

**Health System Factors Affecting Cervical Cancer Services
Delivery at Primary, Secondary, and Tertiary Levels in
Addis Ababa, Ethiopia**

By

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121666

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Abstract

Background: For Ethiopian women, cervical cancer ranks as the second most common cause of death from cancer. The study aimed to examine the existing national strategies that support the implementation of the National Cancer Control Plan (NCCP) and raise the quality of services for cervical cancer provided in Ethiopia. It also targeted to assess the factors within the health system that influence the quality and accessibility of diagnosis and treatment services in Addis Ababa's public and private hospitals. Moreover, it dealt with the factors influencing the uptake, utilization, accessibility, and caliber of prevention and screening for cervical cancer at public health centers in Addis Ababa.

Methods: The study employed a mixed-methods methodology, which included document reviews, exit interviews, focus group discussions, key informant interviews, and surveys. The discussions in focus groups and exit interviews looked at variables impacting the uptake and utilization of screening, key informant interviews investigated the challenges faced in implementing the NCCP. Using surveys, health facility services were determined. The target achievement for the human papillomavirus vaccination, screening, and treatment as well as the links between the NCCP and other national policies was established from secondary data. While the qualitative data were examined thematically, STATA version 17 and SPSS version 26 were used for the descriptive data analyses with $p < 0.05$ applied for statistical significance.

Results: Although the NCCP implementation had high-level policy support, it faced several challenges. These issues included a lack of charismatic women leaders involved in prevention campaigns, inadequate funding, low population empowerment, limited access to diagnostics, shortage of radiotherapy and chemotherapy centers, scarcity of specialty care, insufficient in-service training, long waiting times, poor electronic health records, and weak referral systems. Lack of partner support, dread of the procedure, embarrassment, the provider's gender, poor public awareness campaigns, and childcare obligations were the primary barriers to screening uptake. Women aged 40 years and older were more likely to use screening than women under 30 years (AOR=13.85; 95% CI: 1.40, 136.74). The national screening coverage was 8.4%, with a preference for female providers among women screened after attending antiretroviral therapy clinics (AOR=7.07; 95% CI: 1.53, 32.75), and those screened due to abnormal vaginal bleeding (AOR=6.87; 95% CI: 1.02, 46.44) than women referred from family planning clinics. Women's perceptions about safety of screening were negatively associated with women aged 30-39 and those with primary or higher education.

Conclusion: The study revealed multiple challenges in the health system that made the NCCP's implementation ineffective. We recommended that decision-makers intensify coordinated efforts with all stakeholders, prioritize the identified challenges, and mobilize more resources to meet the WHO's 90-70-90 cervical cancer targets by 2030, and ensure that the incidence of cervical cancer in Ethiopia is less than 4 per 100,000 women.

Preface

My interest in Oncology research was sparked during my postgraduate study in Toxicology at Addis Ababa University. I was passionate about carcinogenesis (initiation, promotion, and progression). Through my work, I have learned that cervical cancer, while avoidable, strikes women in their prime and results in unnecessary suffering or death in Ethiopia. When I decided to do my Ph.D. I had to look for the research gaps in low-income countries such as Ethiopia. Through this thought process, I decided to pursue health system research to identify and address the health issues of women who are pillars of the family and society in Ethiopia and Africa. Therefore, to see if integrated and coordinated quality services are provided and consumed by women, this study examined the health system factors at macro, meso, and micro levels. The study's recommendations should hopefully alert policymakers, regional and health facilities managers, the private sector, non-governmental organizations, and researchers to the issues at hand. They should also prioritize addressing the challenges that have been identified, increase the efficient use of resources, and take advantage of any available opportunities to lessen the psychological, financial, and physical toll that cervical cancer takes on Ethiopian patients and their families. It would also pave the road toward achieving the WHO 90-70-90 cervical cancer targets by 2030.

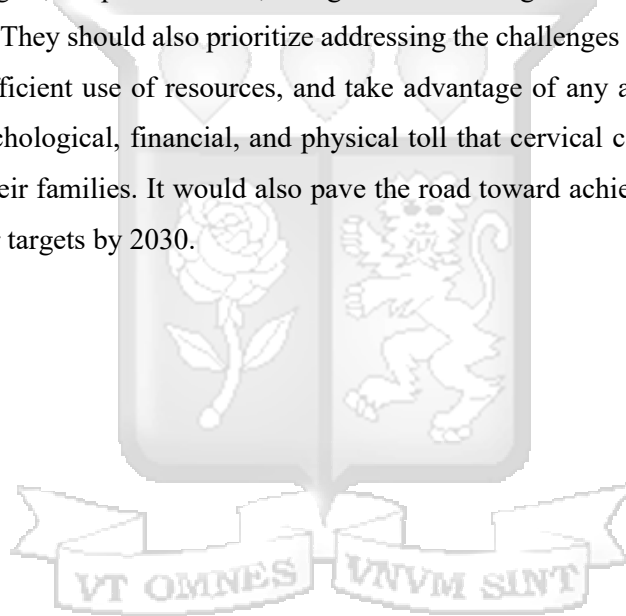


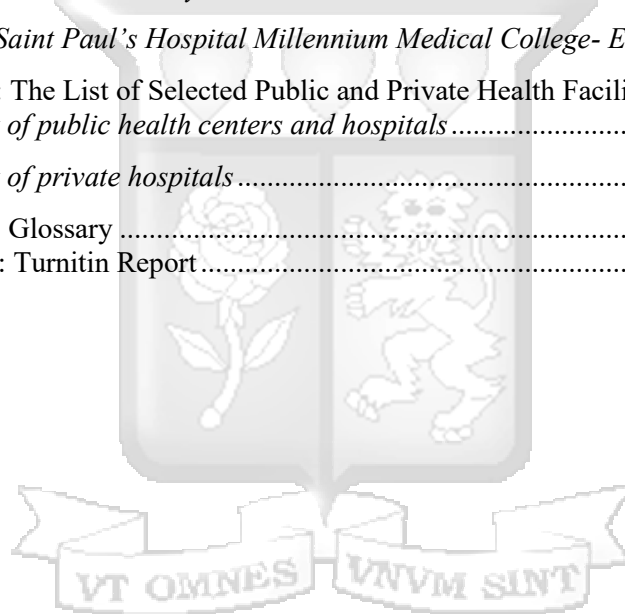
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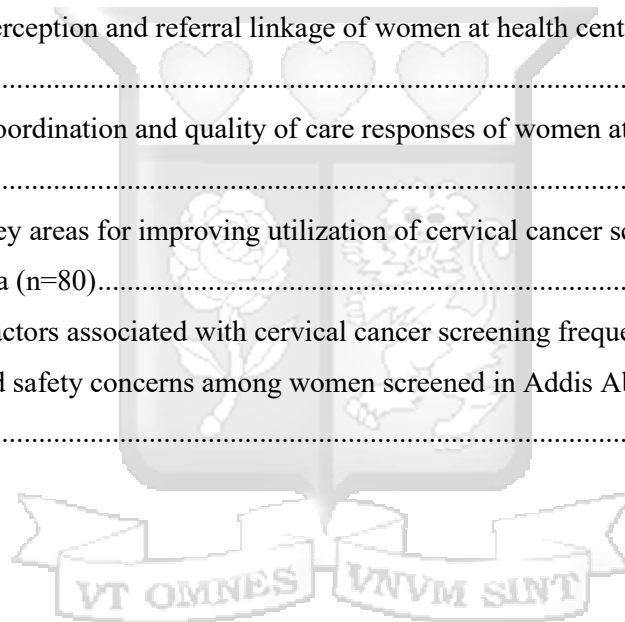
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List of Abbreviations and Acronyms

Abbreviation/Acronym	Description
3Cs	Combat Cervical Cancer
AACAHB	Addis Ababa City Administration Health Bureau
AACCR	Addis Ababa City Cancer Registry
ACS	American Cancer Society
AHF	AIDS Healthcare Foundation
AIDS	Acquired Immunodeficiency Syndrome
APA	American Psychological Association
ART	Antiretroviral Therapy
ASDR	Age-standardized Death Rate
ASIR	Age-standardized Incidence Rate
AU	Africa Union
CA	Cancer
CBHI	Community-Based Health Insurance
CC	Cervical Cancer
CCS	Cervical Cancer Screening
CDC	Centers for Disease Control and Prevention
CHAI	Clinton Health Access Initiative
COMESA	Common Market for East and Southern Africa
CT	Computerized Tomography
DETECT	Detecting Early Tumors Enables Cancer Therapy
DHIS2	District Health Information System 2
ECA	Endometrial Carcinoma
EFDA	Ethiopian Food and Drug Authority
EHR	Electronic Health Record
EMDHS	Ethiopia Mini Demographic and Health Survey
EML	Essential Medicines List
EPHI	Ethiopian Public Health Institute
EPI	Expanded Program on Immunization
EPSS	Ethiopian Pharmaceuticals Supply Service
FDRE	Federal Democratic Republic of Ethiopia
FGAE	Family Guidance Association of Ethiopia
FGDs	Focus Group Discussions
FLBs	First-Line Buyers
FMOH	Federal Ministry of Health
GAVI	Global Alliance for Vaccines and Immunization
GCO	Global Cancer Observatory
GICR	Global Initiative for Cancer Registry
GMP	Good Manufacturing Practice
GNI	Gross National Income
HBM	Health Belief Model
HDI	Human Development Index
HEWs	Health Extension Workers
HiAP	Health in All Policies

HIV	Human Immunodeficiency Virus
HLYs	Healthy Life Years
HPV	Human Papillomavirus
HSTP	Health Sector Transformation Plan
IAEA	International Atomic Energy Agency
IARC	International Agency for Research on Cancer
ICO	Catalan Institute of Oncology
IEC	Information Education and Communication
IGAD	Intergovernmental Authority for Development
IOM	Institute of Medicine
IRPs	International Reference Prices
IT	Information Technology
KAB	Knowledge, Attitudes, and (health) Behaviors
LEEP	Loop Electrosurgical Excision Procedure
LICs	Low-Income Countries
LMICs	Low- and Middle-Income Countries
LPG	Lowest Priced Generics
MCH	Maternal and Child Health
MDGs	Millennium Development Goals
MEOS	Monthly Enhanced Oncology Service
MOH	Ministry of Health
MRI	Magnetic Resonance Imaging
NCCP	National Cancer Control Plan
NCDs	Non-Communicable Diseases
NEML	National Essential Medicines List
NGOs	Non-Governmental Organizations
OCM	Oncology Care Model
OECD	Organization for Economic Co-operation and Development
OR	Odds Ratio
Pap	Papanicolaou
PBP	Performance-Based Payment
PPDA	Public Procurement and Disposal of Public Assets Authority
PPP	Public-Private Partnership
QCCC	Quality in the Continuum of Cancer Care
QOL	Quality of Life
R&D	Research and Development
SARA	Service Availability and Readiness Assessment
SAT	See and Treat
SBCC	Social and Behavior Change Communication
SDGs	Sustainable Development Goals
SHI	Social Health Insurance
SPSS	Statistical Package for the Social Sciences
SRA	Stringent Regulatory Authority
STGs	Standard Treatment Guidelines

STI	Sexually Transmitted Infection
SVA	Single Visit Approach
TOT	Training of Trainers
TWG	Technical Working Group
UHC	Universal Health Coverage
UHE–Ps	Urban Health Extension Professionals
UN	United Nations
UNECA	United Nations Economic Commission for Africa
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USD	The United States Dollar
VIA	Visual Inspection using Acetic Acid
WHA	World Health Assembly
WHO	World Health Organization



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Dedication

To those women who died from cervical cancer owing to lack of access to effective, efficient, and equitable cervical cancer services in Ethiopia. Also, to my family: Munira, Abdulwahab, Rana, Abdallah, and Faiz, for supporting me in pursuing my passions in life.



List of Publications

The following publications have resulted from this study:

1. **Hussein K**, Kokwaro G, Wafula F, Kassie GM. Factors influencing the uptake and utilization of cervical cancer screening services among women attending public health centers in Addis Ababa, Ethiopia: mixed methods study. *BMC Women's Health*. 2024;24(1):3.
2. **Hussein K**, Kokwaro G, Wafula F, Kassie GM. Assessing the influence of the health system on access to cervical cancer prevention, screening, and treatment services at public health centers in Addis Ababa, Ethiopia. *Plos one*. 2024;19(5):e0300152.
3. **Hussein K**, Wafula F, Kassie GM, Kokwaro G. Barriers and facilitators to implementation of the Ethiopian national cancer control plan strategies: Implications for cervical cancer services in Ethiopia. *PLOS Global Public Health*. 2024;4(7):e0003500.



Thesis Chapter Overview

There are six chapters in the thesis:

Chapter 1: Introduction

The study's background, problem description, goal, research questions, scope, and significance are all presented in this chapter along with the Ethiopian healthcare delivery system.

Chapter 2: Literature Review

This chapter begins with a listing of the various sub-sections of the literature review. It defines health systems and provides the theoretical foundation of the study (models), empirical reviews, gaps from the literature review, theoretical conceptual frameworks, and the research conceptual framework used in addressing the research questions.

Chapter 3: Research Methodology

The research methods utilized to complete the study are covered in this chapter. It opens with a paragraph outlining this chapter's goal. Included in the contents were the research design, the research philosophy, an explanation of research designs used at different healthcare levels, study settings and periods, population and sampling, data collection and management, data analysis, validity and reliability of the study, study strengths and weaknesses, dissemination of results, and ethical considerations.

Chapter 4: Results

This provides the chapter summary of the qualitative and quantitative research. It begins with a paragraph orienting the readers about the chapter. Followed by the findings from the two qualitative researches (facilitators and barriers to the National Cancer Control Plan implementation, and focus group discussions on factors affecting the uptake of cervical cancer screening) in a logical order, with tables and figures. It also presents a summary of the two qualitative and three quantitative research findings.

Chapter 5: Discussion

An overview of the two qualitative and three quantitative research categories is provided in this chapter. Moreover, the qualitative and quantitative study findings are covered in-depth. It also gives the study's advantages and disadvantages as well as the chapter's conclusion.

Chapter 6: Conclusions and Recommendations

Conclusions or closing remarks regarding the qualitative and quantitative data are presented in this chapter. The study's findings, conclusions, and recommendations are summarized in the outset. It also offers suggestions for further studies as well as advice for practitioners and researchers.

Chapter 1: Introduction

An overview of the project, a description of Ethiopia's healthcare delivery system and national profile, background, a problem statement, objectives, research questions, and the scope and importance of the study are provided in this chapter.

1.1. Ethiopian Healthcare Delivery System

Ethiopia is located in the Horn of Africa and has the second-highest population (~129 million), totaling 1,126,829 km² (Klaus Kästle, 2021). Figure 1.1 shows the 12 Ethiopia regions including Afar, Amhara, Benishangul-Gumuz, Central Ethiopia, Gambella, Harari, Oromia, Sidama, Somali, South Ethiopia, Southwest Ethiopia, and Tigray as well as Addis Ababa and Dire Dawa cities (FDRE, 2023). Further regional and city divisions are called zones, woredas, and kebeles. There are over 80 distinct ethnic groupings in the country, and about 85% reside in rural areas. Between the ages of 14 and 60, the economically active population segment makes up roughly 50% of the overall population, and the yearly population growth rate is approximately 2.7%. The languages are Semitic, Cushitic, Omotic, and Nilotic. Ethiopia has a per capita income of USD 825. Ethiopia's top exports are coffee, pulses, gold, and beef, accounting for 7.92% of its 2019 gross domestic product (GDP), while its top imports are fertilizers, petroleum oils, palm oil, and other products, accounting for 20.83% of GDP (The World Bank, 2021).



Figure 1. 1: Regions of Ethiopia (Source: Federal Democratic Republic of Ethiopia (FDRE), 2023).

The Ethiopian Health Policy was put into effect in 1993 to enhance healthcare equity and access by enlisting the multisectoral collaboration of non-governmental, public, and private sectors (FMoH, 2021a). Ethiopia's healthcare system is divided into three categories (Figure 1.2), with health being a key element of the nation's development objectives. The primary healthcare delivery comprises the health post, which serves 3,000–5,000 individuals, the health center, which supports 15,000–25,000 persons, and the primary hospital, which reaches 60,000–100,000 people. The general hospital at the secondary level serves roughly 1-1.5 million people. The tertiary hospital helps 3.5–5 million people (FMoH, 2015).

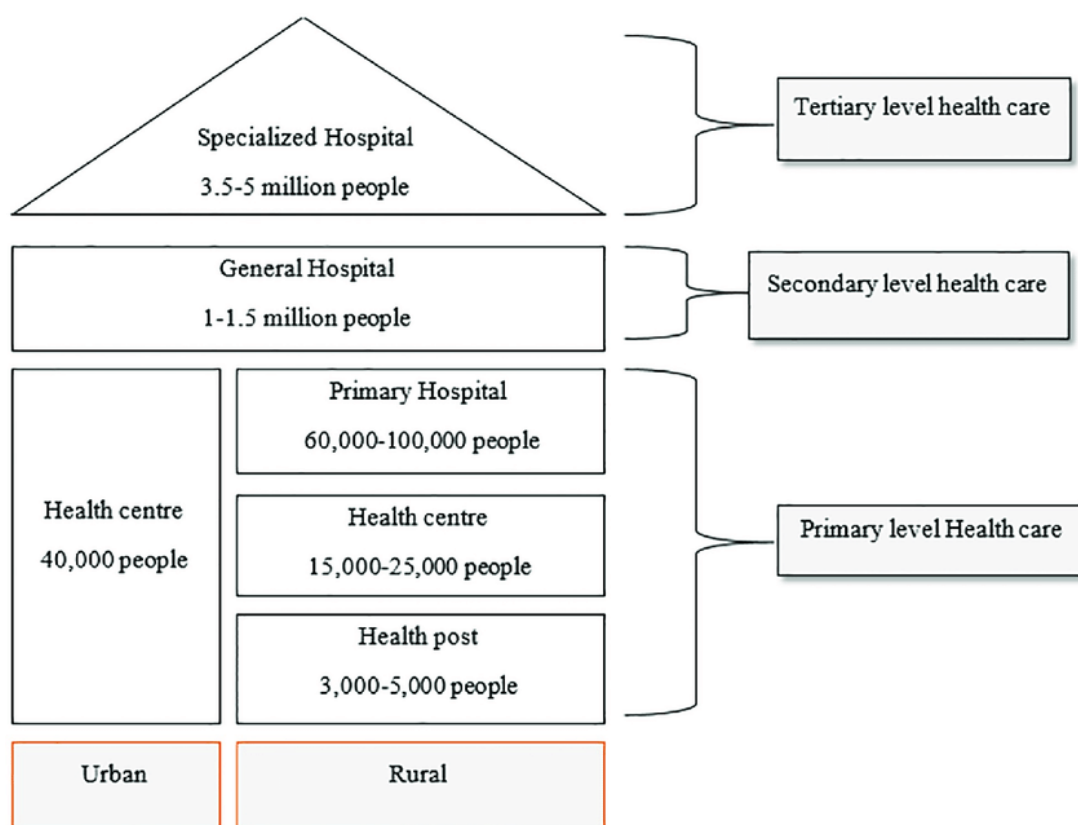


Figure 1. 2: Three-tier healthcare delivery system of Ethiopia (Source: Ethiopian Health Sector Development Plan, 2010–2015).

In 2018, private sector health spending accounted for 40.7% of total health spending, with government spending making up roughly 23.4%. Whereas, the GDP proportion of health spending was 3.3%, and 35.5% of total medical expenses were paid out of pocket (The World Bank, 2019). According to the 2019 Ethiopia Mini Demographic and Health Survey (EMDHS) findings, there were 33, 47, and 59 deaths per 1,000 live births in neonates, infants, and children under the age of five during the preceding five years (EPHI and ICF, 2021). Between 1990 and 2015, the maternal mortality ratio (MMR) dropped from 1250 to 353 maternal deaths per 100,000 live births (FMoH, 2016a). The reproductive health program aimed to lower the neonatal mortality rate (NMR) to 10 deaths per 1,000 live births and the MMR to 199 deaths per 100,000 live births by 2020 (EPHI and ICF, 2021). In 2019, the average life expectancy at

birth for females was 68.5 years, while for males was 64.7 years (The World Bank, 2019). Cardiovascular diseases, cancer, diabetes, and chronic obstructive pulmonary disease account for more than 80% of NCD-related mortality in Ethiopia (FMoH, 2015). To provide universal healthcare, the Ethiopian Health Insurance Agency was established in 2010. In addition, community-based health insurance (CBHI) was developed in 2011 with an emphasis on the urban informal sector and rural populations. In contrast, social health insurance (SHI) was designed for workers in the formal sector (USAID, 2015).

