing and organizing the main themes and ideas shared during the FGDs and interviews.	Yes	Yes. For quality assurance, 10% of pages (selected randomly) from each English transcript was “back translated” to Kinyarwanda.
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51	Implementation of a facilitation intervention to improve postpartum care in a low-resource suburb of Dar es Salaam, Tanzania. Pallangyo et al., 2018.	Yes. The data comprised transcripts from 10 FGDs with IPPC teams (n=8) and facilitators (n= 2), and intervention documentation, including minutes from meetings between the supervisor and the facilitators (n= 17), the supervisor's quarterly reports (n= 3), and facilitators' diaries (n=6).	Yes	Qualitative	Yes	Yes	Yes. Thematic analysis.	Yes	Yes. Peer debriefing: The co-authors discussed this analysis multiple times, and the process was iterative to safeguard the relevance of the themes with data.
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53	Implementatio n of a facilitation intervention to improve postpartum care in a low- resource suburb of Dar es Salaam, Tanzania. Pallangyo et al., 2018.	Yes	Yes. A purposive sampling technique was chosen to identify participants who could provide rich answers to the research questions	Qualitativ e	Yes	Yes	Yes. Thematic analysis was used.	Yes	Yes
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59	User-provider experiences of the implementation of KidzAlive-driven child-friendly spaces in KwaZulu-Natal, South Africa. Mutambo et al., 2020.	Yes	Yes	Qualitative	Yes	Yes	Yes. Thematic data analysis was iteratively conducted manually and electronically, using the five stages of Ritchie and Spencer's data analysis framework	Yes	Yes. The trustworthiness of study findings was ensured through credibility, dependability, transferability, and confirmability.
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61	Enablers and barriers for implementing high quality hypertension care in a rural primary care setting in Nigeria: perspectives of primary care staff and health insurance managers. Odusola et al., 2016.	Yes	Yes; 15 initial in depth interviews lasting 90 minutes on average. 3 follow up interviews lasting 25 minutes on average that were carried out 6 weeks after the previous ones following preliminary data analysis.	Qualitative	Yes	Yes	Yes. used a comprehensive theory- and research-based conceptual framework, the European Tailored Implementation for Chronic Diseases (TICD) for the third deductive phase of analysis.	Yes	Yes
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62	Scaling up Business Plans in Tajikistan: a qualitative study of the history, barriers, facilitators and lessons learnt. Werner et al., 2021.	Yes	Yes, purposive sampling	Qualitative	Yes	Yes	Yes. A qualitative content analysis approach was used to analyze the interview data.	Yes	Yes. Used the ExpandNet/WHO framework as it is based on experience in low- and middle-income countries
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63	Team-based primary health care for non-communicable diseases: complexities in South India. Lall et al., 2020.	Yes	Yes. observations were conducted and extensive field notes taken, also conducted semi-structured, in-depth interviews with teams at three PHCs after 9 months	Qualitative	Yes	Yes	Yes	Yes	Yes. two theoretical frameworks, the Consolidated Framework for Implementation Research (CFIR) and the Model for Understanding Success in Quality (MUSIQ) were used to analyse factors that may have influenced implementation.
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64	Implementing clinical guidelines to promote integration of mental health services in primary health care: a qualitative study of a systems policy intervention in Uganda. Wakida et al., 2019.	Yes	Yes. Purposive sampling including staff who were involved in the interventio.	Qualitative	Yes	Yes	Yes. Data were thematically analyzed	Yes	Yes
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65	Implementing performance-based financing in peripheral health centres in Mali: what can we learn from it? Coulibaly et al., 2020.	Yes	Yes. For semi-structured interviews 161. For informal interviews - 69	Qualitative	Yes	Yes	Yes	Yes	Yes. adopted a deductive–inductive thematic analysis using the CFIR domains, constructs and sub-constructs.
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69	Contextual factors influencing a training intervention aimed at improved maternal and newborn healthcare in a health zone of the Democratic Republic of Congo. Bogren et al., 2021.	Yes	Yes	Qualitative	Yes	Yes	Yes	Yes	Yes
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70	Strengthening data collection and use for quality improvement in primary care: the case of Costa Rica. Pesec et al., 2021.	Yes	Yes	Qualitative	Yes	Yes	Yes	Yes	Yes
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72	Continuous quality improvement as a tool to implement evidence-informed problem-solving experiences from the district and health facility level in Uganda. Tibei haho et al., 2021.	Yes	Yes, purposive sampling of those that participated in the CQI and were available and willing	Qualitative	Yes	Yes	Yes. A deductive process of thematic analysis was used to classify data into themes that were informed by the contextual factors from the MUSIQ model	Yes	Yes
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74	From Theory to Implementation: Adaptations to a Quality Improvement Initiative According to Implementation Context. Olaniran et al., 2021.	Yes	Yes	Qualitative	Yes	Yes	Yes	Yes	Yes
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75	Clinical mentorship to improve pediatric quality of care at the health centers in rural Rwanda: a qualitative study of perceptions and acceptability of health care workers. Manzi et al., 2014.	Yes	Yes	Qualitative	Yes	Yes	Yes	Yes	Yes
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Study ID	Study title, authors, year	Are there clear qualitative and quantitative research questions (or objectives*), or a clear mixed methods question (or objective*)?	Do the collected data allow address the research question (objective)?	What is the research design for this paper or study?	Is there an adequate rationale for using a mixed methods design to address the research question?	Are the different components of the study effectively integrated to answer the research question?	Are the outputs of the integration of qualitative and quantitative components adequately interpreted?	Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?	Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?
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4	Team-based primary health care for non-communicable diseases: complexities in South India. Lall et al., 2020.	Yes	Yes	Mixed Methods	Yes	Yes. We triangulated both methods and data sources, a research strategy to test validity through the convergence of information, overcome limitations of using any one method or source, and gain new insights about program implementation.	Yes. The authors drew from the Consolidated Framework for Implementation Research (CFIR) (Damschroder et al., 2009) and the Model for Understanding Success in Quality (MUSIQ) (Kaplan et al., 2012), to analyse factors that may have influenced implementation in the study setting and context.	Yes (no inconsistencies). Differences in context at the three PHCs were compared to identifying possible explanations for the findings.	Yes. Observations were conducted and extensive field notes were taken. Also conducted semi-structured, in-depth interviews with the teams at the three PHCs.
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6	Effectiveness of the Diagnose-Intervene-Verify-Adjust (DIVA) model for integrated primary healthcare planning and performance improvement: an embedded mixed methods evaluation in Kaduna state, Nigeria. Eboreime et al., 2019.	Yes	Yes	Mixed Methods	Yes. Document reviews, Howell's participant observation alongside interviews of 138 subnational health managers	Yes	Yes. Using modified Tanahashi model for health systems determinants and causality analysis	Yes (no inconsistencies).	Yes. Triangulation and long time in the field helped with rigour.
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9	The influence of Continuous Quality Improvement on healthcare quality: A mixed-methods study from Zimbabwe. Gage et al., 2022.	Yes	Yes	Mixed Methods	Yes, considering study objective.	Yes, using triangulation; variable experiences in a grounded theory approach.	Yes. The qualitative data was analyzed through synthesizing and triangulating information from the interviews and focus groups. An iterative approach based on grounded theory (qualitative research methodology).	Yes (no inconsistencies)	Yes. E.g. FGDs, KIs, document reviews and health systems performance data integrated. The qualitative analysis built off of quantitative findings and gave more weight to themes that converged with the quantitative estimates or was identified across multiple study participants.
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10	Effectiveness of participatory community solutions strategy on improving household and provider health care behaviors and practices: A mixed-method evaluation. Tiruneh et al., 2020.	Yes	Yes	Mixed Methods	Yes	Yes	Yes	Yes	Yes. Eg. Theoretical sampling technique was used to collect rich information from community health workers until saturation of categories with data is achieved.
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13	The power of practice: simulation training improving the quality of neonatal resuscitation skills in Bihar, India. Vail et al., 2018.	Yes	Yes	Mixed Methods	Yes	Yes	Yes+M15	Yes. Interviews were selected at random for double coding to ensure consistency in identification of key themes and with other sources.	Yes. E.g., after 18 interviews, the interviewer concluded data saturation had been reached as no new barriers to care were being identified. Qualitative analysis was conducted using the thematic content approach. Also double coding, sampling till data saturation
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14	A process evaluation of the quality improvement collaborative for a community-based family planning learning site in Uganda. Kim et al., 2019.	Yes	Yes	Mixed Methods	Yes	Yes	Yes. Local research assistants conducted IDIs and FGDs with clients and VHTs in each participant's language of preference. There were also document reviews, and quantitative data on three indicators using information from the VHT client registers collected by the program from January 2015 to March 2017	Yes	Yes. E.g., data saturation for qualitative arm. Used NVivo's querying capabilities to assess the frequency of codes, assessing codes by attributes and co-occurring thematic codes. Interviews and discussions were conducted using a semi-structured guide.
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15	Do quality improvement teams contribute to performance of community health workers in Benin? Lokossou et al., 2019.	Yes	Yes	Mixed Methods	Yes	Yes	Yes. Through triangulation of sources.	Yes	Yes. 20 semi-structured interviews were conducted. To gain a full understanding of CHWs' performance and perceptions of motivation, semi-structured interviews were conducted with the stakeholders.
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17	Clinical mentoring to improve quality of care provided at three NIM-ART facilities: A mixed methods study. Visser et al., 2018.	Yes	Yes	Mixed Methods	Yes.	Yes. identified the root causes for resistance to the NIM-ART programme, as well as the barriers preventing the programme's effective implementation.	Yes. Data was collected from document reviews, facility audits, patient satisfaction surveys, focus group interviews with staff, field notes and a reflection diary. An inductive approach was followed in the coding, and the emerging themes were identified.	Yes	Yes. E.g., Transferability of the data was achieved by thick description of the qualitative findings, whereas dependability was achieved by collecting data until the data were saturated. Confirmability was achieved through recording the interviews, the compilation of field notes during the interviews and keeping a research diary as part of the audit trail.
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18	Facilitators and Barriers of Community-Level Quality Improvement for Maternal and Newborn Health in Tanzania. Tancred et al., 2017.	Yes	Yes, studied implementation in four villages selected to be diverse.	Mixed Methods	Yes	Yes. Using mixed methods to help triangulate findings across data sources as indicated above helped to make scores as accurate as possible. Scores for each component were added together for each village to generate a total score that reflected their performance implementing quality improvement.	Yes	Yes. A deductive thematic analysis was undertaken using an initial coding framework that linked to seven components of the 10-process evaluation.	Yes. Eg semi-structured in-depth interviews with 10 volunteers for the qual process evaluation. For qualitative data, coded translated scripts line-by-line to generate as many codes as possible within each component. Quantitative data from routinely kept records on volunteer activities.
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20	"It might be a statistic to me, but every death matters.": An assessment of facility-level maternal and perinatal death surveillance and response systems in four sub-Saharan African countries. Kinney et al., 2020.	Yes	Yes	Mixed Methods	Yes	Yes. To understand the context and history of implementation, a desk review of related national MPDSR guidelines and literature on implementation of MPDSR in these countries was conducted. A linked policy mapping sets out to determine the content of each national guideline in relation to instructions that have been provided to subnational and facility levels regarding implementation. Qualitative data were analysed using thematic content analysis.	Yes	Yes	Yes. E.g. Team members independently coded qualitative responses, consulted, and reached consensus on data interpretation. content analysis and verified data with national stakeholders.
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21	Maternal and perinatal death surveillance and response in Ethiopia: Achievements , challenges and prospects. Ayele et al., 2019.	Yes	Yes	Mixed Methods	Yes	Yes	Yes	Yes	Yes. data saturation for qualitative component; The coding framework followed the topic guide, and texts were coded and eight categories. For the quantitative part of the study, using the annual regional maternal death list report, 50% of districts with at least one maternal death in the previous one year (for economic reasons) were randomly selected by stratifying them into three categories.
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22	Assessing Implementation of Maternal and Perinatal Death Surveillance and Response in Rwanda. Tayebwa et al., 2020.	Yes	Yes. The assessment team purposively sampled health facilities that had experience in conducting maternal and/or perinatal death reviews and/or implementing formal MPDSR processes or policies.	Mixed Methods	Yes	Yes	Yes. Results were interpreted by means of a model with six stages of MPDSR.	Yes. A scoring scale to demonstrate the level of implementation of MPDSR at facility level was adapted from a study of Kangaroo Mother Care Implementation.	Yes
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24	Integrating hypertension and HIV care in Namibia: A quality improvement collaborative approach. Basenero et al., 2022.	Yes	Yes. To capture "change ideas" and site-reported implementation barriers, conducted semi-structured interviews of 138 health workers.	Mixed Methods	Yes	Yes	Yes	Yes	Yes. E.g. used SQUIRE (Standards for Quality Improvement Reporting Excellence) guidelines to structure reporting
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27	A Continuous Quality Improvement Intervention to Improve Antenatal HIV Care Testing in Rural South Africa: Evaluation of Implementation in a Real-World Setting. Yapa et al., 2022.	Yes	Yes. Invited available health workers to interview, targeting those in leadership roles such as the operational manager where possible.	Mixed Methods	Yes	Yes. Using convergent mixed methods, guided by Normalisation Process Theory (NPT) and the Tailored Implementation of Chronic Diseases (TICD) checklist.	Yes. analysis proceeded in 5 steps including a framework analysis of data from all reports and field notes.	Yes. Triangulation of methods; using analytical frameworks and application of theory	Yes
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30	A practice improvement package at scale to improve management of birth asphyxia in Rwanda: a before-after mixed methods evaluation. Umunyana et al., 2020.	Yes	Yes. All health providers who received mentorship with MCSP support and all public facilities in the ten implementation districts were included in the assessment (160 health centres, 12 hospitals, 68 mentors).	Mixed Methods	Yes	Yes	Yes. triangulation of methods	Yes	Yes
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31	Building District-Level Capacity for Continuous Improvement in Maternal and Newborn Health. Stover et al., 2014.	Yes	Yes. 84 questionnaire and 22 Interviews, Purposive samples	Mixed Methods	Yes	Yes	Yes. Descriptive statistics and bivariate analyses by respondent type. Additionally, differences in average before versus after Likert scale responses on perceived woreda culture and leadership questions were assessed.	Yes. Organized themes by region and respondent group, as well as by topic of inquiry, and compared observations within and between regions (by respondent group and topic).	Yes. Survey: A questionnaire was developed. Questionnaire design drew on established improvement science conceptual frameworks.
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32	How people-centred health systems can reach the grassroots: experiences implementing community-level quality improvement in rural Tanzania and Uganda. Tancred et al., 2018.	Yes	Yes. Four villages in Tandahimba district were purposively sampled for this study on the basis of their diversity. 5 focus groups with 44 participants; 34 birth narratives ; 4 Key informant interviews .	Mixed Methods	Yes	Yes	Yes	Yes. thematic analysis approach was conducted to draw relationships between codes and to generate themes from the data.	Yes. Theoretical saturation. Representative quotations from themes selected to display results.
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33	Quality improvement practices to institutionalize supply chain best practices for iCCM: Evidence from Rwanda and Malawi. Chandani et al., 2017.	yes	Yes. Purposive sampling for interviews and all data in cStock.	Mixed Methods. Case study analysis for qualitative data; Logistics Indicator Assessment tool in Rwanda and cStock in Malawi for quantitative data.	Yes	Yes	Yes. Qualitative data explored how resupply procedures plus QI approaches were used, and how the approaches may or may not facilitate CHWs and cell coordinators to improve supply chain practices, focusing on the influence of the contextual and mediating factors and the relationship between these factors. Quantitative data provided specific information on the use of the paper-based system.	Yes. Endline findings explored the extent (geographic breadth and institutional depth) of the interventions when scaled up, the extent that observed program effects at midline were sustained to endline, and the institutionalisation of the interventions. Approach .	Yes. Triangulation; saturation
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34	Challenges of using e-health technologies to support clinical care in rural Africa: a longitudinal mixed methods study exploring primary health care nurses' experiences of using an electronic clinical decision support system (CDSS) in South Africa. Horwood et al., 2023.	Yes	Yes. 36 IDIs; 3 FGDs. Data from the telephonic computer skills survey was totaled and is presented as simple frequencies. IMCI uptake was calculated from the number of consultations using eIMCI as determined from the tracking of the eIMCI application.	Mixed Methods	Yes	Yes. 1) a short quantitative questionnaire to explore participants experience using computers, 2) electronic tracking of eIMCI uptake in participating clinics, 3) a series of IDIs conducted with selected participants over the implementation period, 4) Focus group discussions (FGDs) with participants after 1 year of eIMCI implementation. Data collection among 9 purposively selected nurses comprised of a series of in-depth interviews (IDIs) conducted prospectively over the study period.	Yes. The COM-B Theory of Change model was used as the theoretical framework guiding the study, with the assumption that behaviour change is influenced by the interaction of three conditions: capabilities, opportunities and motivation.	Yes	Yes. Using theory; triangulation of data sources
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35	"They are our eyes outside there in the community": Implementing enhanced training, management and monitoring of South Africa's ward-based primary healthcare outreach teams. Mantell et al., 2022.	Yes	Yes: Districts were purposively selected based on the size of their HIV programs, higher HIV prevalence, and representation of urban, peri-urban, and rural facilities. Key informant interviews, in-depth interviews, field observations, surveys, time motion studies, online surveys, on site assessments.	Mixed Methods: Primary data: 657 participants: 28 KIIs, 70 IDIs, 20 FGDs, 222 KAP survey, 65 field observations and 215 households, 11 surveys, 20 site assessments secondary documents review: 20 HIV site performance reviews.	Yes	Yes.	Yes	Yes	Yes
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36	Primary Health Care System Strengthening Project in Sri Lanka: Status and Challenges with Human Resources, Information Systems, Drugs and Laboratory Services. Thekkur et al., 2022.	Yes	Yes. Quantitative Component: The assessments were conducted in nine selected PMCs. Qualitative Component: Purposive (extreme variation) sampling was used to select the facilities based on performance according to the quantitative assessment.	Mixed Methods	Yes	Yes. Quantitative Component: Frequencies and percentages were used to summarise the total number of PMCs with available adequately trained manpower, essential drugs and MSMIS, buffer stocks of essential drugs, laboratory/diagnostic services and functional HMIS. Qualitative Component: Thematic analysis was performed to identify themes on the challenges in strengthening and re-organisation of PMCs. The results reflected the data, the codes/categories were related back to the original data.	Yes	Yes	Yes. Sample size was guided by saturation of findings. The findings were reported as per 'Consolidated Criteria for Reporting Qualitative Research' (COREQ) guidelines.
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38	Why do strategies to strengthen primary health care succeed in some places and fail in others? Exploring local variation in the effectiveness of a community health worker managed digital health intervention in rural India. Schierhout et al., 2021.	Yes	Yes. Eg Purposive 13 focus group discussions with ASHAs, and 15 in-depth interviews .	Mixed Methods	Yes	Yes. iteratively developed mechanism-based explanations, as refined programme theory, to explain how and why the intervention achieved its effects in different local contexts.	Yes, using RE-AIM framework	Yes. Brought qualitative and quantitative data together at cluster-level, using a framework matrix analysis approach .	Yes. Using theory, repeated analysis, triangulation
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39	Final Evaluation of the MOMI Project in Burkina Faso, Kenya, Malawi and Mozambique. Djellouli et al, 2016.	Yes	Yes. Quant: multistage sampling technique, data extraction and systematic sampling. Qual: purposive, maximum variation sampling.	Mixed Methods	Yes	Yes. Undertook a realist evaluation for a nuanced understanding of the influence of different contextual factors on both the implementation and impacts of the interventions.	Yes. The content of the interviews were analysed along both surveys themes.	Yes	Yes. Triangulation
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43	A Systems Approach to Improving Rural Care in Ethiopia. Bradley et al., 2012.	Yes	Yes. Approximately 6 to 8 interviews in total were conducted in each PHCU for a total of 51 interviews . collected quantitative PHCU performance data included ANC utilisation rates, skilled birth attendance rates, and HIV testing rates in antenatal care.	Mixed Methods	Yes	Yes	Yes	Yes	Yes
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44	Promising adoption of an electronic clinical decision support system for antenatal and intrapartum care in rural primary healthcare facilities in sub-Saharan Africa: The QUALMAT experience. Sukums et al., 2015.	Yes	Yes. Data was collected using three different methods: structured questionnaire surveys, electronic and paper-based project monitoring tools for eCDSS use, and interviews and reports from trainings and supervision visits	Mixed Methods	Yes	Yes	Yes. Categories were further classified into themes covering the individual user, organizational, task-related, and techno-logical factors as adapted from the fit between individuals, task and technology (FITT) framework. These factors are presented as barriers and facilitators for eCDSS implementation and use.	Yes	Yes. Use of framework; triangulation
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45	Sustainability Assessment of a District-Wide Quality Improvement on Newborn Care Program in Rural Rwanda: A Mixed-Method Study. Nahimana et al., 2021.	Yes	Yes. Four qualitative focus group discussions (FGD) with eight participants each were conducted. Semi-structured individual interviews were conducted with 20 participants. And a quantitative evaluation using a pre-post design.	Mixed Methods	Yes	Yes	Yes. The themes from focus group discussions and individual interviews were assessed in terms of their ability to explain quantitative results.	Yes. After independently analyzing the quantitative and qualitative data, content areas represented in both data sets were identified, and all the results were compared, contrasted, and synthesized. The separate results were then interpreted.	Yes
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46	Changes in health worker knowledge and motivation in the context of a quality improvement programme in Ethiopia. Quaife et al., 2021.	Yes	Yes. I interviewed 395 health workers at baseline in April 2018 and 404 at end line. In-depth interviews with 22 health workers; quantitative component comprised a survey.	Mixed Methods	Yes	Yes	Yes	Yes	Yes. Used frameworks; collected more qual data after initial round to fill gaps. Triangulation of methods
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49	Successful implementation of a combined learning collaborative and mentoring intervention to improve neonatal quality of care in rural Rwanda. Werdenberg et al., 2018.	Yes	Yes. Participant surveys were completed before the first learning session and after the Harvest Session with shorter surveys before other learning sessions. FGDs during Harvest Session.	Mixed Methods	Yes	Yes. Qualitative and quantitative data were subsequently integrated to determine which QI projects and change ideas warranted inclusion in the change package using rules.	Yes	Yes	Yes. To reduce reporting bias, the codes extracted from the interviews were validated by an expert in ABC implementation (ABC mentor) and by an expert in qualitative analysis.
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50	“So hard not to feel blamed!”: Assessment of implementation of Benin’s Maternal and Perinatal Death Surveillance and Response strategy from 2016–2018. Hounsou et al., 2022.	Yes	Yes; all data available was included from multiple strands	Mixed Methods	Yes	Yes. Data were analyzed following the four components of the WHO MPDSR continuous-action cycle, using Benin’s national MPDSR guidelines.	Yes	Yes	Yes. Using checklists; triangulation
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52	Strengthening decentralized primary health care planning in Nigeria using a quality improvement model: how contexts and actors affecting implementation. Eboreime et al., 2018.	Yes	Yes. Qualitative data was used in conjunction with quantitative data to understand how actors interact in different contexts, and how this affected DIVA implementation outcomes.	Mixed Methods	Yes	Yes	Yes	Yes. Triangulation of all data (interviews, MUSIQ and document analysis) was done to validate inferences. Further, findings from document analysis and interviews were used to understand and explain results from MUSIQ.	Yes. Data analysis was conducted using a framework analytic approach.
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56	Challenges of using e-health technologies to support clinical care in rural Africa: a longitudinal mixed methods study exploring primary health care nurses' experiences of using an electronic clinical decision support system (CDSS) in South Africa. Horwood et al., 2023.	Yes	Yes	Mixed Methods	Yes	Yes	Yes	Yes	Yes
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57	"They are our eyes outside there in the community": Implementing enhanced training, management and monitoring of South Africa's ward-based primary healthcare outreach teams. Mantell et al., 2022.	Yes	Yes. Districts were purposively selected in partnership with the NDoH and PEPFAR based on the size of their HIV programs, higher HIV prevalence, and representation of urban, peri-urban, and rural facilities.	Mixed Methods	Yes	Yes	Yes	Yes	Yes. Analytic rigor was strengthened by triangulating the use of multiple quantitative and qualitative data collection methods from diverse stakeholders to enhance internal validity of evaluation results, in addition to large sample sizes for most data sources.
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67	A Systems Approach to Improving Rural Care in Ethiopia. Bradley et al., 2012.	Yes	Yes. Eg Purposive ly sampled 51 interviews with PHCUs and 3 site visits	Mixed Methods	Yes	Yes	Yes	Yes	Yes. sensitivity analysis for quantitative data. constant comparison method for qualitative data analysis
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68	Promising adoption of an electronic clinical decision support system for antenatal and intrapartum care in rural primary healthcare facilities in sub-Saharan Africa: The QUALMAT experience. Sukums et al., 2015.	Yes	Yes. Data collection was multi-method, combining quantitative tracking (surveys, monitoring tools) with qualitative insights (interviews, field notes, diaries, supervision checklists).	Mixed Methods	Yes	Yes. The challenges reported by health workers in each country at the two periods (10 and 18 months) after eCDSS launch were compared. The thematic analysis was used for the qualitative data to further explain or augment the quantitative findings.	Yes. To complement the questionnaire survey and to increase the breadth and depth of insights about the users' perception of the eCDSS various additional data collection tools and techniques were used.	Yes. Thematic analysis was used for the qualitative data to further explain or augment the quantitative findings guided by related studies.	Yes
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71	Sustainability Assessment of a District-Wide Quality Improvement on Newborn Care Program in Rural Rwanda: A Mixed-Method Study. Magge et al., 2021.	Yes	Yes. Participants were purposely selected based on their experience and active participation in the neonatal and maternity services. Quantitative and qualitative	Mixed Methods	Yes	Yes	Yes. inductive, content analytic approach to derive six themes related to the ABC sustainability to explain quantitative results.	Yes	Yes
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73	Changes in health worker knowledge and motivation in the context of a quality improvement programme in Ethiopia. Quaife et al., 2021.	Yes	Yes. Using a random number generator, randomly selected one QI programme woreda per region. Purposive ly sampled two additional woredas.	Mixed Methods	Yes	Yes. conducted semi-structured interviews with healthcare workers who were interviewed at baseline to triangulate and further expand quantitative findings and to capture other dynamics or factors which were not included in quantitative tools.	Yes	No	Yes. 7 woredas where QI was being implemented were matched with 7 woredas with no QI activities.
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76	Successful implementation of a combined learning collaborative and mentoring intervention to improve neonatal quality of care in rural Rwanda. Werdenberg et al., 2018.	Yes	Yes. Purposive. Participant surveys were completed before the first learning session and after the Harvest Session with shorter surveys before other learning sessions.	Mixed Methods	Yes	Yes. assessed the fidelity and completeness of the ABC initiative implementation comparing key activities including mentor visit frequency, site participation and QI activities with the program design.	Yes. Collaborative implementation: Qualitative data on facilitators and challenges to ABC success were also collected through the focus groups discussions. Both deductive and inductive approaches were used to determine underlying themes.	Yes	Yes
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77	The influence of Continuous Quality Improvement on healthcare quality: A mixed-methods study from Zimbabwe. Gage et al., 2022.	Yes	Yes. 232 interviews , 15 FGDs, 22 Group Interviews	Mixed Methods	Yes	Yes	Yes	Yes	Yes. The qualitative data was analyzed through synthesizing and triangulating information from the interviews and focus groups using NVivo 10™ software. An iterative approach based on grounded theory (allowed themes and findings to emerge from the data.
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Appendix C: Within Paper Synthesis of Barriers to and Enablers of QI in PHC

