

Analysis of Quality Improvement interventions in Primary Health Care Services of Nepal

A literature Review

ANJU GAUTAM

Nepal

58th Master of Public Health/International Course in Health Development (MPH/ICHD)

KIT (Royal Tropical Institute)/ Vrije Universiteit Amsterdam
Amsterdam, The Netherlands

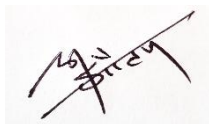
Analysis of Quality Improvement interventions in Primary Health Care Services of Nepal: A literature Review

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

Where other people's work has been used (either from a printed source, internet, or any other source) this has been carefully acknowledged and referenced in accordance with departmental requirements. The thesis "**Analysis of Quality Improvement interventions in Primary Health Care Services of Nepal: A literature Review**" is my own work.



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58th Master of Public Health/International Course in Health Development (MPH/ICHD)
13 September 2021 – 2 September 2022

KIT (Royal Tropical Institute)/ Vrije Universiteit Amsterdam
Amsterdam, The Netherlands
September 2022

Organized by:

KIT (Royal Tropical Institute) Amsterdam,
The Netherlands

In co-operation with:

Vrije Universiteit Amsterdam/ Free University of Amsterdam (VU) Amsterdam,
The Netherlands

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Acknowledgement

I would like to take the opportunity to thank everyone who have been a part of this thesis, directly or indirectly. I would like to express my gratitude to KIT course coordinators and all facilitators who introduced us to the updated knowledge in the field of public health, piece by piece, building the critical thinking needed to carry out this intensive thesis writing process.

I am thankful to my advisors who guided me since the inception of the thesis. The feedbacks I received have helped me navigate the growing body literature and find answers to my research questions. Thank you to the course administrators at KIT for making our learning journey easier with their support.

I am grateful to World Bank and Government of Japan for providing me the opportunity to pursue this course. I also express my warm gratitude towards my classmates who were there to support and inspire me during the whole course.

I also thank my family and my partner for supporting me all the way.

Abbreviations

ANC	Antenatal Care
ANMs	Auxiliary Nurse Midwives
BEmOC	Basic Emergency Obstetric Care
BHSP	Basic Health Service Package
CEmOC	Comprehensive Emergency Obstetric Care
CHE	Current Health Expenditure
COVID	Coronavirus Disease
CPR	Contraceptive Prevalence Rate
CNR	Case Notification Rate
DFID	Department for International Development UK
DoHS	Department of Health Services
FCHV	Female Community Health Volunteer
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
HDI	Human Development Index
HTA	Health Technology Assessment
LMICs	Low- and Middle-Income Countries
MDGs	Millennium Develop Goals
MNH	Maternal and Neonatal Health
MOHP	Ministry of Health and Population
MoSD	Ministry of Social Development
MPI	Multidimensional Poverty Index
MSS	Minimum Service Standards
NCDs	Non-communicable Diseases
NHFS	Nepal Health Facility Survey
NHSSP	National Health Sector Strategic Plan
OOP	Out-of-Pocket
PEN	Package of Essential Non-communicable Diseases
PHC	Primary Health Care
PHCC	Primary Health Care Center
PHCRD	Primary Health Care Revitalization Division
PNC	Postnatal Care
PPP	Public-Private Partnership
SBA	Skill-Birth Attendant
SDGs	Sustainable Development Goals
SHSP	Social Health Security Program
UHC	Universal Health Coverage
USAID	United States Agency for International Development
VU	Vrije University
WASH	Water, Sanitation and Hygiene
WHO	World Health Organization

Abstract

Introduction

Current evidence shows primary health care services is of poor quality in Nepal. Some efforts from government and non-state actors are ongoing. This study aims at analyzing quality interventions at PHC level for their effectiveness on improving quality and providing recommendations to relevant stakeholders.

Methodology

For the thesis study, method of literature review was selected. The literature found were analyzed using High-quality Health Systems framework by Kruk et al.

Results

Many interventions related to community people, structure, health workforce, service organization and governance were identified. Social audits, community participation, HFOMC strengthening, and patient involvement were making care more people centered. Interventions such as citizen charter and complaint mechanism were found ineffective. Onsite coaching, academic detailing and retention program were improving clinical quality and motivation. Infrastructure and service expansion were not found effective. Evidence on many governance interventions such as policies were very limited. Studies testing impact of many quality interventions on health outcomes and cost were limited.

Conclusion

Many interventions have potential to improve foundations and process of care for good quality PHC services. Strong monitoring of interventions is required to bring consistent quality improvement. Some national program such as free medicines, and service expansion could be improved with evidence-based approach. Many areas such as technology, referral, professional regulations, and better feedback mechanisms needs to be explored. All quality interventions should be guided by a national policy for synergistic effect.

Keywords: quality improvement, interventions, primary health care, performance improvement, process of care, Nepal

Word Count: 12,828 (background to recommendations)

Glossary

Primary Health Care

Primary health care is 'essential health care based on practical, scientifically sound, and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford' (30). It is entry point of health system for people that also encompasses concept of integrated service, multi-sector collaboration and community engagement (30) (p.1).

Quality of Care

Quality of care is ability of health services to increase the likelihood of better health outcomes and are consistent with present body of knowledge (175). Quality health services is expected to 'be effective, safe, people-centered, timely, equitable, integrated and efficient' (176).

Quality Improvement

Quality improvement refers to 'systematic and continuous actions that lead to measurable improvement in health care services and health status of targeted patient groups' (175).

Community

Community refers to 'group of people with common interests, needs, value, beliefs, and norms living in a defined geographical territory' (177).

Introduction

Nepal is one of the South Asian countries that made significant progress in last two decades to improve health of its citizens reducing maternal and child mortality by 52% and 72% (25). Nepal's also implemented HIV programme with success in reducing prevalence below 0.5% (25). Four out of five children are covered by vaccination and leprosy is pushed to elimination level (3). But Nepal also faces new challenge in this era of Sustainable Development goals. With changing morbidity pattern and health needs of people, Nepal's Primary health care services are not prepared to tackle them successfully. National Health Facility Survey 2015 brought out many gaps in Structures as well as process of care in primary health care of Nepal. These gaps need a careful examination of what new strategies to pick up and what to drop to suit the needs of present.

Quality improvement as an 'urgent need' has been recognized by health sector of Nepal and by development partners. In 4 years of my professional experience of working in local health system strengthening, I have witness and engaged in project focused to improve quality of local health facilities by engaging with both communities (demand-side) and with health care providers (supply-side). Though many different activities such community participation, infrastructure support, and trainings were emphasized by community level projects, their impact of improving quality of service was not well examined. This has inspired me to further understand quality improvement interventions in primary health care of Nepal; what were successful and what were not so successful. However, comprehensive studies that examined multiple interventions and its linkage with health system were lacking. Therefore, I was inspired to undertake this thesis topic to support primary care strengthening efforts in Nepal where I bring together different evidence of interventions being invested in Nepal and analyzing how effective they are in improving quality of primary health care.

Chapter 1: Background

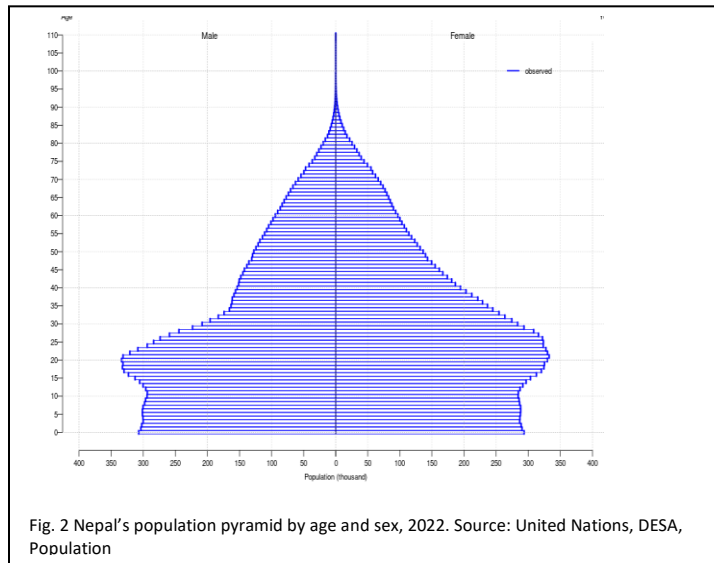
This chapter intends to introduce Nepal and provide information about its context such as demography, socio-economic condition, health situation, structure of health system, and primary health care services.

1.1 Geography and Demography of Nepal

Nepal is a landlocked country in South Asia with total land area of 147,181 Sq.km. Nepal shares its borders with China on the North and with India on East, West, and Southern side (1). Though small, Nepal has remarkable geographic diversity with altitude as low as 59 meters on Southern plains to long stretch of snow peaks above 8,000 meters in the North. The South-North transect divides Nepal into three ecological regions: Mountain, Hills, and Plains. With most part of the country covered by hills (68%) and mountains (15%); many areas are still inaccessible by modern vehicles (1,2).



According to the population census of 2021, Nepal's population is 29.1 million, of which 51% is female. Annual population growth rate is 0.93%; the lowest in last 80 years owing to factors such as decreasing fertility and high outmigration. The Total Fertility rate has declined to 1.8 births per woman in 2021 and average family size is 4.33 (4). Large proportion of the population are youths between the age of 15-29 years (5) as shown in figure 2. Like in many other countries Low- and Middle-Income countries (LMICs), Nepal is also facing rapid urbanization with 66% of people living in urban areas and 34% living in rural areas. Migration of rural to urban migration outside the country are on rise. More than 2 million people are currently living abroad for work and various purposes (4).



1.2 Socio-economic context

Nepal is a Lower Middle-Income country (6) with Human Development Index (HDI) of 0.602 that placed Nepal in 142nd rank (7). The HDI varies between provinces; Province 3 had highest with 0.669 whereas Province 7 had lowest with 0.519 (7). According to estimation of Multidimensional Poverty Index (MPI) of Nepal in 2016, 34% of Nepalese are 'multidimensionally poor' whereas 22.4% of population are vulnerable to 'multidimensional poverty' (7). The Gross Domestic Product (GDP) per capita of Nepal was US \$ 1,222 in 2021 (8). COVID 19 affected the economy of Nepal more severely in 2019/20 but gradually recovering. The estimated economic growth rate was 4% for fiscal year 2020/21 (9).

The average literacy rate of Nepal was reported only 65.9% in 2011 census despite of free education up to grade 10. There is large gap between male and female literacy rates (71.6% vs. 44.5% respectively) (10, 11). There are 126 different caste and ethnic groups who speak more than 100 different ethnic languages and dialects. However, Nepali is the official language used for both spoken and written purpose (11). People in Nepal follow many different religions and Hinduism makes up the largest proportion (81%) (11). The caste-based discrimination was criminalized in 2011, however the effect of systemic discrimination is reflected in low educational and economic level among marginalized communities (12).