1.2. Background to the Study

During the 2017 World Health Assembly (WHA), a resolution on combating cancer was approved by 194 member countries (WHO, 2017a). The resolution acknowledged that cancer has emerged as a growing public health concern and urged governments and international organizations to prioritize the disease and devote more funds to fighting it in a coordinated and integrated manner. The World Health Organization (WHO) requires countries to achieve an incidence rate of less than 4 per 100,000 women to fully eradicate cervical cancer. For any country to be on track to eradicate cervical cancer in the twenty-first century, it must meet the 90-70-90 targets by 2030 (WHO, 2020). According to this strategy, 90% of girls must be fully vaccinated against HPV by the age of 15, 70% of women must get cervical cancer screenings, 90% of women must be treated for precancerous lesions, and 90% of women with invasive cancer managed. Additionally, the WHO member nations were urged by the WHA resolution on non-communicable diseases (NCDs) from 2012 to reduce premature death from NCDs by 25% by 2025 and increase the availability of fundamental medical equipment and essential medications in both public and private healthcare facilities by 80% (WHO, 2012). Non-communicable diseases (NCDs) have negative impacts on patients because safe, quality, and effective medications are not readily available, and basic diagnostics are not easily found in healthcare facilities (WHO, 2015a). The 2013-2020 WHO Global NCDs Action Plan on the Prevention and Control of NCDs includes pledges from countries and WHO (WHO, 2013a). Similarly, improving everyone's health, especially that of disadvantaged groups, is the goal of target 3 of the UN's 2030 Agenda for Sustainable Development Goals (UN, 2015). To attain universal health coverage, it calls for reducing cancer mortality by a third by 2030, preventing financial catastrophe, and enhancing access to quality essential medications, vaccinations, and healthcare services. The previously mentioned resolutions uphold the United Nations Universal Declaration of Human Rights, which states that everyone has the fundamental right to healthcare in order to protect their own health and the well-being of their family (UN, 1948).

The Ethiopian National Cancer Control Plan (NCCP), which includes detailed cancer control strategies, objectives, interventions, and monitoring indicators as well as estimations of the

plan's delivery costs, was put into place in 2015 (FMoH, 2015). To decrease the impacts of cancer, the approach focuses on basic preventive measures, screening, early detection, treatment, and palliative care. To achieve this, it acknowledges the importance of cooperation between the public and private sectors, and development partners. In addition, one of the main objectives of the National Health Sector Transformation Plan II (HSTP-II) for 2020–2025 is to raise the rate of screening for cervical cancer among women aged 30-49 from 5% to 40% (FMoH, 2021a). The Ministry of Health (MOH) also put into practice A Roadmap for Optimizing the Ethiopian Health Extension Program for 2020 - 2035. The Health Extension Program (HEP) offers a variety of health services, such as risk assessment, public education, and case referral from the household, community, and health post levels. Health Extension Workers (HEWs), Urban Health Extension Professionals (UHE-Ps), or a team of healthcare professionals primarily do this through home visits and outreach programs.

In 2019, only 1.8% of overall development assistance for health was directed to NCDs (Financing Global Health, 2019). The other earlier study revealed that low- and middle-income countries received just 5% of the world's cancer funding (Farmer et al., 2010). On the other hand, oncology spending globally was forecasted to rise by 53% from 2015 (USD106.5 billion) to 2020 (USD162.9 billion). This trend will persist until 2030 and beyond unless healthcare modalities are fundamentally changed (KPMG, 2018). Economic growth was lowered by 0.5% for every 10% rise in NCD mortality (Stuckler et al., 2010).

A health system must consider the six WHO-defined components of quality to improve access and attain universal health coverage (WHO, 2006). These include delivering timely and accessible healthcare in an acceptable and patient-centered manner in settings where resources and skills are appropriate, and geographically reasonable for the patient's needs, offering healthcare that is efficient and maximizes resource use while reducing waste, achieving effectiveness, and minimizing risk and harm to individuals and communities. The relationships between the numerous responsibilities and tasks that go along with each of the three main tiers of the health system hierarchy—policy and strategy development, health service delivery, and service users and communities—must also be understood to properly implement a quality improvement plan (Figure 1.3) (WHO, 2006). By collaborating with many stakeholders, the policymakers design and carry out policy plans for the delivery of quality services. To meet the requirements of communities and service users, healthcare providers work within the confines of policy frameworks. While communities and service users have the right to demand quality services from healthcare providers and participate in the creation and execution of policies. Similarly, the Organization for Economic Co-operation and Development advocated that safety, efficacy, and patient-centeredness be considered to give quality healthcare services (OECD & WHO, 2019).



Figure 1. 3: Roles and responsibilities in improving quality (Source: Quality of Care: A Method for Making Strategic Choices in Health Systems, World Health Organization, 2006).

Primary prevention through HPV vaccination protects against the types of HPV that cause 90% of cervical cancers in girls aged 9-14 years (WHO, 2022). Secondary prevention, which involves screening for and treating cervical pre-cancer lesions, is advised for women in the general population who are 30 years of age and older, and for women living with HIV starting at age 25 (WHO, 2022). The WHO announced that cervical cancer screening was found to be a cost-effective, inexpensive, and feasible approach in the fight against cervical cancer (WHO, 2011). The strategies for screening include (1) opportunistic screening requested by a physician or an individual or (2) organized screening in which a defined population is contacted and invited to be screened at regular intervals. Cervical cancer screening programs have elements of each of these approaches (Lauby-Secretan et al., 2015; Sullivan et al., 2015). Tertiary prevention (chemotherapy, radiotherapy, surgery, and palliative care) is recommended for the treatment of invasive cancer for all women at any age (WHO, 2022). Cancer diagnosis, including careful clinical and pathological assessments, is the first step to cancer management. Once a diagnosis is confirmed, the cancer must be staged to determine the prognosis and treatment options including surgery, chemotherapy, radiotherapy, hormone therapy, and immune therapy (IAEA, 2019).

1.3. Problem Statement

Alarming, the NCDs are increasing in Ethiopia despite the government's coordinated efforts. Aging, growth in the population, and greater exposure to risk factors like obesity, smoking, and inactivity have all contributed to the rise in these diseases (FMoH, 2015). Lack of funds, ineffective intersectoral coordination, fragmented information systems, and inadequate

equipment and medications are some of the obstacles to the management of NCDs in primary healthcare (Teseema et al., 2021). Breast cancer was the most prevalent malignancy among Ethiopian women, with cervical cancer coming in second (Memirie et al., 2018; Woldu et al., 2017). Cervical cancer affected 7, 445 women in 2020, and contributed to 5, 338 deaths (ICO/IARC, 2023). An ASIR was 24.6 per 100,000 Ethiopian females in 2019 (Awedew et al., 2022). In Ethiopia, 3.8% of women with normal cytology were believed to have been infected with HPV 16 or HPV 18, and 36.9 million women aged 15 or older were deemed to be at risk of cervical cancer (ICO/IARC, 2023). Moreover, nearly 64% of high-grade cervical lesions were attributed to HPV 16 and/or HPV 18. The issue was especially severe in Addis Ababa since breast cancer (33%), as well as cervix uteri cancer (13.4%), were the most common cancers (Memirie et al., 2018; FMoH, 2015).

In Ethiopia, cancer is one of the health issues that is most ignored and given the lowest priority (Woldu et al., 2017). It is not prioritized mostly because of limited resources, a focus on communicable diseases, and the nation's subpar health systems, which do not adequately address the critical stages of the cancer continuum (FMoH, 2015). Inadequate public awareness, low cervical cancer screening and treatment, limited diagnostic and treatment centers, shortage of oncology professionals, and poor referral pathways were among the challenges reported in Ethiopia's fight against cancer (Haileselassie et al., 2019; FMoH, 2015). According to the 2018 Service Availability and Readiness Assessment report, just 9% of healthcare facilities offered cervical cancer diagnosis and treatment services (FMoH and EPHI, 2018). According to an earlier Ethiopian survey, only 4% of the facilities had staff members who had undergone in-service training on cancer, 8% of the facilities had guidelines for the diagnosis and treatment of cancer, and 23% of the institutions provided cancer services (Gelibo et al., 2017). The estimated pooled prevalence of utilization of screening for cervical cancer was found to be 5.47% (Kassie et al., 2020). In Addis Ababa, the mean availability for lowest-priced generic (LPG) cancer medicines was 56.9% in the public sector, and 18.8% in the private sector (Tadesse & Fang, 2018). Approximately 80% of cancer cases reported at Tikur Anbassa Specialized Hospital in Addis Ababa were diagnosed at an advanced stage (FMoH, 2015). This was supported by a previous Ethiopian study that indicated 75% of patients had delayed receiving a diagnosis for more than 30 days, and 25% of women with cervical cancer had put off seeking medical consultation for more than 90 days (Dereje et al., 2020). Additionally, the typical waiting period for radiation therapy was seven months, and the median waiting time for chemotherapy was nearly two months (Feuchtner et al., 2019).

Despite the numerous governmental policies in place, Ethiopia nevertheless has alarmingly high rates of cervical cancer morbidity and mortality (ICO/IARC, 2023). This was a reflection

of the weak health systems, which included a scarcity of oncology specialists, inadequate diagnostic capabilities of facilities, and low public awareness (Haileselassie et al., 2019; FMOH and EPHI, 2018). This supports a Tanzanian study that found poor health systems affecting care for cervical cancer, including a shortage of competent workforce, inadequate equipment, and poor awareness-raising (Mugassa & Frumence, 2020). Furthermore, a previous study conducted on global cancer control-related issues (rising burden, increasing costs, and access disparities) found that the long-term nature of care made it difficult to address cancer as a public health priority (Prager et al., 2018). Poor health systems, as documented in Ethiopia, may cause similar problems, such as physical, financial, and emotional burdens on those with cervical cancer and their families, as well as prolonged disability and early mortality (Prager et al., 2018).

Ethiopian cancer research has not kept up with the severity of the issue because of a lack of resources (FMOH, 2015). Understanding the extent of strategies supporting the NCCP implementation toward meeting the WHO 90-70-90 cervical cancer targets by 2030 was necessary to get on track to eradicate cervical cancer (WHO, 2020). In addition, there was inadequate documentation of the challenges in the provision of services. Therefore, this study identified and addressed factors influencing the uptake, utilization, and provision of cervical cancer services at public health centers. Additionally, factors influencing equitable access to quality diagnosis and treatment services were identified at secondary and tertiary public and private hospitals.

1.4. Research Objectives

1.4.1. General Objective

To examine health system factors affecting cervical cancer services delivery at primary, secondary, and tertiary levels in Addis Ababa, Ethiopia.

1.4.2. Specific Objectives

The study-specific objectives were:

- i. To determine the extent to which existing institutional strategies for improving the quality of care for women with cervical cancer support the implementation of the Ethiopian National Cancer Control Plan framework.
- ii. To assess health system factors affecting access to and quality of cervical cancer diagnosis and treatment services provision in the public and private general and specialized hospitals in Addis Ababa.

- iii. To assess health system factors affecting uptake, utilization, access to, and quality of cervical cancer prevention and screening services provision in the public health centers in Addis Ababa.

1.5. Research Questions

The study addressed the following research questions:

- i. What level of support does the Ethiopian National Cancer Control Plan's implementation receive from current strategies to raise the standard of services for cervical cancer?
- ii. Which health system elements influence the accessibility and quality of diagnostic and treatment services for cervical cancer in Addis Ababa's public and private general and specialty hospitals?
- iii. Which health system components affect the uptake, utilization, and provision of accessible and quality preventive and screening services for cervical cancer in Addis Ababa's public health centers?

1.6. Scope of the Study

This study's main objective was to evaluate the elements of the health system that affect the accessibility, uptake, and use of quality cervical cancer services in Addis Ababa's public and private healthcare facilities, as well as the strategies influencing the NCCP's implementation. Participants from development partners, the Addis Ababa City Administration Health Bureau, and the Ministry of Health of Ethiopia were part of the key informant interviews examining the NCCP strategies implementation. Additionally, the target achievement of services for cervical cancer was assessed to understand the implementation level of the NCCP. The implementation of the NCCP was explored considering the governmental commitment, priority-setting, interagency cooperation, incentive structures, population empowerment, and the incorporation of evidence into practice (WHO, 2014). The survey included health centers and general and specialized hospitals in Addis Ababa. Access to services, as well as the quality of the performance and operations, were assessed among the selected public and private hospitals. The main components of a health system including service delivery, health workforce, information, medical products, vaccines and diagnostics, financing, and leadership were taken into consideration for the health facilities survey (WHO, 2007). Furthermore, the examination of health system elements impacting the uptake and utilization of screening for cervical cancer took into account the structural, individual, financial, and sociocultural factors.

1.7. Significance of the Study

Though preventable, cervical cancer is the deadliest disease that affects thousands of women in Ethiopia (Derbie et al., 2023). The previous Ethiopian studies reported cervical cancer screening uptake of 10.3% (Kasim et al., 2020), and the utilization of 5.47% (Kassie et al., 2020). The impact of implementing strategies for the NCCP on the health system's inputs and outputs, degree of fragmentation, and service coordination across all levels remained unclear. Consequently, this study is the first to evaluate how the different aspects of the health system affect the provision of quality care for cervical cancer, with an emphasis on communities and service users, the delivery of health services, and cancer policy strategies. It primarily demonstrated the degree to which the government, the private sector, and development partners were committed to the NCCP's overarching goal of ensuring that service recipients and communities access the best possible integrated and coordinated cervical cancer services. The survey conducted at the primary, secondary, and tertiary healthcare levels showed how well the public and private health organizations responded to the needs, values, and preferences of service users and communities. On the other hand, the main subjects of our facility-based studies on the factors influencing the uptake and utilization of screening services were financial, personal, and sociocultural factors, provider capacity, coordination, and patient-centered care at primary healthcare facilities. In contrast, most of the previous Ethiopian studies focused on identifying and addressing the barriers and/or facilitators for cervical cancer uptake or utilization in rural or urban settings mainly using community-based cross-sectional studies targeting women of reproductive age (Gizaw et al., 2022; Azene, 2021; Kasim et al., 2020; Teame et al., 2019).

Based on the findings, the study recommended doable, improvised, and useful approaches to support the implementation of the NCCP as well as methods to improve the service provision by healthcare workers and promote usage of care by clients across the entire system while taking into account the national context. Interventions are specifically required to: i) improve community involvement and service user contributions; ii) change the way NCCP is made; and iii) increase access to quality cervical cancer services, through enhanced models of care, organizational capacity, information, leadership, regulation, and standards. These measures are meant to lessen the negative consequences that cervical cancer has on patients and their families in terms of their financial, physical, and psychological well-being.

This study will provide insight for stakeholders, including health policymakers, to help with planning, resource pooling, allocation, and efficient use of resources. The data produced by the study can aid in the understanding of the specific challenges encountered at the various levels and guide policymakers in the creation of focused strategies that successfully address

these constraints. The barriers to screening service accessibility, the authorities can concentrate on putting screening coverage improvement plans into action and guaranteeing equitable access to diagnostic and treatment facilities. Furthermore, because these conditions carry comparable risks, similar strategies may be applied to the treatment of various malignancies, diabetes, heart disease, mental health conditions, and chronic obstructive pulmonary disease. Future research projects in the areas of cervical cancer treatment and resource-constrained settings can be built upon the study's findings such as on health system inputs and outputs, policy implementation barriers and facilitators, and the measures for improving the uptake and utilization of cervical cancer screening services in resource-constrained environments.



Chapter 2: Literature Review

This chapter defines "health systems" for providing cancer services in section 2.1. The next section, the theoretical review, provides an overview of the theories or models that were considered for the study and emphasizes their importance for understanding the components of the health system that affect cancer care (section 2.2). After that, the chapter examines empirical evaluations of Ethiopia's and the world's cervical cancer statistics (part 2.3). It also covers any gaps in the scientific literature on empirical research and cancer care in Ethiopia. The last section of the chapter (section 2.4) presents the theoretical and research conceptual framework and how they were applied in the study.

2.1. Health Systems

Anything that aims to preserve, restore, or advance health is considered a part of the health system, including humans, products, physical/infrastructure, financial, and activities (WHO, 2007). The components could be further described as inputs (human, physical, and financial resources), processes/outputs (quality, accessible, and affordable health services), and outcomes/impact (good health for the population). Health systems operate at, and across, the national and international context (macro), the regional and district health system (meso), and managers, providers, patients, and community (micro) levels (Gilson, 2012; van Olmen et al., 2010). Health systems research aids in generating high-quality knowledge for improving the population's health by increasing the healthcare system's effectiveness, efficiency, quality, and equity as a part of the overall process of socio-economic development (Bowling & Ebrahim, 2005; Pang et al., 2003).

2.2. Theoretical Foundation of the Research

A review of the theories and models that guided this research is provided below. These include the DONABEDIAN Model, Complexity Theory, The Oncology Care Model, and Health Belief Model.

2.2.1. Donabedian Model

The DONABEDIAN model is a comprehensive conceptual framework primarily used for assessing the quality of services provided to patients at healthcare institutions (Kelley & Hurst, 2006; Donabedian, 1988). The model uses a Structure-Process-Outcomes to measure healthcare, where each component directly affects the subsequent one (Ibn El Haj et al., 2013; Kelley & Hurst, 2006). It provides several indicators for measuring the quality of care: i) Structure indicators (financial resources, personnel, equipment, facilities, and information system); ii) Process indicators (prevention, diagnosis, and treatment); and iii) Outcome indicators (target achievement of provided services, patient-centeredness, and patient satisfaction) (Ibn El Haj et al., 2013). To determine and address the numerous factors that

are influencing the standard and accessibility of cervical cancer services at the basic, secondary, and tertiary healthcare levels, this study employed or was informed by the concepts of the Donabedian model.

2.2.2. Complexity Theory

The systems approach seeks to address organizational complexity issues by building on the tenets of complexity theory (Peters, 2014). Complexity theory presents the conceptual framework for policy implementation, processes, and changes in complex adaptive systems (Geyer & Rihani, 2012; Dodder & Dare, 2000). The recurring trend of uncertainty in complicated healthcare systems could be explained by systemic interaction, self-organization, and emergence concepts as they relate to organizational management (Geyer & Rihani, 2012; Dodder & Dare, 2000). These concepts are described below.

i. Systemic interactions: Complex organizations are characterized by systemic interactions and their agents, which could be a component of multiple other systems (Anderson et al., 2005). In health research systems, researchers need to interact with end users like decision-makers, practitioners, consumers, and the general public (Pang et al., 2003).

ii. Self-organization: Complex healthcare systems are constantly evolving, adaptive, and self-organizing when external influences do not exist (Byrne, 2013; De Wolf & Holvoet, 2005). Health managers, physicians, patients, and others respond to complex systems in many ways (act, react, and adapt) based on their individual experiences and viewpoints, which might have unexpected consequences (Byrne, 2013; Callaghan, 2008; Pawson & Tilley, 1997).

iii. Emergence: Systems dynamics and the self-organization of intricate systems are related to emergent phenomena. Instead of being the result of individual decisions made by system participants, the unanticipated "emergent" features are the result of complex systems that are capable of self-organization (Byrne, 2013; De Wolf & Holvoet, 2005). To comprehend the emergent characteristics of macro-level systems, it is essential to look at the dynamic interactions between individuals and agents at the micro-level (Callaghan, 2008; Anderson et al., 2005; De Wolf & Holvoet, 2005). Researching micro-processes can also emphasize innovation as self-organizing agents that produce the new structures and behaviors required for fulfillment of the connections' claims (Anderson et al., 2005; De Wolf & Holvoet, 2005). It was necessary to apply complexity theory to comprehend the trend of unpredictable factors that influenced the NCCP's strategies implementation, health service provision by various levels of healthcare, and engagement of communities and service users for the uptake and utilization of cervical cancer services.