Study Author and Year	Study Title	Enablers and Barriers to QI
Giessler et al., 2020	Perspectives on implementing a quality improvement collaborative to improve person-centered care (PCC) for maternal and reproductive health in Kenya	Barriers / Constraints • Disproportionate staff-to-patient ratios limited time for PCC. • High staff turnover & rotations demanded repeated sensitisation of new staff, affecting continuity. • Time constraints: Competing clinical duties prevented full participation in QI meetings. • Infrastructure limitations: Lack of space, particularly in maternity wards, hindered involvement of companions. • Overworked staff, high turnover, and overwhelming patient loads. Enablers / Facilitators • Training in PCC: Improved individualised care, built trust, and enhanced provider–patient interactions. • Provider benefits: Increased interpersonal skills, self-efficacy, confidence, pride, and job satisfaction. • Improved rapport with patients: Calling patients by name and explaining procedures fostered respect and communication. • Patient empowerment: Women became more engaged, sharing concerns and preparing better for labor/delivery. • Professional gratification: Providers felt fulfillment from meeting women’s needs and observing positive outcomes.
Odusola et al., 2016	Enablers and barriers for implementing high-quality hypertension care in a rural primary care setting in Nigeria	Barriers / Constraints • Lack of necessary resources (infrastructure, staff, equipment). • Financial disincentives and inadequate compensation mechanisms. • Non-financial disincentives such as poor motivation and lack of recognition. • Weak information systems that limit efficiency. • Inadequate quality assurance and patient safety systems. • Gaps in continuing education and professional training. Enablers / Facilitators • Necessary resources (when present) support care delivery. • Financial and non-financial incentives can improve motivation. • Strong information systems facilitate care coordination.

Study Author and Year	Study Title	Enablers and Barriers to QI
		• Quality assurance and safety systems strengthen service delivery. • Continuing education improves provider knowledge and practice.
Pesec et al., 2021	Costa Rica's primary health care reforms	Barriers / Constraints • Overemphasis on indicators: Narrow focus, limited innovation and broader priorities. • Short-term interventions favored (e.g., Pap smear campaigns) over long-term systemic changes. • Data overload and inefficiency: Duplicative reporting, excessive indicators (over 300+), and inconsistent feedback. • Time burden: Continuous reporting distracted staff from patient care. • Unintended consequences: Initiatives outside Index targets (e.g., psychiatric clinic) were delayed. Enablers / Facilitators • Strong data culture: Long-standing value placed on data-driven improvement. • Index as accountability tool: Public rankings spurred improvement. • Intrinsic motivation: Providers and leaders committed to quality without financial incentives. • Technical and managerial proficiency: Staff upskilled in data collection and analysis over decades. • Flexibility at local level: Health Areas could adapt additional monitoring systems.
Lall et al., 2020	Non-communicable diseases: service reorganization at PHC facilities	Barriers / Constraints • Hierarchical structures: Doctors dominated decision-making. • Weak team cohesion: Some facilities had poor collaboration, lacked shared activities. • Unequal respect for staff: Certain staff (e.g., pharmacists) excluded from meetings. Enablers / Facilitators • Well-qualified staff: Flattened hierarchies and encouraged participation. • Staff training and clear role definitions: Empowered team members to contribute. • Team cohesion: Sharing work responsibilities, improved collaboration and resilience. • Counseling interventions: Boosted motivation and job satisfaction. • Inclusive leadership: PHCs with participatory leaders showed more success. • Community coordinator (CC) facilitated and strengthened QI implementation.

Study Author and Year	Study Title	Enablers and Barriers to QI
Wakida et al., 2019	Implementation of clinical practice guidelines (CPGs) in HIV clinics in Uganda	Barriers / Constraints • Inadequate recording systems: HIV clinics lacked registers for mental health data. • Increased workload and time constraints: Documentation and patient load stretched staff capacity. • Weak buy in: Staff in non-HIV departments showed lower buy-in. • Unmet expectations: Staff expected more supervision and support than provided. • Drug stock-outs: Limited availability of essential psychotropic medicines. • Over-enthusiasm: Some lower-level providers managed cases beyond their scope, causing referral failures and medication shortages. Enablers / Facilitators • Training and supervision: Improved knowledge, confidence, and clinical skills. • Modified registers: Enabled systematic data collection on mental health. • Summarised clinical guidelines: User-friendly, practical tools increased adherence. • Positive provider attitudes: Staff motivated to integrate mental health into care. • Improved patient care: Providers recognised mental health needs more consistently. • Structured, regular training (when suggested) could strengthen sustainability.
Bogren et al., 2021	Contextual factors influencing a training intervention aimed at improved maternal and newborn health care in a health zone of the Democratic Republic of Congo	Barriers / Constraints • Infrastructure: Lack of physical space, unreliable electricity, insufficient equipment. • Expectation of monetary incentives: Lack of payments discouraged participation, shaped by donor-funding norms. • Dependence on donor funding: Research-based projects with smaller budgets struggled to compete with large donor programs. Enablers / Facilitators • Training opportunities: Increased knowledge and skills were motivating. • Women's utilization of services: Encouraged providers to improve. • Preference for evidence-based learning: Staff appreciated refresher training and new knowledge. • Intrinsic motivation: Training fostered professional growth and pride in providing high-quality care.
Tibeiha et al., 2021	Continuous quality improvement (CQI) as a tool to implement evidence-informed problem solving: experiences from the	Barriers / Constraints • High staff turnover: Trained staff often transferred or left employment, requiring new staff retraining.

Study Author and Year	Study Title	Enablers and Barriers to QI
	district and health facility level in Uganda	• Variable uptake across facilities: Success depended heavily on commitment of facility in-charges. • Time/resource constraints: CQI meetings competed with clinical duties. Enablers / Facilitators • District leadership buy-in: Active involvement of district leaders (e.g., Chief Administrative Officer) drove implementation. • Capacity building: CQI training and mentorship for DHMTs and facility staff improved problem-solving and data use. • Team culture: CQI teams established at both district and facility level improved collaboration and accountability. • Support supervision: Regular mentorship and supervision strengthened uptake. • Shift in attitudes: More client-focused and systematic in problem-solvers (staff).
Gage et al., 2021	The influence of Continuous Quality Improvement on healthcare quality: A mixed-methods study from Zimbabwe	Barriers / Constraints • Fragmentation of QI function: Viewed as “just another government program,” reducing coherence. • Staff shortages: Employment freeze led to insufficient human resources, undermining supervision and coaching. • Training gaps: Too complex content; not all staff absorbed or transferred knowledge effectively. Enablers / Facilitators • Performance-based financing (PBF): Additional funds improved infrastructure, equipment, and essential supplies. • Strengthened leadership and teamwork: CQI promoted participatory decision-making. • Supportive supervision: Internal and external supervision provided motivation, guidance, and skill-building. • Capacity building: Ongoing CQI training improved staff knowledge and practice. • Knowledge exchange platforms: Boosted staff learning and motivation. • Community engagement: Communities held providers accountable, enhancing CQI commitment.
Tiruneh et al., 2020	Effectiveness of participatory community solutions strategy on improving household and provider	Barriers / Constraints • High staff turnover: Training gaps when new staff arrived.

Study Author and Year	Study Title	Enablers and Barriers to QI
	health care behaviors and practices: A mixed-method evaluation	• Unstable leadership: Frequent community leadership changes disrupted QI committees. • Heavy workloads: Limited time for QI meetings; staff overstretched. • Competing priorities: Campaigns and other tasks disrupted MNH services. • Resource shortages: Lack of key drugs (e.g., magnesium sulphate for pre-eclampsia treatment) and equipment (vacuum extractors). Enablers / Facilitators • Stakeholder participation: Strong coordination and shared responsibilities across system levels. • Regular reviews & staff commitment: Continuous monitoring and motivation drove progress. • Community engagement: Women's groups and leaders actively involved in planning and monitoring. • Micro-plans with clear roles: Clarified responsibilities improved accountability. • Improved communication: Stronger linkages between community, HEWs, and facilities.
Patterson et al., 2021	Culture's Place in Quality of Care in a Resource-Constrained Health System: Comparison Between Three Malawi Districts	Barriers / Constraints • Resource scarcity: Chronic shortages of staff, medicines, supplies, electricity, and water. • Administrative barriers: Centralised control over roles, limited facility autonomy. • Transportation and communication challenges: Hampered supervision and responsiveness. • Coping culture: Normalised unsafe improvisation (e.g., using unsterile tools). • Demoralisation: Staff felt trapped in "make-do" environments, leading to frustration and burnout. • Lack of accountability: Managers avoided long-term investments (e.g., maintenance) due to resource scarcity. Enablers / Facilitators • Adaptive responses: Managers conserved resources, reassigned shifts, and improvised to maintain service continuity. • Maternal care prioritization: Staff allocated scarce resources to maternal health as a priority.