1.3 Political and Administrative structure

Nepal welcomed new Constitution in 2015 that recognizes Nepal as Federal democratic and republic country consisting of three levels of governments i.e., Local, Provincial and Federal (13). Nepal now has 1 federal government, 7 provinces, and 753 local level governments as seen in figure 1. There are various constitutional provisions related to political, financial, and administrative authority for each level, of which some are exclusive whereas some are concurrent between different levels (13).

1.4 Health System in Nepal

Following the devolvement, Nepal's national health system was also reorganized after 2015. At present health system also has three tiers of governance: federal, provincial, and local level. At federal level, Ministry of Health and Population (MOHP) is responsible for policy formation, planning and monitoring of national level programmes in health. Newly restructured MOHP consists of various divisions, health professional councils, and departments as shown in Appendix 1 (14). MOHP is responsible for guiding provincial and local level in implementing health programmes through its relevant divisions and departments. Department of Health Services (DoHS) is mostly responsible for overseeing the delivery of promotive, preventive, diagnostic, curative, and palliative services as shown in Appendix 2. DoHS is also responsible for management of federal level (tertiary) hospitals (14).

At provincial level, each Provincial Ministry of Social Development (MoSD) has a health division that comprises of Health Directorate, Provincial laboratory, training center and procurement management unit as shown in Appendix 3 (14). Provincial health directorate are responsible for providing technical support and monitoring of health programmes implemented within the province (14). Secondary hospitals, previously known as regional and zonal hospitals, are also under the management of provinces (14).

At local level, municipals¹ are responsible for basic health service delivery along with preventive and promotive health programmes (14). National Constitution 2015 has specified 'basic health and sanitation services' under exclusive authority of local governments following national legislation (15). Health units of each municipal are responsible to make annual plans based on local health needs; and monitor both private and public health facilities operating within the municipality (15). All types of primary health care service delivery structures are under the authority of local governments after federal restructuring (14,15).

1.5 Primary Health Care Structure in Nepal

Nepal has an extensive peripheral network of Primary Health Care (PHC) services across the country (14). The Local Governance Operation Act 2017 and National Health Policy 2019 provisioned establishment of one primary health care facility in each ward² (15,16). Therefore, each ward has a Health Post or Community Health Unit (if rural municipality) or Urban Health Center (if urban municipality) as its first contact point to access health care services. These facilities are also responsible for monitoring the activities of Female Community Health Volunteers (FCHV), Outreach clinical services, and Immunization services that operates at community level (14).

Above health posts, there are also Primary Health Care Centers (PHCCs) and Primary hospitals within the municipalities. Though the long-term health plan intends to upgrade all PHCCs into Primary hospitals, for now, PHCC also acts as first point of referral for health posts as it is staffed with medical doctor and provides laboratory facility. The chain of referral then follows primary, secondary, and tertiary level hospitals (14). Community Health Units (CHUs), Urban Health Centers (UHCs), Health Posts (HPs), and Primary Health Care Centers (PHCCs) altogether form the largest part of primary health care network in Nepal; and it is also the focus area of this study. The number of health facilities by type and province as of 2018 is shown in Table 1 (18).

¹ Metropolitan, Sub-metropolitan, Municipality and Rural municipality

² Lowest administrative unit

Table 1: Number of Health Facilities in Nepal.

Source: Department of Health Services, 2021 (18)

Province	Primary Health Care Centers	Health Posts	Urban Health Centers	Community Health Unit
Province 1	39	639	52	49
Province 2	33	743	17	7
Province 3	36	638	110	90
Province 4	25	486	52	41
Province 5	28	569	68	47
Province 6	12	342	18	22
Province 7	16	377	57	43
Total	189	3,794	374	299

These are mainly responsible for providing essential care services as defined in Basic Health Service Package (BHSP) for free of cost (14,16,17). BHSP provided by these facilities includes immunization, integrated management of childhood illnesses, maternal health services, family planning, control of infectious diseases, early detection of Non-communicable Diseases (NCDs),

mental health and general emergency care. Primary health care facilities are also involved in implementing preventive and promotive health programmes as a part of BHSP (17). However, these services, even though provided from same platform, are operated, and monitored in vertical approach (18). A mix of Paramedics, Nurses, and Auxiliary Nurse Midwives (ANMs) provide services in CHUs, UHCs, and Health Posts (19). Though some private providers also provide primary care, there is lack of data about their service and therefore not considered within the scope of this review.

1.6 Health Financing

The analysis of health expenditure of 2019 shows Current Health Expenditure (CHE) of 4% of the GDP. Large part of CHE was from domestic sources whereas only 10% was from external support (20). Like other LMICs, Nepal also has significantly high Out-of-pocket (OOP) expenditure in health i.e. 58% of CHE (21). The rate of impoverishment due to OOP expenses while is 1.7% whereas catastrophic expenditure³ is 10.7% (22). To increase financial protection while also improving access to care, Government of Nepal introduced Social Health Security Program (SHSP) in 2016 which is a national insurance program. However, the enrollment has been slow and only covers secondary care as primary care is provided for free through PHC facilities (23). Local governments receive 'conditional'⁴ grants for delivering health care services along with 'unconditional'⁵ grants from federal and province level. Local governments can also mobilize locally generated revenue to address local health needs (24).

1.7 Health Situation

Nepal made significant progress in health during Millennium Development Goals commitment period with significant reduction in infant and maternal mortality along with better control of various communicable diseases such as HIV and malaria as shown in Appendix 5. It was also a period where health was being globalized and the global monitoring triggered Nepal to make major shifts in its policy and programmes to reduce the burden of diseases, save lives of mothers and newborns and ensure access to primary health care for all its citizens (25,26).

³ Catastrophic Expenditure= paying more than 10% of household expenditure for health

⁴ Nontransferable line budget

⁵ Transferable budget

In 2021, the rate of fully immunized children reached 78% where as DPT and MR2 coverage is above 80%. Similarly, incidence of diarrhea is decreasing in under five children with 339 cases per 1000 children in 2021 compared to 422 per 1000 children in 2015 (14). 70% pregnant women received four antenatal checkups while 65% women delivered in a health facility in 2021 while the target of 2030 is 90% for both (18). The Contraceptive Prevalence Rate (CPR) is around 39% and has been declining as compared to 2015 (3,18).

Malaria control service is also one of the successful programme in Nepal during MDG. The total malaria positive cases in 2021 was only 377 (3,18). Nepal also made significant progress over last decades in HIV. In 2021, HIV prevalence rate among adult was 0.12%. But Tuberculosis (TB) is still a major health problem in Nepal with 95/100,000 Case Notification Rate (CNR) for all forms of TB and increasing cases of drug resistant TB (18).

Table 2: Progress of major health indicators. Source: MOHP, Annual Health Report 2020/2021 (18).

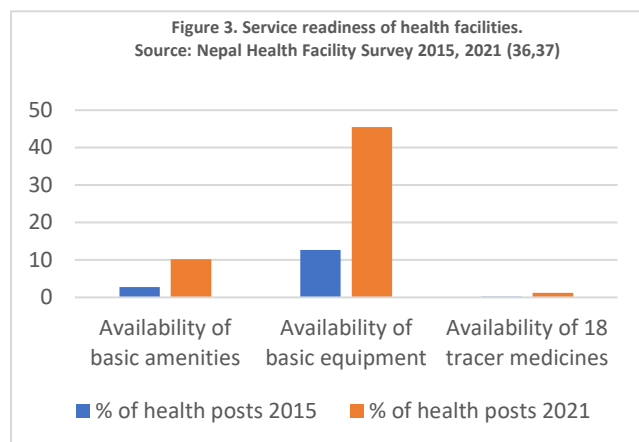
Health Indicators	2018/19	2019/20	2020/21	2030 target
%Pregnant women who attended four ANC visits as per protocol	56	53	70	90
%Deliveries conducted by skilled birth attendant	60	62	61	90
%Mothers who had three PNC check-ups as per protocol	16	19	25	90
Measles second dose coverage	73	71	81	95
% of children U5 years with Pneumonia treated with antibiotics	117	115	117	100
% of children under 5 with diarrhea treated with ORS and zinc	95	95	96	100
Contraceptive prevalence rate (CPR-unadjusted)	40	37	39	60
Treatment success rate of TB	91	89	91	>90
Annual parasite incidence of malaria (API) per 1,000 pop risk	0.09	0.05	0.03	--
Prevalence rate of Leprosy per 10,000 population	0.9	0.7	0.7	0.4
HIV incidence rate	0.3	0.3	0.3	--
% of TB patients had HIV test result	69	51	72	100
% of population utilizing outpatient (OPD) services	78	84	77	--

With increasing urbanization, demographic and economic transition, Nepal is also facing higher burden of NCDs. Two out of three deaths are now caused by NCDs (18). Nepal has started implementing Package of Essential Non-communicable Diseases (PEN) intervention at primary level care as recommended by WHO to increase early diagnosis and management (28). Other important component in health is mental well-being. Though there is increase in mental illnesses, self-harm, and substance abuse, there hasn't been specific intervention for it though included in BSHP (3,18).

The trend in health progress has been affected by COVID 19. Services such as vaccination, deliveries, family planning, abortion services, HIV and TB testing were heavily compromised during lockdown imposed to contain COVID transmission in 2019/20 (18, 27). And there are disparities in health outcomes across rural-urban setting, eco-geographical regions, and various socio-economic groups. Neonatal mortality is four times higher among Dalits (marginalized ethnic group) compared to Brahmins and 2.6 times more women of higher wealth quintile deliver at health facilities compared to poorest women (29).

Chapter 2: Problem Statement, Justification and Objectives

Following Alma Ata Conference 1978, countries across the globe developed consensus that health is human right, giving rise to concept of Primary Health Care. Many LMICs including Nepal invested in expansion of PHC services and improvement of health determinants such as safe drinking water and sanitation (30). These efforts indeed saved many lives in past decades globally by averting many infectious diseases and preventable health problems (31,32). However, there is also growing evidence on poor quality of health services such as poor service readiness, low adherence to clinical guidelines, and overuse of unnecessary care such as antibiotics, especially in LMICs (33-35,38).



Nepal faces similar situation. Although utilization of health services has improved over the years, good quality health care services remain elusive for many Nepalese. The National Health Facility Surveys (NHFS) showed many health posts are not in position to provide quality services because of inadequate infrastructure, equipment, and inconsistent supply of essential medicines as shown in figure 3 (36,37). The problem of quality is not limited to service readiness. Further analysis of NHFS 2015 showed that out 940 health facilities, less than 1% were complying to service

protocols while providing Antenatal checkups, family planning and child health services (36,38).

Furthermore, the knowledge and skills among rural health workers are lower. A clinical skill assessment conducted in four districts found that rural health workers serving at health posts performed poorly than those serving at district hospitals for same cadre and set of clinical skills (39). Another geographically representative study found that SBAs serving in rural birthing centers scored only 48% in clinical skill assessment though 85% is minimum required competence (40). Primary health care level not only lacks competence and evidence-based practice but is also less safe. 42.5% of Health facilities do not have soap and running water and 37% do not have mechanism of safe disposal of infectious waste (37). The Quality-of-care index analysis of PHC services showed a score of 53 out of 100 for Nepal (47).