2.2.3. The Oncology Care Model

The goal of the Oncology Care Model (OCM) as it is implemented in the US is to provide patient-focused, high-quality, and high-value oncology services by utilizing payment incentives and the intended practice improvement. The performance-based payment (PBP) might be implemented by either paying each month per beneficiary or a monthly enhanced oncology service (MEOS) payment. Practice redesign strives to achieve coordinated and patient-centered care while considering the availability of a provider around-the-clock, the use of certified electronic health records (EHRs), treating patients following national guidelines, and other Institute of Medicine (IOM) components (Kline et al., 2017). The OCM encourages patient-oriented and backed by evidence-based practices aimed at maximizing resources and enhancing the quality of care that is inexpensive and available to the community at large, regardless of the place of residence. According to the IOM, medical care that prioritizes patients respects their values, choices, and expressed requirements. In addition, it considers the individuals' physical comfort and emotional support and involves their families and friends. It also requires coordination and integration, as well as dissemination of public health messages. Tracking care that puts patients first and pinpointing areas where healthcare needs to be enhanced depend heavily on patient-reported metrics (Tzelepis et al., 2015). In addition, the IOM suggests six interrelated elements for enhancing the quality of cancer care, including 1) providing an adequate number of trained and coordinated staff; 2) ensuring patient involvement; 3) offering evidence-based services; 4) establishing health information system; 5) performing a quality measurement to improve services; and 6) ensuring accessibility and affordability of cancer services to users (Mayer, 2014). This study employed the concepts from OCM to fill the gaps of the Donabedian model for assessing if healthcare facilities at different levels of healthcare delivery use payment incentives, and apply restructuring practices, offering integrated and coordinated patient-centered high-quality, and high-value cervical cancer services.

2.2.4. Health Belief Model

In the 1950s, social psychologists in the United States Public Health Service created the Health Belief Model (HBM) to explain why it is so common for people to refuse to take part in disease prevention and detection programs (Baum et al., 1997). The model has been applied to study and promote the adoption of cancer screening programs. The strategy is predicated on the idea that people's attitudes and beliefs, including their assessment of the severity and susceptibility of the disease, their perception of screening benefits and obstacles, and their degree of self-efficacy, significantly influence their behavior and actions, which in turn impact their health. The modifying elements that affect these perceptions (age, gender, ethnicity, personality, socioeconomics, and knowledge) influence individual beliefs (perceived susceptibility to and

severity of disease, perceived benefits, perceived barriers, and perceived self-efficacy), and action (individual behaviors-cues to action). Perceived threat is determined by perceived disease severity and susceptibility (Kasprzyk, 2008). This study employed the Donabedian model complemented with the HBM constructs to determine factors impacting the uptake and utilization of cervical cancer screening services among women attending public health centers. Figure 2.1 describes the elements and linkages of the HBM.

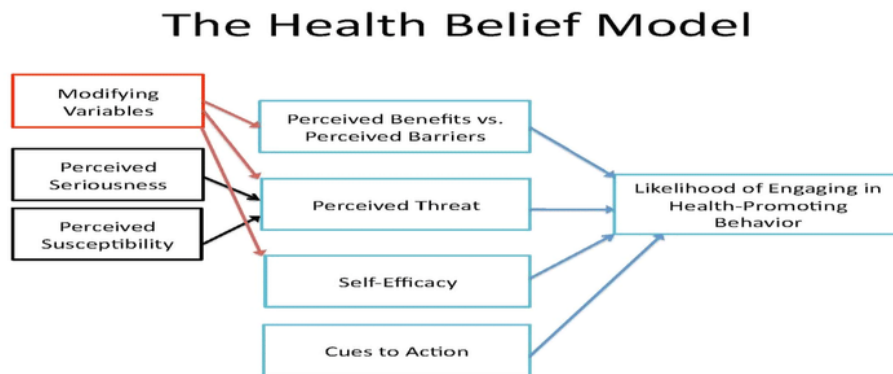


Figure 2. 1: The Health Belief Model (Rosenstock, 1974).

2.3. Empirical Reviews

The prevalence of cancer including cervical cancer in Ethiopia and around the world is covered in this section. The Ethiopian health system's response is also examined, concerning the NCCP of Ethiopia.

2.3.1. The Cancer Situation

2.3.1.1. Prevalence of Cancer in Global Settings

Up from 17 million in 2018 and 14 million in 2012, the International Agency for Research on Cancer (IARC) projects that there will be 27.5 million and 22 million new cancer diagnoses globally by 2040 and 2030, respectively (Ferlay et al., 2019). An estimated 60% of cancer cases were reported in low- and middle-income nations. Cancer claims the lives of 8.8 million people worldwide each year, accounting for one in six fatalities worldwide and far more than the combined mortality from HIV/AIDS, malaria, and tuberculosis (WHO, 2017b). Seven of every 10 cancer deaths occur in Africa, Asia, and Central and South America (Burstein et al., 2017). Cancer ranks second globally in terms of cause of death, after only cardiovascular diseases, which claimed 9.5 million lives in 2018 (ACS, 2018). According to WHO forecasts, there might be an 80% increase in cancer-related deaths worldwide by 2030 (Burstein et al., 2017).

On the African continent, cancer is quickly becoming a recognized public health concern as a result of a population that is aging and a shift in lifestyles. As a result, the majority of countries on the African continent had an increase in the age-standardized death rate (ASDR) from all cancers (Collaboration et al., 2017). Of the 20 countries with the highest rates of cervical cancer globally, 19 are in Africa (IARC, 2018).

2.3.1.2. Prevalence of Cancer in Ethiopia

According to hospital records, Ethiopia reports more than 150,000 new cases of cancer annually, which represents 4% of the total deaths (Woldu et al., 2017). Breast, cervical, colorectal, and gastric cancers were more prevalent in the age group between 25-49 years. According to a study, men and women in Ethiopia were diagnosed with incident cancer cases at rates of 21,563 and 42,722, respectively, in 2015. The most common adult cancers were those of the breast, cervical, colorectal, leukemia, prostate, thyroid, lung, stomach, and liver. Non-Hodgkin lymphoma also occurred frequently. Breast cancer was the most frequent type of cancer, accounting for 23% of all cancers found in the Addis Ababa cancer registry and 33% of all cancers in women (Memirie et al., 2018). Another study conducted in Ethiopia revealed that breast cancer (26% of cases) and gynecological malignancies (47% of cases) were the two most prevalent forms of cancer among females (Wondemagegnhu, 2015).

2.3.2. The Cervical Cancer Situation

2.3.2.1. Prevalence of Cervical Cancer in Global Settings

There were 604 127 new cervical cancer cases with 341,831 deaths globally in 2020 (Singh et al., 2023). The fourth most frequent type of cancer was cervical cancer among women worldwide, with approximately 311,000 deaths in 2018 (Arbyn et al., 2020). Nearly 70% of these cervical cancer deaths occurred in south-central Asia (75,100 deaths), Eastern Asia (54,500), and sub-Saharan Africa (76,400) (Ferlay et al., 2019). The leading cause of cancer death in women in eastern, southern, western, and central Africa was cervical cancer (Arbyn et al., 2020). About 117 316 incidences and 76 745 mortalities of cervix uteri cancer were reported in Africa in 2020 (Singh et al., 2023). The prior study also showed that the most common cancers in women in Africa were cancers of the breast (27.6% of all cancers) and cervix uteri (20.4%) (Parkin et al., 2014). Of 14 million new cancer cases reported in 2012, 2.2 million (15.4%) were attributable to carcinogenic infections (Plummer et al., 2016). In women living in sub-Saharan Africa, the estimated pooled incidence percentage of high-risk HPV infection was 34% (Seyoum et al., 2022). In 2014, only about 6% of females aged 10 to 20 years worldwide had received a full vaccine course, with wide variation by income level and world region (Bruni et al., 2016).

2.3.2.2. Prevalence of Cervical Cancer in Ethiopia

With 7,445 cases and 5,338 fatalities in 2020, cervical cancer ranked as the second most common malignancy among Ethiopian women (IARC; 2020). The ASIR was 24.6 per 100,000 Ethiopian females in 2019 (Awedew et al., 2022). The country had 36.9 million women aged 15 years and older who were at risk of developing cervical cancer, and an estimated 3.8 % of women in the general population harbor cervical HPV16/18 infection (Bruni L et al., 2023). In Ethiopia, breast cancer (30.2%) and cervix cancer (13.4%) were the most common cancers (CAs) among all adult populations (Memirie et al., 2018). Moreover, a study conducted at Tikur Anbessa Specialized Hospital (Addis Ababa) revealed that the most common kind of CA was breast cancer (14.8%) (Woldu et al., 2017). The prevalence of cervical endometrial carcinoma (ECA) was found to be much higher among HIV+ women (17.8%) than in HIV-negative women (10.3%) in a study done at the Debre Markos referral hospital in Northwest Ethiopia (Getinet et al., 2015). In addition, a study carried out at Yirgalem General Hospital (southern Ethiopia) revealed that 16.5% of clients who were screened and diagnosed (from 2010 to 2016) had cervical cancer, and those who had multiple sexual partners had a 40-fold higher risk of developing the disease than those who did not. According to the multivariate analysis's findings, cervical cancer was substantially associated with early sexual engagement, a history of STIs, and the human immunodeficiency virus (Hailemariam et al., 2017). Women in Addis Ababa most commonly suffered from breast cancer (33%) and cervix uteri cancer (13.4%) (Memirie et al., 2018; FMoH, 2015).

2.3.3. Health System Response to Cancer in Ethiopia

The following review of Ethiopia's health system's response to cancer management considers the policy framework for cancer services, institutional frameworks, and healthcare organizations that provide cancer care.

2.3.3.1. Policy Framework for Cancer Services

The 2017 WHO Cancer Resolution recognized cancer as a growing global public health concern (WHO, 2017a). Premature deaths from non-communicable diseases (NCDs), such as cancer, have been linked to inadequate healthcare systems that fail to effectively and equitably address the demands of the general population (WHO, 2015b). In addition, previous studies found that the health systems, particularly those in low- and middle-income countries (LMICs), lacked the necessary resources to manage the growing cancer burden in conjunction with insufficient global resource mobilization and budgetary allocation (Farmer et al., 2010). Similar to the other LMIC countries, Ethiopia continues to pay minimal attention to public health issues related to cancer, partly due to the heavy burden of communicable diseases and scarce resources (FMoH, 2015). In addition, most existing health systems and facilities placed

a strong emphasis on children and common diseases or emergencies. To mitigate this, Ethiopia has created the National Cancer Control Plan (NCCP) for 2015/2016-2019/20 with a total cost of USD93,219,270 (Table 2.1). For leading Ethiopia's cancer control initiative, the First Lady of Ethiopia co-chairs the national cancer committee with the Ethiopian Minister of Health (FMoH, 2015).

Regardless of circumstance, precondition, or geographic location, everyone should have access to the highest quality cancer care, according to the 2017 WHO Cancer Resolution. To lessen the burden of cancer, prevent needless suffering, and save as many lives as possible, the resolution must be put into action on a national level (Prager et al., 2018). The resolution outlined the most crucial initiatives, such as enhancing the accessibility and affordability of cancer medications by strengthening pricing policies, improving pricing transparency, and ensuring efficient national procurement. For this, it requires cross-sector and cross-border collaborations for information exchange on cancer medications, their regulation, and procurement. Moreover, the following elements may be considered to ensure the final prices of cancer medications are affordable by patients: i) pricing information; ii) price competition; iii) price control; and iv) reduction in duties, taxes, and markups. Better quantification using data from the national cancer registry and resource-sensitive treatment guidelines is required to enable more effective and efficient procurement, and better availability and affordability of essential cancer medicines (Martei et al., 2018; Tadesse & Fang, 2018). The issue of cancer medicines availability and accessibility also necessitates cooperation, resource mobilization, and national supply chain management by various stakeholders, including the public and private sector, non-governmental organizations, the industry, and civil society.

Table 2. 1: The estimated budget for the Ethiopian National Cancer Control Plan (X1000 USD).

Strategy	2016	2017	2018	2019	2020	Total cost	%
Primary prevention	3,220.98	2,585.82	2,657.60	2,743.96	2,837.23	14,045.59	19.2
Early detection	1,188.27	1,066.71	1,113.30	1,105.35	1,142.38	5,616.00	7.7
Diagnosis and treatment	33,397.50	7,649.05	7,893.17	8,150.27	8,421.05	65,511.04	62.2
Palliative care	1,440.31	1,467.24	1,495.61	1,528.74	1,539.64	7,471.54	10.2
Research and cancer surveillance	90.07	82.10	83.23	94.93	85.76	436.09	0.6
Monitoring and evaluation	27.14	27.44	27.77	28.13	28.52	139.01	0.2
Total	39,364.27	12,878.36	13,270.68	13,651.38	14,054.58	93,219.27	100.0

2.3.3.2. Institutional Frameworks

In Ethiopia, primary healthcare facilities provide the key preventative, curative, and promotional services. The task of the health posts is to collaborate administratively and

technically with the health centers, which are managed and overseen by the health offices of the woreda (district), in all aspects such as service delivery and program planning, financing, monitoring, and evaluation. In contrast, secondary and tertiary hospitals frequently provide greater services for diagnosis and treatment (FMoH, 2015). The expansion of non-governmental agencies and the private for-profit sector is a further advance in Ethiopia's provision of healthcare. These groups play a critical role in guaranteeing access to health services and products and expanding the reach of health services through social marketing techniques and community involvement. The Ministry of Health introduced the public-private partnership (PPP) plan to increase the private sector's involvement. Further to this, the private sector forums that concentrate on regulatory and quality improvement programs have been established.

Addis Ababa has been using a population-based cancer registry since 2011 (Memirie et al., 2018), but Ethiopia did not have a national cancer registry in 2012 (Gessese et al., 2018). To allocate resources effectively, the epidemiology of cancer data from cancer registries across the nation was crucial. A visual inspection using acetic acid (VIA) or Lugol's iodine was used for screening instead of Pap smears in Ethiopia due to a lack of technical and public health infrastructure (FMoH, 2015). Additionally, the high price of the HPV DNA test prevented it from being widely available and offered at healthcare facilities. When feasible, the WHO recommends a "screen and treat" approach, where a woman who has a positive screening test is treated at the same facility (WHO, 2013b). Similarly, a "single-visit" approach or a "screen-and-treat" approach for cancer patients is mandated by Ethiopia's NCCP. However, it was unclear how far along this strategy was with its implementation.

To enhance the quality of services provided to individuals and communities in Ethiopia's decentralized health system, communication, cooperation between institutions and service providers, and seamless transitions between the many levels of healthcare are necessary (FMoH, 2015). Many transitions in cancer care result in potential failures, including quality gaps, in centrally controlled and fragmented healthcare systems (Taplin & Rodgers, 2010). Another previous study found that barriers in coordinating cancer care were due to inadequate recognition of the duties of human resources (including their adequacy and comprehensiveness), poor communication between specialists and primary care, unequal access to healthcare, and inefficient use of limited resources (Walsh et al., 2010). Thus, this study determined factors influencing interfaces between healthcare delivery settings and among healthcare providers to enhance the quality of care throughout the cancer continuum. It also looked at how fragmentation in the several cancer dimensions of care, at different levels of the health system, affects the quality of cervical cancer services, as well as the NCCP implementation strategies. Additionally, it discussed aspects of healthcare organizations, the NCCP environment, and the culture of those seeking and providing care.

2.3.3.3. Healthcare Organizations Providing Cancer Care

Ethiopia's healthcare system lacked access to cancer management alternatives, and the infrastructure for treating cancer was insufficient (FMoH, 2015). Inconsistent services were provided in a few active cancer centers, including Jimma University Hospital, Gondar University Hospital, and Tikur Anbessa Specialized Hospital (Tegegn et al., 2018). Most public hospitals struggled to find basic medications including for pain relief. The demands of the patient and the services offered by the facility were vastly different. Some financially able cancer patients were compelled to seek treatment abroad due to the lack of access to medical, surgical, or radiation therapy. Additionally, an Ethiopian study found that to effectively treat cancer, the country's health systems needed to be improved, including training healthcare professionals, guaranteeing the availability of vital medicines, and providing national guidelines (Gelibo et al., 2017). Likewise, the earlier Ethiopian study revealed supply chain management flaws such as restricted access to essential cancer medications, procurement-related issues (expensive, few suppliers, and small quantities), the absence of national treatment guidelines, and cost subsidization limitations (Tegegn et al., 2018).

The lowest-priced generic (LPG) cancer medicines in the public sector had a median price ratio (MPR) 1.10 times higher than the international reference prices (IRPs) in Addis Ababa (Tadesse & Fang, 2018). Nevertheless, this fell far short of the WHO's 80% target for the availability of cost-effective NCD medications by 2025 (WHO, 2013). In Tikur Anbessa Hospital in Addis Ababa, Ethiopia, a retrospective population-based cohort study revealed that 24.5% of patients and 54.1% of patients had received sufficient radiation and chemotherapy doses, respectively (Feuchtner et al., 2019).

2.3.4. Uptake and Utilization of Cancer Services in Ethiopia, and Other African Settings

According to research conducted in Addis Ababa, Ethiopia, 43% of women were aware of cervical cancer screening, 28% were knowledgeable about the processes involved, and 25% of eligible women had previously participated in a cervical cancer screening. Being single and being informed of the procedure helped the screening process. Lack of symptoms (57%), ignorance of cervical screening (56%), and the lack of screening services in the area (42%), were the main barriers to cervical screening uptake (Getachew et al., 2019). In Ethiopia's Addis Ababa and Oromia regions, the chosen health institutions had to deal with a variety of challenges to deliver cervical cancer screening services, including low public and provider awareness, inadequate space and equipment, and high staff turnover (Lott et al., 2021). The study also suggested decentralized and coordinated screening services, including training for

healthcare professionals, improved monitoring and evaluation systems, and public awareness raising through the mass media.

Individual-level barriers that affect women's interest in screening have been reported by several African studies. These barriers include not having received formal education or having little knowledge about cervical cancer and its screening; being unemployed; being married; feeling that one is not susceptible to the disease; feeling ashamed; fear of receiving the wrong diagnosis, procedure, pain, or test result; not having enough money or resources; having a busy work schedule or not having enough time; not knowing about screening facilities; and not communicating with others (Ampofo et al., 2020; Binka et al., 2019; Black et al., 2019; Tapera et al., 2019; Ndejjo et al., 2017). The primary institutional impediments identified by multiple prior African research were the provider's gender, the facility's distance, the misdiagnosis and attitude of healthcare personnel, the lack of privacy in screening, and issues with the health system (Ampofo et al., 2020; Binka et al., 2019; Tapera et al., 2019; Ndejjo et al., 2017). The hurdles at the community level were ascribed to stigma and societal views (Binka et al., 2019; Black et al., 2019). Lack of access to screening facilities, insufficient funding, and poor knowledge about the disease limited the availability of testing and therapy options at the policy level (Binka et al., 2019). Furthermore, the findings from a Ugandan study demonstrated that women were deterred from accessing cervical cancer screening due to complex interactions between individual, structural, and sociocultural barriers (Black et al., 2019).