Study Author and Year	Study Title	Enablers and Barriers to QI
		Team reliance: Despite shortages, staff valued collaboration and serving their communities.
Demes et al., 2021	Analysis of implementation outcomes of quality improvement initiatives in Haiti: the fingerprint initiative	Barriers / Constraints <i>Largely in Public (government) facilities:</i> - Leadership non-involvement and lack of interest. - Cultural and political barriers to adoption like rampant absenteeism (normalised and tolerated). - Implementation failures due to poor communication and weak accountability. Enablers / Facilitators <i>Largely in NGO-supported facilities:</i> - Strong leadership involvement and communication. - Adequate human and other resources ensured feasibility. - Integrated system into organisational ethos, fostering sustainability. - Fingerprint system improved transparency in result-based financing. - Collaborative leadership approach increased acceptability.
Kim et al., 2019	A process evaluation of the quality improvement collaborative for a community-based family planning learning site in Uganda	Enablers Capacity Building & Training - Multifaceted approach: classroom training, on-the-job training, continuous support & feedback → stronger sustained capacity vs. one-off trainings. - Significant perceived improvements in QI culture: facilitative supervision, use of data, stakeholder involvement, and locally developed/tested solutions. - Strong self-assessed improvement capacity across cadres (QI teams, health center coaches, woreda administrators). Motivation & Engagement - Strong motivators: contribution to MDGs, visible change after interventions, high burden of maternal/newborn deaths, and personal experiences of loss. - Seeing improvements in care delivery (e.g., identification of pregnant women, increased facility births, reduced deaths) boosted motivation. Focused & Practical Improvement - Beneficial shift from trying to “improve everything” → targeted focus on community maternal newborn health (CMNH) care and life-saving priorities. - Perception that focused improvement was more practical and effective than broad health promotion.

Study Author and Year	Study Title	Enablers and Barriers to QI
		Coordination & Community Empowerment • Improved coordination across woreda offices, health centers, health posts, and communities. • Communities empowered to identify problems and contribute to solutions. • Strong uptake of community-driven approaches to CMNH care. Leadership & Sustainability • Woreda leaders developed ownership and leadership capacity, fostering a supportive culture. • Activities embedded in existing government structures (not parallel systems), enhancing sustainability. • Confidence among respondents that work could be continued and spread to new areas (e.g., through the health development army). Barriers Operational & Logistical • Low frequency of woreda staff supervision visits (some QI team leaders noted weak follow-up). • Volunteer QI team members sometimes treated like employees, creating tension. • Workload concerns some coaches (fear that demands could exceed capacity).
Lokossou et al., 2019	Do quality improvement teams contribute to performance of community health workers in Benin?	Barriers / Constraints • Lack of community support and recognition. • Difficult access to populations (geographic challenges). • Frequent drug stock-outs. • Sense of defeatism among QATs (quality assurance teams). • Seasonal interruptions (harvest/planting times). • Inconsistent supervision (some supervisors unavailable for monthly visits). • Payment delays and uncertainty about intervention continuation reduced motivation. Enablers / Facilitators • Community recognition and involvement increased motivation. • Healthy competition between Community Relays (CRs) fostered better performance. • Financial incentives. • Training and learning sessions improved skills and engagement. • Supportive supervision and mentoring for skills. • Improved community health outcomes boosted morale.

Study Author and Year	Study Title	Enablers and Barriers to QI
		• Skill-building and sense of professional growth among CRs. • Strong retention rates of CRs despite challenges.
Vail et al., 2018	Logistical, cultural, and structural barriers to immediate neonatal care and neonatal resuscitation in Bihar, India	Barriers / Constraints • Logistical barriers: Poor facility infrastructure; long distances between labor rooms and newborn care centres (NBCCs); lack of designated resuscitation spaces. • Supply shortages: Key equipment (ventilation bags, masks, mucus extractors, oxygen, clocks) unavailable or non-functional. • Drug stock outs delayed care. • Interpersonal issues: Fear of abuse from families/patients; community mistrust of PHC care; conflicts between nurses. • Cultural barriers: Male infant preference; valuing maternal survival over neonatal survival; fatalism about neonatal death. • Traditional practices: Harmful practices (e.g., holding baby upside down, mustard oil application) competing with evidence-based practices. • Structural barriers: Poverty limited families' ability to follow referral recommendations or purchase supplies. • Hierarchy: Doctors and family members overruled nurses, limiting uptake of evidence-based practices. • Human resources: Staff shortages, absentee doctors, and insufficient nurse coverage. • Referral gaps: Ambulances unavailable or untrained personnel during transfers. Enablers / Facilitators • AMANAT/PRONTO training improved availability and use of some supplies (e.g., ventilation bags). • Training fostered evidence-based practices (gradual reduction in harmful traditional practices). • Improved communication, teamwork, and delivery preparedness through training. • Training increased provider confidence and community trust. • Emphasis on respectful, standardized care helped counter cultural barriers. • Data use and feedback loops improved preparedness and handover.
Visser et al., 2018	Clinical mentoring to improve quality of care provided at three	Barriers / Constraints • Salary challenges: non-payment of stipends for lay counsellors. • Excessive workload discouraged staff participation.

Study Author and Year	Study Title	Enablers and Barriers to QI
	NIM-ART facilities: A mixed methods study	• Shortage of NIM-ART-trained nurses. • Drug shortages, inadequate labs, delayed test results, no clinic phones. • Critical medicine shortages frustrated both staff and patients. • Resistance from health workers, initially. Enablers / Facilitators • Clinical mentors: facility audits, tailored mentoring plans, iterative problem-solving. • Sharing best practices and ongoing support built confidence. • Reflection and research diaries improved mentoring. • Involving all staff in decision-making, open communication, and regular feedback strengthened the program. • Positive feedback from staff: mentoring boosted participation. • Evidence showed nurse-monitored care was not inferior to doctor-monitored care.
Tancred et al., 2017	Facilitators and Barriers of Community-Level Quality Improvement for Maternal and Newborn Health in Tanzania	Barriers / Constraints • Lack of local allowances and support in lower-ranked villages. • Volunteers demotivated due to lack of recognition. • Transport challenges (large villages, no support for bicycles/transport). • Limited or inconsistent use of data reduced motivation. • Volunteers in poorly supported villages emphasized personal incentives over community impact. Enablers / Facilitators • Strong support from village leaders (attendance at meetings, household follow-up, reviewing volunteer reports). • Leaders mobilized local resources (e.g., small financial incentives, bicycles). • EQUIP (Expanded Quality Management Using Information Power) provided transport allowance for learning sessions and meetings. • Volunteers were motivated by observing community improvements through data use. • Routine use of data boosted motivation and accountability. • Education and skill-building for volunteers: refresher training, PDSA cycles, data graphing, etc. • Volunteers felt responsibility to share knowledge with their communities. • Top-ranked villages showed higher fidelity and implementation due to these enablers.
Jaribu et al., 2016	Improving institutional childbirth services in rural Southern	Barriers / Constraints

Study Author and Year	Study Title	Enablers and Barriers to QI
	Tanzania: a qualitative study of healthcare workers' perspective	• Duplication of interventions (multiple overlapping programs like CHAI, Mtnze Mtoto Mchanga) confused staff. • Workload: extra data collection/reporting alongside routine tasks. • Cultural beliefs shaped care-seeking (e.g., spiritual explanations of illness). • Confusion about which QI intervention staff were participating in. • Power outages limited use of partographs. • Sustainability was outside workers' control: districts often prioritized HIV/AIDS or malaria over reproductive/child health. Enablers / Facilitators • Onsite follow-up visits: reinforced training, boosted morale, and promoted data-driven decisions. • Coaching and mentoring perceived as more valuable than workshops. • PDSA cycle training: some staff applied learning beyond maternal health. • Partograph training/refresher: improved use across cadres, including medical attendants. • ANC counseling on danger signs and birth preparedness improved quality and consistency of care. • Peer learning in workshops: allowed sharing technical knowledge and building team cohesion. • Positive attitude toward QI despite structural/systemic challenges.
Kinney et al., 2020	"It might be a statistic to me, but every death matters.": An assessment of facility-level maternal and perinatal death surveillance and response systems in four sub-Saharan African countries.	Barriers / Constraints • Limited health worker capacity for data use and analysis. • Few facilities had plans for MPDSR training. • Limited accountability for follow-up actions. • Staff shortages, heavy workloads, and turnover hindered meeting participation. • Lack of motivation due to no incentives (e.g., travel support). • Audit recommendations often not implemented → reduced faith in the process. • Tools lacked designated space for documenting follow-up actions. • No clear mechanisms for feedback to facilities. Enablers / Facilitators • Leadership commitment. • Regular multidisciplinary team meetings. • Availability and use of MPDSR guidelines and tools.

Study Author and Year	Study Title	Enablers and Barriers to QI
		• Teamwork, communication, and staff commitment. • National/subnational support, including training. • Perceived positive effect of MPDSR on reducing deaths. • Staff motivation due to concern about high maternal death rate. • In Rwanda/Zimbabwe: strong awareness of guidelines. • Linking MPDSR with QI activities in facilities (74% of cases).
Ayele et al., 2019	Maternal and perinatal death surveillance and response in Ethiopia: Achievements, challenges and prospects	Barriers / Constraints • Community awareness gaps: poor knowledge of perinatal death reporting, cultural beliefs (“evil eye”), misperceptions (e.g., no deaths occur in health facilities). • Capacity challenges: workforce shortages, high turnover, lack of training on updated guidelines, poor provider attitudes (rudeness, failure to identify risks). • Logistical/infrastructure gaps: lack of guidelines and formats, inadequate infection prevention equipment, no maternity waiting homes, weak neonatal intensive care units (NICUs), weak referral systems (ambulances, roads). • Poor feedback from facilities → community mistrust. Enablers / Facilitators • Systems strengthening integrated training for providers and district experts, program-based supervision, improved referral feedback, and reporting integration. • Community mobilization to increase awareness of perinatal death. • Decentralization of review process to primary care units (per updated guideline). • Active involvement of community members (esp. women development teams) in death identification and reporting. • Intersectoral collaboration with women’s associations, education, agriculture. • Recognition of MPDSR as important for reducing deaths
Tayebwa et al., 2020	Assessing Implementation of Maternal and Perinatal Death Surveillance and Response (MPDSR) in Rwanda	Barriers / Constraints • Limited health worker capacity to analyse and use data for MPDSR. • Few plans for staff training on MPDSR. • Weak accountability for follow-up on audit recommendations. • Staff shortages, high turnover, heavy workloads. • Lack of incentives for participation (travel, allowances). • Low motivation due to recommendations not being implemented. • Facility tools missing sections for documenting follow-up actions. • Poor mechanisms for community feedback.

Study Author and Year	Study Title	Enablers and Barriers to QI
		Enablers / Facilitators • Strong leadership at facility level. • Regular, multidisciplinary audit meetings. • Availability and use of guidelines and tools. • Teamwork, staff commitment, and communication. • National/subnational training support. • Evidence that MPDSR improved services and reduced deaths. • Staff motivation rooted in concern about maternal/perinatal deaths. • Linking MPDSR with other QI activities (74% facilities).
Kinney et al., 2022	Exploring the sustainability of perinatal audit in four district hospitals in the Western Cape, South Africa: a multiple case study approach	Enablers / Facilitators Integration into daily work (Capability): • Audit activities embedded in routine workflow, job descriptions, orientation, and formal training. • Linked to other meetings, QI processes, M&E systems, and district/regional support. • Costs absorbed into existing budgets. Shared understanding & trust: • Staff valued audit as a learning tool, skill-building process, and opportunity for debrief. • Because meetings were well facilitated and conducted in a safe, non-blame culture. • Helped navigate hierarchies, improve communication, and strengthen relationships. • Over time, staff observed that “the system works,” reinforcing commitment. Motivation & commitment: • High intrinsic motivation: passion for quality care, desire to problem-solve and improve. • Intangible incentives: learning, debriefing, communication, teamwork. • Tangible incentives: CPD points, performance reviews. • Shared commitment to community health; many staff were locally rooted and invested long-term. • Peer motivation and collective passion sustained engagement. Capacity & supportive environment: • Well-functioning hospitals with adequate resources, low turnover, and strong management. • Culture of data use for decision-making.

Study Author and Year	Study Title	Enablers and Barriers to QI
		• Strong communication systems and social networks across staff levels. • Effective meeting facilitation → strengthened trust, accountability, and learning. External/systemic support: • Regional PPIP coordinators' oversight created legitimacy and accountability. • Western Cape Department of Health governance emphasized collaboration, integration, multisectoral engagement, supporting sustainability. • Local adaptation of the intervention promoted ownership and flexibility. Barriers/ Constraints: • When key actors absent, implementation was weakened. • Power dynamics & hierarchies: though mitigated, they shaped trust and credibility. • Potential sensitivity: perinatal audit involves reviewing deaths, which may inhibit openness.
Basenero et al., 2022	Integrating hypertension and HIV care in Namibia: A quality improvement collaborative approach	Barriers / Constraints • Challenges recording/analyzing QIC measures. • Malfunctioning BP machines. • Difficulties in follow-up for repeat BP readings. • Limited physician availability to initiate treatment. • Stock-outs of anti-HTN medications. • Weak referral tracking for patients needing tertiary care. Enablers • Leadership: clinic leadership involved in QI planning and monitoring. • Data-driven care: use of QIC indicators and monthly review. • Self-management support: patient reminders in health passports. • Community linkages: HTN screening integrated into ART community delivery sites. • Delivery system redesign: training health assistants, redesigning patient flow, stocking anti-HTN drugs in HIV clinics. • Decision support: refresher training on guidelines for counseling/referrals. • Clinical information systems: BP monitoring registers, patient-held health passports, and pharmacy tracking of stock-outs. • Integration of HTN services into HIV care improved efficiency and access.
Schuele & MacDougall, 2022	The missing bit in the middle: Implementation of the Nationals	Barriers Power relations & resistance:

Study Author and Year	Study Title	Enablers and Barriers to QI
	Health Services Standards (NHSS) for Papua New Guinea	• In-groups vs. out-groups: Resistance from long-tenured staff (“been in the system too long”) who obstructed change through non-participation. • Regional managers had “frozen relationships” with facility staff, exercising power by withholding support and non-participation. • Hidden power dynamics sometimes undermined collaboration, leading to reduced staff involvement. Policy & guidance gaps: • The NHSSs policy document was not user-friendly, complex, and not widely disseminated (hard copies only to some managers; poor internet access in rural areas). • Lack of clear implementation guidelines—a major missing link between national policy and facility practice. Resource constraints: • Shortages of human resources, with staffing levels calculated for health centers rather than district hospitals. • Severe staff shortages at night and weekends → increased workload and compromised quality. Leadership gaps: • Quality officers “wearing too many hats,” limiting focus on QI. • Regional offices (“the missing middle”) often maintained the status quo, failing to provide leadership and guidance. • Top-down vs. bottom-up tensions: senior managers promoted participatory approaches, but some facilities defaulted to directive leadership without monitoring mechanisms. • Poor leadership at facility or regional level. Enablers / Promoters Shared recognition of need for change: • Both senior managers and frontline workers acknowledged dissatisfaction with quality of care and urgency for improvement. • General agreement that QI was “overdue” and essential to improve patient care and staff safety. External drivers: • Accreditation to district hospital status was a motivating factor. • National-level senior managers showed commitment to QI, creating momentum.

Study Author and Year	Study Title	Enablers and Barriers to QI
		Participatory approach & teamwork: • Use of participatory action research (PAR) framework: biannual planning and review meetings, PDSA cycles, collective reflection. • All staff (clinical, admin, support) were included in discussions and action planning. • Teamwork and collegial networks emphasized; QI seen as a collective empowerment process. Champions: • Quality assurance/control officers acted as champions, introducing standards, organizing assessments, dividing tasks, and driving implementation. • These officers helped foster teamwork and build trust. Leadership & motivation • Some facilities developed effective QI committees, conducted internal assessments, and gave clear directions. • Intrinsic motivation: desire to improve care, learn, and ensure safety. • National DoH support (financial, technical, policy) seen as necessary to sustain momentum.
Hutchinson et al., 2021	Opening the 'black box' of collaborative improvement (CI): a qualitative evaluation of a pilot intervention to improve quality of malaria surveillance data in public health centres in Uganda	Barriers / Constraints Workload & complexity: • New outpatient department (OPD) registers (introduced alongside CI) added extra workload, requiring longer histories, more tests, and more data entry. • CI processes were seen as additional work layered onto already busy days. • Larger health centres faced operational challenges: complex patient flow, multiple service points, and more structural changes needed to incorporate CI. Hierarchies & tensions: • CI depended on cross-facility collaboration, but hierarchical rivalries emerged: larger facilities rejected solutions from smaller ones, undermining peer learning. • HC IV staff felt embarrassed by poorer performance compared to smaller HCs, leading to resistance. Ownership & sustainability issues: • CI often perceived as "the mentor's project", not owned by local staff. • CI journals underused; meetings happened mainly when mentor visited. • Non-CI team members felt excluded and saw data work as belonging to others ("your work").