The effect of poor-quality PHC is reflected in slow health progress after 2015 (18). People's trust and preferences are also indicator of perceived quality of services (33). A study conducted in eastern Nepal in 2009 examined the choice of health facilities for primary care among 400 households. It showed 32% chose private providers for adequacy of resources, and service quality (41). Bypassing local health facilities to seek services from hospitals is also observed in Nepal. In a study conducted in 2015 in central Nepal, 70% of women bypassed local birthing centers to deliver at hospitals (42).

The situation of primary health care facilities suggests great need of quality reforms to build a stronger PHC system that is patient-centered, safe, effective, and efficient that provides good quality care and can fulfil ambitious SDGs targets (25,46). In addition, Nepal is also going through epidemiological transition with increasing burden of NCDs that will require PHC services to be more responsive to provide personalized services over the life course and across continuum of care (43,44). A well-functioning PHC system providing high quality care is central to realization of Universal Health Coverage (UHC) (45). Along

with needs, there are also opportunities for addressing quality issues at present with more authority and resources at local level which was not easy during central governance (24).

The provision of primary care for all citizens were expanded with Free Essential Health Service policy in 2009 in Nepal where PHC services provided from Health Posts and PHCCs were free (49). In past decades, improving financial and geographical access to health care was of priority especially in rural and remote communities (49). However, with the commitment to SDGs and the findings of poor status of health facilities, the agenda of quality improvement in PHC is reemerging and demands balance between access and quality (48). Nepal is working towards addressing quality issues by including quality improvement as a major objective of National Health Sector Strategic Plan (NHSSP) for 2016-2022. However, the efforts guided by NHSSP are mostly focused on improving infrastructures, availability of staffs, supply of logistics and essential medicines (50).

Quality Assurance and Regulation Division within MOHP at federal level to oversight all activities relevant to quality assurance and improvement in health services (50,51). Currently, the MOHP has developed and endorsed Minimum Service Standards (MSS) tools to monitor service readiness and management at primary level health facilities (51). The Standard Treatment Protocols for Basic Health Services Package 2022 has also been developed to standardize primary health services (52). Practices of licensing of health professionals are done by relevant health professionals' councils. Health Facility Operation Standards 2020 was endorsed to guide the procedures and requirements for establishing, operating, and upgrading health institutions (53). All these efforts are guided by different policies and has not been well evaluated for their impacts in quality improvement.

The difference in policy and actual practice pertinent to quality of primary health care has been raised by many health actors including I/NGOs and civil society organizations. Organizations such as WHO, USAID, GIZ, DFID are some major development agencies supporting MOHP both financially and technically to work towards quality improvement of PHC (50). Some quality improvement interventions such as training, supervision, community engagement, structural inputs, etc. aiming to improve various aspects of quality such readiness, provider skills and accountability have been reported in Nepal while few have been studied as well (56,64,72,82,107). However, they do not provide comprehensive evidence on how effective they were in improving quality, and lessons of implementing such interventions and how these interventions can be situated as parts of systemic reforms to strengthen Primary Health Care.

Therefore, this paper intends to review the available literature on quality improvement interventions being implemented at the level of primary health care in Nepal, analyze their outcomes to understand their effectiveness in the context of Nepal. The findings of this study will provide an overview of evidence on quality improvement interventions to health policymakers, development partners and health care providers working for quality improvement of primary health care services in Nepal.

Objectives:

General Objective:

To analyze interventions aimed at improving quality of primary healthcare services in Nepal to provide recommendations to policymakers, develop partners, and service providers for improving quality of primary health care services

Specific Objectives:

- I. To identify and analyze effectiveness of quality improvement interventions implemented to improve quality of primary health care services in Nepal
- II. To identify lessons and challenges of implementing quality improvement interventions in Nepal's context
- III. To provide recommendations to policymakers, development partners, health service providers and researchers for improving quality of primary health care services in Nepal

Chapter 3: Methodology:

3.1 Study method and Search strategy:

Literature review was the chosen methodology to address the objectives of this study. Firstly, peer-reviewed journals articles on quality improvement interventions for primary health care services were searched and retrieved from databases like PubMed, Cochrane, and Nepal Health Research Council repository.

Google and google scholars were the search engines used to source grey literature (published and unpublished). Snowballing was done to identify more articles related to specific type of quality improvement intervention. Relevant articles retrieved were screened for its relevancy based on below inclusion and exclusion criteria. Selected articles and grey literature were then analyzed and summarized using conceptual framework as described in section 3.3.

In addition, relevant information, policy documents and reports were retrieved from the websites of World Health Organization, Ministry of Health and Population Nepal, Nepal Demographic and Health Survey, and National Health Sector Strategy Programme. Some relevant reports related to intervention implemented by development partners such as USAID, DFID, GIZ and Red Cross were retrieved from their official country websites.

Literature was searched using different combinations of MeSH terms and keywords with Boolean operators "AND" and "OR" with geographical limitations terms such as "Nepal", "South Asia", and "LMICs". "Primary Health Care" and "Quality Improvement" were used as MeSH terms as well as keywords. For more comprehensive search, terms that were linked with primary health care such as "PHC", "primary care facilities", "rural health facilities", "primary care centers" and "health posts" were also used as alternatives. Similarly, search terms related to quality improvement such as "clinical competence", "continuity of care", "guideline adherence", "patient-centered care", "performance improvement", "user satisfaction", "positive experience", "health outcomes", "quality interventions", "governance", "health workers" "technology" "accountability", " service improvement", "structural inputs", "information management", "health financing", "community participation", etc. were also used alternatively. Details of search terms and combinations can be found in Appendix 5.

3.2 Inclusion Exclusion Criteria:

Studies focused on interventions that were implemented to improve the quality of services provided at primary level of health care were included in the review. Articles published in English and Nepali language

were considered for this review study. Publications from year 2000 until 2022 were included considering the prominent rise of quality issues in last decades. Peer-reviewed and grey literature using either qualitative, quantitative, or mixed research methods were included. Country specific reports like Annual Health Reports, National Health Facility Surveys were used to determine status of health outcomes and service availability.

In addition, relevant articles from LMICs with similar socio-economic context and primary health care delivery system were included due to limited literature on quality improvement interventions in Nepal, and to ensure a broader view of the subject matter. Articles that are not openly accessible or with access to only abstracts were excluded despite of relevance. Interventions focused on health promotion or increasing health literacy of the community were excluded. Interventions focusing on primary care at the hospital level are also excluded.

3.3 Conceptual Framework:

This study uses high-quality health systems framework developed by Kruk et al. for critical analysis and synthesis of available literature. It is built upon previous frameworks related to health system and quality improvements such as Donabedian’s framework, maternal quality of care frameworks, Juran trilogy, and Deming quality cycle (33).

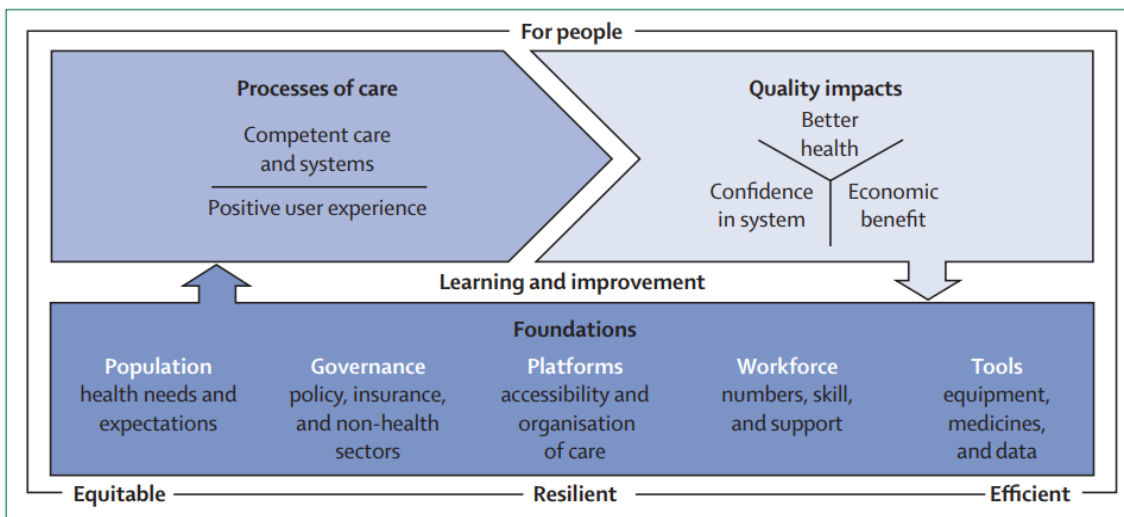


Figure 4: High-quality health systems framework. Source: Lancet Global health commission, 2018 (33)

This framework was selected instead of Primary Health Care Performance Initiative conceptual framework or Primary Care system framework, for it includes various clinical and non-clinical components relevant to quality of health services but not too exclusive to create conflict in categorizing the findings that may involve multiple interventions (33,53). Unlike other frameworks, it prominently places people and their service use experience as a guiding value (people-centered) and a quality indicator which is the core principle of primary health care itself (30). It will allow inclusion of literature that involves interventions focused on improving user experiences and those that measured effectiveness of interventions in terms of positive user experiences.

The 'high-quality health systems' framework has three domains: Foundations, Process of Care, and Quality Impacts. Foundations of high-quality care starts from community level. The framework sees people not just as beneficiaries but as agents of change. Health needs of people when voiced shapes the health system, and people are partners of health system holding the providers accountable (33). Foundations also includes governance that can introduce better policies to influence every other component and ensure financial protection of its people. Another component in foundations is platforms represented by distribution of health facilities by service and location with strong referral mechanisms that ensures continuity of care. Health workforce is indispensable to quality of health services (33). Their ratio to people, their education, professionalism, and motivation can bolster or undermine efforts in other areas of foundation. Very basic to foundations is the availability of equipment, supply of medicines, technologies and data system which are tools for providing high-quality care (33).

Resources and efforts invested in foundations should ideally improve 'Process of care' which is the second domain of the framework. This domain comprises of evidence based competent care and use experience (33). The service practice should be technically sound where people are receiving effective and timely care. However, the service should not be limited to following protocols but also focus on positive user experience that considers people's values, dignity, confidentiality, and preferences (33).

Finally, the third domain includes the quality impacts brought by strong foundations, competent, and people-centered process of care (33). This framework views the outcomes of foundations and process of care domains in the form of better health as marked by health indicators, people's confidence in the system such as willingness to invest in financial protection program, and long-term economic benefits such as people's ability to continue their work or school (33). The quality impacts in turn can affect how the foundation of care is organized. All these domains are bind together by the four values: for people, equity, resilience, and efficiency. At the center of all domains is learning and improving where health systems test new approaches to adapt to new challenges (33).