In the southern Ethiopian district of Shabadino, just 10.3% of women used screening for cervical cancer (Kasim et al., 2020). According to the results of a broad review and meta-analysis conducted in Ethiopia, 5.47% of Ethiopian women were projected to use screening services (Kassie et al., 2020). The women's exposure to many partners, history of STIs, education level, and awareness of preventative measures all had an impact on their utilization of the service (Azene, 2021; Kasim et al., 2020; Teame et al., 2019). A noteworthy association was discovered by another Ethiopian study between screening primarily involved visual inspection with acetic acid and older age. When compared to women aged 30-39, those aged 40-49 used cervical cancer screening five times more frequently (Azene, 2021), while for women aged 40-49 years was found to be four times higher than those aged 21-29 years (Teame et al., 2019). Likewise, a South African study reported that women aged 45+ years were more tend to go for Pap smear testing (Akokuwebe et al., 2021). In addition, the Nigerian study found that the main factors influencing screening utilization in Nigeria were ignorance, illiteracy, believing one was not at risk, financial restrictions, and fear of receiving a positive test result (Ndikom & Ofi, 2012).

2.3.5. Gaps from Empirical Literature

There is a great need for translational research in low- and middle-income countries because the majority of cancer research is done in developed nations. Besides that, it is essential to inform the public and policymakers about the findings of cancer research through a variety of media (Krishnatreya, 2019). On the other hand, enhancing cancer surveillance system, particularly cancer registration in the health system, is the main focus of Ethiopia's cancer research strategy (FMoH, 2015). It also makes recommendations for how to strengthen research capabilities and how to disseminate and apply research findings, as suggested by an earlier study (Krishnatreya, 2019).

According to our empirical searches, most Ethiopian research have used population-based approach, systematic reviews, and meta-analyses to investigate the uptake and utilization of screening, primarily in the public sector. This aligns with findings from a systematic review of 380 research publications, of which 54.6% focused on screening (Finocchiaro-Kessler et al., 2016). Research on Ethiopia's holistic health system at the macro, meso, and micro levels was conspicuously lacking. Therefore, research aiming to critically assess the components of the healthcare system that influence cancer care at the primary, secondary, and tertiary levels was desperately needed. Consequently, this study examined the extent to which national strategies support the NCCP to enhance the quality of care for Ethiopian patients diagnosed with cervical cancer. The study also identified the components of the healthcare system that affect the availability, accessibility, uptake, and utilization of services at various levels of the healthcare system. Along with the degree of coordination or fragmentation among institutions and providers, it also looked at the level of communication between primary and subspecialty care. Most significantly, the study examined the elements of the healthcare system that affect how well general and specialty hospitals, both public and private, provide treatment for cervical cancer patients. In the end, the study suggested improved methods for providing high-quality, reasonably priced, and patient-centered cervical cancer care.

2.4. Conceptual Frameworks

2.4.1. Model of Access to Cancer Care. KAB: Knowledge, Attitudes, and (Health) Behaviors; QOL: Quality of Life Framework.

Access entails "the timely use of economical individual healthcare services in order to attain the highest possible health benefits." (Institute of Medicine (US), 1993). The dynamic relationships between patients, populations, and healthcare professionals acting within intricate and frequently inadequate health systems are reflected in the process of obtaining access to care. To show this extensive and collaborative process, (Mandelblatt et al., 1999) have adapted the behavioral models of access to cancer care from (R. M. Andersen, 1995; Andersen, 1968) (Figure 2.2). The model shows the key patient/population barriers such as

age, gender, insurance, knowledge, attitudes, behaviors, and culture. Moreover, primary and specialty care providers are often ill-prepared to communicate the complexities of cancer care to their patients or populations. This is influenced by the provider's gender, training, knowledge, attitudes, behaviors, perceived constraints, and socio-cultural competence. The model's final section outlines the difficulties that patient or population, and providers face in the healthcare system. Obtaining the necessary care may be facilitated or hampered by organizational and structural limitations, a refund, financial capabilities, and standards of practice (Mandelblatt et al., 1999).

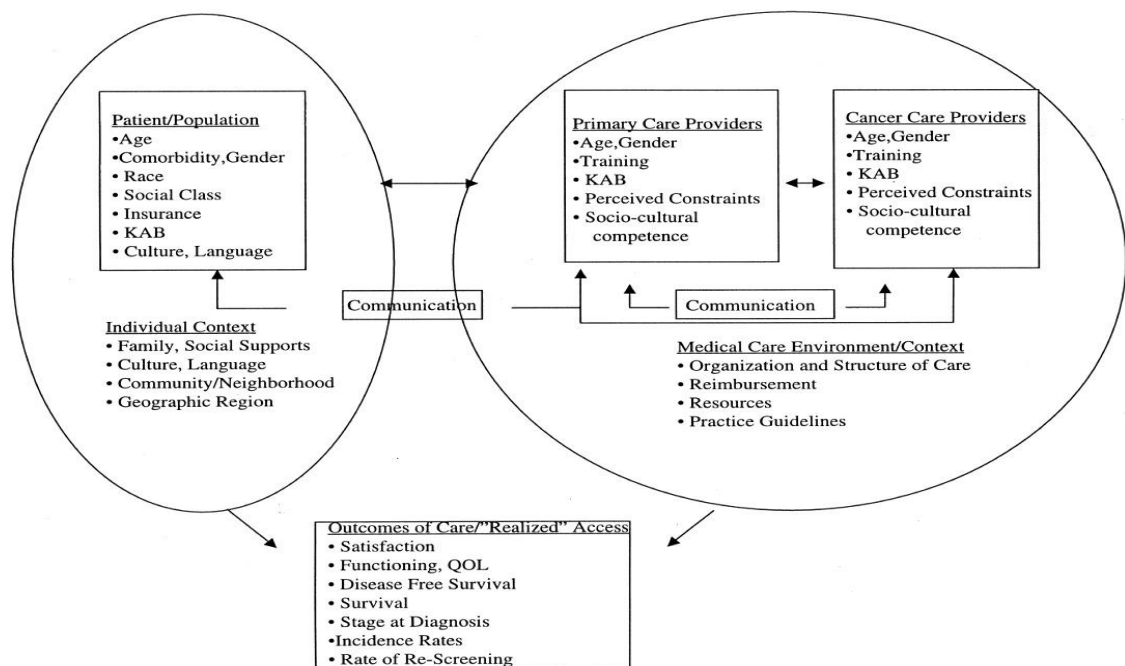


Figure 2. 2: Model of access to cancer care framework (Mandelblatt et al., 1999).

The Health Belief Model and the Model of Access to Cancer Care are useful frameworks used to comprehend the factors impacting cervical cancer screening uptake and utilization within a health system. The HBM focuses on how people view the threat that cervical cancer poses, whether they believe that acting to lessen that threat will be beneficial, and what variables impact that decision. Conversely, the Model of Access to Cancer Care investigates how several variables interact to impact access to cervical cancer screening and care at the levels of the individual, provider, health system, and policy. Using these models the study examined how screening practices are influenced by the interaction of certain system-level elements with individual beliefs, perceptions, and barriers. Hence, the aforementioned models facilitated a comprehensive assessment of the components present in the healthcare system that either promote or impede the adoption and application of screening services.

2.4.2. The Quality in the Continuum of Cancer Care Framework

The quality in the continuum of cancer care (QCCC) model is a systematic strategy to examine factors that influence cancer care. It is possible to strengthen and manage health systems and medical practices by concentrating on the transitions and steps in cancer care where failures take place (Zapka et al., 2003). Figure 2.3 depicts the application of the QCCC framework in the DETECT (Detecting Early Tumors Enables Cancer Therapy) project, which emphasizes the significance of diagnosis and detection in healthcare and offers illustrations of the various components that can result in process failures (McBride & Rimer, 1999; Yabroff & Mandelblatt, 1999). Additionally, it offers organizational strategies to lower failure rates, including those for healthcare delivery system design, self-management of patients, and leadership. The model served as a guide for screening-related quality improvement studies (Hiatt & Rimer, 1999). Nevertheless, this method can also be used to evaluate the other aspects of cancer care in great detail (Zapka et al., 2003).

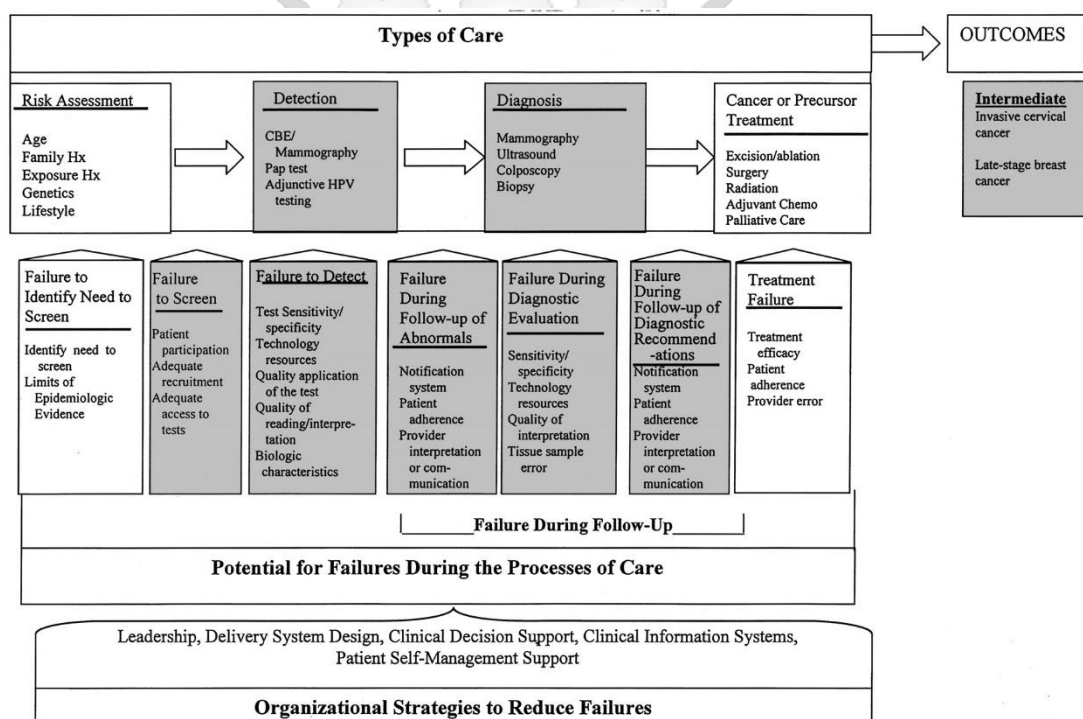


Figure 2. 3: Quality in the continuum of cancer care framework (Zapka et al., 2003).

This research utilized the OCM and QCCC framework for assessing the issues that impact the delivery of services for cervical cancer at health facilities. The models assisted in determining whether the institutions are implementing practice redesign programs, implementing payment incentives, and identifying areas of weakness to provide high-quality and high-value patient-oriented services. It also provided the foundation for following proposals on how to develop useful and quality cervical cancer services, including those pertaining to care models, organizational capability, information, leadership, financing, regulations, and standards.

2.4.3. Research Conceptual Framework

A concept map represents the various areas of the study (in boxes or circles) and the relationships between them (using lines or arrows) (Rowley & Slack, 2004). The frameworks for health system performance measures developed by Kruk and Freedman, 2008 (Figure 2.4), and Muriithi FG et al., 2022 (Figure 2.5), and the WHO health system components (WHO, 2007) were considered to come up with the research conceptual framework (Figure 2.6). Kruk and Freedman Framework for measuring the performance of health systems establishes a connection between the "inputs" of the system such as financial, human, physical, and information systems, and the "outputs" of the system, which include things like target achievement of the HPV vaccination, screening, and treatment, and screening options, the timeliness of services, the patient-centeredness and equity of services, and the "outcomes" of improved health status for all, including those from communities that are disadvantaged (Kruk & Freedman, 2008). The study also utilizes the modified social-ecological model's conceptual framework, which looks at variables from the viewpoints of the patient, the healthcare facility, and the greater healthcare system and how they connect to delays in deciding to look for care, traveling to a healthcare facility, and getting the required care (Muriithi FG et al., 2022). The decision-makers develop and implement new strategies by engaging service providers, communities and service users while the service providers operate within the NCCP strategies to fulfill the demands of communities and service users. Communities and service users influence the formulation of strategies by policymakers, and service provision by the health workforce. To explore the strategies supporting the NCCP implementation, the study considered customized guides from "Better non-communicable disease outcomes: challenges and opportunities for health systems: assessment guide. Copenhagen: WHO Regional Office for Europe; 2014" (WHO, 2014). For the survey carried out at healthcare institutions, the WHO's framework for action for fortifying health systems to enhance health outcomes was taken into consideration (WHO, 2007). Inputs into the health system, such as funding, information, leadership, health personnel, service delivery, medications, tests, diagnostics, and vaccines were measured against the health system performance processes/outputs (availability, target achievement, utilization, timeliness, equity, and patient-centeredness).

Quality healthcare in Ethiopia calls for comprehensive care that is timely, affordable, efficient with its use of resources, effective, safe, and patient-centered (FMoH, 2016b). Similarly, in this study, a "quality cervical cancer service" refers to how well the desired health outcomes (target achievement, timeliness, patient-centeredness, availability, and equity) are improved by providing women with prevention, screening, and treatment services. While "equity" seeks to provide high-quality healthcare services to all people without distinction based on their geographical location, gender, income, or disabilities (FMoH, 2021a). Universal health coverage is facilitated by access to high-quality care, which also lowers direct healthcare

expenditures and improves everyone's health. This aligns with the third goal of the 2030 Agenda for Sustainable Development of the United Nations (UN, 2015).

This study used the research conceptual framework as a guide to identify the components of the health system influencing the provision of services for cervical cancer at all three levels of care in Addis Ababa (Figure 2.6). It is focused on “inputs” and “outputs” indicators with limited parts of the “outcomes/impact.” The following two research hypotheses were employed:

- **Hypothesis 1 (H1):** The health system inputs (health workforce, medicines, diagnostics, & vaccines, service provision, information system, financing, and leadership) influence the health system outputs/process (availability, utilization, effectiveness, equity, safety, timeliness, and patient/population centeredness) aiming to promote, maintain or restore good health.
- **Hypothesis 2 (H2):** Improved health system outputs/processes result in better-quality health outcomes/impact (promote quality service coverage, reduce direct costs of care, and improve health status for all).

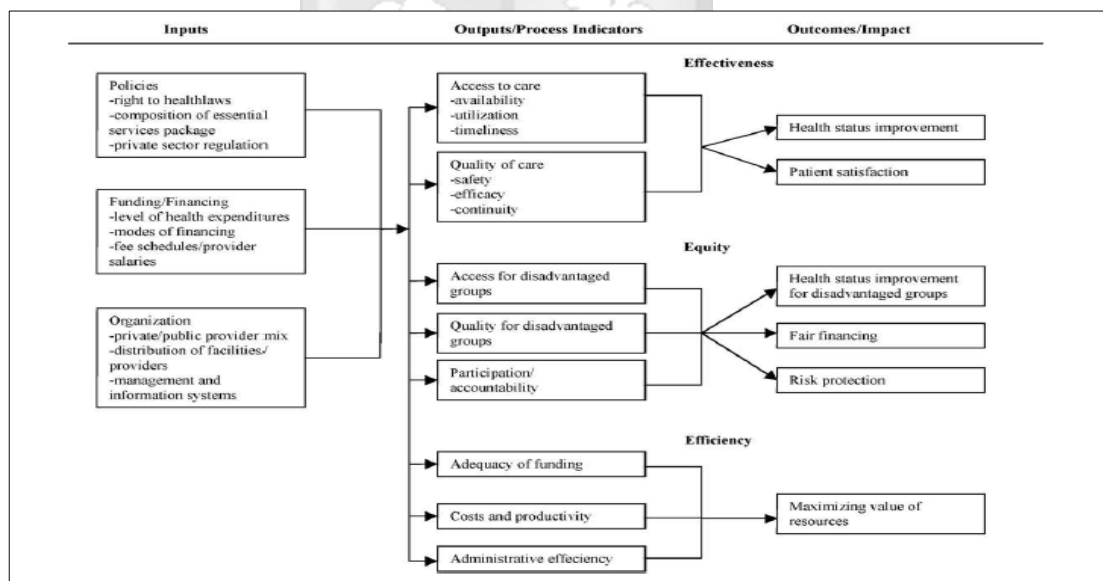


Figure 2. 4: Framework for health systems performance measures (Kruk and Freedman, 2008).

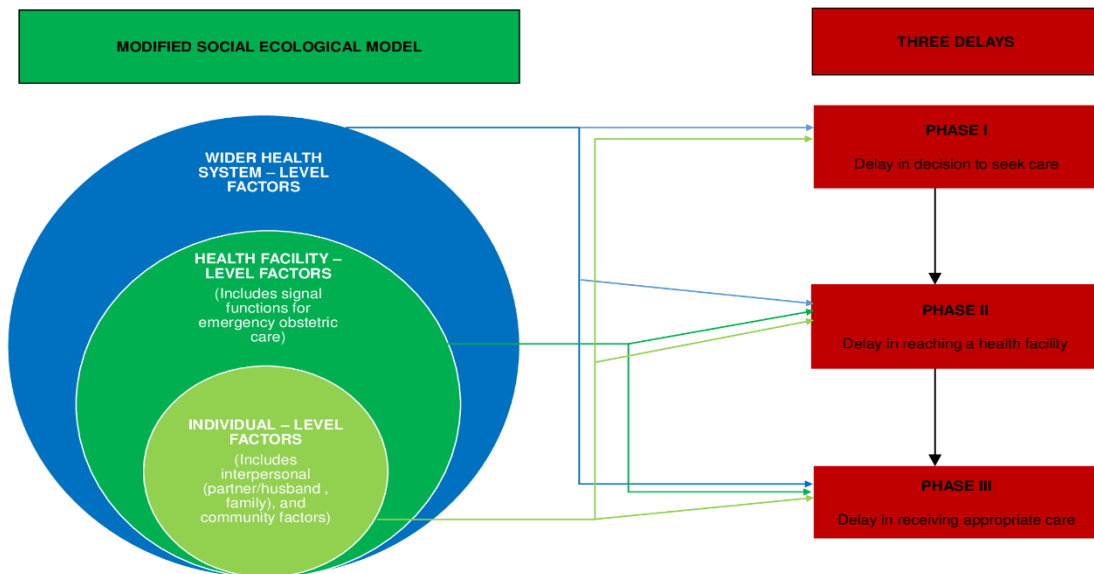


Figure 2. 5: A modified social-ecological model (Muriithi FG et al., 2022).

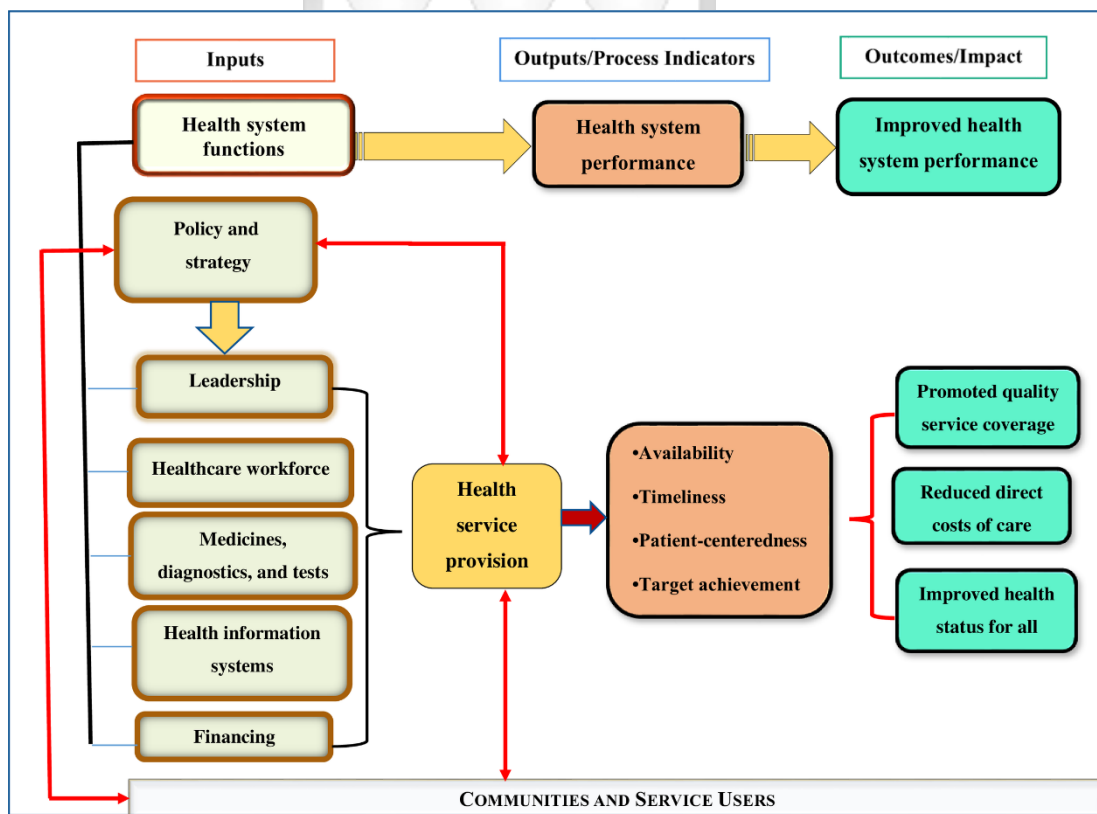


Figure 2. 6: A modified conceptual framework of the study (adapted from Kruk and Freedman, 2008; Muriithi FG et al., 2022; the WHO Health System Building Blocks, 2007)

Chapter 3: Research Methodology

This section covers the research design of the study, study environments, population and sampling, study variables and measurement, data gathering and analytical techniques, and the accuracy and dependability of the instruments used. We also examine the research's ethical issues and the distribution of its findings in the final section. A range of mixed approaches were used in the research process, such as document reviews, focus groups, questionnaires, exit interviews, and key informant interviews. It examined the components of the healthcare system that affect primary, secondary, and tertiary-level services for cervical cancer. Additionally, it evaluated strategies for assisting in the implementation of the Ethiopian National Cancer Control Plan (NCCP).