Study Author and Year	Study Title	Enablers and Barriers to QI
		Financial incentives & inequity: • Per diem payments for workshop participants created division and resentment. • Non-attendees, who still faced extra work, described themselves as reluctant to engage without compensation. • Sustainability linked in participants' minds to ensuring all health workers receive financial benefits. Fragmentation of responsibility: • In larger centres, new divisions of labour emerged: CI team members became responsible for data, while others distanced themselves, causing tension. Enablers / Promoters • Skills: High-quality in-service training on CI was critical, especially given gaps in OPD register training. • Coaching visits by the CI mentor provided valued, supportive supervision that was otherwise missing in the health system. Mentor described as patient and non-judgmental. Motivation & perceived value: • Over time, staff began to recognize the importance of data collection for planning, medicine accountability, and demonstrating improvements. • Attendance at training and learning sessions was high → staff engagement with the process. Financial benefits: • Per-dem payments, though divisive, acted as a motivating factor for CI team members, who became committed and loyal to the project. Flexibility & adaptation: • Smaller health centres (HC IIs) integrated CI more easily due to simpler workflows and multitasking staff. • Larger centres eventually adapted by reorganizing patient flow and using patients/VHTs to support tasks (weighing, measuring, registering data). Teamwork & external support: • CI was carried out by small, committed teams, often supported by patients and volunteers. • Emerging teamwork within CI groups led to improved completeness of OPD data.
Yapa et al., 2022	A Continuous Quality Improvement (CQI) Intervention to	Barriers/ Constraints System & resource constraints:

Study Author and Year	Study Title	Enablers and Barriers to QI
	Improve Antenatal HIV Care Testing in Rural South Africa: Evaluation of Implementation in a Real-World Setting	• Staff shortages, especially professional nurses, worsened by resignations and deaths → limited participation in CQI. • Lay counsellor shortages or study leave → missed opportunities for HIV retesting (e.g., ~120 missed in one clinic over 3 months). • Stock-outs of HIV test kits, ART, monitoring forms; computer breakdowns and lack of printing equipment. • Limited space in some clinics for implementing new processes. • High patient volumes/queues → patients left before testing, affecting adherence to guidelines. • National DoH M&E register changes disrupted CQI processes and created extra documentation burdens. Organisational & leadership barriers: • Operational managers unavailable or too busy to approve activities, causing delays in PDSA cycles. • Professional hierarchies hindered knowledge-sharing — lower cadres struggled to influence senior staff. • CQI skills not consistently disseminated to non-CQI staff. • Staff transfers risked loss of CQI “memory” and momentum. • Weak leadership and reliance on external CQI mentors → limited organisational ownership. Process & implementation barriers: • Delays in starting/reviewing PDSA cycles, especially in larger clinics (55–63 days vs. 5–7 days in smaller sites). • Poor clinical documentation, incomplete filing of results, and weak patient tracking. • CQI sometimes seen as requiring extra effort (documentation, patient tracking system). • Fidelity was high from mentors, but lower from health workers due to workload and competing commitments. Patient-level barriers: • Late ANC booking reduced opportunities for guideline-aligned HIV testing. • Incorrect/inoperative mobile numbers hindered follow-up. • Some patients resisted workflow changes or complained about long queues. Enablers / Facilitators System & guideline enablers

Study Author and Year	Study Title	Enablers and Barriers to QI
		• National eMTCT guidelines aligned with CQI focus → provided a policy mandate. • Visible improvements (e.g., teamwork in identifying eligible women) motivated health workers. Training, mentorship & support • CQI mentors highly valued — described as supportive, patient, and encouraging. • Mentors provided consistent training, supervision, and situational analyses (root-cause analyses, process mapping, fishbone diagrams). • Several clinics requested extra mentor visits → strong buy-in. Health worker motivation & attitudes • CQI seen as novel, eye-opening, and motivating. • Health workers gained clearer understanding of guideline rationale → improved follow-up of patients. • Enthusiasm and buy-in across staff, even if participation was uneven. • Some health workers believed CQI could be sustainable if external support continued. Teamwork: • Team-based problem-solving and supportive interactions helped implement change. • Smaller, rural clinics benefitted from strong staff–patient rapport, improving follow-up. Adaptability & contextualisation: • Change ideas (e.g., patient tracking notebook) were adapted to local clinic contexts. • Smaller clinics with lower workload adapted more quickly and reviewed PDSA cycles faster.
Limato et al., 2019	What factors do make quality improvement to work in primary health care? Experiences of maternal health quality improvement teams in three Puskesmas in Indonesia	Enablers Leadership • Direct involvement of leaders in QI was critical — close monitoring and follow-up supported implementation. • Leaders with awareness of QI benefits motivated teams and allocated budgets effectively (e.g., Puskesmas A leader funded haemoglobin test sticks). • Quality-oriented leadership encouraged collective decision-making and ownership. Human Resources • Enthusiasm and motivation of staff fostered success, especially when they were included from idea conception to intervention.

Study Author and Year	Study Title	Enablers and Barriers to QI
		- Teamwork and collaboration across divisions enhanced QI outcomes. - Staff feeling like “owners” of the process sustained their engagement. Quality Culture - When QI was treated as part of daily work (not a separate project), results were better. - Puskesmas A showed strong quality culture: engaging all divisions, joint problem prioritization, and transparent PDSA cycles. Accreditation - Accreditation process synergised with QI, pushing facilities to adopt SOPs, patient satisfaction surveys, and establish quality teams. - External validation (e.g., accreditation assessors praising QI work) reinforced motivation and legitimacy. Barriers / Constraints Leadership - Leaders without awareness of QI value treated it as a top-down imposition (Puskesmas C). - Lack of leadership involvement meant weaker motivation and limited resource allocation. Human Resources “Ego-programming” (divisions prioritizing their own agenda over cross-unit collaboration) created resistance (notably in Puskesmas C). - Lack of cooperation from non-MCH staff hindered QI execution. Quality Culture - Some staff saw QI as an “isolated program” rather than part of routine work → reduced sustainability. - Staff not engaged in conception stages were less enthusiastic. System/Organisational Constraints - Budget allocation was a barrier when leaders did not approve necessary funds. - Isolated teamwork dynamics limited effectiveness
Baker et al., 2018	Health workers' experiences of collaborative quality improvement for maternal and newborn care in rural Tanzanian health facilities: A process evaluation using the integrated 'Promoting Action on	Enablers/ Facilitators System/Organisational Level Integration & fit with existing practice: EQUIP was seen as aligned with health workers' responsibilities (“within our responsibilities”), covering all mothers (not only HIV+), which improved acceptance.

Study Author and Year	Study Title	Enablers and Barriers to QI
	Research Implementation in Health Services' framework	• Accredited tools and support: Run charts and PDSA cycles (where understood) helped workers assess performance and motivated them. • Relative advantage: EQUIP helped track performance, reduce infections, and improve birth preparedness — health workers felt these changes made their jobs easier and care more effective. Individual (Health Worker) Level • Motivation & values: Strong intrinsic motivation (“this job is my heart”) and commitment to community health. Workers sometimes worked overtime to complete tasks. • Learning & empowerment: EQUIP training and mentoring increased skills in problem-solving and use of new strategies (e.g., father involvement in ANC, longer postnatal stays). • Positive patient outcomes: Noticing more facility births, father involvement, reduced complications, and improved documentation boosted morale. Facilitation & Support • Mentoring & coaching: EQUIP facilitators were perceived as supportive (“we talk together”), provided solutions adapted to local conditions, gave frequent follow-up, and empowered health workers. • Peer learning: Health workers valued learning sessions and knowledge-sharing when trained colleagues reported back. • Teamwork & cooperation: Good collaboration among staff in some facilities (helping in emergencies, task distribution, joint planning). Community Factors • Behavioural changes: More mothers delivering in facilities, increased father participation, and improved birth preparedness were seen as positive results of EQUIP. Barriers/ Constraints: System/Organisational Level • Concurrent projects & lack of coordination: Multiple overlapping donor/NGO programs created duplication, confusion, and reporting burdens. Health workers sometimes could not distinguish between programs. • Absorptive capacity limits: High workload, multiple reporting requirements, and facility staffing shortages limited ability to absorb and sustain EQUIP.

Study Author and Year	Study Title	Enablers and Barriers to QI
		- Limited district support: Requests for drugs, supplies, or assistance often went unmet (“we request but nothing is done”). Individual (Health Worker) Level - Isolation & workload: Many reported working alone, covering multiple roles, lack of rest, and sometimes being the only provider for years in a dispensary. - Knowledge gaps: Incomplete understanding of EQUIP tools. Many struggled with PDSA cycles (some had never heard of them), though run-charts were better understood. - Limited power & authority: Health workers felt constrained by systemic shortages (drugs, equipment) and by being “posted” without choice; unable to influence higher-level decisions. Professional Interactions - Mixed ownership of EQUIP: Some felt genuinely engaged, while others felt EQUIP facilitators mainly “look at our records” or “direct us,” reducing local ownership. - Boundaries & hierarchy: Informal task-shifting placed pressure on lower-cadre workers, with limited recognition or authority.
Umunyana et al., 2020	A practice improvement package at scale to improve management of birth asphyxia in Rwanda: a before-after mixed methods evaluation	Barriers/ Constraints - Limited equipment availability for resuscitation. - Heavy workload meant only some providers received multiple mentorship visits (456/1960). - No clear way to isolate the effects of different QI components. Enablers/ Facilitators - Clinical mentorship seen as the most critical intervention. - Providers more confident after mentorship → improved triage, newborn resuscitation, emergency management. - Real-time guidance improved correct use of resuscitation. - Data use and QI committees strengthened. - Multi-district learning meetings reinforced skills and motivation. - Positive provider attitudes aligned with WHO QoC framework. - Improved culture of teamwork, referral networks, and motivation.
Stover et al., 2014	Building District-Level Capacity for Continuous Improvement in Maternal and Newborn Health	Barriers/ Constraints: Organizational / System level

Study Author and Year	Study Title	Enablers and Barriers to QI
		• Workload concerns: One coach worried that additional QI-related tasks could exceed staff capacity. • Supervision challenges: Mixed perceptions about woreda health office supervision; some QI leaders felt volunteers were being treated like employees, and visits from woreda staff were infrequent. • Role clarity: QI team leaders often did not clearly distinguish between maternal and newborn health in Ethiopia partnership (MaNHEP's) improvement strategy and general CMNH training received, suggesting a need for stronger integration of QI concepts. Enablers/ Promoters: System / Organizational level • Multifaceted capacity building: Combination of classroom training, on-the-job training, continuous support, and feedback. • Culture for improvement: Strong shifts toward facilitative supervision, cross-stakeholder engagement, use of data for decision-making, and local solution development. • Integration into government structures: Worked within existing woreda and kebele structures rather than creating parallel systems, enhancing sustainability. • Spread to new areas: QI approaches linked to the <i>health development army</i> and extended beyond CMNH to other services (TB, immunizations). • Focused improvement approach: Targeting specific weak areas rather than attempting to improve everything at once increased effectiveness. • Improved coordination: Stronger interaction across woredas, health centers, posts, and communities. Individual & Community level • Motivating factors: Preventing maternal and newborn deaths, personal experiences with loss, visible changes after intervention, and alignment with MDGs. • Community empowerment: Communities were enabled to identify and implement their own solutions. • Leadership and ownership: Local leaders demonstrated improved capacity and receptivity to QI, fostering a culture of continuous improvement. • Confidence in sustainability: Respondents felt they could continue CMNH QI work and spread practices to new areas if supported by plans and budgets.

Study Author and Year	Study Title	Enablers and Barriers to QI
Tancred et al., 2018	How people-centered health systems can reach the grassroots: experiences implementing community-level quality improvement in rural Tanzania and Uganda	Barriers / Constraints: System / Organizational level • Mismatch between demand and supply: While volunteers increased demand for maternal and newborn services, facilities struggled to meet it, creating risk of women reverting to home deliveries. • Data challenges: ○ Inaccuracies and inconsistencies in volunteer-collected data and run charts. ○ Volunteers struggled with documentation, numerators/denominators, and interpreting QI methodologies. ○ Limited validation possible due to large number of volunteers. • Sustainability concerns: Need for district-level QI teams to manage resources and sustain gains. Community / Individual level • Acceptance issues: Some volunteers initially faced difficulty gaining trust and acceptance at the household level. • Mastery of QI skills: Volunteers had trouble fully understanding and applying QI tools (especially PDSA cycles). • Persistent reliance on TBAs: Despite improvements, some women preferred home delivery if facilities lacked staff. • Implementation challenges of change ideas: e.g., fines for home births sometimes created tension, requiring negotiation. Enablers / Facilitators System / Organizational level • Health facility–community collaboration: ○ Joint monthly meetings between facility staff and volunteers. ○ Mutual appreciation of complementary roles. ○ Facility reinforcement of community change ideas (e.g., withholding health cards unless fines were paid). • Structured QI capacity building: ○ Initial and ongoing training in QI and PDSA cycles. ○ Mentorship by EQUIP staff and QI coaches. ○ Volunteers learned to set SMART objectives, brainstorm, and design context-specific change ideas.

Study Author and Year	Study Title	Enablers and Barriers to QI
		• Use of data for improvement: Volunteers valued collecting and presenting data, which strengthened their role and motivation. Community / Individual level • Empowerment and skill-building of volunteers: Volunteers developed new problem-solving and data-use skills, enhancing confidence and ownership. • Local leadership support: Leaders introduced volunteers at meetings, endorsed their role, and sometimes joined learning sessions—boosting legitimacy and community acceptance. • Shifts in social norms: ○ Growing disfavor toward home births, TBAs, and traditional healers. ○ Inclusion of men in MNH decisions, finances, and birth preparedness. ○ Families increasingly saw facility delivery as safer and better. • Responsiveness to context: Volunteers adapted or replaced change ideas quickly when they didn't work. • Perceived impact: Facility births and birth preparedness were reported to increase during the intervention.
Chandani et al., 2017	"Quality improvement practices to institutionalize supply chain best practices for iCCM: Evidence from Rwanda and Malawi	Barriers/ Constraints: • Weak district engagement & accountability: ○ District staff often did not provide oversight, follow-up, or respond to requests. ○ Kick-off meetings were inconsistent; district coaches rarely followed through. • Competing priorities & limited resources: ○ Health center staff and CHWs struggled to find time to attend monthly QI meetings due to other obligations. ○ Lack of funds for basic needs (e.g., supply bags, rain gear) reduced motivation. • Inconsistent QI processes: ○ Many facilities held very few QI meetings (some only once a year). ○ Poor documentation and follow-up limited continuity. • Data and tool use challenges: ○ In Rwanda, health staff did not always use resupply tools consistently or correctly. ○ Worksheets were often incomplete or missing, reducing the ability of QI teams to monitor supply chain performance.

Study Author and Year	Study Title	Enablers and Barriers to QI
		○ Limited data from supervision checklists weakened QI teams' ability to prioritize problems. • Practical barriers to participation: ○ Distance, transport difficulties, long meetings, lack of refreshments/allowances discouraged CHW participation. • Motivation challenges: ○ Declining motivation where district response was absent. ○ Some QI meetings stopped after staff turnover or lack of visible results. Enablers/ Promoters: • Structured QI framework: ○ Use of reliable data sources (cStock dashboard, reports, supervision checklists). ○ Availability of simple, easy-to-use tools (indicator tally sheets, management diaries, why-why analysis, action plans). ○ Regular QI meetings, when functional, enabled teams to track progress and plan improvements. • Improved supply chain outcomes: ○ In Malawi, CHWs consistently reported >80–90% reporting rates for stock on hand, supported by cStock. ○ cStock improved efficiency, saved time, reduced workload, and strengthened communication between CHWs and health centers. • Value of QI team meetings: ○ Provided collective problem solving and mutual support. ○ Improved coordination between health system levels. ○ Built CHW motivation, engagement, and sense of being valued. ○ Strengthened relationships, which improved performance indirectly. • Capacity and performance benefits: ○ Helped CHWs and supervisors focus on key supply chain issues (timeliness, stock on hand, emergency orders). ○ Enabled practical use of supervision data and accountability for resupply procedures. • Perceived empowerment:

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		○ CHWs gained confidence and a stronger sense of belonging to the formal health system.
Horwood et al., 2023	"Challenges of using e-health technologies to support clinical care in rural Africa: a longitudinal mixed methods study exploring primary health care nurses' experiences of using an electronic clinical decision support system (CDSS) in South Africa	Barriers / Constraints: • Low computer literacy: ○ Most nurses had minimal computer experience before training. ○ Short (1-day) computer training was insufficient. ○ Lack of skills made technical issues (e.g., logins, finding patient records, restarting after power outages) overwhelming. ○ Increased consultation time discouraged use in busy clinics. • Loss of confidence and reliance on integrated management of childhood illnesses (paper-based IMCI): ○ Nurses reverted to paper IMCI when delays or technical issues arose. ○ Guessing or making up answers when mandatory eIMCI questions couldn't be skipped undermined trust in the system. • Disruption to routine consultations: ○ eIMCI required logging in for every child, slowing work. ○ Nurses often completed consultations first, then logged into electronic (e)IMCI retrospectively, undermining its intended use. ○ Mandatory questions slowed workflow and frustrated nurses. • Printout issues: ○ Incomplete or inaccurate printouts undermined confidence. ○ Nurses had to duplicate work, adding extra admin burden. • Lack of system support: ○ Staff shortages meant nurses had to see other patients (not just children), limiting eIMCI use. ○ Frequent staff rotations moved trained nurses to areas without computers or child consultations, disrupting skills transfer. ○ Heavy workloads pressured nurses to revert to faster pIMCI methods. • Unsupportive work environment: ○ Some colleagues perceived eIMCI users as slowing clinic work, leading to tension and lack of support. • Poor integration with other clinic programs: ○ eIMCI records didn't align with other program requirements (e.g., Ideal Clinic Programme audits).

Study Author and Year	Study Title	Enablers and Barriers to QI
		○ Nurses had to duplicate records, further lengthening consultation time. Enablers/ Promoters: • Positive user perceptions of eIMCI: ○ Nurses found it helpful, simple, accurate, and confidence-building for managing sick children. ○ Guided step-by-step assessments improved comprehensiveness. ○ Mandatory questions ensured no steps were skipped. • Professional value: ○ Improved quality of assessments (growth monitoring, PMTCT, referrals). • IT support availability: ○ On-site and telephone IT support was provided (though effectiveness was limited by nurses' low computer skills). • Acceptance in facilities: ○ eIMCI was generally well-received in clinics. ○ Colleagues showed interest and willingness to learn from eIMCI-trained staff.
Mantell et al., 2022	"They are our eyes outside there in the community": Implementing enhanced training, management and monitoring of South Africa's ward-based primary healthcare outreach teams	Enablers: Training & Capacity Building • Competency-based training aligned with new roles improved CHWs' and OTLs' skills, confidence, and role clarity. • High satisfaction with training: 77% of CHWs and 94% of OTLs felt well-prepared. • Training improved supervisory skills of OTLs and strengthened CHW task performance and community communication. • Increasing numbers of trained CHWs/OTLs helped ease staff shortages. Supervision, Roles & Teamwork • Clearer management structures and job descriptions introduced. • Majority of CHWs and OTLs evaluated with sufficient supervision. • Managers checked in regularly, addressed concerns, and provided support. • Improved relationships and communication between CHWs and OTLs after supervisory training. • Strong teamwork and peer support among CHWs. Monitoring & Evaluation (M&E) • Standardized indicators introduced to improve systematic data collection.