Based on this framework, the interventions are inputs in one or more components of foundation. Therefore, interventions identified by this review were categorized within the relevant components of foundation. The outcomes of interventions are often measured as improvement in foundations itself such as increase in service coverage, availability of logistics, number of trained staffs, etc. However, some interventions also influenced 'Process of care' by increasing evidence-based practice, changing health workers behaviors whereas some were also linked with 'Quality Impacts' such as decreasing mortality. Since the articles considered for review used quantitative, qualitative as well as mixed methods, effectiveness of the interventions were analyzed by revisiting the findings of those studies and examining if they improved any foundation component, increased competency, or evidence-based practice, improve positive user experience or health outcomes at population level. The research methods employed by the studies to evaluate the outcomes will also assessed for their strength while also drawing lessons from their implementation. Definitions of other relevant concepts considered for this study are also mentioned in Glossary above.

Chapter 4: Findings on Quality Improvement Interventions in Primary Health Care in Nepal

This chapter presents the findings on quality improvement interventions implemented in primary health care level in Nepal with analysis of their effects. The evidence from other LMICs is also considered where contextually appropriate. The lesson and challenges in implementation of each intervention is described together. The linkage of interventions with guiding values i.e. for people, equitable, resilient, efficient, learning and improvement is larger than the scope of this literature review. However, their linkage is briefly discussed in Chapter 5.

4.1 Population

Good quality health services are responsive towards the health needs and expectations of the people it serves (33). In Nepal, majority of community interventions are aimed at improving health literacy and driving up service usage, which is not the major focus of the study. However, some interventions are being implemented to create opportunities for people to communicate their needs and expectations, provide feedbacks to health facilities, and engage in local planning.

4.1.1 Social Audit

Social audit in health sector started in Nepal in 2009 to introduce community monitoring of Safe Motherhood Programme which was later developed to include all services provided by primary health care facilities (56). Social audit is facilitated by independent Civil Society Organization (CSO) selected through bidding process. The facilitating CSO conducts analysis of service records, observations of infrastructures, client interviews, and focus group discussions. The findings of these assessment are shared by the external facilitator in community meeting. Facilitator also moderates open dialogue between users and providers during the meeting and concludes with development action plan together to address the issues identified (56). Principally, it allows open communication between community and service providers to hold service providers accountable and participate in quality improvement of local health services (54,55). In Nepal, Social audit is a large scale 'supply-side' intervention that is budgeted in Annual Health budget. More than 1900 health facilities were audited across 77 districts in 2017/18 (56).

A study evaluated social audits conducted in Jhapa and Illam from East Nepal whereas Palpa and Rupandehi from West over a period of four years (57). Improvements were observed in fulfilment of sanctioned positions, opening hours, timeliness of institutional delivery incentives, cleanliness of service area, medicine stock, along with improvement in attitude of providers. Similar improvements were observed by another study done in far-west Nepal (58). Social audit was also considered effective by people in addressing the concerns of community people related to mistreatment and respectful care showing influence in user experience (57). The studies also highlighted how social audit presented opportunities of informing community about their entitlements (58).

However, social audits did not bring same amount of improvement in all districts. Both studies found that continuity of audits, facilitation capacity of auditors and analysis of audit reports by authorities above health facilities affecting the outcomes of social audit (57,58). Challenges such as political influence on auditor selection, and non-compliance of audit guideline were also found by qualitative analysis directing towards need of stronger monitoring (58).

4.1.2 Citizen Charter

Citizen Charters are physical information tools that displays services provided by the public health facilities. It includes list of all services along with days and time of availability, and responsible person for those services. MOHP has provided guidelines on citizen charter for consistency across the level of the facilities (59). Citizen charter is aimed at decreasing information asymmetry between users and providers and empowering people to hold service providers accountable for promised services (56). It is compulsory for all public services to display citizen charter in its premise, as it is considered as a tool for transparency and social accountability (59). However, very few studies were found that studied its effectiveness on quality in Nepal.

A mixed method study including 22 PHC facilities of Dang district found that only 15% of users (out of 220) knew about citizen charter. Among those who knew, thought it was understandable for only few people. The qualitative method of the study also found the limitations of citizen charter in holding service providers accountable as it lacked enforceability (60). Though it's small-scale study, the findings are relatable in rural context of Nepal as text-based information is ineffective where literacy is already low.

4.1.3 Community Groups

Community engagement is one of the integral aspects of primary health care (61). Health Mothers' Groups (HMG) is the prime example of engaging communities in health in Nepal. It is a group of women belonging to reproductive age and of same village. These women meet once a month to discuss on topics related to maternal and child health facilitated by Female Community Health Volunteer (FCHV). Health Mothers Groups are part of FCHV program and are linked with their local Health facility via FCHV (61). FCHVs are the source of health information for the mothers' groups and medium of conveying their health needs to the health facilities (61,62).

Though engaging women through these groups is appreciated for Nepal's progress in reducing Maternal and neonatal mortality, evidence on engagement of mothers' groups is majorly related to increased health knowledge and increased utilization of services (62). A Randomized Control Trial (RCT) conducted in central Nepal found reduced maternal mortality among women who participated such groups compared to women who did not. The Maternal Mortality Ratio was 8 times less [OR 0.22, 95% CI] among women participating in groups (63). Women groups are also active participants in accountability process such as social audits where partner with health providers to bring improvement in service environment and service availability which improved their service experience (58).

4.1.4 Community Health Score Board

Community Health Score Board (CHSB) is a participatory tool used by community to analyze the services provided their local health facility (64). In this intervention, community members objectively rate various aspects of health services based on perceived quality and provide immediate feedback to the providers (64). The scoring ends with mutual discussions between community and health staffs and developing plan of action to address identified problems like social audits (64).

There was no literature found about its effectiveness in Nepal. However, some studies from other LMICs shows positive influence of community scoring. An evaluative study conducted in Ghana reported improvement in infrastructure and service readiness for obstetric care in local health facilities. The scoring process provided opportunities to bring stakeholders together and secure

resources to support local health facilities (65). Similar findings were observed by RCT study from Malawi (66). Both studies also found significant improvement in user satisfaction regarding reproductive health services along with increase in service utilization of maternal health services (65,66). Considering the similarity in socio-economic context of these countries with Nepal, the effectiveness of Community health score board can be anticipated to have similar outcomes. However, this intervention is implemented in Nepal by CARE International of its two project districts. Since the process requires technical assistance, scale-up and sustainability are not clear (64).

4.1.5 Complaint handling mechanisms

All public service institutions in Nepal are obliged to have complaint handling mechanism (128). Following this requirement, health sector in Nepal also made in standard practice to have suggestion/complaint box in health facilities (129). Though the practice is not uniform across the primary health care facilities (129).

A mixed method study by Gurung et al (132) in Dang district found only 9% (out of 220) service user had ever complained to their health facilities regarding the service. Similar finding is reported in project report of Nepal Red Cross where complaint boxes in 15 PHC facilities of 4 districts hardly received any complaints in four years (133). Of the few complaints received in the study of Gurung et al (132), complains were made about environment of the facility (e.g. lack of waiting space), availability of services (e.g. opening hour), providers behaviors (e.g. non-response of staffs, rudeness) and care received (e.g. expired medicines). The mechanism of complaining in written form was ineffective as community people were more comfortable complaining verbally in person or over phone instead (132,133). In the context where literacy is low, and culture of formal complaining is absent, formal complaint mechanisms does very little to improve service quality (132).

4.1.6 Exit surveys for patient satisfaction

Exit surveys are method of collecting feedback about the client's experience of service and using client rated satisfaction to measure the level of 'perceived' quality of care (134). Client exit surveys are being used as a part of continuous quality improvement initiative in many developed countries (138,139). Regular patient satisfaction surveys as a tool for improving quality of care at the primary level is very scanty in Nepal and other LMICs. Some organizations like USAID and Nepal Red Cross initiated use of satisfaction surveys in selected rural health facilities where the questionnaire included queries on users' perceptions of service environment, waiting time, adequacy of communication and care received (141). But the effectiveness of these surveys in improving the quality of primary health has not been studied well (133, 140).

The body of literature suggests mixed views about validity of patient satisfaction as an indicator of quality (135-137). An internet survey across 12 LMICs on patient experience showed that people had lower expectations on quality as reflected by high satisfaction level despite of lower service readiness and compliance to protocol (33). This resonates with context of Nepal where analysis of NHFS 2015 showed more than 80% parents were satisfied with the care provided to their sick child even though only 36% had good communication with health staffs (140). Though having potential to inform about 'empathy' side of the services, it is recommended modifying the survey questions and approach of administering them in LMICs to make the surveys more useful in context of high information asymmetry and power imbalance (33).

4.1.7 Involvement of patient and caretakers in healthcare

The approach of involving patient and their caregivers has been valued to make health care more individualized and people-centered (141,142). Depending upon the approach, patient involvement could help in designing the treatment process, providing feedback for change, and changing behaviors of both providers and patients (143).

In maternal health, where women are allowed to have companion of choice during birth in health facilities in Nepal. A large cross-sectional study done in six hospitals reported that one fifth of 63,077 women had birth companions. These women with companion had fewer caesarean surgery (5.2%) compared to control (6.8%, $p < 0.001$) and They were more satisfied with the service received (145). This is in line with the findings of literature review done by WHO on effect of labor companions (144). Studies from other LMICs with similar culture of having a female birth companion, such as Ethiopia, Mozambique and Malawi also reported higher satisfaction among women who had birth companions as they received emotional support and ensuring of their physical comfort (147-149). Student midwives perceived engaging caregivers important for safety of both mothers and providers, in a qualitative study, as mistreatments of mothers and misunderstanding about treatment procedure are less likely to happen in presence of caregivers which largely affects user experience (146).

Involving patient was also found effective in addressing stigma in health care. A RCT study done on engaging people by sharing their experience of mental illness and treatment as part of training content for primary care providers (150) found that stigma was significantly reduced in intervention group than those trained as usual (25.9 vs. 31.4 in Social Distance Scale). Diagnostic accuracy was also higher in intervention group (78.1% vs. 66.7%) (150). Although it doesn't clearly distinct if effect was brought by patient's lived experience or interactive learning method. However, involving patient seems to improve provider attitude especially for stigmatized topic in Nepal.

4.2 Governance

4.2.1 Strengthening Health Facility Operation and Management Committees

Following 'Local Self-Governance Act' in 1999, Nepal's peripheral health facilities were handed over to Health Facility Operation and Management Committees (HFOMCs) (67). This was done to address poor performance of health facilities and lack of accountability in primary health care facilities, through community participation in health governance (67,68). At present HFOMC consists of 7 members headed by locally elected Ward Chairperson in which the health facility is located (69). The committee also includes representatives of women, marginalized groups, and FCHV along with health staffs (69). These committees oversee management of health facilities, develop annual plans, implement health programmes, coordinate with higher governance as well as health actors for resources and monitor health service outcomes (67-69).