3.1. The Research's Design

3.1.1. *The qualitative and quantitative study*

Qualitative and quantitative methodologies were employed during the study. (Maxwell et al., 2015) suggested that qualitative and quantitative approaches are the two central categories of research designs. Because they provide a more thorough grasp of study themes than qualitative or quantitative techniques alone, mixed-method designs are preferable (Palinkas et al., 2015). This facilitates a full comparison, analysis, and triangulation of the responses obtained from the research questions (Maxwell et al., 2015; Palinkas et al., 2015).

3.1.1.1. *Qualitative method*

According to the constructivist philosophy of qualitative research, perception determines reality. Although there is no one true reality, several relative qualities of reality can be somewhat grasped by the use of subjective techniques. Qualitative research is concerned with the phenomenological interpretation of information that is not numerical, which is closely related to subjective aspects and the senses that people have. Human feelings and viewpoints, from investigators as well as participants, are essential because they give the findings more depth and shade (Leung, 2015). The goal of the qualitative research design is, for the most part, intended to achieve depth of understanding. It finds answers to the "what," "how," and "why" of a phenomenon from the standpoint of developing a theory or refuting an existing theory. The foundation of qualitative research is the observation and measurement of phenomena in their natural settings (Savin-Baden & Major, 2012). It places a lot of focus on the necessity of exploring, examining, or understanding more about a phenomenon from the viewpoint of a participant, as well as how to interpret and draw conclusions from a specific study.

3.1.1.2. Quantitative method

The positivist perspective, which is more prevalent in quantitative research, maintains that reality is something measurable that can be scientifically assessed. It largely deals with numerical data and statistical analyses of such data under a reductionist, logical, and rigorously objective paradigm. It aims to respond to the "how many" or "how much" inquiry. From the viewpoint of the researcher, quantitative approaches aim to obtain a breadth of understanding. The requirement to provide a standard for evaluating and validating facts is emphasized by the quantitative research design (Maxwell et al., 2015).

3.1.1.3. Research Philosophy

Using a relativism (interpretivism/constructivism) research philosophy (Gilson, 2012), an exploratory study was carried out to examine methods for improving the quality of services for cervical cancer. Since little was known about the NCCP implementation and its challenges, it aided in the investigation of what types of information, perceptions, experiences, interests and worries, and influence and power dynamics of various actors/stakeholders (individuals/groups) utilized in decision-making and shaped the effects of the NCCP implementation. Through focus group discussions (FGDs), relativism was also used to gain a thorough knowledge of the demand-side issues impacting the uptake of screening. The descriptive studies that evaluated health system variables impacting the availability and caliber of cervical cancer management at all healthcare levels used positivism as the investigation philosophy (Gilson, 2012). This was also used for the exit interviews that assessed the utilization of screening services at public health centers. These principles made it easier to compile an accurate profile of the institutions, individuals, activities, and circumstances that affected the delivery of health services, and the communities and service recipients within the NCCP implementation.

3.1.1.4. Description of the research designs for various healthcare levels

i) Strategies for assisting in the NCCP's execution.

The study specifically addressed the following types of questions: a) How do the different stakeholders perceive and comprehend the strategies supporting the execution of the NCCP? b) How have important actors' positions, interests, and concerns influenced and impacted power dynamics in the social processes that have led to the implementation of the NCCP? c) What is the current state of the NCCP's implementation in terms of providing services for cervical cancer? d) What are the main elements that have contributed to the NCCP implementation's achievements and/or failures? An empirical multi-source investigation of a particular present phenomenon in its natural environment is the methodical process of doing research using the qualitative case study design (Klopper, 2008). Consequently, the study employed key informant interviews, secondary data collection, and document reviews to

examine the NCCP implementation-related areas. The principal actors in the Ministry of Health, the Addis Ababa Region Health Bureau, and development partners were the subjects of the key informant interviews. The interviews on cervical cancer concerns decreased prejudice, guaranteed increased understanding, provided credibility, allowed for triangulation and analysis, and aided in deriving conclusions from the data. On the other hand, to comprehend the state of the NCCP implementation, secondary data on monitoring indicators for cervical cancer services (HPV vaccination, screening, and treatment) were looked at. Moreover, the relationship between NCCP and the other important pertinent strategy and policy documents was established.

ii) Access to and the quality of services for cervical cancer at hospitals.

The study's type of questions include the following: a) How accessible are cervical cancer diagnosis and treatment services? b) What challenges exist in offering quality services for cervical cancer? c) How are cervical cancer services affected by the NCCP implementation constraints? This comparative survey utilized a quantitative institutionally based descriptive study technique. Eight selected public and private general and specialized hospitals participated in the surveys, which used semi-structured questionnaires to produce an accurate profile of services for cervical cancer.

iii) Uptake, utilization, access to, and quality of services for cervical cancer at public health centers.

The following inquiries are dealt with in the study: a) What variables affect public health centers' uptake of screening services? b) What factors influence the access and utilization of screening programs at the health centers? c) Which structural and organizational models are used by the health facilities to deliver services? Four selected high-patient volume public health centers hosted exploratory focus group discussions (FGDs) for women who visited outpatient clinics, and the exit interviews with women who attended screening for cervical cancer. A quantitative institutionally based descriptive study assessed access to and the quality of services for cervical cancer at 51 public health centers.

3.1.2. Study settings

This study was carried out in Addis Ababa with 126 woredas (districts) and 11 sub-cities (Figure 3.1). There were 101 public health centers, 38 private hospitals, and 13 government hospitals in the city. According to UN population forecasts, Addis Ababa's metro region had 5,228,000 people living there in 2022 (CSA, 2022). This setting was picked because cervical cancer management activities would be more easily accessible and assuming that higher quality of services are provided there. This helped to uncover the actual problems with a comparatively better design of the health system and propose workable interventions that could be applied in similar institutions across the nation though generalizing the study findings should consider dissimilar infrastructures, various degrees of access to services, and

diverse socio-cultural norms. The security in the various regions of the nation and the budgetary restrictions (time, money, and manpower) were also taken into account while choosing the study locations. The study determined the barriers to the national cancer control plan's execution through key informant interviews, mainly with officials from the Ministry of Health, the Addis Ababa Regional Health Bureau, and development partners. On the other hand, public health centers, as well as general and specialist public and private hospitals, were used for the service delivery survey.

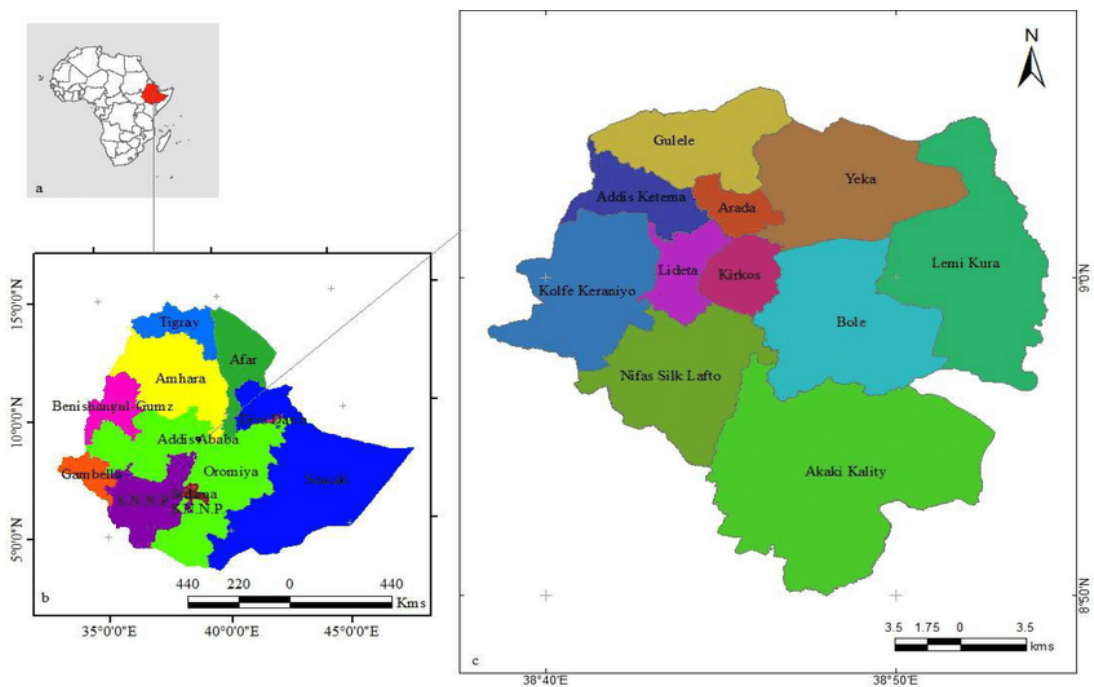


Figure 3. 1: A map of Addis Ababa with its sub-cities (Source: Ethio GIS, 2022).

3.1.3. Study period

The study took place between July 2022 and October 2022. The assessment of factors influencing access to and the quality of cervical cancer prevention and screening services in 51 public health centers in Addis Ababa began in the middle of July 2022 and continued through the end of August 2022. This was followed by an investigation of the health system factors affecting the uptake and utilization of cervical cancer screening services in four public health centers with high patient volumes. The survey was conducted on the health system factors affecting the cervical cancer diagnosis and treatment services offered in three public and three private general hospitals, including two specialized hospitals (one public and one private), in Addis Ababa, from the beginning to the end of September 2022. Additionally, the final phase of the study was carried out from the beginning to the end of October 2022 to assess the level of support that the National Cancer Control Plan implementation framework receives from the existing national initiatives for enhancing access to and the quality of services for

cervical cancer. The Ministry of Health, the Addis Ababa City Administration Health Bureau, and development partners all participated in this.

3.2. Population and Sampling

3.2.1. Study population

The key informant interviews were conducted with individuals (cervical cancer focal persons) affiliated with the Ministry of Health (MOH) Disease Prevention and Control, Maternal, and Child Health and Nutrition (MCHN) Directorates, Ethiopian Pharmaceuticals Supply Service (EPSS), Ethiopian Food and Drug Authority (EFDA), Addis Ababa City Administration Health Bureau (AACAHB), Non-communicable Diseases (NCD) Directorate, and Maternal and Child Health (MCH) Directorate. Additionally, participants from partners such as the AIDS Healthcare Foundation (AHF), Centers for Disease Control and Prevention (CDC), Family Guidance Association of Ethiopia (FGAE), Pathfinder International, and Wings of Healing were interviewed as well. For the focus group discussions (FGDs) on the uptake of screening, the study population consisted of women aged 25-49 who were attending public health centers' outpatient clinics. The target group for the exit interviews on the use of screening was women who visited cervical cancer clinics. Public health centers and private and public general and specialty hospitals were the target population for the assessment of health system elements influencing the provision of services for cervical cancer in Addis Ababa. In-person interviews with fifty-nine focus individuals for cervical cancer in these healthcare settings were conducted. The major players were the gynecologists, nurses, midwives, and health officers who oversaw or managed the cervical cancer services. The Addis Ababa Regional Health Bureau, development partners, and the Ministry of Health were taken into consideration for key informant interviews regarding the strategies of the NCCP. Based on the NCCP framework, the achievement of important cervical cancer service monitoring indicators (HPV vaccination, screening, and treatment) has been determined both nationally and in Addis Ababa. Furthermore, a review of the NCCP's connections to other plans was conducted, including the National Strategic Action Plan for Control of NCDs, the National Reproductive Health Strategy, Cervical Cancer Guidelines, the Health Sector Transformation Plan, and A Roadmap for Optimizing the Health Extension Program.

3.2.2. The sampling methods used in the qualitative research

The non-probability or purposive sampling method is frequently employed in qualitative investigations and prioritizes saturation, acquiring comprehensive understanding by continuing to sample until no new significant information is gained (Palinkas et al., 2015). Not each participant in the population has the same probability of being included in the samples when using purposive sampling; instead, individuals are picked with the knowledge that each will provide unique, in-depth data that will be valuable to the research. It concentrates on

people with particular attributes who will be more qualified to help the research. Participants who are appropriate for the study's objectives are included when the researcher has a specific idea in mind. Finding and selecting individuals or groups of people who know and are skilled in a subject of interest was part of the process. Along with knowledge and experience, it was critical to consider participation, availability, and the ability to convey ideas and opinions in a way that is clear, expressive, and contemplative (Etikan et al., 2016).

A total of 66 women were purposefully chosen from the outpatient clinics to participate in the focus group discussions (FGDs). Women who had granted consent to participate in the study and who were aged 25 to 49 satisfied the inclusion criteria. On the contrary, no women younger or older than this were included in the study. Based on Silverman's (2004) guidance, a total of eight FGDs were conducted (two at each health facility), with a range of 8–10 participants in each (Silverman, 2004). The subject matter experts (SMEs) for the key informant interviews were specifically chosen from the AACAHB, the MOH, and development partners till the saturation of information. While from the NCCP implementation framework, three monitoring indicators (HPV vaccination, screening, and treatment) were chosen to assess cervical cancer performance (FMoH, 2015). The review of crosscutting interventions considered five key national documents (listed under section 3.2.1) included in the NCCP (FMoH, 2015).

3.2.3. The sampling methods used in the quantitative research

The stratified sampling methodology was applied for selecting healthcare facilities in 11 sub-cities of the Addis Ababa City Administration. As a result, there was no selection bias and all strata were fairly represented. All Addis Ababa healthcare facilities providing cervical cancer management services satisfied the inclusion criterion, which determined the sample size. The sampling frame consisted of 97 public health facilities in total: 90 health centers, 5 general hospitals, and 2 specialty hospitals. The AACAHB's most recent census produced an updated list of healthcare institutions. The research excluded healthcare facilities that did not actively offer cervical cancer services.

The sample size for health centers was determined using $n_0 = z^2 * p * q / e^2$ (Cochran, 1977). Where: n_0 = sample size, $z = 1.96$ for a confidence level (α) of 95%, $p =$ proportion (0.09), health facilities offered diagnosis and treatment for cervical cancer (FMoH and EPHI, 2018), $q = 1-p$ (0.91), $e =$ margin of error (5%). Hence, $n_0 = 126$ health facilities. Then, the sample size was adjusted using $n = (n_0 / (1 + (n_0 - 1) / N))$ (Cochran, 1977). Where n is the adjusted sample size and N is the population size. The sample size (n) becomes 55 public health facilities which are summarized in Table 3.1. A proportionate number of 51 public health centers were randomly selected using Microsoft Excel out of a total of 90 public health centers actively providing cervical cancer services in 11 sub-cities (Addis Ketema (13), Akaki Kality (8),

Arada (8), Bole (5), Gulele (8), Kirkos (7), Kolfe Keraniyo (7), Lemi – Kura (9), Lideta (7), Nifas Silk Lafto (8), and Yeka (10)). For the hospital services survey, three public general hospitals (out of six), and one public specialized hospital (out of two) providing oncology services were randomly selected from the list provided by the AACAHB. In addition, one private specialized hospital (out of two), and three private general hospitals (out of six) were randomly chosen for assessing access to and quality of operations and performance of the private sector cervical cancer services. Specialty hospitals have a minimum of one hundred ten beds, are connected to a medical school to provide specialist curative and rehabilitative services and have chemotherapy and modern diagnostic and treatment facilities. In contrast, general hospitals have at least fifty beds and offer obstetrical and gynecological services in addition to curative, rehabilitative, and preventative care. Furthermore, 59 healthcare professionals (gynecologists, nurses, midwives, and health officers) were selected for in-person interviews using a semi-structured questionnaire after taking into account the "cervical cancer focal person position" in healthcare institutions. The focal persons were individuals responsible for managing or coordinating services for cervical cancer. Nonetheless, the total number of service providers varied throughout healthcare facilities.

Table 3. 1: Sample size calculation for public health facilities in Addis Ababa.

Strata (h)- (1-3)	(h)1- health centers	(h)2- general hospitals	(h)3- specialized hospitals	Total population size (N)	Total sample size (n)
Population size for stratum (N _h)	90	5	2	97	-
Sample size for stratum h (n _h)	51	3	1	-	55

The public and private primary-level institutions vary significantly in terms of their organizational structure, human resources, and service offerings. Due to this, assessment of access to and quality of performance and operation of cervical cancer services at private primary healthcare facilities was not included in this study. In addition, because of their sheer quantity, the study would have required a lot of resources. The public and private healthcare facilities that were selected from the 11 sub-cities of Addis Ababa are listed in Table 3.2.

Table 3. 2: The number of randomly selected health facilities for the study.

Sub-city	Public health center	Public general hospital	Private general hospital	Public specialized hospital	Private specialized hospital
Addis Ketema	6		2		
Akaki Kality	4				
Arada	6	2			
Bole	2				1
Gulele	4			1	
Kirkos	4	1	1		

Sub-city	Public health center	Public general hospital	Private general hospital	Public specialized hospital	Private specialized hospital
Kolfe Keraniyo	4				
Lemi – Kura	5				
Lideta	5				
Nifas Silk Lafto	6				
Yeka	5				
Total	51	3	3	1	1

A single population proportion formula was used to determine the sample size for this utilization survey, $n = z^2 * p * q / e^2$. Where: n=sample size, z=1.96 for a confidence level (α) of 95%, p = proportion (0.0547), Ethiopian women projected to utilize cervical cancer screening services (Kassie et al., 2020);, q = 1-p (0.9453), e = margin of error (5%). Hence, a sample size (n) of 80 women was determined for the study. The sample was proportionately allocated to the four high-patient volume public health centers (20 exit interviews per facility). Considering the low number of women visiting cervical cancer clinics, to reach the required sample size of 80 women, those who attended clinics for precancer cervical lesions screening and/or treatment were sequentially recruited. The inclusion criteria were met by women who consented to participate in the study after undergoing screening for precancer cervical lesions mainly by using visual inspection with acetic acid (VIA). On the other hand, women who were not screened were excluded.

3.3. Study Variables and Measurement

3.3.1. Qualitative research

The key areas of measurement for the NCCP study were population empowerment, incentives, interagency cooperation, political commitment, priority-setting, and guidelines (WHO, 2014). Whereas for the FGDs on the uptake of screening services, personal, financial, and sociocultural issues as well as women's perceptions about the disease were taken into consideration.