Study Author and Year	Study Title	Enablers and Barriers to QI
		• Use of mHealth tools enabled real-time data capture, household tracking, better follow-ups, and enhanced supervision. • Potential to reduce data loss, improve confidentiality, and strengthen program efficiency. Work Environment & Service Delivery • Surge in funding allowed scale-up of outreach teams. • OT services improved community access to care: tracing and linkage, medication delivery, treatment adherence. • High job satisfaction among CHWs and OTLs; most wanted to continue working in OTs. • Communities reported benefits, and CHWs/OTLs felt they were meeting community needs. Barriers: Training & Support • Training was seen as inadequate. • Gaps in knowledge (e.g., medications, policies). • Some CHWs did not receive full curriculum. • Planned refresher trainings and supportive supervision not fully implemented. • CHWs expressed need for ongoing in-service training. Supervision, Roles & Staffing • Persistent communication problems: some OTLs perceived as poor communicators or disrespectful. • Poor integration of OTs into health facilities → lack of resources, workspace, and recognition. • OTLs had excessively large teams (sometimes 50 CHWs vs. recommended 6–10). • Uneven distribution of OTLs → supervision gaps. • Heavy workloads, worsened by CHWs/OTLs being asked to support non-OT clinic work. • High staff turnover from career advancement and retirement. Monitoring & Evaluation (M&E) • Lack of clarity on how OT data fed into central databases or informed decision-making. • Inability to disaggregate data by district/facility limited usefulness. • Lack of dedicated data capturers reduced efficiency.

Study Author and Year	Study Title	Enablers and Barriers to QI
		• mHealth challenges: ○ Devices vulnerable to theft; CHWs sometimes paid for replacements. ○ Data collection forms were long/complex, frustrating CHWs and households. ○ Connectivity issues caused devices to freeze. ○ GPS monitoring created feelings of surveillance. Work Environment & Resources • Lack of essential resources: ○ No dedicated workspace or equipment (printers, uniforms, umbrellas). ○ Insufficient medical supplies (BP monitors, glucometers, PPE). • Transport difficulties: ○ OTLs often had to use their own transport at personal cost. ○ Long travel distances and incorrect addresses hindered patient follow-up. • Safety concerns when traveling with phones/tablets. • Some CHWs had to personally pay for broken/damaged equipment. • Program sustainability concerns due to uncertain funding and lack of standardized CHW compensation/benefits.
Pruthi et al., 2022	Primary Health Care System Strengthening Project in Sri Lanka: Status and Challenges with Human Resources, Information Systems, Drugs and Laboratory Services	Enablers/ Facilitators: Human Resources & Training • Presence of at least 2 medical officers and 1 nurse in all primary medical care institutions (PMCs). • Many PMCs had at least one trained medical officer (89%) and trained nurse (78%). • Project provided monetary and managerial support for staff recruitment. • Well-performing PMCs functioned as resource centres to train staff from newer facilities. • Efforts to train staff on empanelment and registration. Essential Drugs & Supply Chain • Availability of most essential drugs (61%) across all PMCs. • Online MSMIS drug indenting system established in 78% of PMCs. • PSSP reduced stock-outs by prioritizing drug supply. • Increased service utilization under PSSP reduced drug expiry risk. Health Management Information System (HMIS) • All PMCs had at least one computer with internet. • HMIS implemented across PMCs for registration and PHN generation.

Study Author and Year	Study Title	Enablers and Barriers to QI
		• Hard copy PHR books available in all PMCIs. • Electronic PHRs introduced at 67% of PMCIs. • HCWs appreciated PSSP efforts in establishing HMIS and programme managers' support in communicating updates. Barriers/ Constraints: Human Resources & Training • Reluctance to work in rural PMCIs; staff preferred urban postings. • High staff turnover due to transfers and temporary recruitment. • Shortages of PHNOs, MLTs, and DEOs → extra workload on existing staff → exhaustion. • Inadequate, inconsistent training (due to lack of funds, COVID-19 disruptions, non-standardized content). • Limited peer-to-peer training; trained staff did not cascade knowledge to others. Essential Drugs & Supply Chain • Stock-outs of key drugs (e.g., Gliclazide, Enalapril). • Suboptimal supply chain due to untrained pharmacists, MSMIS underuse, and lack of vehicles for drug transport. • Poor storage conditions: insufficient space, lack of AC, transparent pill bottles. • No blister packs → drugs dispensed in loose plastic covers → safety/quality concerns. • Long procurement process for non-essential drugs. • Stock-outs forced patients to buy drugs privately, increasing out of pocket expenditure (OOP) expenditure. Health Management Information System (HMIS) • Shortages, thus clinical staff had to enter data, seen as burdensome. • Many HCWs did not see data entry as relevant to patient care. • Poor HMIS functionality: frequent crashes, slow due to inadequate server space, poor internet connectivity. • Too few laptops per PMCI → bottlenecks in data entry. • Incomplete PHRs: patients failed to bring books; electronic PHRs not updated consistently. • Duplication of work (paper + online entry) and no standard timelines for updates. • Lack of interactive dashboards to monitor performance.
Mutambo, Shumba and Hlongwana, 2020	User-provider experiences of the implementation of KidzAlive-	Barriers/ Constraints

Study Author and Year	Study Title	Enablers and Barriers to QI
	driven child-friendly spaces in KwaZulu-Natal, South Africa	• Space constraints: Few suitable rooms available; child-friendly spaces had to be set up temporarily. • Policy restrictions: The <i>Ideal Community Policy</i> forbade posters on walls, limiting efforts to make spaces visually engaging. • Low facility management prioritization: Facility managers frequently reassigned rooms, causing confusion. • Lack of replenishment: Toys and supplies taken by children were not replaced, leading to depletion. • Training gaps: health care workers (HCWs) required additional training on how to fully utilize child-friendly spaces and on adolescent-friendly approaches. • Stigma concerns: PCGs feared that attendance at the child-friendly space would signal HIV status, leading to labeling and stigmatization. • Inadequacy for older children (9–12 yrs): Existing furniture, games, and activities felt too “young,” reducing relevance and acceptability. Enablers/ Facilitators • Alignment with existing programs: Child-friendly spaces complemented the <i>adolescent chill rooms</i> initiative of South Africa’s National Department of Health. • Positive acceptability and utility: Both HCWs and patient care groups (PCGs) viewed child-friendly spaces as beneficial in supporting HIV-positive children. • HCW engagement: KidzAlive-trained HCWs were motivated to adapt spaces and recognized the value of the intervention
Schierhout et al., 2021	Why do strategies to strengthen primary health care succeed in some places and fail in others? Exploring local variation in the effectiveness of a community health worker managed digital health intervention in rural India	Enablers / Facilitators • Visible support from PHC doctors for ASHAs’ expanded roles increased trust and community uptake. • Digital health innovation (DHI) added legitimacy and community acceptability of ASHAs’ services. • Availability of medicines in PHCs improved referrals and adherence. • Cooperation between ASHAs and local providers (champions) increased credibility. • ASHAs had strong community connections and prior experience, building trust. • ASHAs’ responsiveness to community needs (e.g., helping with medicines, navigating acute care) reinforced community trust and service uptake. • Risk communication tailored to local context increased awareness and care-seeking.

Study Author and Year	Study Title	Enablers and Barriers to QI
		• ASHAs' involvement in acute events (e.g., guiding emergency CVD care) strengthened community perception of their value. • Positive relationships with local providers allowed ASHAs to counter negative beliefs about government medicines, boosting adherence. Barriers / Constraints • Lack of visible support from PHC doctors undermined ASHAs' legitimacy. • Weak PHC capacity (medicine stock-outs, poor accessibility) discouraged community referrals and adherence. • Competition from other local healthcare providers (more accessible or trusted) reduced reliance on PHC services. • Limited study duration (12 months) restricted observation of long-term effects and sustainability. • Community reluctance to attend facilities without guaranteed medicines (supply for a full month). • Negative community attitudes toward government medicines (perceived lack of effectiveness). • Variability in ASHAs' experience influenced responsiveness to community needs, creating heterogeneity in outcomes.
Djellouli et al., 2016	Final Evaluation of the MOMI project in Burkina Faso, Kenya, Malawi and Mozambique	Barriers: Structural/systemic barriers (distance, transport, workload, poor integration, resource gaps), socio-cultural barriers (husbands opposing family planning (FP), women prioritizing infants, reliance on traditional medicine), weak supervision & retention of CHWs, inconsistent programme implementation, and negative provider attitudes. Enablers: Training & supervision, community engagement/leadership support, peer/volunteer motivation, integration with incentives, trust in community agents, and use of simple tools like checklists.
Werner et al., 2021	Scaling up Business Plans in Tajikistan: a qualitative study of the history, barriers, facilitators and lessons learnt	Barriers • Innovation-related: Complexity of the tool; time- and cost-intensive training; risk of altered objectives during scaling; concerns about being repurposed for national data collection. • User organization-related: Severe financial constraints (training, monitoring, materials); understaffing of Business Planning department; high staff turnover (district and national levels).

Study Author and Year	Study Title	Enablers and Barriers to QI
		• Strategic choices: Transition from donor to national ownership not well prepared; lack of early capacity-building; unclear roles/functions of new resource team; absence of a concrete multi-year scale-up strategy led to reduced donor support. • Environment-related: Regional disparities (political and financial); remoteness; weak health governance (lack of reforms for budget autonomy, poor medical education, weak inter-governmental coordination); fragmented donor interests; low government priority for PHC financing. Enablers • Innovation-related: Integration of community health teams (CHTs) led to locally relevant priorities; well-trained PHC/RHC management teams with equipment and guidelines. • User organization-related: District PHC managers valued the tool (easier facility management, transparency, autonomy, accountability to communities). • Resource team-related: Technical expertise, long-term donor experience supported effective roll-out. • Strategic choices: Institutionalization into government orders, national health strategy, and per capita payments; strong advocacy by champions and policymakers; cascade training structures; continuous communication for M&E.
Coulibaly et al., 2020	Implementing performance-based financing (PBF) in peripheral health centres in Mali: what can we learn from it?	Barriers / Constraints • Weak leadership, conflicts. • Limited discussion of objectives; results plans seldom shared. • Equipment and infrastructure shortages. • Awareness sessions often led by one person (not collective). • Unfairness in incentives (better qualified staff benefiting more). • Short project duration: only one audit cycle → weak chance to institutionalize networks. • Unequal information sharing (cleaning staff, others excluded). • Performance contracts sometimes dominated by TDC → limited participation. • Financial incentive rules caused frustration, esp. among less qualified cadres. • Some staff saw PBF briefings as top-down validation, not genuine dialogue. • Local staff not involved in project design → poor contextual adaptation. • Indicators imposed by World Bank; staff motivated more by financial reward than patient outcomes.

Study Author and Year	Study Title	Enablers and Barriers to QI
		• Complexity: multiple actors, verification/control layers, numerous forms and reports. • External context: poverty, transport barriers, low hospital capacity, cultural norms (low service use). • PBF did not address most patient-facing barriers Enablers / Facilitators • Strong commitment: signed forms, visible accountability. • Preparedness before PBF implementation (objectives discussed, awareness sessions held). • Stronger team identity and personal responsibility. • Joint awareness-raising. • Positive legacy of earlier PBF pilots-built readiness. • Longstanding collaboration (CSCOMs, ASACOs, communes). • Joint quarterly results plans (tri-partite contracts). • Awareness-raising campaigns conducted together. • Competitive culture (“Golden Ciwara,” “Blue Star”) fueled motivation → pride, efficiency, staff retention. • Perceived alignment with values (merit, cohesion, work well done). • Supportive policy environment (PRODESS III, SRHP, National RH Strategy). • Briefings spread awareness of results plans; informal discussions improved communication. • Convergence between professional standards and PBF values helped with team spirit, equity linked to performance. • Addressed local priorities (postnatal care, immunization, deliveries, family planning). • Some staff motivated by alignment of PBF with their values.
Bradley et al., 2012	A Systems Approach to Improving Rural Care in Ethiopia.	Enablers/ Facilitators: • Effective supervision & management; confidence in problem solving; workflow redesigned to reduce waiting times. • Supportive local government (transport, staffing, supplies, regular visits). • Strong community engagement (priests, women’s groups, youth associations). Barriers/ Constraints: • Weak/no supervision; staff expressed helplessness, lack of control.

Study Author and Year	Study Title	Enablers and Barriers to QI
		• Government health office distant/unhelpful; few visits, no problem-solving. • Limited community engagement; no religious or civic mobilization. • Common barriers across all: rough terrain, long distances, poor pay, drug shortages, weak infrastructure, cultural preference for TBAs, farming prioritized over health.
Sukums et al., 2015	"Promising adoption of an electronic clinical decision support system for antenatal and intrapartum care in rural primary healthcare facilities in sub-Saharan Africa: The QUALMAT experience	Barriers/ Constraints; • Infrastructure/tech: unreliable electricity/solar, hardware failures, poor IT support, slowness, bugs, update issues, limited security, poor interface. • Workflow: inadequate supplies, increased workload, disruption of flow, time constraints, double documentation, excluded certain clients. • Organization: lack of skilled staff, high turnover, inadequate supervision, limited leadership support, no incentives, weak funding. • Individual: inadequate MNC skills, poor IT skills, lack of motivation, busy schedules, older staff less engaged. Enablers/ Facilitators: • Tasks/processes: clear process flows, defined interdependencies, skill mix, available equipment/supplies. • Individuals: skilled, motivated staff with positive attitudes toward ICT; good learning/reading culture. • Technology: sufficient infrastructure, IT support, adequate computers, good usability. • Organization: leadership support, teamwork, incentives, adequate staffing and supplies, training and supervision.
Nahimana et al., 2021	Sustainability Assessment of a District-Wide Quality Improvement on Newborn Care Program in Rural Rwanda: A Mixed-Method Study.	Enablers/ Facilitators: • Leadership “buy-in” and ownership across all levels (district authorities, local leaders, facility champions). • Young, ambitious leadership with strong commitment to neonatal health (though limited experience). • Self-confidence and locally generated solutions (partnering with CHWs, engaging communities, non-financial incentives for ANC). • Strong teamwork, integration of QI and clinical mentorship. • Equipment availability, teamwork, and data use facilitated sustainability. Barriers/ Constraints: • Gap between rising demand and limited human resources → staff shortages, overload. • High turnover of trained staff (drawn to better-paying, urban facilities).

Study Author and Year	Study Title	Enablers and Barriers to QI
		• Unforeseen external events: famine, refugee influx, policy shifts (ANC fees). • Young leadership sometimes lacked managerial/technical skills, causing loss of focus post-ABC.
Quaife et al., 2021	"Changes in health worker knowledge and motivation in the context of a quality improvement programme in Ethiopia	Barriers/Constraints • Low salaries across cadres; private sector jobs more attractive for mid-level providers. • Lack of equipment limited providers' ability to deliver effective care. • Not all staff included in QI activities; excluded staff felt less invested. Enablers/ Facilitators • Helping others, reaching personal goals; job satisfaction from serving mothers/newborns, training opportunities, professional growth. • Pride in job & self-efficacy: confidence boosted by training, improved clinical effectiveness. • External recognition & support: motivation enhanced by financial/managerial support, recognition, follow-up. • Overall: QI activities increased confidence, pride, teamwork, and collaboration; sustained motivation across cadres despite resource gaps.
Olaniran et al., 2022	"From Theory to Implementation: Adaptations to a Quality Improvement Initiative According to Implementation Context	Barriers/ Constraints: • PHCs struggled with M&E due to lack of patient folders; process improvements (e.g., partograph use) not translating to mortality outcomes. • High staff turnover: inadequate resources required continuous retraining; QI activities delayed. • The Private sector lacked governance structures; high PHC turnover required more frequent meetings. Enablers/ Facilitators: • Hospitals were more capable with M&E; strong political commitment at governing-agency level. • Adapted training to facility priorities; governance and financial training for private facilities; longer engagement improved capacity. • State-level governance structures leveraged (quality assurance teams); adaptable QI team structures; collaborative learning platforms tailored by facility type.

Study Author and Year	Study Title	Enablers and Barriers to QI
Manzi et al., 2014	Clinical mentorship to improve pediatric quality of care at the health centers in rural Rwanda: a qualitative study of perceptions and acceptability of health care workers	Barriers/ Constraints: • Staff turnover (trained nurses leaving for better wages/locations). • Infrastructure limitations (too few/small consultation rooms, lack of materials/facilities). • Drug stock-outs and supply shortages hindered both IMCI implementation and mentoring process. • Limited breadth of mentor expertise: need for broader, cross-domain training. Enablers/ Facilitators: • Interactive, collaborative capacity-building led to confidence and skills. • Active listening & trust-based mentor-mentee relationships improved openness to learning. • Supportive rather than punitive mentorship: contrasted with old supervision. • Real-time feedback led to timely corrections during consultations, valued by mentees and directors. • Systems improvement support (better routines, replacing poor practices). • Strong acceptability: all stakeholders expressed desire for program continuation/expansion.
Werdenberg et al., 2018	Successful implementation of a combined learning collaborative and mentoring intervention to improve neonatal quality of care in rural Rwanda.	Barriers centered on structural/systemic constraints (staffing, workload, patient socioeconomics, limited training continuity, weak HCW voice). Enablers included stronger QI capacity, leadership engagement, teamwork, integration of QI into routine systems, equipment availability, and expanded community engagement.
Boyi Hounsou et al., 2022	“So hard not to feel blamed!”: Assessment of implementation of Benin’s Maternal and Perinatal Death Surveillance and Response strategy from 2016–2018	Barriers/ Constraints: • Death identification & notification: no mechanisms in many districts; weak private sector integration; poor system understanding; fear of blame. • Review completion: managers disinterested, heavy workloads, insufficient staff, weak leadership, blame culture. • Analysis: lack of social autopsies, limited expertise to review dysfunctions/recommend solutions. • Response follow-up: no focal person, insufficient resources, poor-quality reviews, lack of monitoring system. Enablers/ Promoters: • Training and supervision of MPDSR committees.