However, status assessment after 'hand-over' in selected 28 districts found HFOMCs ineffective with no significant change in perceived quality of health services (70,73). Considering this, MOHP developed HFOMC strengthening package which included 3-days orientation on responsibilities of HFOMCs, service provisions, planning, monitoring, financial management and cross-cutting issues such as gender and social inclusion (68). Development partners such as U.S. Agency for International Development (USAID), John Snow Inc., and Department for International Development (DFID) supported strengthening of HFOMCs by providing technical assistance to HFOMC for 2-3 Years (72). The program report by USAID supporting 141 HFOMCs showed significant activation of HFOMCs with more than 98% HFOMCs meeting every month and had developed annual plans (74). Observation of

significant improvement in availability of equipment, basic amenities, medicines, and infection prevention which was also reported by other evaluation studies (74-77).

Improvement in service availability by local resources mobilization for hiring additional staffs to run 24-hour birthing services, and expansion of outreach clinics were also reported by the studies (74-77). In addition, active HFOMCs were also conducting supervisions and social audits more regularly for accountability and addressing community's concerns (77,78). Although HFOMC strengthening activated local health government and improved foundations, evidence of its effect on improving competence of care was not found during the review. However, HFOMC strengthening is still necessary in present context of Nepal as the former HFOMCs have been dissolved and new committees are being formed after devolvement (69).

4.2.2 Public Private Partnership for PHC service delivery

National Health Policy 2014 guided health sector towards developing legal framework for expanding Public-Private Partnership (PPP) in Nepal (80). Large-scale PPP have supported in funding, delivering targeted health services, building infrastructures, enhancing better governance, quality, and equity in health care of Nepal (81). Though private entities have been cooperating in providing targeted services such as eye care, and safe abortion, there has been only one documented PPP that provided primary health care services as prescribed by 'Basic Health service Package' of Nepal (82). Nyaya Health partnered with MOHP to revive a health post severely affected during Maoists insurgency in Far-west Nepal (82). In five years of PPP, utilization of institutional delivery service reached 98% surpassing SDG target of 90% and neonatal deaths were decreased by 57% in the catchment area (83). Expansion of services beyond BHSP such as radiology, mental health services, and medicine supply was also reported (82). Although information on clinical practice was not available to determine how PPP affect process of care.

The quality of PHC services provided by private sector is generally regulated through contract and payment mechanism (94). The PPP described above was paid by capitation which was 6% of provider's revenue in 2019; most expenses were compensated by donor funds (83). Evidence of PPP from neighboring countries India and Pakistan shows outsourcing PHC to private providers was effective in increasing service access, ensure availability of trained staffs, medicine supplies and equipments. However, technical quality of services did not improve significantly and preventive services such as immunization did poor (71,79,130). These lessons are relevant for Nepali context since large part of PHC is preventive, promotive services. Other financing interventions are described below.

4.2.3 Intersectoral collaboration

Multi-sector Nutrition Program (MSNP) implemented between 2013 to 2017 was a large collaboration involving various ministries such as education, agriculture, WASH, local development, and planning commission along with INGOs such as UNICEF, USAID, FAO, etc. with for improving nutrition status of children and increasing food security across Nepal (152). The program was successful in decreasing stunting by 5% and underweight by 2% in under 5 children nationally (3). Other achievements such as increase in food diversity, household food security and decreased infectious disease was also reported by the program (3). The lessons from MSNP program such as using large scale social determinants study for evidence-based advocacy and gaining interest of other sectors and non-state actors could be useful in primary health care strengthening (153). But sectoral collaboration also has its own challenges of longer coordination, complex monitoring, and political interest and the approach may need more modification in current devolved governance system (153).

4.2.4 Accreditation

Accreditation is an evaluative process of measuring service provision and performance against predetermined standards by voluntary program or NGO and giving recognition to those facilities that meet the standards however accreditation and regulatory mechanism such as licensing is mixed in some context (84). It has been extensively practiced in developed countries and recommended for its effectiveness in improving health care infrastructure and process (85,86). In Nepal, accreditation practice is nascent and is done for super-specialty hospitals by institutions from India (87). However, regulations or certification of private facilities are done through medical councils and at present considered as responsibility of local government (88).

Evidence from other LMICs on effectiveness of accreditation is very low but some countries such as Thailand, Lebanon, and Jordan have been implementing accreditation for improving availability of amenities, supplies and provider practice in private PHC facilities (84,89). However, the generalizability is unclear in context of Nepal where PHC is primarily provided through public facilities.

4.2.5 Financing

The PHC services also called Basic Health Service Package (BHSP) in Nepal are available to every citizen for free through public facilities (17). Social Health Security Program is national insurance program that covers secondary care services not included in BHSP (16). Health financing is large part of health system and beyond the scope of this study to be analyzed comprehensively. Therefore, this section is narrowed to evidence relevant in public funded primary health care services in Nepal.

The PHC services of Nepal were made free up since 2009 and facilities receive line-item budget to operate these services (49). A quasi-experimental study of free healthcare policy comparing data from living standard surveys found decrease in catastrophic payment by 10% after the implementation of the policy improving financial protection, especially for the poor (91). However, qualitative analysis of the same policy revealed its poor performance in quality aspect with low availability of medicines, absence of health staffs and services were too basic compared to increasing health needs of people (92). As established in literature, input-based payments such as line-item budget has very low effect on motivating providers and improving their performance which can also be concluded for Nepal based on the findings of poor-quality services at PHC facilities (36,93,94).

Performance Based Financing (PBF) scheme was introduced in Nepal for institutional delivery in 2005 where health workers received incentives for each delivery (95). Study analyzing data from demographic surveys shows positive effect of the scheme on increasing utilization of SBAs in all areas of Nepal (96). The trend analysis also found that number of surgical deliveries didn't exceed acceptable level though compensation is higher for surgical delivery (96). However, these findings are not clearly attributable to PBF as it was implemented with incentives for mothers (95). Qualitative findings on this PBF scheme reported management weakness such as delay in disbursement and lack of clarity on who is entitled to receive incentives affected team's motivation (97). Evidence from other LMICs also shows PBF improving availability of necessary structures with 'low certainty' for targeted program and may require other supportive mechanisms on top of implementation cost of PBF (98).

Capitation has been practiced in HICs and some LMICs to contract private PHC providers. Like every other payment mechanism, capitation also has its negative effects such as catering less-sick cases, sub-standard treatment, and unnecessary referrals (94). Implementing capitation successfully

requires other strategies such as accreditation and evaluation mechanism in place which is weak in context of Nepal.

4.2.6 Policies

National policies and programs are crucial to improving quality of health care. Some program such as free health care and essential drug programs have been discussed in relevant sections. Historically, many of the interventions have been guided by sub-policies in Nepal (172). The speculation on sustainable quality reforms have often been concluding the importance of governance dedicated to quality (173). The 'WHO Handbook of National Quality Policy and Strategy' have highlighted the importance of binding all quality efforts into national policy for stronger political buy-in (174). Policy on Quality Assurance in Healthcare Services was endorsed in 2007 in Nepal, but it was never fully implemented which was blamed for poor coordination between stakeholders while formulating policy, failing to gain acceptance (33).

4.3 Platforms

4.3.1 Expansion of service

Poor organization and distribution not only make services inaccessible and inefficient but also affect larger health outcomes such as mortality (33). In last decades, MOHP has largely invested in increasing number of health facilities considering difficult geography of Nepal and for fulfilment of free health care policy and targets of MDGs (25,80). One of the examples is expansion of Birthing Centers (BCs) in Nepal. Although high certainty measurement of its impact is lacking in present literature, one of the statistical analysis and simulation study (99) using data from National Living Standard Survey found very little increase in probability of utilization of maternal services even when facility was in reach within 1 hour for all women (baseline: 0.322; with facility within 1 hr: 0.350). However, other factors affecting utilization is not covered in this study and simulation doesn't account for other social changes.

Some studies have reported on lack of equipment, amenities and staffs in BCs averting people from using services at local BCs, increasing patient dissatisfaction and trend of bypassing it (25,100). In addition, expansion of BCs is cost-effective only when services are used in higher number (101). Expansion of service and increased utilization doesn't necessarily translate to better health outcomes. A review of 62 maternal deaths from three provinces of Nepal in 2019 showed 87% of deceased women lived less than half hour from BCs and one-fourth of the deaths were linked to third delay such as incompetency and multiple referrals (102).

However, expansion of some other services has shown benefits. A systematic review on various interventions to increase case detection of TB in LMICs including Nepal showed outreach program could increase case detection with moderate certainty (RR 1.52, 95%CI 1.10-2.09) in areas with TB prevalence higher than 5% (103). Reorganizing primary health care to focus on uncomplicated chronic health problems such as NCDs and preventives services as immunization can make PHC more effective (104). In either case, expansion of service needs critical analysis of many factors affecting service use in particular community and how it is connected with secondary level.

4.3.2 Referral

Another aspect to consider in service organization is referral system because difficult geography has been pointed as reason for many quality issues in PHC of Nepal (17). Some interventions such as

'Emergency Referral Funds' have been allocated by MOHP to reduce financial barrier for maternal health by covering the cost of transportation to secondary level care (17). But there is very limited information on its utilization and impacts. Some countries have adopted innovative referral and transportation support such as motorcycle taxis in rural Malawi, but findings are difficult to generalize due to different geography (105).

4.4 Workforce

4.4.1 Rural health worker retention

Primary health care level is facing health workers deficit with one-fourth sanctioned position unfulfilled as of 2015 which severely affects service availability (37). Although MOHP provides incentives for health staffs recruited in rural and remote areas, it hasn't been successful in retaining staffs as seen by regular shortage and absenteeism (14). To address the widespread problem of health worker retention in rural area, WHO has published recommendations that countries can consider (106).

Nick Simons Institute implemented retention program in Nepal which employed combination of all four aspect: education, regulation, financial and personal/professional development recommended by WHO (107). Medical doctors were selected competitively then supported for post-graduate education with binding contract of serving at primary hospitals of remote area for 3 years. Additionally, they received housing, communication, in-service training, and financial authority (107). Comparative evaluation of this program on service utilization of 7 hospitals were done along with control group. Statistically significant increase in service utilization was observed along with availability of comprehensive obstetric service was ensured (107). However, the program was more expensive by 50% than usual contract scheme of government in cost analysis (107). Apart from increasing staff availability, service coverage, and utilization, other quality measures were not examined. Furthermore, it is inconclusive for other cadres and service setting.

Another intervention often employed by local government to fulfil position is local recruitment. A qualitative study on job satisfaction showed poor treatment, heavy workload and low pay leading to high dissatisfaction among short term contract nurses in rural areas (108).

4.4.2 In-service Training and Supervision

National Health Training Center (NHTC) under Department of Health Services (DoHS) has been organizing various trainings for primary health care providers (14). Most of these trainings are focused on increasing the number of trained staffs for specific skills such SBA and medical abortion, or to introduce updated treatment modalities (14). The modality of training could range from classroom format to highly engaging with clinical practice, however, the findings of these trainings are usually limited to pre-post knowledge changes in Nepal (14,36). More than 90% of PHC facilities had at least one staff participate in training in 2015 (36).