3.3.2. Quantitative research

In the hospitals' study, a multitude of elements, including the coordination and implementation of cervical cancer service delivery, funding, leadership and oversight, the health workforce, information, medicines, vaccines, diagnostics and tests were assessed (WHO, 2007). The various health system areas and their components for the provision of quality diagnosis and treatment of cervical cancer at secondary and tertiary hospitals in Addis Ababa is shown in Table 3.3.

Table 3. 3: The key health system intervention areas for cervical cancer services in hospitals.

#	Health system area	Components
1	Addressing human resource challenges	Health workforce, oncology training, and collaboration project
2	Leadership - strengthening health systems management	Managerial training, authority and responsibility, incentives, and change management
3	Cancer service provision and improving coordination across providers	Services, coordination of care, referral system, and loss to follow-up
4	Improving access to quality medicines/equipment/supplies/vaccines for cervical cancer care	Procurement and supply management of cancer medicines, and availability of diagnostic equipment, reagents, tests, vaccines, and supplies
5	Creating adequate information solutions	Sources of data, patient information, data portability, and reports
6	Ensuring access to care and reducing the financial burden	Source of funding, adequacy of funding, subsidies, guidelines, and investment

The variables for the health centers' survey included organizational/structural, staff, financial, health information system, referral system, equipment, tests, and vaccine areas. Table 3.4 depicts the key health system areas surveyed at public health centers.

Table 3. 4: The list of key health system areas surveyed at public health centers.

#	Health system area	Content
1	Establishing effective models of service delivery	Facility services (public awareness, HPV vaccination, screening, and treatment), providers, financing, health information systems, waiting times, laboratory results, and referral system
2	Improving access to equipment, reagents, vaccines, and supplies	Speculum, cryotherapy machine with CO ₂ gas supply, acetic acid, HPV vaccine, IEC/SBCC materials (posters, audio), guidelines for cervical cancer prevention and control, and referral forms
3	Linkage with the community and service users	Training of Urban Health Extension Professionals (UHE-Ps), roles of UHE-Ps, prevention and screening services, and community linkage/referral

The exit interviews on utilization of screening services were measured based on women's perception, referral challenges, waiting periods, service coordination, provider choice and capacity, and areas of improvement.

3.3.2.1. Health system inputs

The health system's "inputs" were determined by taking into account 1) Human resources: The availability of staff for services related to cervical cancer (nurses, midwives, and/or health officers); 2) Physical/Infrastructure: Availability of screening devices, diagnostic tests (HPV DNA tests and Pap smear tests), treatment equipment, and HPV vaccine; 3) Information: Health information systems (cervical cancer registration, EPI register, and administrative reports) that make it easier to gather, manage, and analyze data for cervical cancer management; and 4) Financial: Funding (infrastructure, supplies, and operational costs), user fees, and transportation costs.

3.3.2.2. Health system outputs

The following metrics were used to measure the health system's "outputs" regarding services for cervical cancer: 1) Target Achievement: Measuring the rate of HPV vaccination, screening, and treatment achievement (performance per annual plan) towards meeting the WHO 90-70-90 cervical cancer targets; 2) Availability: Reviewing the accessibility and availability of VIA, HPV DNA, and Pap smear tests; 3) Timeliness: Assessing the time required for screening and treatment services; 4) Patient-centeredness: Assessing whether patient preferences and needs are considered by providing various testing options; and 5) Equity: Examining the extent to which services for cervical cancer are offered without regard to a patient's financial situation, domicile, or social standing.

3.4. Data Collection Methods

3.4.1. Institutional approvals and participants' informed consent

Before the study began, letters of approval were obtained from several organizations (Section 3.8). The Ministry of Health and 11 Addis Ababa sub-cities (Table 3.2) also provided support letters. The researcher made additional contacts (either by phone or word of mouth) for data collection with the appropriate staff for a visit based on their recommendations after speaking with the local health managers. All selected participants were requested for their written consent before participating in the study (Appendix 1).

3.4.2. Study objectives, data collection methods, and analytical approaches

Table 3.5 provides information on the study's specific objectives, data collection techniques, and analytical strategies. The tools for collecting qualitative and quantitative data are provided in Appendices 2 and 3, respectively. A field study was undertaken by the researcher two to three days after the participants were recruited. Each interview lasted up to an hour, and records and/or notes were made as appropriate (Appendix 1).

Table 3. 5: Study objectives, data collection methods, and analytical approaches.

Specific Objective	Data collection method	Study period	Analytical method
1. To examine the degree to which the implementation of the Ethiopian National Cancer Control Plan is supported by the existing institutional	1. Document review (secondary data): The review determined the implementation status of key monitoring indicators (HPV immunization, screening, and treatment) of the National Cancer Control Plan (NCCP)- (Appendix 3.1). The checklist was used for the data extraction by examining records from the cervical cancer register, and the extended program on immunization (EPI) register.	October 2022	Qualitative

Specific Objective	Data collection method	Study period	Analytical method
strategies for enhancing the quality of cervical cancer services.	<p>2. Document review (secondary data): We looked at the national strategy and policy documents and how they related to the NCCP, with a focus on issues related to services for cervical cancer (listed under section 3.2.1).</p> <p>3. Key informant interview: One-to-one interviews were conducted using guidelines with the subject matter experts (SMEs) in the MOH (including the Ethiopian Food and Drug Authority, and the Ethiopian Pharmaceuticals Supply Service), Addis Ababa City Administration Health Bureau, and five development partners (AHF, CDC, Pathfinder International, Wings of Healing, and FGAE) to understand in-depth insights, social processes, attitudes, thoughts, power relations, positions, understandings, actions, and experiences on the implementation of the NCCP. The focus areas were political commitment, setting priorities, interagency cooperation, incentives, population empowerment, and integrating evidence into practice (Appendix 2.1). The saturation of information collected in response to answering the research questions served as guidance for the number of key informant interviews that were undertaken for the study.</p>		
2. To assess health system factors affecting access to and quality of cervical cancer diagnosis and treatment services provision in the public and private general and specialized	<p>Semi-structured questionnaire: The survey was conducted using a semi-structured questionnaire in four public hospitals (3 general hospitals and 1 specialty hospital) and four private hospitals (3 general hospitals and 1 specialty hospital) on service delivery, human resources, financing, health information systems, leadership/governance, and availability of medicines, vaccines, and tests (Appendix 3.2). The checklist was used for the data extraction by examining records from the cervical cancer register, and the extended program on</p>	September 2022	Quantitative

Specific Objective	Data collection method	Study period	Analytical method
hospitals in Addis Ababa.	immunization (EPI) register. The list of health facilities is provided in Appendix 5.		
3. To assess health system elements influencing the uptake, utilization, quality and accessibility of services for cervical cancer screening and prevention provided in Addis Ababa's public health centers.	<p>1. Focus group discussions: Among 66 women visiting outpatient clinics, the study examined sociocultural, economical, and personal factors influencing the uptake of screening (Appendix 2.2). The discussions took place in private, peaceful areas of health facilities that were set aside for that reason. The tool was translated into Amharic after being produced in English. The translation-retranslation approach established language uniformity.</p>	July-August 2022	Qualitative
	<p>2. Exit interviews: This study found barriers to the utilization of screening programs. The main topics of discussion included women's perceptions of cervical cancer and screening, women's decisions about screening, difficulties with referrals, waiting periods, service coordination, provider choices, practitioner capacity, and areas that needed improvement (Appendix 3.4). Five trained data collectors (public health experts) conducted interviews with 80 sequentially recruited women who attended the screening and/or received treatment as they exited from the cervical cancer clinics in four high-patient volume public health centers. Since there was a low patient flow, all women who received screening and/or treatment services were interviewed until the required sample size of 80 was reached.</p>		Quantitative
	<p>3. Semi-structured questionnaire: The survey was conducted with cervical cancer focal persons in 51 public health centers. It assessed the organizational and structural model of service delivery, factors affecting access to equipment, tests, vaccines, and community services (Appendix 3.3). The list of health facilities is provided in Appendix 5.</p>		Quantitative

Specific Objective	Data collection method	Study period	Analytical method
	<p>The data collection procedure included two components:</p> <p>1. Face-to-face interviews: Following the ethics committee's approval of the project, five trained data collectors (public health experts) conducted in-person interviews with focal persons for cervical cancer services at each of the 51 health centers. They used an Open Data Kit (ODK) tool that included a semi-structured questionnaire (in English). The questionnaire was read out to cervical cancer focal persons and explained (translated) in Amharic (local language) to avoid any misunderstanding. The survey was focused on health system performance “inputs” (providers, equipment, tests and vaccines, financing, and health information systems), and “outputs” (target achievement of services, availability of screening options, timeliness of services, patient-centeredness, and equity) of cervical cancer services.</p> <p>2. Secondary data review: The second part of the data collection procedure involved a review of existing data related to cervical cancer. The checklist was used for the data extraction by examining records from the cervical cancer register, the extended program on immunization (EPI) register, and administrative reports. The number of women who had screening and/or treatment for precancerous lesions was disclosed by the cervical cancer register. The EPI registration was investigated to ascertain the number of girls who received the HPV vaccine. Administrative reports, on the other hand, provided information on public awareness messages.</p>		

3.5. Data Analysis

The following tools were used in the study's data analysis.

3.5.1. Qualitative data analysis

Thematic investigation is "a method for identifying, analyzing, and presenting patterns within data" (Clarke & Braun, 2019; Grbich, 2012). Whereas categorizing information according to the main research topics is accomplished by content analysis. It is a methodical process that involves looking through vast volumes of textual data to find patterns and trends in the words that are used, as well as their frequency and connections to other phrases (Bowen, 2009; Bloor & Wood, 2006). Strategies supporting the NCCP's implementation for the delivery of high-quality cervical cancer services and FGDs that examined screening uptake were subjected to thematic framework analysis. The FGDs and key informant interviews' audio recordings were translated from Amharic (official language) to English. Microsoft Word and an Excel spreadsheet were used to compile the results. The study involved identifying the major ideas and grouping them into themes, sub-themes, and codes. The National Cancer Control Plan's implementation data (HPV vaccination, screening, and treatment) and its connections to other national policies or strategies were also reviewed in this study. These data were presented in Microsoft Word for analysis.

3.5.2. Quantitative data analysis

The correctness, consistency, and completeness of the survey data on the services provided at health facilities and the exit interviews on the use of screening were verified. Data auditing was done before data collection was finished to make sure the required sample size is kept. This process included checking the collected data for accuracy, consistency, and completeness. Any discrepancies or missing data points were fixed. The data was exported to Excel CSV format after the data auditing procedure was finished. To further clean and analyze the data, SPSS Version 26 and STATA version 17 were employed. At this step, extra verifications and checks were done on the data to make sure it is accurate and consistent. This made it possible to find mistakes and fix them, deal with missing values, and recode variable replies so that they are in the correct format. The dataset was cleaned and then made ready for additional analysis. In this step, certain variables of interest were chosen and the data was formatted in a way that is suitable for analysis. Data summaries were created using descriptive statistics. To determine the variables related to screening use, provider preference, and safety, bivariate and multivariate logistic analyses were conducted. Graphs, tables, or figures were used to summarize the frequencies, percentages, and attributes of the cervical cancer service-related information collected in this study.

3.6. Validity and Reliability

Validation and reliability evidence is necessary to guarantee the precision and quality of a measurement tool (Kimberlin & Winterstein, 2008). Both qualitative and quantitative studies are evaluated using criteria for validity, reliability, and generalizability (Leung, 2015).

3.6.1. Validity

If an instrument's individual scores make sense, are meaningful, cover the relevant area of investigation, and the methodology selection is appropriate for addressing the research questions, it is said to be valid. Validity also pertains to the researcher's capacity to derive reliable inferences from the sample in the study population (Ghauri et al., 2020; Waterman, 2013; Creswell, 2012). The "appropriateness" and "trustworthiness" of the instruments, methods, and data are what qualitative research validation refers to. When it comes to quantitative research, a study's validity is determined by how accurately it answers the questions and hypotheses. Every step of the research process, including theory development, study design, sampling, data collecting, analysis, results, and conclusions, needs to be evaluated if the logistics of the study are transparent or rigorous enough. In this way, the robustness and high rigor of the study process, measuring tools, and results integrity may all be guaranteed (Heale & Twycross, 2015; Kimberlin & Winterstein, 2008; Meyrick, 2006). In this study, the validity of the quantitative data was controlled utilizing a variety of techniques. Based on their past expertise collecting quantitative data utilizing the Open Data Kit (ODK) platform, five public health professionals were chosen and involved in the data-collecting process. The data collectors received a half-day of training utilizing the guidelines for gathering information. The primary subject of discussion was the semi-structured questionnaire that was pre-installed on the ODK tool. The data collectors offered comments on how to make the tools more effective at answering the study questions (mainly targeting the health centers survey). The semi-structured questionnaire's validity was further evaluated based on how well it addressed the study questions through field testing. For this, the health centers' data collecting tool underwent pretesting at the Felege Meles Health Center (in Addis Ababa) and the hospitals' questionnaire at the Menelik II Specialized Hospital (in Addis Ababa) before the actual data collection began. The tools were modified in response to field feedback. Real-time data synchronization and collection were made accessible through the ODK central server. Additionally, the questions pre-programmed on the ODK allowed for the validation of the tools' consistency, integrity, validity, and comprehensiveness. The data manager also supervised the daily ODK server data collection and consistency. To maintain the necessary sample size, data auditing was carried out before the conclusion of data collection. Any discrepancies were fixed after determining the sample size before data analysis. At the same time, to guarantee the reliability of the study's findings, thorough data, and ongoing data comparisons were used. The focus group discussion guide, the exit interview tool, and the key informant interview guide were validated by our research assistants (public health experts). To further guarantee the accuracy of the data acquired from the focus groups, the instrument was created in English and translated into Amharic, the national language of Ethiopia.

3.6.2. Reliability

Consistency is key to the reliability of qualitative research that uses a variety of paradigms (Leung, 2015; Carcary, 2009). The principal investigator and the facilitator in this study listened to the audio recordings of the focus group discussions (FGDs) immediately following the discussions to assess the guides' accuracy in responding to the study's questions and whether the participants were able to draw useful conclusions from their responses. While the lead investigator reviewed the key informant interviews to ensure they addressed the important issues raised in the guides. However, accuracy in repeatability of techniques and results is what is meant by reliability in quantitative research. It displays the probability that, if the measurement were done again using the same techniques, the same results would be obtained. The technique and findings of the study were ensured to be reliable by routinely comparing and utilizing the data extensively. The daily collection of data and supervision of its consistency was under the purview of the data manager.

3.7. Results Dissemination

To raise awareness, prioritize, and secure more funding for cervical cancer services in Addis Ababa, the study's findings were primarily intended for distribution to the Ministry of Health, the Regional Health Bureau of Addis Ababa, Addis Ababa sub-cities, participants, the national regulatory body, the national procurement entity, the managers of regional and health facilities, cancer societies, development partners, and non-governmental organizations. The other results dissemination mechanism included engaging in stakeholder meetings or policy forums. Moreover, presenting highlights of the findings during the MOH annual review meetings and to various professional associations, and international conferences aimed to enhance awareness about cervical cancer services in resource-limited settings. Providing pre-service or in-service training to healthcare providers as well as participation in creating educational resources such as brochures, pamphlets, or online content that effectively communicate the study's findings were further devised means.

3.8. Ethical Considerations

This study served as a partial fulfillment of the requirements for a Ph.D. in Healthcare Management offered by Strathmore University, Nairobi, Kenya. The study's ethical approvals (Appendix 4) were obtained from the following three organizations: 1) the Strathmore University Institutional Scientific and Ethical Review Committee (SU-IERC1373/22); 2) the Addis Ababa City Administration Health Bureau Ethical Clearance Committee (A/A/0024/227); and 3) the Institutional Review Board of St. Paul's Hospital Millennium Medical College (SPHMMC) (PM23/166). Additionally, 11 sub-cities in Addis Ababa provided support letters that were submitted to the corresponding health facilities for authorization to collect data. Furthermore, all methods were carried out with the relevant guidelines and regulations of the Declaration of Helsinki. The focal points for cervical cancer

were informed of the study's purpose. Every participant gave a written formal agreement before participating in the study, either in English or Amharic (the official language of Ethiopia) (Appendix 1). Because taking part in the study was voluntary, participants were allowed to discontinue at any time. The data's confidentiality was upheld by using password-protected files and secure storage facilities. Nobody was given access to any personally identifying information, and no names were mentioned in the study.



Chapter 4: Results

The parts that follow include the study findings:

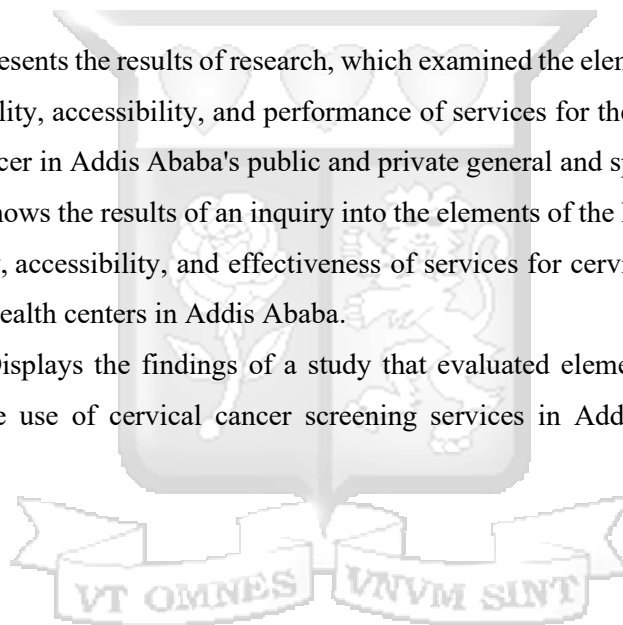
Section 4.1. Offers the results of a study that explored how much national strategies are aiding in the Ethiopian National Cancer Control Plan's (NCCP) operation to enhance the availability, accessibility, and quality of cervical cancer services.

Section 4.2. Indicates the results of a study that investigated the elements of the health system influencing the uptake of screening services for cervical cancer at public health centers in Addis Ababa.

Section 4.3. Presents the results of research, which examined the elements of the health system on the availability, accessibility, and performance of services for the diagnosis and treatment of cervical cancer in Addis Ababa's public and private general and specialty hospitals.

Section 4.4. Shows the results of an inquiry into the elements of the health system influencing the availability, accessibility, and effectiveness of services for cervical cancer screening and prevention at health centers in Addis Ababa.

Section 4.5. Displays the findings of a study that evaluated elements of the health system influencing the use of cervical cancer screening services in Addis Ababa's public health centers.



Section 4.6. It summarizes the findings from the five parts of the study conducted in Addis Ababa, Ethiopia.

4.1. The extent to which institutional strategies for improving the quality of care for women with cervical cancer support the implementation of the Ethiopian National Cancer Control Plan framework.



Figure 4. 1: The strategies assisting in the National Cancer Control Plan's implementation.

4.1.1. Thematic analysis with relevant quotes for key informant interviews on strategies supporting the NCCP

a) Political commitment to cervical cancer prevention and control

The national government's commitments

There was a high government commitment to the leadership and guidance of the Ethiopian First Lady. The National Cancer Committee was co-chaired by the First Lady of Ethiopia and the Minister of Health (MOH) to direct initiatives related to cancer prevention and control. However, the country's transmission of messages about cervical cancer prevention and control was not sufficiently aided by powerful, prominent leaders or celebrities. The MOH allocated funds and deployed the health professionals to build a cervical cancer prevention and control program. Up to USD 7.5 million in funding has been set aside by the government for cervical cancer screening and treatment programs nationwide. This was carried out in collaboration with organizations that assist HIV-positive women, including the Centers for Disease Control and Prevention (CDC). Since the beginning of cervical cancer prevention and screening in 2009, the nation's gradual scale-up and equity of services have been maintained thanks to the Ministry of Health's strong commitment and support from Pathfinder International. In 800 woredas (districts) across the nation, 1218 health facilities—at least one per district—began offering services for cervical cancer screening and treatment, according to the MOH report. A

substantial number of healthcare professionals have received training in the prevention, screening, and treatment of cervical cancer. All healthcare institutions have visual inspection with acetic acid (VIA) and cryotherapy machines. In addition, the MOH launched the combat cervical cancer (3Cs), with the goal of screening five women every day at a particular medical facility. Across the country, 274,756 women were screened between July 2021 and June 2022. The multiple stakeholders' involvement in 3Cs program in the country resulted in the cost-effective cervical cancer prevention and control services. All women mainly aged 30-49 were obtaining 100% free screening and treatment services through a decentralized health system at the public health facilities. The MOH conducted cervical cancer Zoom meetings with zonal health offices every month as well as with regional health bureau focal persons for the evaluation of 3Cs services. Additionally, regional and zonal office focal people participated in the yearly review meeting for cervical cancer services. When the Ethiopian National Cancer Control Plan (NCCP) was introduced in 2015, USD 93 million was set aside for cancer control efforts over a five-year period (2015–2020). However, primarily as a result of insufficient financing, Ethiopia's cancer service did not adequately address the severity of the issue in the nation.