Study Author and Year	Study Title	Enablers and Barriers to QI
		• Designation of focal persons for MPDSR. • Administrative memos reinforcing death notification obligations. • Provider sensitization on importance of notification. • Incentives for review sessions (transport, meals). • Support from technical and financial partner
Pallangyo et al., 2018	Implementation of a facilitation intervention to improve postpartum care (PPC) in a low-resource suburb of Dar es Salaam, Tanzania	Barriers/ Constraints: • Lack of resources (staffing, equipment). • Inadequate team communication. • Lack of space and disorganized physical structures. • Unclear organization and uncertainty on how to improve PPC. • High workload prevented monthly meetings. Enablers/ Facilitators • Facilitation quality: trained facilitators built confidence and guided teams. • Increased awareness and knowledge of PPC among health care providers (HCPs) and mothers (trainings, displays, critical reflection). • Mobilization of professional and material resources → innovative use of existing resources, lobbying leaders, budget advocacy. • Improved documentation and communication (better records, referral notes). • Promoting empowering and collaborative work style (teamwork, networking across institutions, constructive feedback, role modeling). • Sharing across institutions (peer learning visits). • Strong emphasis on ownership and problem-solving by HCPs.
Eboreime et al., 2018	Strengthening decentralized primary health care planning in Nigeria using a quality improvement model: how contexts and actors affecting implementation	Barriers/ Constraints: • Weak leadership at local government authority (LGA) level saw limited involvement in planning, poor ownership, and passive support. • Dependence on development partners skewed implementation to donor priorities. • Inadequate community engagement (communities informed, not actively involved). • Organizational weaknesses: no rewards for improved performance, poor support for capacity building, weak political commitment. • Poor financial support from LGAs; reliance on external donors. • Top-down policy (little local triggering or ownership). • Data under-utilized (especially in some LGAs). Enablers/ Facilitators:

Study Author and Year	Study Title	Enablers and Barriers to QI
		• State political leadership (new governor) prioritized bottom-up health agenda. • Strong diagnose-intervene-verify-assess (DIVA) teams at LGA level: diverse expertise (PHC directors, programme managers, M&E officers). • Evidence-informed planning through DIVA motivated teams. • Donor support (especially UNICEF) provided technical and financial resources. • Team cohesion, leadership, and motivation (especially in LGAs with more donor support). • Positive outcomes from DIVA considered beneficial for PHC planning despite contextual constraints.

Appendix D: Annex tables for Chapter 3: Systematic Literature Review

Annex Table 3.1: Key words applied to database and website search in the Literature Review

Sample size	Phenomenon of interest	Design of studies	Evaluation	Research type
Health worker (all cadres & levels, stakeholders)	Quality improvement in primary health care	Qualitative OR "Mixed Methods"	Barrier* OR limitation* OR constraint* OR enabler* OR promoter* OR facilitator* OR Attitude* OR belief* OR practice* OR knowledge* OR perception* OR perspective* OR behaviour* OR culture OR motivation OR beliefs OR value* OR factor*	Observation OR Interview OR "Focus Group" OR Survey OR Questionnaire OR "Case Study" OR KII OR IDI OR FGD OR "Participant observation" OR "Group Interview"
"Health managers" OR "Quality improvement team" OR "Quality improvement committee*" OR "Health service provider" OR "Primary care team" OR "Primary care physicians" OR "Health cent* workers" OR "Dispensary worker*" OR "Health post worker*" OR "Community health worker*" OR "Primary care network" OR Primary Health care network" OR PCN	("Health care quality improvement" OR "Quality Improvement") AND (Primary Health Care" OR "Essential health care" OR "Basic Health Care" OR QI OR "Quality enhancement" OR "Curative OR Rehabilitative OR Prevent* OR Promot* OR health) AND ("LMIC* OR <i>insert_country_name</i>)			

Annex Table 3.2: Geographic focus of included studies by country income status from Literature Review

Country Income Classification		Geographic region	
	Sub-Saharan Africa	Asia	Latin America
Low-income	Wakida et al. (2019)- Uganda; Bogren et al. (2021)- DRC; Tibeihaho et al (2021)- Uganda; Tiruneh et al. (2020) - Ethiopia; Kim et al. (2019)- Uganda; Ayele et al. (2019)- Ethiopia; Tayebwa et al. (2020)- Rwanda; Hutchinson et al. (2021)- Uganda; Umunyana et al. (2020)- Rwanda; Stover et al. (2014)- Ethiopia; Djellouli et al. (2016)- Kenya, Malawi, Burkina Faso and Mozambique; Coulibaly et al. (2020)- Mali; Bradley et al. (2012)- Ethiopia; Nahimana et al. (2021)- Rwanda; Quaife et al. (2021)- Ethiopia; Manzi et al. (2014)- Rwanda; Werdenberg et al. (2018)- Rwanda; Kinney et al (2020)- Tanzania, Nigeria, Rwanda and Zimbabwe	none	Demes et al. (2021)
Lower-middle income	Gage et al. (2021)- Zimbabwe; Giessler et al. (2020)- Kenya; Odusola et al. (2016)- Nigeria; Sukums et al. (2015)- Tanzania and Ghana; Olaniran et al. (2022)- Nigeria; Eboreime et al. (2018)- Nigeria; Kinney et al (2020) – Tanzania, Nigeria, Rwanda and Zimbabwe; Djellouli et al. (2016)- Kenya, Malawi, Burkina Faso and Mozambique; Patterson et al. (2021)- Malawi; Lokossou et al. (2019)- Benin; Tancred et al (2017)- Tanzania; Jaribu et al (2016)- Tanzania; Baker et al. (2018)- Tanzania; Tancred et al. (2018)- Tanzania; Chandani et al. (2017)- Malawi and Nigeria; Hounsou et al. (2022)- Benin; Pallangyo et al. (2018)- Tanzania; Sukums et al. (2015)- Tanzania and Ghana	Lall et al. (2020)- India; Vail et al. (2018)- India; Schuele & MacDougall (2022)- Papua New Guinea; Limato et al. (2019)- Indonesia; Schierhout et al. (2021)- India; Werner et al. (2021)- Tajikistan; Thekkur et al (2022)- Sri Lanka	none
Upper-middle income	Visser et al. (2018)- South Africa; Kinney et al. (2022)- South Africa; Basenero et al. (2022)- Namibia; Yapa et al. (2022)- South Africa; Horwood et al. (2023)- South Africa; Mantell et al. (2022)- South Africa; Mutambo, Shumba and Hlongwana (2020)- South Africa		Pesec et al. (2021)

Annex Table 3.3: QI Topics and Approaches in LMICs from Literature Review

Research area	Frameworks and models (study)
Continuous quality improvement/ quality improvement collaborative	Force field analysis, derived from Kurt Lewin's force field theory; PDSA cycles.
Digital health interventions	COM-B Theory of Change model; Implementation research framework; RE-AIM framework.
HIV/AIDS	Root cause analysis, RCA; Normalization process theory, NPT.
Malaria	PDSA cycles
Maternal newborn health	IHI's Collaborative Model for Achieving Breakthrough Improvement; Barth's transactional model of culture; Giddens' Structuration Theory; Promoting Action on Research Implementation in Health Services (PARIHS); IHI's Breakthrough Series and Model for Improvement; PDSA cycles; Fishbone and Pareto charts.
Maternal perinatal death surveillance and response	MPDSR continuous action cycles; 6-step MPDSR audit cycle; Carl May's extended normalization process theory.
Non-communicable diseases	Consolidated Framework for Implementation Research (CFIR); the Model for Understanding Success in Quality (MUSIQ); Tailored Implementation for Chronic Diseases (TICD) network.
Primary health care systems strengthening	Breakthrough series for collaborative QI; Diagnose-Intervene-Verify-Adjust (DIVA) derived from PDSA cycles; Positive deviance; CFIR; Battacharya et al's systems approach; Data to Improvement Pathway; the Adaptive Management Framework.

Annex Table 3.4: Enablers and barriers of PHC QI in LMICs from the Literature Review

Theme	Sub-themes	Study - country
Microsystem: individual health worker motivation for quality improvement	<u>Enablers:</u> -developing empathy and better communication with clients -Intrinsic motivation i.e. job satisfaction from participation in QI activities motivates health workers to put in more effort and strong desire to help one's own community -increased familiarity with patient-centered care approaches, deeper connections between health worker and clients -extrinsic motivation drawn from financial incentives and understanding rationale for QI -strong culture of valuing data as a tool to drive improvements -high level of technical and managerial proficiency promotes effective data collection, analysis, and use gained over time -feeling empowered and competent after participating in training -better understanding of roles and responsibilities in QI by health workers and increasing levels of comfort with QI tools -personal motivation after observing changes due to QI and being thanked by clients/ patients -regular review meeting to identify gaps and root causes, action planning to address gaps -health workers inspired by committed health facility/district leaders and QI mentors -health workers shift attitude to focus more on patient needs with desire to alleviate pain and suffering and reduce deaths - health workers learn and embrace better ways of solving problems and become more systematic, working across disciplinary boundaries -district managers' ability to use contextualized data for QI -health workers like internal supervision for knowledge sharing and skills development -QI intervention promotes transparency and stirs up healthy competition -NGO-owned health facility worker's norms embrace accountability (performance-driven) -embrace of personal sacrifice and effort to earn public praise for health workers -growing dissatisfaction with poor state of service quality	Africa (Low-income): Tibeihaho et al (2021) – Uganda; Kim et al (2019) - Uganda; Hutchinson et al (2021) - Uganda; Gage et al (2022) - Zimbabwe; Baker et al (2018) - Tanzania; Coulibaly et al (2020) - Mali; Lokossou et al (2019) - Benin; Stover et al (2014) - Ethiopia; Quaife et al (2021) - Ethiopia; Manzi et al (2014) - Rwanda; Werdenberg et al (2018) - Rwanda; Hounsou et al (2022), Benin Africa (Lower middle-income): Giessler et al (2020) - Kenya; Eboreime et al (2018) - Nigeria; Eboreime et al (2019) - Nigeria; Olaniran et al (2022) Nigeria; Odusola et al (2016) - Nigeria Africa (Upper middle-income): Yapa et al (2022) - South Africa; Horwood et al (2023) - South Africa; Kinney et al (2022) – South Africa Asia (UMIC): Limato et al. (2019) - Indonesia; Thekkur et al (2022) - Sri Lanka; Lall et al (2020) - India; Werner et al (2021) - Tajikistan; Schuele and MacDougall (2022) - Papua New Guinea Americas (LIC): Demes et al (2021) - Haiti Americas (UMIC): Pesec et al (2021) - Costa Rica Multi-country: Djellouli et al (2016) - Malawi, Kenya, Burkina Faso and Mozambique; Kinney et al (2020) -Tanzania, Nigeria, Rwanda, Zimbabwe; Sukums et al (2015) - Tanzania and Ghana

	-shared values such as cohesion, merit, individual responsibility, maintaining high standards of work <u>Barriers:</u> -no spare time for health worker to attend QI meetings due to clinical duties -financial disincentives lead to frustration and waning interest in QI -overlapping data systems increase distract from provision of care to patients -public (government-owned) health facilities reject QI focused on greater transparency and accountability due ingrained -sensing despair and easily giving up on QI initiatives -self-efficacy is limited when more manager approvals are needed to carry out work tasks than are necessary and staff feel unskilled (technical/clinical areas and ICT) -tasks perceived to be time-consuming lower health worker confidence -unsupportive colleagues at the workplace -lack of recognition of presumed hard work -negative culture that rejects use of care delivery checklists and declines referrals even when indicated	
QI Intervention Attributes	<u>Enablers:</u> -QI project implementation perceived to be effective i.e. positive outcomes for patients and health workers (implementers) also acquire new skills and knowledge -QI project is considered feasible, timely and well aligned local priorities -health workers see a high degree of fit between QI package, their job responsibilities and practice expectations -health workers see a relative advantage of QI package versus current practice -QI intervention adapted and pre-tested to suit local implementation conditions -Intervention is focused on a specific problem, is not too general and does not try to address too many things at once -participants feel confident continuing with QI even post-intervention period -QI intervention can be scaled up to other areas, health facilities, or health workers in need -QI project details clear management structures and does not ignore or assume this -project design fosters collaboration among diverse workers and even clients -Intervention design incorporates and complements participants/health system's values -QI intervention design makes provision for long-term work to sustain changes and its costs do not overwhelm the systems' resource capacity	Africa (Low-income): Hounsou et al (2022) - Benin; Coulibaly et al (2020) - Mali; Gage et al (2022) - Zimbabwe; Stover et al (2014) - Ethiopia; Quaife et al (2021) - Ethiopia; Ayele et al (2019) - Ethiopia; Tiruneh et al (2020) - Ethiopia; Tibeihaho et al (2021) - Uganda; Kim et al (2019) - Uganda; Hutchinson et al. (2021) - Uganda; Werdenberg et al (2018) - Rwanda; Umunyana et al (2020) - Rwanda Africa (Lower middle-income): Giessler et al (2020) - Kenya; Eboreime et al (2018) - Nigeria; Eboreime et al (2019) - Nigeria; Olaniran et al (2022) – Nigeria; Tancred et al (2016) - Tanzania; Jaribu et al (2017) - Tanzania; Tancred et al (2018) - Tanzania; Pallangyo et al (2018) - Tanzania; Baker et al (2018) - Tanzania;

	-Intervention adopts small incremental changes informed by feedback mechanisms rather than big rapid leaps -intervention design incorporates client preferences, not only health workers' ideas <u>Barriers:</u> -QI project does not lead to any observable improvements -QI implementation plans do not attain targeted levels of penetration (low does/reach) -QI intervention package is hard to understand, not easy to translate into tangible action points, and perceived as not user-friendly -lack of clear implementation plan for QI intervention -QI intervention is difficult to integrate in routine practice and or requires substantial modifications to workflows and additional new skills -in technology-driven QI, perception that the new approach is inflexible or rigid -QI intervention has perceived negative unintended or unanticipated consequences e.g. creates more administrative burden on already overstretched health staff -Intervention does not allow implementers (who see it as alien or imposed upon them) to make or suggest adaptations -intervention package does not envisage nor address other contextual and systems barriers to its successful implementation (focus on short term technical fixes and does not address or consider structural bottlenecks) -QI intervention does not build on existing initiatives	Africa (Upper middle-income): Basenero et al (2022 - Namibia; Yapa et al (2022) - South Africa; Mantell et al (2022) - South Africa; Mutambo et al (2020) - South Africa; Kinney et al (2022) – South Africa; Horwood et al (2023) - South Africa Asia (Upper middle-income): Lall et al (2020) - India; Schierhout et al (2021) - India; Werner et al (2021) - Tajikistan; Schuele and MacDougall (2022) - Papua New Guinea; Thekkur et al (2022) - Sri Lanka; Limato et al (2019) - Indonesia Americas (Low-income): Demes et al (2021) - Haiti Americas (Upper middle-income): Pesec et al (2021) - Costa Rica Multi-country: Sukums et al (2015) - Tanzania and Ghana; Kinney et al (2020) - Tanzania, Nigeria, Rwanda, Zimbabwe; Chandani et al (2017) - Rwanda and Malawi; Djellouli et al (2016) - Malawi, Kenya, Burkina Faso and Mozambique
Organisation and Team implementing QI	<u>Enablers:</u> -managers and team members agree to additional responsibilities -senior leaders embrace and support QI -experienced subject matter experts drive change -collegiality or team spirit in decision making beginning from the start of QI project -presence of QI champions in the team -balance between top-down and bottom-up approaches in decision making -team enthusiastic and (publicly) committed -everyone involved with diverse inputs -a quality culture with shared values, attitudes, and behaviour of everybody becomes embedded in the organisation's fabric e.g., regular data analysis, action and improvement cycles	Africa (Low income): Coulibaly et al (2020) - Mali; Nahimana et al (2021) - Rwanda; Umunyana et al (2020) - Rwanda; Stover et al (2014) - Ethiopia Africa (Lower middle-income): Eboreime et al (2018) – Nigeria; Baker et al (2018) - Tanzania; Pallangyo et al (2018) - Tanzania Africa (Upper middle-income): Kinney et al (2022) – South Africa; Mantell et al (2022) - South

	-organisation allocates budget, avails resources for QI -physicians take lead, build others' skills -trained team members report back, share knowledge and skills with colleagues e.g., on Plan-Do-Study-Act cycles and problem-solving -regular, positive feedback on QI project shared with stakeholders including good internal communication -positive team experiences from successful legacy QI projects produce domino effect -adequate team preparation before introduction of QI -regular on-the-job training in addition to classroom sessions -accreditation process inspires and supports drive to improve service quality <u>Barriers:</u> -frozen relationships between managers and frontline implementers -organization does not own (rejects) new QI initiative -team members lack knowledge or skills on QI approaches -lack of clarity on QI stewardship and monitoring arrangements -The 'missing middle' in decentralised settings (unsupportive district-level managers) -concurrent similar QI programmes in the same organisation bring confusion and uncertainty -team neglects to include support (non-technical) staff -team leaders do not genuinely involve others in decisions -weak leadership by government sees QI left to partners/donors -one-off training for QI team norms -QI focal persons wearing too many hats	Africa; Yapa et al (2022) - South Africa; Horwood et al (2023) - South Africa Asia (Upper middle-income): Schierhout et al (2021) - India; Limato et al (2019) - Indonesia; Schuele and MacDougall (2022) - Papua New Guinea; Werner et al (2021) - Tajikistan Americas (Low income): Demes et al (2021) - Haiti Americas (Upper middle-income): none Multi-country: Kinney et al (2020) - Rwanda, Tanzania, Zimbabwe, Nigeria; Chandani et al (2017) – Rwanda and Malawi
Health Systems Support and Capacity	<u>Enablers:</u> -available staff with aligned job descriptions and incentives -adequate, well designed physical space and infrastructure -facilitative and supportive supervision -regular follow up and mentorship -silos and lack of integration -provision of adequate supplies and commodities to deliver services -strong patient referral -participatory and data-driven QI activities -data and reporting tools are revised to ensure one harmonised system of reports	Africa (Low-income): Manzi et al (2014) - Rwanda; Tayebwa et al (2020) - Rwanda; Nahimana et al (2021) - Rwanda; Umunyana et al (2020) - Rwanda; Werdenberg et al (2018) - Rwanda; Bradley et al (2012), Ethiopia; Stover et al (2014), Ethiopia; Ayele et al (2019), Ethiopia; Coulibali et al (2020) - Mali; Hounsou et al (2022) - Benin