Similarly, Supervision is major activity of Health Services Management section in DoHS (14). This is government led initiative aligned with hierarchy in health system and carried out as direct observation. Senior health officers usually from district or province level observe service provision and care process to ensure good environment, availability of logistics and correct practice by staffs (14). 93% of health facilities received external supervision in 2015 (36).

Evidence on effects of training and supervision on improving clinical practice or health outcomes in Nepal was not found during this review. Evidence of other LMICs found trainings alone to be moderately effective in improving clinical practice, which was similar to effectiveness of supervision alone, but trainings combined with supervision was more effective i.e. in average for every 100 patients served, 18 additional patients were treated correctly with combination of trainings and supervisions compared to 9.7 and 11 when implemented separately (113).

Effects of supervision on clinical practice also differed with its approach making it hard to conclude which design is effective (114-117). But the review of managerial supervision (supervision from higher level of health system) which is commonly practiced in Nepal had very less effect on improving primary providers' performance (122). Another factor to consider is lack of stronger evidence on frequency required to achieve improvements. A large dose-response study done in Ethiopia concluded supervision to be effective until fifth visits with at least 6 months interval (118). However, it is not clearly conclusive as supervision can have different approaches and often carried out with many other interventions.

4.4.3 On-site clinical coaching and mentoring

Apart from traditional methods of competence building, MOHP Nepal has also adopted on-site coaching and mentoring for capacity strengthening of in-service delivery service providers in public health facilities (14,36). It was initiated after identifying poor clinical performance among SBAs in practice, especially in rural Birthing Centers (BCs) (119).

On-site coaching involves a high-skilled nurse mentor spending 3-4 days with in-service nurses coaching them on 'twelve core clinical skills' of delivery services in BCs where the nurses work. Mentoring ends with discussion with facility managers for improving working environment of BCs and the whole process is repeated in 6 months (119). A prospective cross-sectional study of this intervention found significant improvement in clinical performance with 62.7% percentage increase in clinical adherence ($p < 0.001$). Improvement in competency was even higher for complication management such as postpartum hemorrhage and eclampsia than that of normal delivery (120).

Finding from similar program in India also showed significant increase in performance of nurses after 6-9 months of mentoring (121). An interesting observation in both studies was high improvement in skills among Auxiliary Nurse Midwives who have shorter pre-service education than staff nurses which corroborates with the findings in section 4.4.5 (119,121). Though on-site coaching and mentoring increased clinical performance, details on required length of mentoring, and its cost effectiveness are not well established in current literature.

4.4.4 Academic Detailing

Academic Detailing (AD) is another educational intervention targeting clinicians to improve prescription practice and increase their adherence to treatment protocols (123). It involves in-person observation and education sessions provided by trained health professionals (123). Though it is practiced widely in developed countries, there is very less evidence about it in developing countries.

A RCT study tested its effect on diarrhea management in children by PHC staffs in western district of Nepal (123). Adherence to diarrhea treatment guideline by PHC staffs increased significantly with 4 sessions of AD and (+61.4%, $p < 0.001$). Providers prescribing pattern were also improving as seen in decrease of antibiotics prescription (123). However, this was a small study and possibly biased in evaluation process as it was based on document review and does not capture care-giving process. It's

cost effectiveness and impact at population level needs deeper speculations in context of Nepal where majority of drugs are available over the counter.

4.4.5 Regulation and task shifting

Other interventions implemented on workforce for better quality service were task shifting and licensing. Professional licensing after completion of education is mandatory for all cadres before practicing through paper-based examination but it appears to be mere certification process (14). A multi-country analysis of performance of antenatal, family planning and child health services by fresh graduates showed Nepal perform much lower than many other LMICs, indicating weak pre-service education (109). More empirical evidence would be required to understand the breadth and depth of this issue.

Task shifting has been done for maternal health in Nepal where ultrasound was shifted to general practitioners in selective remote districts. Studies in Nepal was lacking however similar practice have been done in countries like Guatemala, Mozambique, and Kenya. Findings from their studies show increase in accurate diagnosis of high-risk pregnancies by nurses and timely referral (169-171). However, task was shifted to different cadre than in Nepal making it inconclusive. Challenges such as increased workload, need for regular reinforcement, level of pre-service education were also identified (169-171).

4.5 Tools

4.5.1 Physical infrastructure and equipment

Healthcare infrastructure has been priority of MOHP; around 20% budget was allocated for infrastructure development in 2019 (164). Many NGOs provide infrastructure and equipment support directly through local government in rural areas (165) and international support spiked after earthquake 2015 and many equipment supports were also observed during COVID pandemic (166). Despite a large investment in structures, availability of amenities, and equipment in PHC facilities in Nepal is very low (37).

Reports on structural input in Nepal shows increased service utilization along with low certainty positive health outcomes such as decrease in case fatality of surgical deliveries (165,167). On contrary, a cross-sectional study using data from service provision assessments and clinical performance of 8 LMICs reported that adherence to clinical guideline was lower even when availability of infrastructure was higher in all study countries, exhibiting poor correlation between presence of structure and performance of providers (168). Indeed, infrastructure improvement does not necessarily influence provider knowledge and skill but large gap in fulfillment of basic structures in health facilities still highlights importance of structural input.

4.5.2 Medicines and Logistic Management System

MOHP introduced 'Free Drug Program' in 2009 in which selected essential medicines were provided for free through public health facilities (159). Although the list contains 70 drugs, number decreases with level of health facilities; only 38 are available through health posts (159). These drugs are centrally procured by Logistics Management Division and distributed through regional and district supply chain (159). This program made medicines more accessible specially for poor and marginalized communities as found in qualitative study (160). But the achievement of this program is dimmed by

weak supply chain resulting in stock-out of some medicines whereas oversupply of others indicating wastage (161).

Additionally, free drug program analysis also shows mismatch with current health needs, and negatively affecting clinical care process. Most drugs in the list are for communicable diseases and does not correspond to increasing burden of NCDs and mental health (162). Some medicines are available in forms (only tablets or only injections) which are not recommended in treatment guideline leaving no alternative for health provider to practice correctly and putting patient at risk (162).

Nepal also introduced Logistic Management Information System (LMIS) to improve supply chain of free essential drugs and reduced stock-outs in PHC facilities (110). It is practiced in all districts as a web-based application which allows generation of real-time data on medicine stocks and support timely communication between hierarchies of supply chain (111). The stock out reports shows decline in stock-out nationally by around 10% in five years of implementation (111). However, facility survey data shows stock-out as the most common problem in PHC facilities as shown in figure 3 (37). Practices from other LMIC such as Thailand shows potential of improving both supply and prescribing through Health Technology Assessment (HTA) that involves evidence and economic evaluation before selection, followed by strong negotiation in cost and development of clear prescription guideline (163).

4.5.3 Service Readiness monitoring

Nepal has developed 'Minimum Service Standard' Tool which is a checklist of measuring services readiness along with other pre-requisites of service management (12). The tool is currently being rolled in few selected health posts and PHC centers (17). Literature related to this intervention was not found during review. Literature related to WHO's Service Availability and Readiness Assessment (SARA) is considered because of similarity in approach. Experience of implementing SARA tools in many different LMICs, the tool itself does not influence service readiness, however, regular monitoring of service readiness has supported decision making for resources allocation and foster motivation for continuous improvement in service readiness (17,112).

4.5.4 Protocols and Job aids

Job aids has been reported in many contexts especially in facilitating clinical decision-making (114). Presence of clinical protocols and Job aids is considered 'must have' by Nepal's service standards, however, the practice is very low with only 28% health facilities having clinical protocols at hand (12,36). Job aids in the form of checklist helps to provide complete care while also measuring the performance as seen in findings of other countries such as India, and Uganda, where implementing checklist increased adherence to assessment and treatment standards of malaria (125,126). An intervention study evaluating the usefulness of checklist in improving quality of postnatal counselling in Nepal found similar improvement in completeness of advice provided to new mothers but there was no significant difference in recalling of danger signs by counselled mothers which signals its limited effectiveness (127). The meta-analysis of strategies for improving performance of providers in LMIC (113) also concluded that job aids alone were ineffective with median size effect of 1.5 (IQR -4.5 to 6.1).

4.5.5 Information and Communication Technology

Use of Information and Communication Technology (ICT) in health is growing in LMICs including Nepal. Electronic reporting system is being rolled out in health facilities of Nepal phase-wise replacing paper-

based registries (154). It has brought positive changes in facility management by saving time of travel to submit paper reports, improve accuracy of data, real-time data visualization for evidence-based planning and decision-making (155). Incorporating technology also comes with large cost and challenges such as availability of electricity, internet, and digital literacy which has slowed the roll-out process in Nepal (156).

During COVID pandemic use many mobile applications, telephone, and web communications for dissemination of authorized information and monitoring of outbreak become common (154). Using mobile phones for health education is also growing, however, technology intervention targeting health providers to improve health services is quite less in Nepal. Some LMICs in Africa have used mHealth interventions in MNH services such as to track pregnant women and obstetric referrals; in HIV such as sharing test results and medicine/follow-up reminders with success in increase service utilization, timeliness of case notification, and compliance to treatment (157,158). But studies have not fully explored its impact on clinical care and health outcomes.

Chapter 5: Discussion

5.1 Summary of Findings and its interlinkages

The review of literature found that there are various existing interventions ongoing for quality improvement. Interventions such as social audit, community participation, complaint mechanism and patient involvement were being done to include community people as partners in local health reforms. Structural inputs, logistic management, electronic reporting, service provision monitoring was directed to improve Tools for providing care services. To improve workforce performance provisions of training, supervision, onsite mentoring, retention program, regulations were being practiced. Expanding services and strengthening referral were methods of improving care platforms. Strengthening local health management committees, public-private partnership, intersectoral collaboration, financing and policy interventions were being done at the governance level for improving quality of primary health care.

The analysis showed population interventions such as social audit where community people were presented about health facilities performance and given opportunities to give feedback and voice their needs were effective to improve responsiveness by trigger small changes within local health facilities. Similar effects were observed for Community Health Score Board and community participation. These approaches were able to hold HFOMC and providers accountable, ensuring services were being provided timely and with dignity making services more people centered. Citizen charters, formal complaint mechanisms and satisfaction surveys were ineffective in Nepal's context where people have low literacy and lack of feedback culture. Nevertheless, user experience is valuable to service quality, therefore, different approach like feedback collection by community volunteers or anonymous feedback can be explored. Civil Society Organizations can play important role in building a culture of feedback among people encouraging to use such opportunities.

Common belief of linking service quality with infrastructure were not supported by evidence; having everything didn't translate to doing everything. Similarly, presence of protocols and job aids could only encourage provider to complete steps of clinical services but had very limited influence on health outcomes. Though structural input cannot fully address quality issue of care by itself, it does not necessarily mean they are unessential to quality. Many health facilities lack the most basic amenities such as confidential examination room and simplest equipment such as weighing scale in Nepal (37). It should be part of continuous management effort such as service provision monitoring.