“There was no constant budget set for NCDs and cervical cancer services in Addis Ababa City Administration Health Bureau (AACAHB). The majority of the budget was allocated by the MOH, and the partners and the health bureau allocated resources to fill the gaps in the provision of cervical cancer prevention and control services in terms of training, financing, population empowerment, and supply of equipment and supplies.” (KII 9, AACAHB)

Except for Addis Ababa, the nation lacked a population-based cancer registry, making it impossible to acquire regular and complete epidemiological data on the most common malignancies at the national level and to adopt cost-effective solutions while taking into account the country's resources. The nation lacked an extensive cancer surveillance system as well. (Key informant interviewee (KII) 1, MOH)

Addis Ababa City Administration Health Bureau commitments

The yearly Non-Communicable Diseases (NCDs) meetings of the Ministry of Health (MOH) were attended by the Addis Ababa City Administration Health Bureau (AACAHB). The performance of HPV vaccination, screening, treatment, and challenges faced by all of the nation's regions were the main topics of discussion during the annual meetings. The healthcare facilities provided the weekly pre-cervical cancer lesions screening and treatment reports to the AACAHB via the District Health Information System 2 (DHIS2). The AACAHB and MOH also worked together to provide mentorship services for 20 public health centers over the course of 20 days (one day for each facility). Two hospital professionals who completed TOT and the MOH's mentorship orientation worked on this, together with an AACAHB health

officer who was the organization's focal point for cervical cancer. Health workers who completed the cervical cancer TOT training and provided cervical cancer screening and prevention services at the health centers were eligible for a mentorship program. Following an assessment of the skills of the mentored staff, written reports and immediate comments were given to the management of these sites. In the AACAHB, there was no specific budget allocated for the management of Non-Communicable Diseases (NCDs), including for services related to cervical cancer. The MOH allotted the bulk of the funds towards cervical cancer services. In terms of joint planning, capacity building, training, mentorship, technical assistance, finance, and the provision of equipment and supplies, the partners assisted the MOH in allocating additional resources to close the gaps in the delivery of services for cervical cancer prevention and control. (KII 9, AACAHB)

b) Transparent and evidence-based priority-setting

The government, in collaboration with multiple partners across the country, has made prevention and control of cervical cancer a top priority with significant investment at the primary, secondary, and tertiary levels. Based on variables including income, place of residence, and ethnicity, the government established national priorities for cervical cancer services. An enhanced community-based health insurance program, the availability of diagnostic equipment, test kits, and reagents, and a decentralized healthcare system allowed for the free provision of cervical cancer screening and treatment services. (KII 1, MOH)

Primary prevention: Schoolgirls who were at least fifteen years old were vaccinated against HPV by the Ministry of Health (MOH) under a program overseen by the Maternal and Child Health (MCH) department. Despite the fact that the HPV vaccine had to be administered as part of a regular immunization schedule, all medical facilities were actually conducting campaigns to administer it. In contrast to the intended targets of 95% for HPV 1 and 92% for HPV 2, the national result for July 2021–June 2022 was 105% for HPV 1 and 84% for HPV 2. (KII 3–4, MOH). In collaboration with the Ministry of Education, the State Minister of Health declared on September 24, 2022, that 4.8 million schoolgirls had gotten the first dose of the HPV vaccine, and 3.1 million (64.6%) of those who turned 14 had received the second dosage. However, there were shortcomings in the in-service training provided to urban health extension professionals (UHE–Ps)/health extension workers (HEWs) as well as in the community's awareness campaigns.

“The public awareness for NCDs including cervical cancer in the community was found to be inadequate due to poor media coverage and HEWs were required to receive integrated refresher training. The training for HEWs was not given in full as it was projected to cost roughly USD 8 million. Therefore, the training was focused on urban settings but not on rural ones. However, this was planned to be done by the MOH.” (KII 1, MOH)

Secondary prevention: The "See and Treat Approach" employing a visual inspection with acetic acid (VIA) and cryotherapy or thermal ablation treatment, mostly for women aged 30-49, was the primary emphasis of the secondary prevention. Due to the potential for significant screening and treatment outcomes for cervical cancer, this age range was the focus of the study. Out of the 10.7 million eligible women, only 900,000 (8.4%) were examined in order to meet the WHO's 90-70-90 targets, which is much less than the WHO's 70% screening target. Due to the expense and a lack of infrastructure to enable its adoption, many healthcare facilities did not offer Pap smear tests. As a result, clients were referred to the Family Guidance Association of Ethiopia (FGAE) or other privately owned diagnostic centers. Pathologists typically performed the Pap smear test on women who were HIV-positive and over 50 years. Partners like the CDC set aside funds to support HPV DNA tests for women who are HIV+ at 70 health facilities throughout 5 regions of Ethiopia. (KII 1, MOH)

Tertiary prevention: The MOH was aiming to increase the number of tertiary-level hospitals providing chemotherapy, radiotherapy, and oncology surgery services. In response to this, cervical cancer screening and treatment centers of excellence were established in various regions including Tikur Anbessa, Saint Paul's, Jimma, Adama, Bahir Dar, Gondar, Dessie, Hawassa, and Arba Minch Specialized Hospitals. The LEEP was done at fifty hospitals in the country while in Addis Ababa, seven hospitals were providing the service including Tikur Anbessa, St. Peter, Gandhi, Zewditu, Tirunesh Beijing, Yekatit/Abebech Gobena, and St. Paul's hospitals. The radiotherapy service was given at Tikur Anbessa (Addis Ababa), Jimma (southwest Ethiopia), and Haramaya (east Ethiopia) specialized hospitals only. Due to a long queue, clients had to travel overseas or hopelessly wait for months before getting the service. This service was expected to expand to six regional hospitals including Hawassa, Mekele, Gondar, and St. Paul's Hospitals, and others. (KII 1, MOH). The MOH set aside USD 3 million annually for the acquisition of cancer medications to increase access to chemotherapy services. Patients with cervical cancer had difficulties receiving treatment from specialized hospitals, particularly at Tikur Anbessa Hospital. Clients were compelled to purchase cancer medications from private pharmacy outlets since they were not adequately offered at public facilities. Oncology hospitals had to forecast and quantify their demand for cancer medicines. The Ethiopian Pharmaceuticals Supply Service (EPSS) acquired and distributed the medications based on the quantifications. (KII 5, EPSS)

"Hospitals quantify their needs based on the consumption and morbidity methods. They also consider cancer medicines prescribed and procured from outside by patients. The facilities attended the analysis and validation workshop which was conducted for 2 days by the MOH, Ethiopian Pharmaceuticals Supply Service (EPSS), Ethiopian Food and Drug Authority (EFDA), and other stakeholders. The 50% of the budget for the procurement of cancer

medicines was fully subsidized from the MOH based on demand and 50% from the respective hospitals. There was no direct budget transfer by the hospitals but expected to pay after delivery of products.” (KII 5, EPSS)

Financing. A portion of the health budget for non-communicable diseases (NCDs), including cancer, was not allocated for the Addis Ababa City Administration Health Bureau (Ethiopia) community interventions and service delivery to users. (KII 9, AACAHB)

Equity. Over 100 public health facilities in 11 sub-cities under the Addis Ababa City Administration provided equitable cervical cancer screening and treatment services. Although there were still some gaps, trained healthcare professionals were placed in public health facilities, diagnostic and therapeutic tools were made accessible, and free cervical cancer screening and treatment services were offered. In particular, for patients referred to specialty care at specialized hospitals, lack of access to chemotherapy, radiotherapy, and oncology surgery remained a problem. (KII 9, AACAHB)

Referral systems: No widely accessible system in Addis Ababa provides care coordination between primary, secondary, and tertiary healthcare levels and supports the movement of patient records and information from primary care to specialized care and back. Patients themselves carried referral letters because the referral system was paper-based. As a result, it was challenging for hospitals to acquire referral feedback for patients with cervical cancer who were transferred from primary and secondary healthcare facilities to specialized hospitals. (KII 9, AACAHB)

Cancer registry. The Addis Ababa City Cancer Registry (AACCR), the country's first population-based cancer registry, was founded in 2011. It compiled data on cancer diagnosis and/or treatment services from 17 specialist healthcare institutions in Addis Ababa. Up to five comprehensive oncology care facilities, including the hospitals affiliated with Jimma University and Haramaya University, were anticipated to launch paper-based cancer registry services. The data from the cancer registries were planned to be used to build an evidence-based epidemiology database and identify the most prevalent cancer forms in the entire country. Additionally, the registries could help with planning for the infrastructure, service model, staff, and finance for the cancer prevention and control program. (KII 1, MOH). The screening, positivity, and treatment rates were reported through the District Health Information Software 2 (DHIS2). However, most of the public health facilities in the Addis Ababa City Administration's paper-based cervical cancer registries had issues with data quality. (KII 9, AACAHB)

c) Strengthening interagency cooperation

Interagency cooperation at the national level

In order to gather resources for the fight against cancer, the Ethiopian government collaborated with important parties, primarily the Ministries of Education and Women, Children, and Youth Affairs as well as development partners in the nation. Through the placement of skilled workforce and the acquisition of instruments and supplies, the Ministry of Health has been actively supporting efforts across several sectors to expand cervical cancer screening and treatment programs throughout the country. However, Ethiopia did not adequately explore the mobilization of pooled funding or shared budgeting and planning for the implementation of health in all policies (HiAP) from other government ministries and the private sector.

“The development partners work with the MOH. Allocate funds to support various areas including provision of HPV DNA tests, Pap smear tests... To improve the uptake of the HPV vaccine, the MOH works with the Ministry of Education, the Ministry of Youth and Women Affairs, women's forums... The MOH strategy encourages public-private partnership (PPP) especially in the provision of cancer services though it is required to be strengthened in various cervical cancer service provision areas.” (KII 1, MOH)

To fill the gaps in the shortage of resources, the partners provided financial and technical support, capacity building, mentorship, supportive supervision, and supplying equipment, and tests. (KII 11-15, Partners)

“Domestic resource mobilization must be given attention to achieve program sustainability. Well-organized partners management is also important to properly utilize the available resources, avoid redundancies, and cover actual program gaps.” (KII 12, Partners)

The public-private partnership (PPP) approach was introduced by the MOH in order to increase the private sector's involvement. Private sector forums were created with an emphasis on regulatory initiatives and quality enhancement. Although PPP was supported by the MOH plan, it was not fully implemented and did not lead to an increase in the efforts to prevent cervical cancer through HPV vaccination and public awareness campaigns. (KII 9, AACAHB). In addition, other stakeholders including the industry, media, and civil society were also not adequately involved in the fight against cancer. The Technical Working Group (TWG) was established for cervical cancer prevention and control including MOH, hospitals, universities, partners, and others. The TWG was multisectoral and met every 3 months. The TWG i) develops and revises cervical cancer prevention, control, and mentorship guidelines; ii) adopts guidelines; iii) monitors program implementation; and iv) works on awareness of women in different sectors. Using the mentorship guidelines, the MOH, regional, and zonal health offices, along with partner support, monitored the quality of cervical cancer services at 200 health facilities nationwide.

HPV vaccine supply

For the supply of HPV vaccine, the MOH was working in coordination with Ethiopian Pharmaceuticals Supply Service (EPSS), Ethiopian Food and Drug Authority (EFDA), and other stakeholders: i) Vaccine Alliance (GAVI) covered the vaccine cost and operational cost during the demonstration project and national rollout, ii) Technical, financial, and logistical support was also obtained from different in-country partners including WHO, UNICEF, CHAI, PATH, Girl Effect, PSI, and Jhpiego, iii) There were multiple coordination meetings with partners during the vaccination campaign, iv) Communication, logistics and service delivery Technical Working Group (TWG) had frequent meetings during the campaign, and v) Virtual orientation was done for Regional Health Bureaus (RHBs) including national and sub-national advocacy meetings. At the national level, the following issues or gaps were encountered with the HPV vaccine program and supply chain management: i) Poor stock management of leftover vaccine, ii) Poor bundling: Items were missing during distribution, iii) Gaps in cold chain management, iv) Inadequate transportation for timely distribution of goods, v) Program interruption due to COVID-19 pandemic which resulted in drop-out of target girls, vi) Lack of operational cost, and vii) Age trade-off (under and over age vaccination). (KII 2, MOH)

Cancer medicines supply

The national quantification of cancer medicines was done by the MOH, EPSS, EFDA, oncology care hospitals, universities, and oncology professionals (such as physicians, pathologists, and nurses). The assumptions considered in the quantification of cancer medicines were targets or projected number of cases, current prices, budget, and consumption in the previous year. The final output of the quantification was communicated to EPSS for procurement, and advertised through newspaper and electronic media. (KII 5, EPSS). The procurements were mostly managed using international competitive bidding with a total lead time of 8-10 months. (KII 6, EPSS)

The EFDA provided open access to the electronic registration information system (eRIS) for individuals, importers, and consultants who are interested in registering cancer medicines, equipment, and medical devices. The review and registration approval of cancer medicines was done with a fast-track system. The registration of WHO-prequalified products could take up to 90 days. EFDA also considers stringent regulatory authority (SRA) abbreviated review. So, GMP was a waiver for countries including Japan, Australia, the USA, Canada, the UK, and the European Union. If the SRA approves marketing authorization or sales of a product from other countries in their country, it is approved by EFDA. Outside of SRA or WHO prequalification, the GMP inspection was done by EFDA. For this, the GMP application and inspection process took three to six months. A maximum of one year was allowed for the

provisional marketing authorization of medicines with conditional approval. The EFDA permitted the importation of goods through several agencies to foster price competition. A national population-based cancer registry and Standard Treatment Guidelines (STGs) for use in the national quantification exercise were absent, which made it difficult to offer generic cancer medications. Furthermore, it took quite some time for the Public Procurement and Disposal of Public Assets Authority (PPDA) to approve a request. (KII 7&8, EFDA)

Interagency cooperation at Addis Ababa City Administration

The Addis Ababa City Administration Health Bureau had NCDs Technical Working Group (TWG) involving partners. Every three months, the NCDs TWG had meetings where topics such as cervical cancer screening and treatment performance and challenges were discussed. (KII 9, AACAHB)

HPV vaccination: Regarding HPV vaccination campaigns, the AACAHB coordinated its efforts with those of various partners. Data on eligible girls were provided by the Addis Ababa City Administration Education Bureau. The Women, Children, and Youth Bureau of the Addis Ababa City Administration helped with data collection and program implementation. Technical assistance was provided by CHAI, UNICEF, WHO, and EFDA supported in managing and controlling adverse events following immunization (AEFI).

“There was some liaison with Addis Ababa City Administration Education Bureau (AACAEB). However, this area was not adequately exploited and it needs to be strengthened, i.e., with AACAEB, Women, Youth, and Child Affairs, and Sports Bureau, and others.” (KII 9, AACAHB)

Several difficulties were encountered during the HPV vaccination in Addis Ababa City Administration, including i) a lack of logistics (immunization cards and registers); ii) improper plans caused the schedules to be repeatedly postponed, especially for the second round of vaccinations; iii) a lack of transportation for supervisors and vaccinators; iv) resistance from some private school communities; v) a lack of incentives for nurses during outreach programs; vi) The inadequate HPV vaccine; vii) The unclear roles and responsibilities of the HPV program; viii) The poor target setting by the woredas; and ix) The inadequate vaccine handling equipment used throughout the outreach vaccination programs. (KII 10, AACAHB)

Cervical cancer screening and treatment: The Wings of Healing supported cervical cancer screening and treatment in Addis Ababa. The gender directorate of AACAHB worked on dissemination of the public awareness such as on International Women's Day (IWD). Family health team which comprises of a team of 8-10 personnel educated women on cervical cancer prevention and screening during the field visits. Though there was some liaison with Addis Ababa City Administration Education Bureau the regional health bureau's coordination with

other regional offices was not adequately exploited and it needed to be strengthened. The DHIS2 cervical cancer services data reporting system resulted in a high workload on health facilities staff and NCD focal persons at sub-cities due to parallel weekly reports sent to the region. This was contrary to one budget, one plan, and one report adopted by the region. The region was required to consider a monthly cervical cancer screening and treatment reporting system. (KII 9, AACAHB)

In AACAHB, the following capacity building, technical, and material support were provided in 2022.

Capacity building: The training on cervical cancer screening and treatment was provided to 69 healthcare professionals through Wings of Healing and WHO support. Through WHO support, 40 pharmacy professionals were trained on non-communicable diseases (NCDs).

Equipment and supplies: Wings of Healing distributed 50 counseling cue cards, 50 gully pots, 250 sponge forceps, and 100 speculums to health facilities in Addis Ababa. While WHO provided Acetic Acid to its supported facilities. However, a shortage of large-size vaginal speculums was noted in most health facilities. Cervical cancer joint supportive supervisory visits were conducted at Menelik II, Yekatit 12, Ras Desta Damtew, Zewditu Memorial, St. Peter, St. Paul, ALERT, and Tikur Anbessa hospitals by the AACAHB in coordination with International Center for AIDS Care and Treatment Program (ICAP) at Columbia University.

Cervical cancer mentorship: Mentorship was done in Arada sub-city health centers by AACAHB in coordination with Wings of Healing. (KII 9, AACAHB)

d) Integrating evidence into practice

Integration of evidence into practice at the national level

The Ministry of Health (MOH) released Ethiopia's first guidelines for cervical cancer prevention and control in 2015, and they were updated in 2021. The most recent recommendations for raising public awareness, HPV vaccination, risk assessment, screening, early detection, diagnosis, and treatment of cervical cancer at primary, secondary, and tertiary levels in Ethiopia are included in the revised edition. The initiative was taken following the WHO's 90-70-90 targets aimed to be met by 2030, which seek to eradicate cervical cancer within the next century. Policymakers, health managers, healthcare practitioners, educational institutions, and the nation's development partners were the intended users of the guidelines.

The MOH oversaw the formulation of the guidelines, which adhered to the objectives of the National Cancer Control Plan. The Technical Working Group (TWG), which included representatives mainly from the MOH, CDC, WHO, ICAP, Pathfinder International, St. Paul's Millennium Medical College, and Addis Ababa University, created and reviewed the

guidelines for the prevention and control of cervical cancer. Sufficient capacity existed for monitoring the entire process. The members brainstormed, reviewed, and incorporated the global evidence and practice into cervical cancer prevention, control, and mentorship guidelines, developed and reviewed training materials, M & E tools, Information Education and Communication (IEC), and Social and Behavior Change Communication (SBCC) materials. The TWG drafts the guidelines, evaluates it, and submits it to the health minister. The minister provides feedback, and the TWG incorporates the inputs, and launches and adopts the guidelines. (KII 1, MOH). The MOH provided TOT to regional oncologists and the regions cascaded the basic training on identified gaps to health facilities staff. In regions, there were 2-3 basic training hubs staffed with at least two gynecologists and 2 middle-level nurses. The hubs were in well-established hospitals and focused on improving skills through refresher training. The training materials were prepared from the cervical cancer prevention and control guidelines by university hospitals. The MOH, regions, and zonal offices monitor the implementation of guidelines during monthly, quarterly, and annual meetings. Additionally, the guidelines were also used for joint mentorship and supportive supervision of health facilities by the MOH and regions. However, the guidelines were not incorporated into health professionals' formal education.