	<u>Barriers:</u> -stockouts of drugs and supplies - inadequate patient referral systems -unpredictable follow up and punitive or unfocused supervision -frequent staff leave of absence -high staff turnover at health facility -low numbers of health workers with high work loads -poorly designed or inadequate space and infrastructure -lack of equipment (ICT/data and medical devices) -insufficient engagement of district level -inadequate patient records system at the health facility level constrains service delivery	Africa (Lower middle-income): Eboreime et al (2018) - Nigeria; Olaniran et al (2022) – Nigeria; Baker et al (2018) - Tanzania; Pallangyo et al (2018) - Tanzania Africa (Upper middle-income): Kinney et al (2022) – South Africa; Yapa et al (2022) - South Africa; Horwood et al (2023) - South Africa; Mantell et al (2022) - South Africa; Basenero et al (2022) - Namibia Asia (Upper middle-income): Thekkur et al (2022) - Sri Lanka; Schierhout et al (2021) - India; Werner et al (2021) - Tajikistan; Limato et al (2019) - Indonesia Americas: none Multi-country: Chandani et al (2017) - Rwanda and Malawi; Sukums et al (2015) - Tanzania and Ghana; Djellouli et al (2016) - Malawi, Kenya, Burkina Faso and Mozambique; Kinney et al (2020) - Rwanda, Tanzania, Zimbabwe and Nigeria
External environment and structural factors	<u>Enablers:</u> -needed policies, plans, budgets and guidelines in place and conducive -conductive financing and technical policies and guidelines -high political visibility for QI intervention -social norms encourage positive collaboration, problem solving and success -strong political commitment for change <u>Barriers:</u> -difficult access to/for communities with poor road networks -conflicts and insecurity, drought and famine -bad political and socio-economic policies	Africa (Low-income): Lokossou et al (2019) - Benin; Coulibaly et al (2020) - Mali; Bradley et al (2012) - Ethiopia; Nahimana et al (2021) - Rwanda; Werdenberg et al (2018) - Rwanda Africa (Lower middle-income): Olaniran et al (2022) - Nigeria Africa (Upper middle-income): Yapa et al (2022) - South Africa; Horwood et al (2023) - South Africa; Mantell et al (2022) - South Africa; Mutambo et

	-international and donor-led priority-setting -PHC not prioritised - more focus on secondary and tertiary care by government and international agencies -financial access barriers and poverty -donor-driven priority setting -larger health systems configuration e.g. employment conditions and administrative set up -poor roads, energy & telecommunications infrastructure - poor weather conditions -disruptive onset of COVID-19 pandemic -weak regulation and integration of private PHC service providers in health system -weak collaboration and coordination between central and peripheral (local) government structures	al (2020) - South Africa; Kinney et al (2022) - South Africa Asia (Upper middle-income): Werner et al (2021) - Tajikistan; Thekkur et al (2022) - Sri Lanka Americas: none Multi-country: Djellouli et al (2016) - Kenya, Malawi, Mozambique, Burkina Faso; Sukums et al (2015) - Tanzania and Ghana; Kinney et al (2020) - Rwanda, Tanzania, Zimbabwe, Nigeria
Execution of QI Intervention	<u>Enablers:</u> -Implementers work collaboratively with community resource persons and civil society, draw upon local knowledge to tailor communication to clients and to effectively engage with communities -champions are identified across all levels of the organisation and system and take lead on modelling new roles in PHC while emphasizing collaborative working -adequate numbers of implementers receive ongoing knowledge and practice updates from knowledgeable mentors and supervisors, and supervision/mentorship sessions embrace reflexivity and reflective practice. -unconstrained communication makes use of multiple channels, provides avenue for (real-time) feedback and information sharing across all levels and types of QI stakeholders and facilitates decision-making -including reminders in home-based records for patients where applicable -re-designing clinic workflow, as needed, in a patient-centered manner -stocks of key commodities are tracked and reported regularly -results-oriented work plans are developed and executed participatorily -QI implementation includes enhancements in documentation of care processes -intervention is executed in incremental doses where subsequent sessions build on earlier ones in a responsive manner -there is verification (monitoring) of whether QI activities are implemented in line with plans using data from PHC facilities -influencers and blockers are identified and engaged during QI implementation -QI training sessions are offered repeatedly to reach most implementers	Africa (Low-income): Coulibaly et al (2020) - Mali; Hounsou et al (2022) - Benin; Stover et al (2014) - Ethiopia; Bradley et al (2012) - Ethiopia; Ayele et al (2019) - Ethiopia; Quaife et al (2021) - Ethiopia; Manzi et al (2014) - Rwanda; Werdenberg et al (2018) - Rwanda; Nahimana et al (2021) - Rwanda; Umunyana et al (2020) - Rwanda; Tayebwa et al (2020) - Rwanda; Hutchinson et al (2021) - Uganda Africa (Lower middle-income): Eboreime et al (2018) - Nigeria; Olaniran et al (2022) - Nigeria; Jaribu et al (2016) - Tanzania; Pallangyo et al (2018) - Tanzania; Tancred et al (2018) - Tanzania; Baker et al (2018) - Tanzania Africa (Upper middle-income): Basenero et al (2022) - Namibia; Yapa et al (2022) - South Africa; Mantell et al (2022) - South Africa; Mutambo et al (2020) - South Africa; Horwood et al (2023) - South Africa; Kinney et al (2022) - South Africa

	<u>Barriers:</u> -QI implementation does not consider availability of staff and competing tasks, leading to some health workers missing meetings and training sessions -focus of intervention remains limited throughout implementation period, and not all planned aspects get rolled out. Late roll out of only a few aspects. -clients keep off PHC facilities due to past negative experiences when seeking care -implementation plans considered over-ambitious and unrealistic -limited training and supervision of health service providers create gaps in implementation -community clients stay away due to low or non-involvement of local leaders and administrators exposing only a few clients to the QI intervention that targets them -implementers withhold feedback from other stakeholders including communities contributing to mistrust, misperceptions, and constrained relationships -lack of support supervision during QI implementation -objectives of QI sessions are not discussed or shared widely -limited risk communication and communities remain unaware of the need to shift behaviours and practices to healthier options promoted by QI intervention -implementers do not keep track of the availability of drugs and other stocks -implementation is skewed away from agreed plans to meet donor demands -health workers do not practice new skills gained from QI for extended periods leading to decay of knowledge and skills -users (in case of technology) experience delays when stuck and need support	Asia (Upper middle-income): Thekkur et al (2022) - Sri Lanka; Limato et al (2019) - Indonesia; Schierhout et al (2021) - India; Werner et al (2021) - Tajikistan Americas: none Multi-country: Djellouli et al (2016) - Kenya, Malawi, Mozambique, Burkina Faso; Kinney et al (2020) - Tanzania, Nigeria, Rwanda, Zimbabwe; Chandani et al (2017) - Rwanda and Malawi; Sukums et al (2015) - Tanzania and Ghana
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Appendix E: FHMREC Ethics approval

1/10/23, 2:21 PM

Mail - Odhus, Camlus (Postgraduate Researcher) - Outlook

[External] FHM-2023-3261-RECR-2 Ethics Approval from FREC

donotreply@infonetica.net <donotreply@infonetica.net>

Mon 1/9/2023 3:52 PM

To: Odhus, Camlus (Postgraduate Researcher) <c.odhus@lancaster.ac.uk>

Cc: Limmer, Mark <m.limmer@lancaster.ac.uk>

1 attachments (118 KB)

Letter.pdf

This email originated outside the University. Check before clicking links or attachments.

Name: Camlus Odhus

Supervisor: Mark Limmer

Department: Health Research

FHM REC Reference: FHM-2023-3261-RECR-2

Title: A Critical Realist Focused Ethnography of Quality Improvement in Primary Health Care in Kenya

Dear He/Him/His Camlus Odhus,

Thank you for submitting your ethics application in REAMS, Lancaster University's online ethics review system for research. The application was recommended for approval by the FHM Research Ethics Committee, and on behalf of the Committee, I can confirm that approval has been granted for this application.

As Principal Investigator/Co-Investigator your responsibilities include:

- ensuring that (where applicable) all the necessary legal and regulatory requirements in order to conduct the research are met, and the necessary licences and approvals have been obtained.
- reporting any ethics-related issues that occur during the course of the research or arising from the research to the Research Ethics Officer at the email address below (e.g. unforeseen ethical issues, complaints about the conduct of the research, adverse reactions such as extreme distress).
- submitting any changes to your application, including in your participant facing materials (see attached amendment guidance).

Please keep a copy of this email for your records. Please contact me if you have any queries or require further information.

Yours sincerely,

Dr Laura Machin
Chair of the Faculty of Health and Medicine Research Ethics Committee
fhmresearchsupport@lancaster.ac.uk

<https://outlook.office.com/mail/inbox/fd9AAQAGI2N2FmODM3LTA0YmINDJY11YWRILTNMTIY2QwOTkZQAQAIQR3mX8Ywd3aBSYDfdmKHk%3D> 1/2

Appendix F: Local Ethics approval

		
COUNTY GOVERNMENT OF KISUMU DEPARTMENT OF MEDICAL SERVICES, PUBLIC HEALTH AND SANITATION		
Telephone: 0724804676 E-mail: ercjoorth@gmail.com Website: www.joorth.go.ke When replying please quote		JARAMOGI OGINGA ODINGA TEACHING & REFERRAL HOSPITAL P.O. BOX 849 KISUMU
ISERC/JOOTRH/687/23		7th June, 2023
Ref:	Date:	

RE: APPROVAL: STUDY TITLE:
A CRITICAL REALIST FOCUSED ETHNOGRAPHY OF QUALITY IMPROVEMENT IN PRIMARY HEALTH CARE IN KENYA.

REF: ISERC/JOOTRH/687/23

To: Camilus Odhus

Dear Camilus,

RE: STUDY TITLE

This is to inform you that JOOTRH ISERC has reviewed and approved your above research proposal. Your application approval number is **ISERC/JOOTRH/687/23**. The approval period is **7th June, 2023 – 7th June, 2024**.

This approval is subject to compliance with the following requirements;

- i. Only approved documents including (informed consents, study instruments, MTA) will be used.
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by JOOTRH - ISERC.
- iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to JOOTRH - ISERC within 72 hours of notification
- iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to JOOTRH - ISERC within 72 hours.
- v. Clearance for export of biological specimens must be obtained from relevant institutions.
- vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days upon completion of the study to JOOTRH - ISERC.
- viii. In case the study site is JOOTRH, kindly report to the Chief Executive Officer before commencement of data collection.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <https://research-portal.nacosti.go.ke> and also obtain other clearances needed.

Yours sincerely,


JOOTRH ETHICS & REVIEW
COMMITTEE
P. O. Box 649 - 40100
KISUMU
ANTONY AYORA
SECRETARY-ISERC
JOOTRH- KISUMU

Appendix G: Invitation to participate in CRES study



Title of Research: A Critical Realist Focused Ethnography of Quality Improvement in Primary Health Care in Kenya

RE: Introducing my Research

Dear Sir/Madam,

Greetings, I hope my email finds you in good health. I write to introduce my research study to you and your hospital management, in particular your hospital quality improvement team or committee. I am a PhD Public Health Student at Lancaster University, UK but based in Kisumu, Kenya. I am conducting a study titled ***A Critical Realist Focused Ethnography of Quality Improvement in Primary Health Care in Kenya***. In this regard, I am sharing with you an information sheet for participants and an expression of interest form. Kindly read the participant information sheet carefully before getting back to me by filling in the expression of interest form and emailing it back. As my research project is time-bound, I would like to request that if your hospital is interested in taking part in this research, you may please get back to me within two to three weeks of receiving this communication. Please feel free to reach out to request additional information or to seek any clarification you may need to make an informed decision. I will be in touch after receiving your expression of interest to discuss consent, confidentiality and other research procedures before the actual data collection at your institution can commence.

I look forward to hearing back from you.

Thank you very much.

Camlus

Email: c.odhus@lancaster.ac.uk

Mobile: +254(0)723306253

Participant Information Sheet for Individual Interview

Title of Study: A Critical Realist Focused Ethnography of Quality Improvement in Primary Health Care in Kenya

For further information about how Lancaster University processes personal data for research purposes and your data rights please visit our webpage:
www.lancaster.ac.uk/research/data-protection

My name is **Camlus Odhus** and I am conducting this research *on Primary Health Care Quality Improvement* as a student in the Public Health PhD programme at Lancaster University, Lancaster, United Kingdom.

What is the study about?

The purpose of this study is to discover and describe how you, fellow health workers, and the quality improvement team or committee undertakes quality improvement in the primary health care context in Kenya. The study will help to draw linkages between the beliefs, attitudes, values and practices shared among the hospital team and personal motivations to undertake quality improvement with broader health systems and societal structures; exploring how these interact to constrain or enable quality improvement work. The findings will contribute to improved understanding of your work by decision makers, policy makers, academics, researchers, other stakeholders and the general public, adding to the body of knowledge regarding efforts to improve the quality of essential health care (upon which millions of people rely) in Kenya and beyond.

Why have I been approached?

You have been approached because the study requires information from people who are either providing primary health care services within the county; or managing primary health care programmes at the health facility, sub-county or county level; or part of a quality (work) improvement team implementing measures to enhance PHC service quality; or responsible for making policies, strategies and guidelines for improving the quality of health care in Kenya.

Do I have to take part?

No. It's completely up to you to decide whether you take part. Your participation is entirely voluntary. Your views, thoughts, opinions, perspectives and feelings are valuable to understanding the research topic and will be appreciated. But you decide whether to take part or not without any consequences for you, your job or current/future work prospects.

What will I be asked to do if I take part?

If you decide to take part, you will be asked to sign a consent form to allow for the researcher to speak with you individually at a time and convenience. Interviews will be audio-recorded and used later as data for the research. The individual interview takes between 45 minutes and 90 minutes. The discussion will revolve around your role in quality improvement of primary health care.

Will my data be Identifiable?

The data collected for this study will be stored securely and only the researcher conducting this study will have access to this data. The researcher will transcribe the data alone using software that is approved by the university, with adequate safeguards to protect your data:

- Audio recordings will be destroyed and/or deleted once the project has been submitted for publication/examined.
- Hard copies of consent forms will be kept in a locked cabinet accessible to the researcher alone.
- The transcribed text files and field notes kept in the computer will be encrypted (that is no-one other than the researcher will be able to access them) and the computer itself password protected. These will be kept with the University approved secure cloud storage arrangement for up to 10 years as required by the University research regulations.
- At the end of the study, hard copies of consent forms and handwritten field notes will be destroyed.
- The typed version of your interview will be made anonymous by removing any identifying information including your name. Anonymised direct quotations from your interview may be used in the reports or publications from the study, so your name will not be attached to them. All reasonable steps will be taken to protect the anonymity of the participants involved in this project.
- All your personal data will be confidential and will be kept separately from your interview responses.

There are some limits to confidentiality: if what is said in the interview makes me think that you, or someone else, is at significant risk of harm, I will have to break confidentiality and speak to my university supervisor about this. If possible, I will tell you when I have to do this.

What will happen to the results?

The findings will be summarised and reported in a thesis and may be submitted for publication in an academic or professional journal. The same may be published in a daily newspaper column and presented at an international scientific conference discussing quality of healthcare or primary health care. Such reporting or publication will see to it that any quotations remain anonymous and no personally identifiable data is reported.

Are there any risks?

There are no risks anticipated with participating in this study. However, if you experience any distress following participation you are encouraged to inform the researcher and contact the resources provided at the end of this sheet.

Are there any benefits to taking part?

Although you may find participating interesting, there are no direct benefits in taking part. This research is meant to contribute to a body of knowledge on the research topic.

Who has reviewed the project?

This study has been reviewed and approved by the Faculty of Health and Medicine Research Ethics Committee at Lancaster University. It has been permitted by the National Commission for Science and Technology in Nairobi, Kenya, and reviewed and approved by the Jaramogi Oginga Odinga Teaching and Referral Hospital Institutional Research Ethics Committee in Kisumu, Kenya.

Where can I obtain further information about the study if I need it?

If you have any questions about the study, please contact the main researcher: Camlus Odhus, PhD Student, Lancaster University, Faculty of Health and Medicine, c.odhus@lancaster.ac.uk, +254723306253.

Supervisor: Prof. Mark Limmer, Head, Division of Health Research, Lancaster University, m.limmer@lancaster.ac.uk

Complaints

If you wish to make a complaint or raise concerns about any aspect of this study and do not want to speak to the researcher or his supervisor, you can contact:

Dr Claire Hardy
Director of Research
Division of Health Research
c.hardy1@lancaster.ac.uk
Faculty of Health and Medicine
Lancaster University
Lancaster
LA1 4YG

If you wish to speak to someone outside of the Public Health Doctorate Programme, you may also contact:

Dr Laura Machin Tel: +44 (0)1524 594973
Chair of FHM REC Email: l.machin@lancaster.ac.uk
Faculty of Health and Medicine
(Lancaster Medical School)
Lancaster University
Lancaster
LA1 4YG

You can also reach The JOOTRH Ethics Review Committee through Tel 0724804676 and Email ercjootrh@gmail.com

Thank you for taking the time to read this information sheet.

Resources in the event of distress

Should you feel distressed either as a result of taking part, or in the future, the following resources may be of assistance.

<https://www.mentalhealth.org.uk/getting-help>

Participant Information Sheet for Individual Interview

Title of Study: A Critical Realist Focused Ethnography of Quality Improvement in Primary Health Care in Kenya

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www.lancaster.ac.uk/research/data-protection

My name is **Camilus Odhus**, and I am conducting this research *on Primary Health Care Quality Improvement* as a student in the Public Health PhD programme at Lancaster University, Lancaster, United Kingdom.

What is the study about?

The purpose of this study is to discover and describe how you, fellow health workers, and the quality improvement team or committee undertakes quality improvement in the primary health care context in Kenya. The study will help to draw linkages between the beliefs, attitudes, values and practices shared among the hospital team and personal motivations to undertake quality improvement with broader health systems and societal structures; exploring how these interact to constrain or enable quality improvement work. The findings will contribute to improved understanding of your work by decision makers, policy makers, academics, researchers, other stakeholders and the general public, adding to the body of knowledge regarding efforts to improve the quality of essential health care (upon which millions of people rely) in Kenya and beyond.

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- At the end of the study, hard copies of consent forms and handwritten field notes will be destroyed.
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- All your personal data will be confidential and will be kept separately from your interview responses.

There are some limits to confidentiality: if what is said in the interview makes me think that you, or someone else, is at significant risk of harm, I will have to break confidentiality and speak to my university supervisor about this. If possible, I will tell you when I have to do this.

What will happen to the results?

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Are there any risks?

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If you have any questions about the study, please contact the main researcher: Camlus Odhus, PhD Student, Lancaster University, Faculty of Health and Medicine, c.odhus@lancaster.ac.uk, +254723306253.

Supervisor: Prof. Mark Limmer, Head, Division of Health Research, Lancaster University, m.limmer@lancaster.ac.uk

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Dr Claire Hardy
Director of Research
Division of Health Research
c.hardy1@lancaster.ac.uk
Faculty of Health and Medicine
Lancaster University
Lancaster
LA1 4YG

If you wish to speak to someone outside of the Public Health Doctorate Programme, you may also contact:

Dr Laura Machin Tel: +44 (0)1524 594973
Chair of FHM REC Email: l.machin@lancaster.ac.uk
Faculty of Health and Medicine
(Lancaster Medical School)
Lancaster University
Lancaster
LA1 4YG

You can also reach The JOOTRH Ethics Review Committee through Tel 0724804676 and Email ercjootrh@gmail.com

Thank you for taking the time to read this information sheet.