Introducing electronic information management systems for services and supplies makes management more efficient in primary health care by providing real-time information and saving time. Additionally, ICT aimed at health care providers were found effective in making some services timely such as case notification and supported to encourage compliance of treatment and follow-up, affecting efficiency and continuity of care. These learnings from other LMICs could be replicated in long-term primary care services in Nepal. But technological interventions have prerequisites such as internet, electronic devices and digital literacy which may be limited in Nepal's rural context, but it can be done in urban areas as seen during pandemic where test results were shared by mails and phone-text.

Expanding of service, though increased access, were not necessarily improving health outcomes. Acute services such as delivery were found more effective in reducing mortality when provided from institutions could also provide advanced services when needed. While other services such as screening were more effective when moved closer to community. In addition, expanding services without fulfilling basic structure, number of skilled health staffs and referral support can do more harm than good, especially in

Nepal where geography itself is huge challenge. With constitutional provision of 'one health facility in each ward', Nepal is in race to establish more HFs, but it is important to analyze how continuity of care can be ensured. Very few efforts were observed in strengthening referral process such as financial support, but referral is more than mere transportation. Wrong referrals result not only in dissatisfaction but also loss of lives. More implementation research should be done to explore innovative ways of connecting primary and secondary care that is suitable for geographical context of Nepal.

Training and supervision are most common capacity building method adopted in Nepal covering at least 90% of PHC facilities. However, evidence shows that training and supervision has small effect in improving clinical practice of health workers. Other approaches such onsite coaching and academic detailing that focused on learning in real work environment were effective in improving adherence to clinical protocols. However, the evidence on required frequency or health worker performance afterwards were not examined well. Another observation about intervention that connected people with health workforce closely was patient involvement. Though categorized as a people-focused intervention in this review, involving patients and caregiver in health service was beneficial in improving clear communication, ensuring respectful care, and addressing stigma in healthcare. This evidence could be replicated in other services such as Sexual and Reproductive health for adolescents which are also stigmatized in Nepal (18).

Evidence from Nepal and other LMICs shows positive benefits of task shifting in maternal health, Obstetric ultrasound, and screening services. But factors such as pre-service education and experience affected how staffs performed after task-shifting training. Findings from other capacity building interventions in Nepal and performance assessments of fresh graduates also subtly points at low quality of pre-service education in Nepal. However, bringing improvement in pre-service education is not within capacity of health sector alone. It requires use of multi-sector approach where education and public service commission could come together in establish stronger assessments and regulations. Well-informed changes in these areas could also save cost of implementing in-service trainings and making task shifting easier.

Like many LMICs, retaining high skilled health workers is challenging in Nepal as well. Intervention combining WHO recommendations (106) such as education, regulation, finance, and professional development showed some effectiveness in retention, increase service availability and service utilization. Following the devolution, public health workers were redistributed across the country based on place of origin which may support retention as addressing issues like low pay observed in local short-term contract. However, motivating staff for better performance will still need support such as professional development.

Public-private partnership and intersectoral collaboration were governance related intervention that could improve quality of services and influencing health outcomes at population level; however, evidence did not use strong evaluation methods to consider finding attributable. Involving private providers needs further empirical evidence in Nepal's context as primary health care also includes many preventive and promotive aspects which may not be interesting to for-profit providers (90). ISC also has its own challenges that requires long laborious coordination and complex monitoring mechanism as 'health' may not be other sector's agenda. But as established in global evidence, many aspects of health are beyond control of health sector. Components as improving WASH in health facilities, referral and ICT are likely to benefit through ISC and thus improve foundations. Lessons from previous collaboration suggests evidence-based advocacy is effective in convincing other sectors.

Financing is another governance intervention to influence quality. Evidence of PBF in Nepal is not so different from global evidence which shows PBF having potential of increasing service use but has little

effect on improving process of care (94). Many PBF also include other intervention such as structural support and capacity building which makes findings unclear. Another finding about strategic purchasing interventions is its potential in improving medicine and supplies by implementing Health Technology Assessments as done in Thailand. Government with strong political commitment would be required for its initiation and collaboration with non-state actors could be necessary for such intervention.

In overall, governance interventions were observed to influence quality of service by influence one of the other components such workforce, tools, or platforms. It is consensual that policies have large role to play in quality improvement. But reliable evidence of policy effects is scarce in Nepal's context. Nepal had endorsed a National Quality Assurance policy; however, it was not implemented well due political influence (151). Most of the quality improvement activities are guided by strategic plan and each health program has its own quality improvement agenda to implement (50). Health System is complex-adaptive system that resist change. The disjointed effort from program may not have large impact as those guided by national policy (33). However, policy reformation requires better policy analysis and MOPH will need technical assistance to carry out such study.

Looking at the values of HQHS framework, some interventions such as social audit, community groups, strengthening local health committee showed potential foster equitable community participation in health. However, the effect of these intervention was largely affected by quality of implementation. For example: health committee guideline instructs nomination of members by ward chief instead of democratic process leading to power imbalance. Similarly, social audits help communicating health needs of people and make services people-centered, but they are still supply-side initiated and are affected by providers' willingness and resources (57,58). The national budget for social audit is not allocated for all health facilities (18) and it mostly carried out in accessible facilities. Review also observed less information on how these interventions increased resilience or efficiency as studies mostly reported immediate output. Intervention such as service provision monitoring and e-Reporting⁶, if used well, will allow more learning and innovation.

Implementing interventions has its own challenges. Though successful in improving structures and process of care, many interventions such as audit, trainings, community groups, structure inputs, task shifting, etc. that were targeted at health facility level needed stronger monitoring from higher authority to ensure consistency. Routine data system can be improved to capture more information relevant to quality. Interventions were mostly initiated and supported by development partners and usually such interventions are also more costly and requires technical backstopping for example- social audit, onsite coaching, ICT, PPP. Scaling up of these interventions by government will need more coordination and their sustainability is unclear.

Lastly some general observations about findings shows most evidence found, although related to quality improvement, were largely focused on MNCH services, followed by HIV and TB. Studies that gave insight in effects of quality improvement interventions on long-term care at PHC level were very limited in low- and middle-income countries. Evidence of interventions implemented in urban setting were also very low.

5.2 Relevancy of Conceptual Framework

The high-quality health system framework by Kruk et al. (33) was used to analyze, organize, and present the findings of this study. Analyzing and understanding effectiveness of quality improvement interventions and its influence on different parts: structure, process and outcomes were convenient using

⁶ Electronic reporting

the framework. It was helpful in bringing together non-clinical interventions that also affects quality of services by encouraging people centered improvements. As mentioned in key findings, components within the foundations were interlinked with one another such financing influencing platforms, workforce, and tools. Of all components, governance was found more overarching and guiding other components which is not apparent in the framework.

5.3 Strength and Limitations

This study is quite comprehensive bringing together various quality improvements efforts for strengthening primary health care services in Nepal. Placing all the interventions in system-oriented framework has helped to make it clearer where more effort for better results should be directed. However, this study is a literature review and dependent on availability of data. Most of the evidence from Nepal and LMICs lack stronger statistical test, and many are small scale studies. Most studies used service coverage and utilization as quality indicator which is different from the quality indicators considered in the study making analysis of their effects challenging.

The study focuses primary health care facilities. Thus, intervention tested only in secondary level such as large hospitals are not captured in this study. The inclusion and exclusion criteria might have influenced the literature considered for this review. Some relevant articles were inaccessible in full text putting further limitations. Some studies were donor funded projects and may include bias of highlighting positive outcomes. To address these limitations, review was done with comprehensive search strategy and peer-reviewed articles, evaluation studies, national surveys and their secondary analysis and official publications of governments and organizations were prioritized.

Chapter 6: Conclusion and Recommendations

6.1 Conclusion

The need for quality improvement as shown by national data and surveys is high in primary health care service of Nepal. As shown by the review study, there are many interventions ongoing and tested in Nepal to address all components of foundations high-quality health system. Governance interventions such as policy can have large influence on quality however, a nation-wide guidance for quality improvement is missing in Nepal. Reforming National policy for quality could bring all smaller efforts together for synergistic effect. Intersectoral collaborations and partnership are also potential in addressing quality improvement of health services through areas that requires different expertise and larger funds.

Many people-oriented interventions have been initiated that allows people to make health services more accountable but it requires stronger monitoring at implementation level so it could consistently bring better outcomes. People can also be involved in designing health care services giving inputs from their experience and this could be an area of further study. Capacity building of workforce to increase evidence-based practices are better achieved by longer facilitation such as onsite coaching and academic detailing but their long-term impact must be studied further along with effect is pre-service on clinical competency. Investment should also be made in retaining high quality health workers. Expanding of health services are resource intensive and should be approached with precautions as does not always improve the quality of services. But to improve continuity of care, referral, and connection of primary to secondary care must be explored so that patient can easily navigate through different levels of care.

Though many interventions were in place, but reliable evidence were lacking about their influence on quality impacts. Research studies can be done on many of these interventions to test their effectiveness empirically and inform policymakers in their decision-making. Large scale studies with use of better data analysis methods needs to be performed to generate more local evidence.

6.2 Recommendations

The recommendations based on the conclusions of this study are presented for policy, intervention, and research level.

Policy Level

- Revisit national policy for quality and reform it based on current evidence to link all strategies for Quality improvement. All state and non-state actors should recognize what their roles and responsibilities are in a shared vision of quality improvement by following that policy.
- National programs such as free drug program should be updated to meet current health needs. Collaboration can be done with INGOs for technical assistance to conduct HTA and strategic purchasing.
- The health facility expansion approach currently embraced by local government should be re-assessed to balance access and quality. Local government should analyze other social factors affecting service use at within their municipals before establishing new facilities.

Intervention Level

- Many interventions such as social audit, HFOMCs, supervision, service readiness measurements, etc. should be monitored strongly for their implementation quality by authority at local government.
- Civil Society Organizations should engage with communities in building a culture of feedback. Communities need to be oriented on how accountability mechanisms such as social audit, complaint or user survey empowers people to improve service quality.
- MOHP could explore opportunities for intersectoral collaboration in areas such as referral, use of ICT, HTA and pre-service education through evidence-based advocacy as these require more costly investment and political commitment.
- Governments should invest in retaining good quality health staffs by using contextually appropriate method such as benefits of education bond and professional development.

Research

- Using more rigorous assessments to produce hard evidence is an important area to focus on. Large and long-term study that gives insights of policy or national interventions should be conducted for effective reformations. Strengthening routine data collection and capacity of local institutions/universities to conduct complex statistical studies should be supported by development partners.
- Innovative and contextually appropriate complaint mechanism, and patient involvement are possible areas for further research.
- Interventions such as onsite coaching, academic detailing and pre-service education that have potential of influencing 'process of care' should be researched further to establish their long-term impact.