Resources in the event of distress

Should you feel distressed either as a result of taking part, or in the future, the following resources may be of assistance.

<https://www.mentalhealth.org.uk/getting-help>



Consent Form for Observation of Hospital Quality Committee (Improvement Team)

Study Title: A Critical Realist Focused Ethnography of Quality Improvement in Primary Health Care in Kenya

We are asking if you would like to take part in a research project. The study aims to discover and describe how your team or committee undertakes quality improvement in the primary health care context in Kenya. The study will help to draw linkages between the beliefs, attitudes, values and practices shared among the hospital team and personal motivations to undertake quality improvement with broader health systems and societal structures; exploring how these interact to constrain or enable your quality improvement work. The findings will contribute to improved understanding of your work by decision makers, policy makers, academics, researchers and the general public, adding to the body of knowledge regarding efforts to improve the quality of essential health care (upon which millions of people rely) in Kenya and beyond.

Before you consent to participating in the study, we ask that you read the participant information sheet and mark each box below with your initials if you agree. If you have any questions or queries before signing the consent form please speak to the principal investigator, [Camlus Odhus; c.odhus@lancaster.ac.uk; +254 723 30 6253].

1. I confirm that I have read the information sheet and fully understand what is expected of me within this study ☐
2. I confirm that I have had the opportunity to ask any questions and to have them answered. ☐
3. I understand that my participation in this meeting of the hospital quality improvement team (also known as quality committee) will be observed by the researcher who will be participating in the meeting and taking notes. **QI team meetings will NOT** be audio/video-recorded. ☐
4. I understand that field notes will be kept until the research project has been ☐ examined.
5. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my employment rights being affected. ☐

6. I understand that once my data have been anonymised and incorporated into themes it might not be possible for it to be withdrawn, though every attempt will be made to extract my data, up to the point of publication. I am involved in the Quality Improvement (QI) Team being observed and if I withdraw, I understand that it may not be possible to withdraw my data. ☐

7. I understand that the information obtained by the researcher by observing my quality improvement team will be pooled with other participants' responses and data from other observation sessions, anonymised and may be published; all reasonable steps will be taken to protect the anonymity of the participants involved in this project. ☐

8. I consent to information and quotations from my interview being used in reports, conferences and newspaper columns, having been anonymised. ☐

9. I understand that the researcher will discuss data with their supervisor(s) as needed. ☐

10. I understand that any information I give will remain confidential and anonymous unless it is thought that there is a risk of harm to myself or others, in which case the principal investigator may need to share this information with their research supervisor [Prof. Mark Limmer, m.limmer@lancaster.ac.uk]. ☐

11. I consent to Lancaster University keeping notes from observation of my quality committee for 10 years after the study has finished during which time it may be shared with others for research or academic purposes. ☐

12. I consent to take part in the above study. ☐

Name of Participant _____ **Signature** _____ **Date** _____

Name of Researcher _____ **Signature** _____ **Date** _____

For any concerns, you can also reach The JOOTRH Ethics Review Committee through Tel 0724804676 and Email ercjootrh@gmail.com

Appendix K: Consent form – individual interviews



Consent Form for Individual Interviews

Study Title: A Critical Realist Focused Ethnography of Quality Improvement in Primary Health Care in Kenya

We are asking if you would like to take part in a research project. The study aims to discover and describe how your team or committee undertakes quality improvement in the primary health care context in Kenya. The study will help to draw linkages between the beliefs, attitudes, values and practices shared among the hospital team and personal motivations to undertake quality improvement with broader health systems and societal structures; exploring how these interact to constrain or enable your quality improvement work. The findings will contribute to improved understanding of your work by decision makers, policy makers, academics, researchers and the general public, adding to the body of knowledge regarding efforts to improve the quality of essential health care (upon which millions of people rely) in Kenya and beyond.

Before you consent to participating in the study, we ask that you read the participant information sheet and mark each box below with your initials if you agree. If you have any questions or queries before signing the consent form please speak to the principal investigator, [Camlus Odhus; c.odhus@lancaster.ac.uk; +254 723 30 6253].

- | | |
|--|--------------------------|
| 13. I confirm that I have read the information sheet and fully understand what is expected of me within this study | ☐ |
| 14. I confirm that I have had the opportunity to ask any questions and to have them answered. | ☐ |
| 15. I understand that my interview will be audio-recorded and then made into an anonymised written transcript. | ☐ |
| 16. I understand that audio recordings and field notes will be kept until the research project has been examined. | ☐ |
| 17. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my employment rights being affected. | ☐ |

18. I understand that once my data have been anonymised and incorporated into themes it might not be possible for it to be withdrawn, though every attempt will be made to extract my data, up to the point of publication. ☐

19. I understand that the information from my interview will be pooled with other participants' responses and observation field notes, anonymised and may be published. All reasonable steps will be taken to protect the anonymity of the participants involved in this project. ☐

20. I consent to information and quotations from my interview being used in reports, conferences and newspaper columns, having been anonymised. ☐

21. I understand that the researcher will discuss data with their supervisor(s) as needed. ☐

22. I understand that any information I give will remain confidential and anonymous unless it is thought that there is a risk of harm to myself or others, in which case the principal investigator may need to share this information with their research supervisor [Prof. Mark Limmer, m.limmer@lancaster.ac.uk]. ☐

23. I consent to Lancaster University keeping written transcriptions of the interview for 10 years after the study has finished during which time it may be shared out with other researchers for academic research purposes. ☐

24. I consent to take part in the above study. ☐

Name of Participant _____ **Signature** _____ **Date** _____

Name of Researcher _____ **Signature** _____ **Date** _____

For any concerns, you can also reach The JOOTRH Ethics Review Committee through Tel 0724804676 and Email



Individual interview guide (start of fieldwork)

Study Title: A Critical Realist Focused Ethnography of Quality Improvement in Primary Health Care in Kenya

Hello! How are you today? Thank you for agreeing to participate in this interview, granting me about an hour of your busy time. We will explore a few questions. I very much appreciate your open views. You may share anything you are comfortable telling me. Please do not hesitate to let me know if any question makes you uncomfortable. You do not have to answer such. Also, if you would like to stop or pause the interview at any time, just let me know.

1. Tell me about yourself: what do you do in ___hospital and what role do you play in the quality improvement committee?
2. How did you come to get involved in quality improvement? What motivated you? What keeps you going, if at all?
3. What are some of the issues affecting health care quality that you or your committee have dealt with so far?
4. Walk me through the process of quality improvement as you understand it. *(follow up by probing issues that come up)*
5. What have been your high moments in QI, what have been your low moments, what upsets you, what encourages you, and why?
6. Apart from you and your team, who else is involved in attempts to improve the quality of primary health care delivered at your hospital?
7. How do the subcounty, county and national teams join in your quality improvement efforts?
8. As a health professional/manager/leader, what do you value the most in your work? What do you value the least?
9. *(Based on observations)* Probe for instances or interpretation of things that happened at quality meetings? E.g. when **so and so** said or did this, you reacted in ___ manner, what made you say/do/react to that? Or, why is it that the committee prefers a certain approach over another, or why something happened or didn't happen...etc.

10. (Based on observations...) What does **x and y** mean to you? What does it mean to others (who have similar or different professional backgrounds/ experiences/ beliefs... etc.)

Explore other things that came up in observation and preceding interviews/analysis...and flexibly adapt interview to follow up previous answers.

Thank you for your time and thoughts, and for sharing your experiences. Do you have any concluding comments before we close? Please get in touch if anything comes up. I may also reach out to clarify something or to plan a follow up interview. Hope you don't mind?

Examples of Additional Questions (included in later interviews)

Iteration 001

1. We've been just talking about the HIV/AIDS programme and the fact that you have supervision going on today. I think that's a good point to start this conversation about quality improvement. Could also share your experience with these kinds of supervisions, how helpful are they? How unhelpful? How frequently do they happen? What's the burden in terms of your own time?
2. This support supervision is focused on HIV and maybe TB or other comorbidities. What's your experience with others? Because HIV /TB is one program amongst many. What's the real challenge there?
3. And in that regard, have you sought support maybe from the subcounty team or from the county team to try and figure out how to integrate these different aspects?
4. Have you been through QI training? Would you know whether any of your teams, and I understand you have a quality improvement focal person, or whether they've gone through quality improvement training?
5. There are at least six or seven other hospitals across the county. Would you know whether there exists a network where, even as hospitals, you can interact and then learn from your peers and these challenges you are grappling with might not be unique to you? What forums are there for you to interact with as peer hospitals?
6. You would say that quality improvement is very much partner driven.
7. I've seen a diagram out here labelled Kaizen. Is that for the hospital or for HIV Clinic? When did they bring you this tool, this Kaizen tool? And how do you use it? How did it come about?
8. You mentioned that there was supposed to be a QI project, a quality improvement project identified. But it didn't take off well. What were some of the reasons why it did not take off? When you said network did you mean the phone network?
9. Who are the members of the QI committee or team?
10. There are 2-3 projects. How often do you meet? How do you conduct your meetings

Iteration 002

1. Tell me briefly about yourself, what you do in the county and your role in quality improvement.
2. There are QI teams at both the hospital level and at the county level. At the hospital level, who do you work closely with in the quality improvement team?
3. How often does the hospital QI team sit?
4. How are your QI team activities at the hospital facilitated in terms of resources, facilities that you may need for meetings or to carry out your activities?
5. Are QI budgets incorporated in the hospital's budget or it's on a need basis: whenever you have need, you reach out and they see how best to fit you in?
6. Would you say that management at the county level and the hospital level have embraced QI as an integral part of PHC services. Or, do you still have some way to go in terms of getting it fully embraced and inculcated in hospital and county healthcare arrangements.
7. How are you able to integrate the two roles because the hospital is a very busy hospital and this also a very wide county, probably the third or fourth most populated in the country. How are you able to manage two roles concurrently?
8. What is the structure of quality improvement teams. Does your QIT have any terms of reference that articulate what you do? Is the membership documented?
9. (Looking at a printout of QIT terms of reference) I see here teamwork is at the top of the core values list, and then there's accountability, transparency, professionalism and punctuality. Maybe we'll get back to this (TOR). But along with this I understand that in the county there's a performance appraisal or performance contracting and appraisal system. How are you involved in this, if at all?
10. How are the performance contracting and appraisal system cascaded down all the way to the grassroots and to QITs?
11. How, if at all, are the two processes, the annual planning and the performance contracting, being applied to quality improvement?
12. In this county, what's your experience in terms of getting QI work plan activities funded and implemented?
13. I may be right or wrong that supplementary budgets, they have a very political agenda in the sense that sometimes they are used as tools to make sure that what the political head wants done can get done. They're a reallocation or resource prioritisation tool because they move budgets a little bit to make sure that priorities that are recognised by leaders can get accomplished. In this county, in the current context, how are the CHMT involved in the supplementary budget process?
14. And staying with that level. I've also seen reports and you mentioned already staff shortages, for example, concerning QI activities. How is the case here with the - there's a major concern about health workers, even from Kenya leaving for, and these are highly skilled health workers leaving for the UK, Australia, Canada and in other countries, is that also the same case in this county, in your experience? How has that affected QI?
15. You mentioned capacity building of healthcare workers in the Kenya quality model for health. How is this done? To what extent is KQMH rolled out in the county in terms of trainers, health workers who've been trained - the training coverage - for people to have capacity to do it, to understand the quality dimensions or domains, to do assessments?

How are assessments done and used for quality improvement and what does the quality improvement cycle look like?

16. How do you do root cause analysis? Which other tools do you apply here?
17. How much investment has been made in capacity building in QI, methodologies or tools to enable the primary health care teams to be able to run with it?
18. If some health management or most health management team members have been trained in QI, how come not all the programs have taken up Quality improvement projects and are implementing. Is part of the issue the fact that people see it as an added responsibility rather than an integral part of what we should all be doing, or is that only the case in other places?
19. It's interesting to mention HIV, TB, haemophilia, sickle cell, and I've seen that a lot of quality improvement has gone on in HIV programmes especially and a little bit on reproductive maternal, newborn child health areas. Would you know of any quality improvement projects that are being implemented around non-communicable diseases, for example? The investment in training all these different multidisciplinary teams is paying off in terms of embrace of QI projects.
20. When you mention the role of consultants in clinical mentorship, what's your experience in this county and in this hospital of the involvement of senior physicians in QI and skills building? Others have thought them too busy to be incorporated into QI meetings.

Iteration 003

1. As we start off, tell me a little bit about yourself, your professional background, your role in the sub-county, the activities that you are undertaking around QI.
2. You wear quite a lot of hats there. One by one, what does - what do you do as far as being a nurse manager is concerned, what are some of your key roles on a day-to-day basis?
3. And as sub-county QI focal person in charge of many health facilities, what are some of your key roles and activities?
4. And then you also do infection prevention and control at the sub-county. What are some of the activities around that?
5. My next question logically is how do you juggle all three functions?
6. The morning and evening reports; are those in soft copy. Do you receive them digitally or in hard/paper copies?
7. And this having to move around facilities all week, how do you get to accomplish that logistically?
8. What support have you received for the digital dashboard/platform, or eQMH?
9. Have you received any training in QI or KQMH? What was it about, and when?
10. I understand you have a county QI team that supports you in your work. What's its composition like?

11. Let me take a step back and ask about how you first came to get involved in QI? Was it a passion? Is it the case that someone spotted and nominated you? How did it start?
12. In that period of roughly 16 years that you have been around, what are some of the changes you've seen happening in the primary health system and QI arena?
13. The QI dashboard, how does it work? Who is it meant for? Who owns it and what's your experience interacting with it?
14. That brings me to the next issue. One of the things I've heard not just here but throughout this research is that it's been very challenging collaborating with the private facilities in QI, what's been your experience?
15. Let's briefly discuss the awards, the Governors Awards, which I guess is part of what you are hinting at with competing or not able to compete for these awards. How does it work, the awards system, how is it initiated? To what point do people get awarded for quality? Please walk me through that process and your experiences.
16. To what extent do you think the awards help to achieve the intended objective? Getting motivated people, getting people interested in QI, inspiring that competitive spirit and in general inculcating a culture of quality. How much of that do you think is being accomplished through the awards?
17. You are somewhere as far as quality culture is concerned, but not yet fully there?
18. You mentioned QI coaches. That you have selected some QI coaches to support you in mentoring the health facilities. How do you go about selecting QI coaches? What, if anything happens in the community-based PHC because you mentioned there's now QI in the community?
19. And then the best practices; because you also mention there is a best practice forum that is coming up. What are some of the best practices that you have observed over time?
20. There are two important things that I've seen keep coming up. I want to hear your perspectives on them. And you've also mentioned them, that is CMEs, OJTs and mentorships. What, or how do you go about doing CMEs and what constitutes a good CME in your perspective or in your experience?
21. That makes me ask whether many people on the level of managers do CMEs, or whether it or subject matter experts in different fields? Is there a uniform understanding of what a good CME looks like, that is documented somewhere, that this is how you start, proceed, conclude. Or is this something you learn by doing, when you've been around for a while?
22. You said you desire to see QI activities integrated into various work plans. Are CMEs already integrated into those work plans or is it brought up only when there is need?
23. I just want to give you an opportunity if there's anything you want to bring up or mention that I haven't touched on?



Observation Checklist

Study Title: A Critical Realist Focused Ethnography of Quality Improvement in Primary Health Care in Kenya

This checklist will help the researcher to remember salient points to note down in the field notebook. These will include anonymous direct quotes from QI meetings, reflections, and other observations made that are relevant to understanding QI from the perspectives of those involved in quality improvement in primary health care settings.

1. How consent is negotiated, introductions, questions from the group regarding the study, other matters in need of clarification by participants regarding the study.
2. How meetings are organized. Where does the team meet? Who facilitates, chairs or leads. Who are the participants in the meeting (designation and roles). How does the meeting start. How does it progress. Stalemate. Resolution. Conclusion. Next steps. Length of sessions.
3. Duration of QI projects/ initiatives. How the team know when they have concluded on a QI initiative? How are QI goals described or stated or framed?
4. What topics or areas capture the interest of the committee? How are quality problems defined or concerns identified, prioritised, characterized?
5. What guidelines, documents, references, tools, SOPs, checklists, policies, guidelines, frameworks does the team draw from? How do they became aware of these? What views or opinions do they hold on these shared resources?
6. Words, phrases, remarks, concepts, terminology used by the team. Different or differing meanings. Shared meanings. Consensus and divergent perspectives.
7. Behaviours that are apparent. Blocking. Enabling. Acceptance. Fence-sitting. Coercion or persuasion by other team members. Power of facilitator. How are expectations set? Any written or unwritten norms (codes).

8. Incentives and constraints (disincentives)- explicit and tacit, external and internal. Intrinsic motivation and extrinsic sources of motivation to engage in QI.
9. Financial, human and other resources that QI committee needs or draws upon to drive QI. How do these elements interact.
10. Role of external agents like supporters, promoters, funders, sponsors, leaders in QI.
11. What aspects of QI happen in meetings? What other aspects of QI happen outside of meetings? How central are meetings or group sessions to QI overall? Variations by site or timing?
12. Instances of success and failure of QI initiatives. What counts as failure? What does successful QI look like?
13. Role of clients and patients in QI, if any- direct or indirect. Roles of other community aspects (local politicians, leaders, civil society) that QI committee mentions or focuses on.
14. Artefacts produced by QI teams e.g. reports, checklists, SOPs... how they are produced, their uses, their audience, custodian, adoption, and applications.
15. Interaction of QI team with wider county and subcounty PHC context. Coaches and managers. Touchpoints. Relationships between hospital committees and upper levels (subcounty HMT and County HMT or wider health system/ lower levels (smaller facilities referring to them).
16. Conflicts between individuals in the team: personality, attitude etc. relationships with Hospital management, overlap in roles. How are conflicting roles handled.
17. Types of QI events, QI meetings, QI focus etc.
18. Dates and times of QI team meeting, weather, physical conditions, getting to and from meetings, delays, postponements, missed sittings, communication channels used, QI team members earmarked for in-depth interviews.
19. New government policies introduced that affect QI. Old ones modified or withdrawn. Take of QI team on these. New events occurring e.g. disease outbreaks and how these enter QI arena etc.

Appendix N: Example data analysis in Atlas.ti