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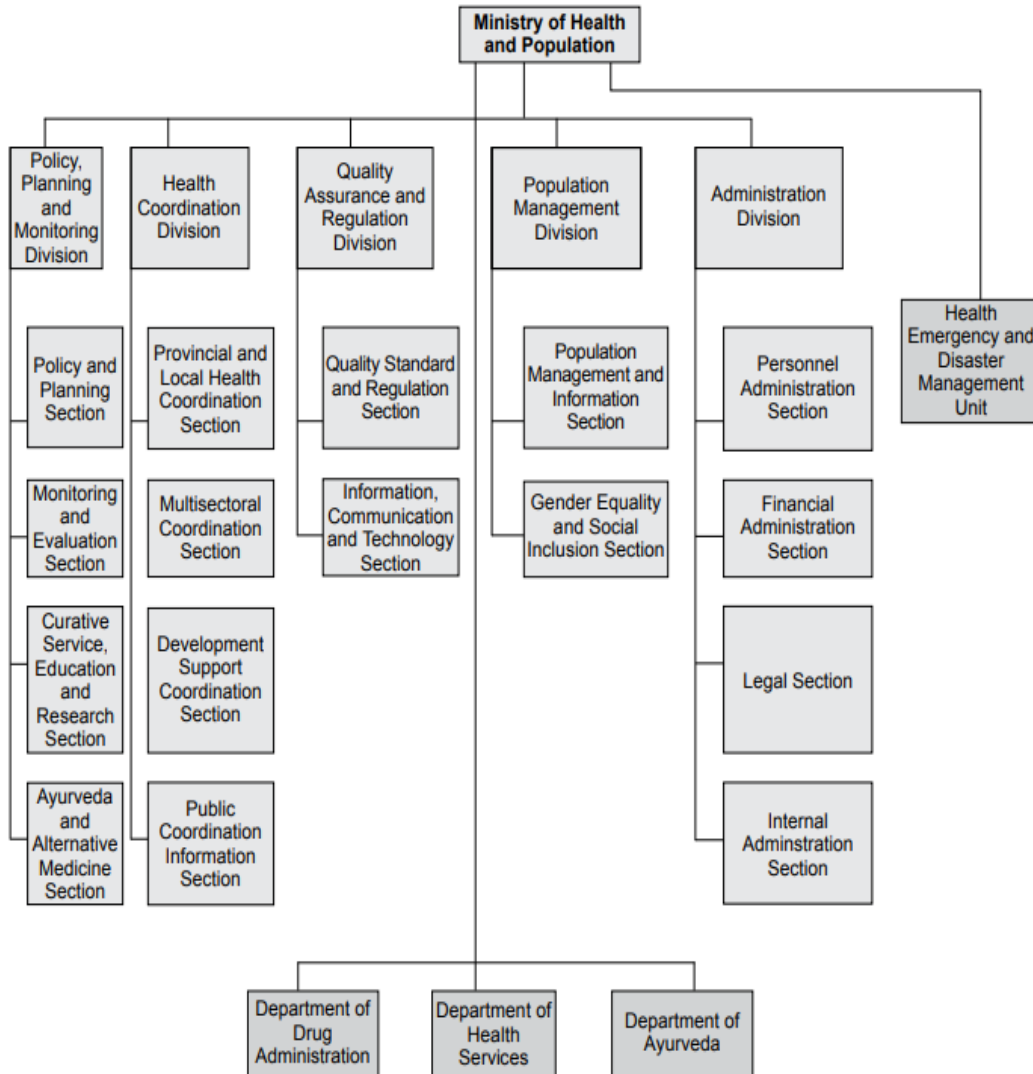
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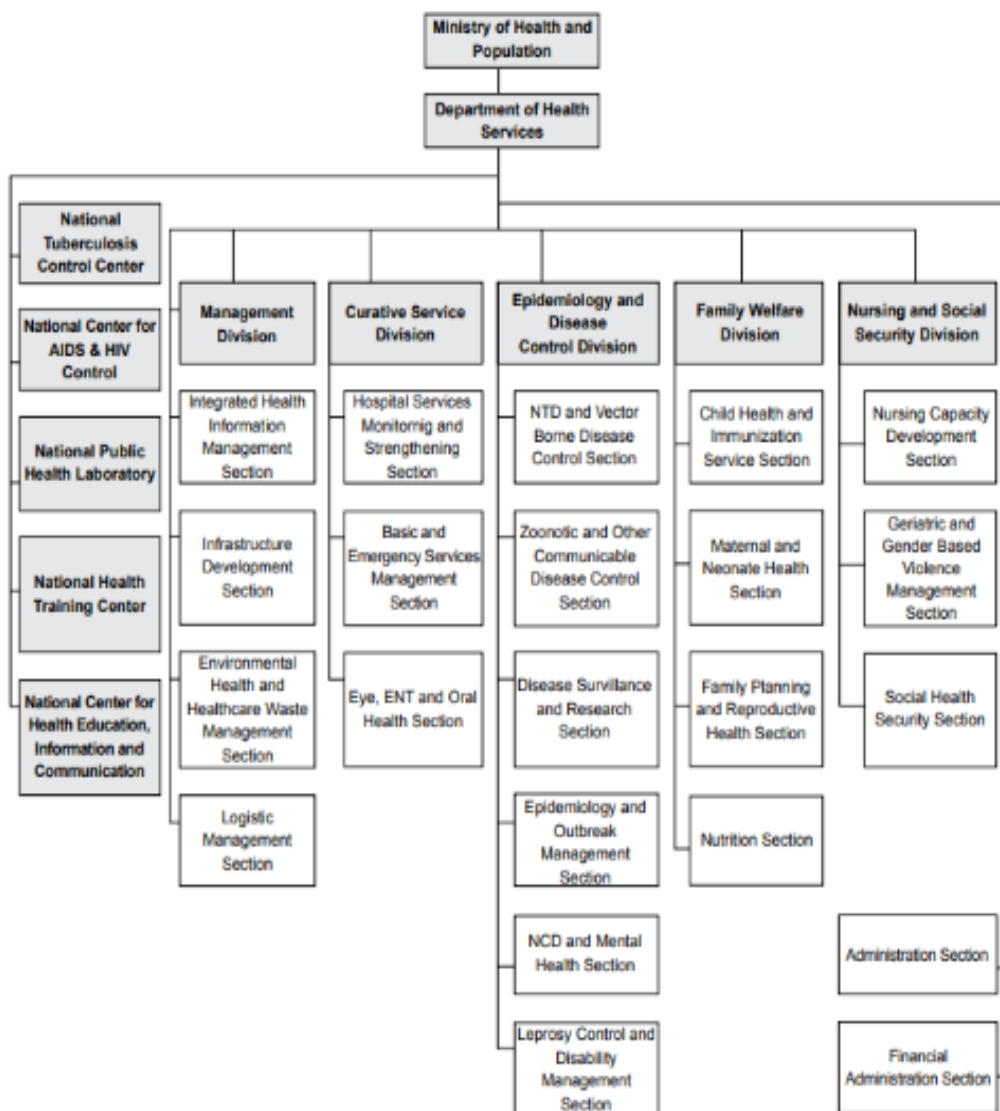
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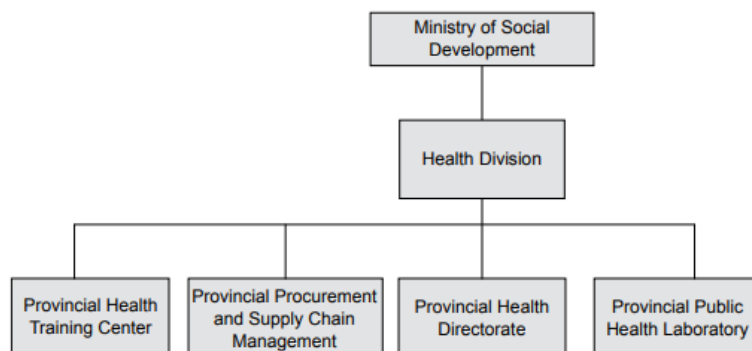
Appendix 1: Organogram of Federal Ministry of Health and Population (source: Ministry of Health and Population, Nepal. Annual Health Report 2020/2021)



Appendix 2: Organogram of Department of Health Services (source: Ministry of Health and Population, Nepal. Annual Health Report 2020/2021)



Appendix 3: Organigram of Health system at Provincial Level (source: Ministry of Health and Population, Nepal. Annual Health Report 2020/2021)



Appendix 4: Progress of Nepal in MDGs related to health (Source: MDG Final Status Report, 2016)

Indicators	2000	2005	2010	2015
Infant mortality rate (per 1,000 live births)	64	48	46	33
Under-five mortality rate (per 1,000 live births)	91	61	54	38
Maternal mortality ratio (per 100,000 live births)	415	281	na	258
Proportion of births attended by skilled birth attendant (percent)	11	19	36	55.6
Unmet need for family planning (percent)	26.5	24.6	27	25
HIV prevalence among men and women aged 15–24 years (percent)	0.15	na	0.12	0.03
Death rate associated with malaria (per 100,000 people at risk)	na	0.05	0.04	0
Proportion of TB cases cured under DOTS	89	89	90	91
Prevalence rate associated with TB (per 100,000 population)	310	280	244	211

Appendix 5: Search terms and combinations

AND					
O R	"Quality improvement"[Mesh]	"Primary Care"[Mesh]	Health	"governance"[kw]	"Nepal"[Mesh]
	"Quality strategy"[Mesh]	PHC [kw]		structure[kw]	Nepal* [kw]
	"Quality intervention*"[Mesh]	"primary level" [kw]		process[kw]	South Asia [kw]
	"Quality of care"[kw]	"primary care facilities"[kw]		"process of care"[kw]	LMIC* [kw]
		"health posts" [kw]		"community participation" [kw]	LIC* [kw]
		"rural health facilities"[kw]		"accountability" [kw]	"low-resource setting" [kw]
		"primary health centers"[kw]		Workforce [kw]	
		"primary care centers" [kw]		"health workers" [kw]	
		"primary providers" [kw]		education*[kw]	
				"clinical competence" [kw]	
				"guideline adherence" [kw]	
				"working condition" [kw]	
				"patient-centered care" [kw]	
				ICT [kw]	
				"health financing" [kw]	
				HFOMC [kw]	
				"health management committee" [kw]	
				"health policy" [kw]	
				"public-private partnership" [kw]	
				"structural inputs" [kw]	
				infrastructure [kw]	
				"mHealth" [kw]	
				"eHealth"[kw]	
				"service improvement" [kw]	
			"performance improvement" [kw]		
			"capacity building"[kw]		
			"task shifting"[kw]		

			"service distribution"[kw]	
			"monitoring"[kw]	
			"user satisfaction"[kw]	
			"patient engagement" [kw]	
			"health outcomes" [kw]	
			"competent care" [kw]	
			"medicines" [kw]	
			"equipment" [kw]	
			"referral"	
			"continuity of care" [kw]	
			"strategic purchasing" [kw]	
			"respectful care" [kw]	
			"equitable" [kw]	
			"health worker retention" [kw]	
			"service delivery" [kw]	
			"timeliness" [kw]	
			"staff motivation" [kw]	
			"comprehensive care" [kw]	
			"service readiness" [kw]	