Integration of evidence into practice at Addis Ababa City Administration Health Bureau

Addis Ababa City Administration Health Bureau (AACAHB) participated in the launching and dissemination of the guidelines. Supervisions, mentoring, and training were done by AACAHB in coordination with MOH. Trainings were organized by the MOH and AACAHB professionals. Funding was provided by partners including the WHO and the Norwegian Agency for Development Cooperation (NORAD) to assist in training at a few health facilities of selected sub-cities. Hospitals certified to offer continuing professional development (CPD) training collaborated with the Family Guidance Association of Ethiopia (FGAE) to deliver the training. (KII 15, FGAE). The MOH trainings were conducted using cervical cancer guidelines. (KII 9, AACAHB).

e) Enhancing population empowerment

Population empowerment at the national level

With the assistance of its partners, the MOH was transmitting messages on cervical cancer prevention and control services on national radio and television four times a week for three months. (KII 1, MOH). The lack of resources did not allow frequent dissemination of population empowerment messages through TV, audio, and print media. Moreover, peer-to-peer support, free hotline, mHealth, and eHealth messages on cervical cancer were not instituted to meet the demands of citizens including for marginalized or vulnerable populations. The study demonstrated that patients were able to assume a more active role in

their own health management through one-on-one and/or group education. All eligible women mainly aged 30-49 years who visited a health facility for any of the following reasons—family planning (FP), antiretroviral therapy (ART), maternal and child health (MCH), or the medical outpatient department (OPD)—had to be considered for opportunistic cervical cancer screening services. Furthermore, public awareness-raising messages from women with pre-cancer lesions were not implemented. The decision-makers should consider it.

Population empowerment at Addis Ababa City Administration

The policy for enhancing population empowerment was developed by MOH and implemented by AACAHB. However, population empowerment activities were not properly planned, coordinated, and adequately supported by development partners. The MOH did not provide any funds for educating the public about cervical cancer in Addis Ababa, but the Centers for Disease Control and Prevention provided some assistance. Apart from this, the communication director in the AACAHB approached other partners for any support on population empowerment. In addition, any public awareness messages were disseminated whenever the government media approached the AACAHB. Due to these efforts, some messages were transmitted through Addis Media Network TV and radio programs though it was inadequate and still expected to reach more population groups. On the other hand, there was no peer-to-peer or web-based cervical cancer patient support. The cervical cancer survivors were not engaged in sharing their experience with cervical cancer to improve the uptake and utilization of the screening and treatment services. (KII 9, AACAHB)

f) Creating the right incentive systems

There were no incentive programs set up to influence the behavior of clinicians, such as a monthly charge per beneficiary or payment for increased cervical cancer care, for meeting or exceeding the necessary standards of care. For patients to have equal access to treatments at institutions, there was no support to help them take their prescription medications as directed, peer support, pay for transportation, or find housing. The national decision-makers did not adopt the proper incentive schemes for healthcare professionals and patients because they were resource-intensive, unsustainable, and may disrupt the nation's healthcare system. (KII 1, MOH)

“One of the major challenges in our intervention was the lack of motivation of the healthcare providers to elicit and offer the cervical cancer service, it was more of a passive service and on demand of the client than specifically requested and offered for all eligible clients. Unfriendly workflow of the health service: in most of the health facilities, the units providing cervical cancer service were far, less suitable, and less friendly.” (KII 11, Partners)

Table 4.1 summarizes the thematic and sub-thematic areas of the National Cancer Control Plan's supporting strategies and the challenges experienced in various interventional areas.

Table 4. 1: Thematic analysis of the challenges of strategies supporting the NCCP.

#	Themes	Sub-themes	Challenges
1	Developing a political commitment to quality cervical cancer prevention and control	The commitment of the government	<ul style="list-style-type: none"> • Low involvement of celebrities, and charismatic women leaders
		Stakeholders' attention	<ul style="list-style-type: none"> • Inadequate attention was given to domestic resource mobilization to achieve program sustainability • Well-organized management of partners was lacking
		Budgeting for cancer	<ul style="list-style-type: none"> • Shortage of funding
2	Creating transparent and evidence-based priority-setting	Setting priorities	<ul style="list-style-type: none"> • Few centers of excellence provide cancer services • Low in-service training of healthcare providers • Shortage of specialty care (complex diagnostics, chemotherapy, oncology surgery, pathology, and radiotherapy) • Inadequate Electronic Health Records (EHRs), lack of cancer registries, and computer e-referrals. • Low HPV2 vaccination, screening, and treatment achievements • Lack of a national population cancer registry and cancer surveillance system
		Mobilizing resources	<ul style="list-style-type: none"> • Poor public-private partnership
		Limitations in funding	<ul style="list-style-type: none"> • Lack of clearly marked budget for NCDs
3	Strengthening interagency cooperation	Participation in Technical Working Group	<ul style="list-style-type: none"> • Lack of broader representation of stakeholders
		Multisectoral assistance	<ul style="list-style-type: none"> • No functional partnership between the public-private sector • Limited international partnership • Lack of sustainability of development partners' support
4	Integrating evidence into practice	Capacity of experts	<ul style="list-style-type: none"> • Low mix of subject matter experts
		Developing and disseminating guidelines	<ul style="list-style-type: none"> • No Cancer Standard Treatment Guidelines
		Training and monitoring of providers	<ul style="list-style-type: none"> • Absence of inclusion of cervical cancer guidelines in formal education and health professionals' curricula • Lack of e-learning modules
5	Enhancing population empowerment	Programs for empowering communities	<ul style="list-style-type: none"> • Inadequate resources • Insufficient public awareness messages • Low involvement of cervical cancer survivors, religious leaders, traditional healers, elderly people, civil societies, and private sector
		Patient support efforts	<ul style="list-style-type: none"> • Lack of peer-to-peer, eHealth, and mHealth supports
6	Creating the right incentive systems	Performance-based payment	<ul style="list-style-type: none"> • Lack of financial incentives
		Patients' incentives	<ul style="list-style-type: none"> • Lack of transportation fees support
		Decisionmakers challenges	<ul style="list-style-type: none"> • Lack of resources and sustainability of incentives • The repercussions on other service areas

4.1.2. Implementation of the NCCP

The performance of cervical cancer services at the national level

In Ethiopia, HPV vaccination was introduced in December 2018 after a two-year demonstration in 2 districts of the Oromia and Tigray regions. The country follows a two-dose

administration before the age of 15. The Expanded Program on Immunization (EPI) of the MOH expert reported that the quantification of the HPV vaccine was done annually by MOH with the involvement of UNICEF and GAVI considering the number of targets and expected coverage. The key targets for the quantification were age groups of 14 both at school and out of school. The source of data was a head count and conversion factor from the general population. There was a micro-planning template to do planning for the vaccination campaign. The price of the vaccine was determined from the UNICEF supply catalog. The quantity of vaccine meant for procurement was determined by GAVI since it was a donation and renewals were done with other routine immunization vaccines. UNICEF was in charge of the procurement of HPV and all other vaccines and there was a definite supply schedule for delivery of shipments. The Gardasil vaccine (quadrivalent) was supplied by Merck Sharp & Dohme (MSD). The distribution plan was prepared by the MOH and shared with the Ethiopian Pharmaceuticals Supply Service (EPSS). Based on the MOH distribution plan, vaccines, supplies, and printed materials were distributed to EPSS hubs. EPSS hubs then distributed the vaccines and other materials to woredas (districts), and finally, woredas distributed the commodities to health facilities. The national performance from July 2021 to June 2022 was 105% for HPV 1 and 84% for HPV 2 against the HPV 1 (95%) and HPV 2 (92%) planned targets (Fig 4.2). As of 24 September 2022, the MOH in collaboration with the Ministry of Education the first dose of the HPV vaccine was given to 4.8 million school girls; while the second dose was administered to 3.1 million (64.6%) school girls who turn age 14. The modality of the HPV vaccine was working mostly at schools and in a campaign mode. Considering the context in the country, the program was required to strengthen health facility-based routine vaccination and ensure that outreach and mobile teams reach youth centers, school drop-outs, households, and the most disadvantaged population groups including street children, refugees, and internally displaced people. The HPV vaccination performance reports were collected through the manual EPI registers and DHIS2 reporting template. On the other hand, the MOH report indicated that as of April 2021, over 500,000 (4.7%) women aged 30-49 years were screened and 96% of women with pre-cancerous lesions were treated nationally. Furthermore, through the combat cervical cancer (3Cs) initiative, 274,756 (55%) women were screened, and 14,213 (53%) women with positive precancerous lesions were treated nationally (Figure 4.2). Overall, as of September 2022, a total of 900,000 (8.4%) women were screened out of the eligible 10.7 million in the country.

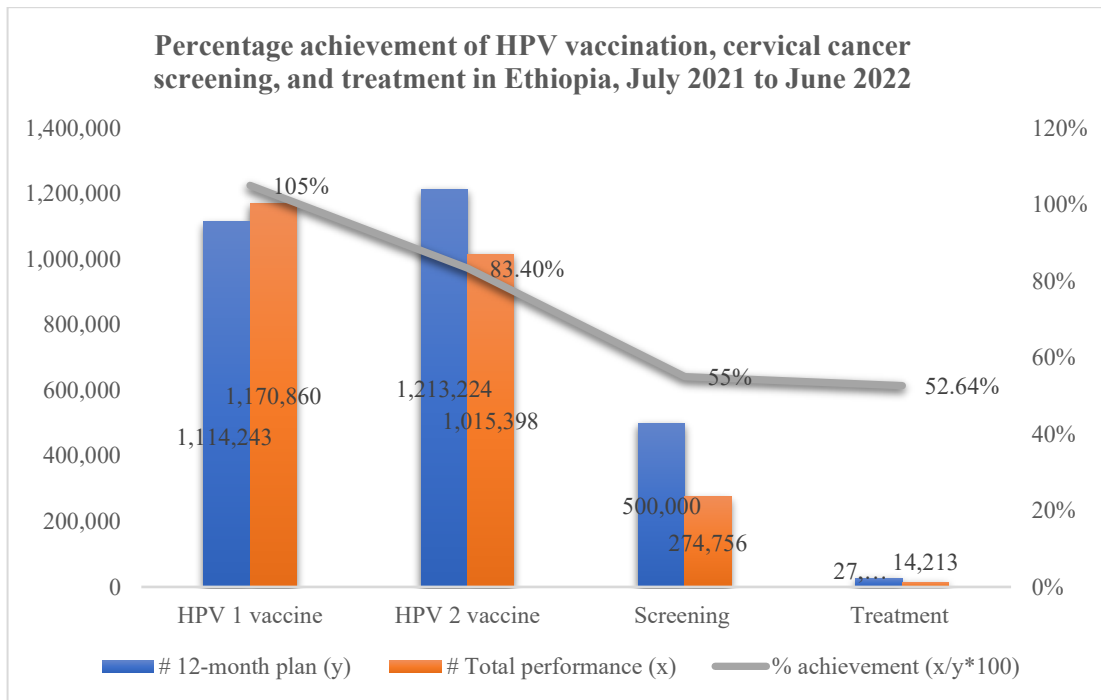


Figure 4. 2: Percentage achievement of HPV vaccination, screening, and treatment of cervical cancer in Ethiopia.

The performance of cervical cancer services at Addis Ababa City Administration

The Ministry of Health (MOH) and the Addis Ababa City Administration Health Bureau (AACAHB) oversaw the leadership and coordination of cervical cancer services at the national and regional levels. A respondent in the Maternal and Child Health (MCH) department of AACAHB mentioned that the quantification of the HPV vaccine was carried out in collaboration with the 11 Addis Ababa sub-cities, taking into account head counts for 14-year-old girls who were enrolled in school and those who were not. Single-age cohort data was collected using an Excel Spreadsheet from the Addis Ababa City Administration Education Bureau. The key assumption was to cover 95 % of 14 years old girls. The HPV vaccination was set to be provided as one of the routine vaccination programs. However, in Addis Ababa City Administration, HPV vaccination was provided in a campaign. In January 2022, a seven-day HPV vaccination campaign was conducted in Addis Ababa. The reporting for HPV 1 and HPV 2 vaccinations was done using hard copies and DHIS2 to the Maternal and Child Health Directorate of AACAHB. The directorate provides a comprehensive technical report at the end of the implementation campaign. The AACAHB annual report revealed that the percentage achievement (out of the planned target) for HPV 1 and HPV 2 were 77% and 62%, respectively, and screening (95%), and treatment (69%) (Figure 4.3).

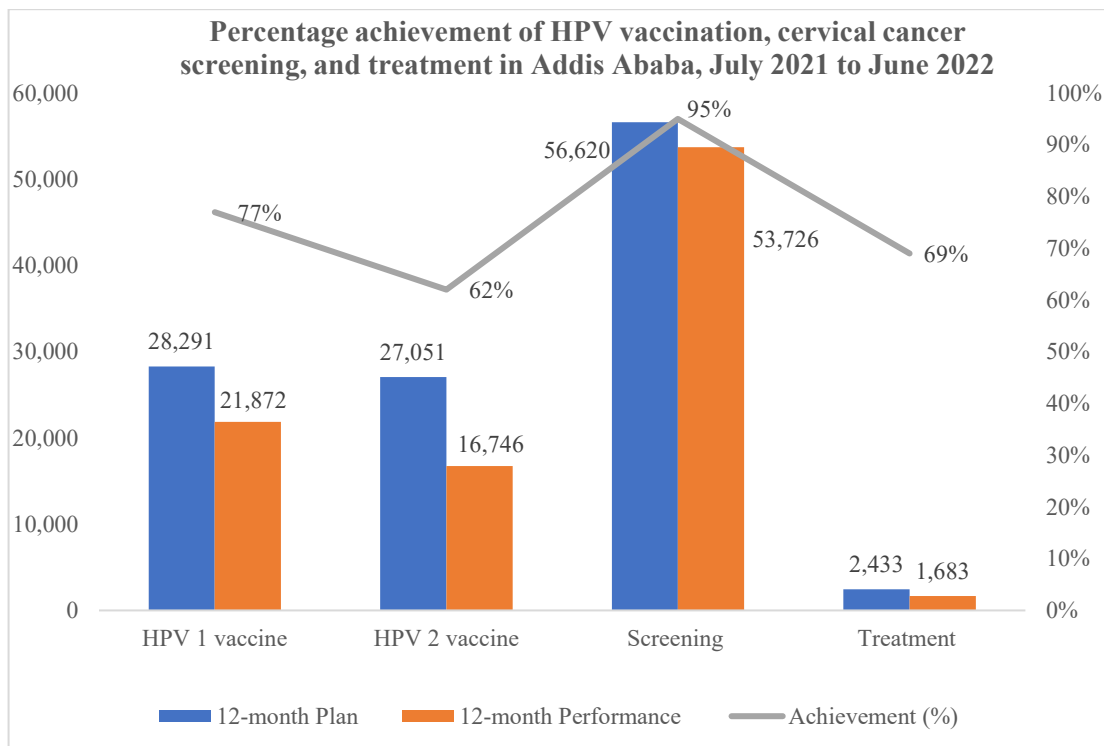


Figure 4. 3: Percentage achievement of HPV vaccination, screening, and treatment of cervical cancer in Addis Ababa.

4.1.3. Review of the NCCP linkage with other national plans

Ethiopia developed the first National Cancer Control Plan (NCCP) in 2015. The plan calls for a thorough approach to cancer prevention and treatment, and its estimated cost to implement it over five years stands at about USD 93 million. Through lifestyle modifications, primary prevention, screening, early diagnosis, appropriate follow-up, treatment, and palliative care, the strategy identified initiatives to lessen the burden of cancer. It acknowledges that the battle against cancer requires multi-sectoral involvement. However, the NCCP required revision considering the existing national context, the latest WHO guidelines, and information for the improvised management of cancer globally. The NCCP linkage with other national existing strategies was reviewed in this study. Table 4.2 shows which NCCP areas are most linked with documents that contain cross-cutting cervical cancer interventions.

Table 4. 2: The NCCP linkage with other national plans.

#	Guidelines/plans/strategies	Linkage with the National Cancer Control Plan
1	Health Sector Transformation Plan of Ethiopia (2020/21-2024/25)	Enhancing the population's health status is the overarching goal of the Ethiopian Health Sector Transformation Plan II (HSTP-II). This was planned to be accomplished by quickening the shift to universal health coverage, safeguarding populations during medical emergencies, transforming woredas (districts), and

#	Guidelines/plans/strategies	Linkage with the National Cancer Control Plan
		enhancing the responsiveness of the health system. One of the main areas of healthcare intervention that the nation's public-private partnership (PPP) will address is the national cancer control plan, according to the HSTP II. Moreover, increasing the percentage of women aged 30-49 screened for cervical cancer from 5% to 40% is the goal of the HSTP II.
2	National Strategic Action Plan (NSAP) for control of non-communicable diseases in Ethiopia (2014-2016)	Chronic obstructive pulmonary disease, diabetes mellitus, cancer, and cardiovascular illnesses account for more than 80% of NCD-related deaths in Ethiopia. The NSAP considers cancer as one of the four NCDs prevalent in the country. To better control NCDs, the NCCP seeks to further improve NSAP implementation. NCDs share similar risk factors and prevention mechanisms. As a result, the NCCP proposed a strategic intervention to lessen exposure to prevalent risk factors for cancer, such as tobacco use, excessive alcohol consumption, and exposure to environmental carcinogens. This intervention also applies to other NCDs to variable degrees.
3	Guideline for cervical cancer prevention and control in Ethiopia (April 2021)	The MOH and other stakeholders oversee the NCCP, which is aimed at cancer prevention and control in Ethiopia. It seeks to reduce disability, increase cancer patients' chances of survival, and enhance their quality of life. By lessening the financial, psychological, and physical burden that cancer places on patients and their families, it also seeks to optimize the use of available resources. It was intended that public awareness campaigns, risk assessment, screening, early identification, cancer diagnosis, and treatment would accomplish this. For Ethiopia's cancer prevention and control, the NCCP offers a range of goals, initiatives, methods, and major monitoring indicators. The MOH released the first guidelines for Ethiopia's prevention and control of cervical cancer in 2015, and they were updated in April of 2021. The NCCP recognizes and aligns with the Guidelines for Cervical Cancer Prevention and Control (2021). The updated version offers the latest guidance for primary, secondary, and tertiary healthcare facilities in Ethiopia regarding risk identification, screening, early detection, diagnosis, and treatment of cervical cancer, as well as public awareness campaigns and HPV vaccinations. It is aiming to achieve the WHO 90-70-90 cervical cancer targets by 2030 which would aid elimination of cervical cancer in the next century. The guideline

#	Guidelines/plans/strategies	Linkage with the National Cancer Control Plan
		was meant for use by policymakers, health managers, healthcare providers, training institutions, and development partners in the country.
4	National Reproductive Health Strategy (2016-2020)	By making high-quality reproductive health services available and providing them in a multisectoral manner, Ethiopia's health strategy seeks to promote the health of women, adolescents, and young people. Reproductive organ cancers (ROCs) and sexually transmitted infections (STIs) must be prevented and treated, among other critical treatments for which the policy mandates integrated healthcare delivery. This demands collaboration and coordination of regional health bureaus, national and international development partners, and several Ministry of Health directorates. Cervical cancer is mostly caused by the human papillomavirus (HPV), a sexually transmitted infection. Thus, the STI strategies and cervical cancer guidelines aim to provide coordinated services to address HPV through the implementation of nationwide vaccination programs by primary healthcare facilities.
5	A Roadmap for Optimizing the Ethiopian Health Extension Program (2020-2035)	A team of two health extension workers (HEWs) or urban health extension professionals (UHE-Ps) provide 16 "packages" through disease prevention and control, basic hygiene, environmental sanitation, and family health services. Primary healthcare units (PHCUs) are home to the health extension program (HEP), a community health program. With a catchment area of 5,000 people, the services are provided via community health posts. The initiative was expanded to include non-communicable diseases and urban areas in 2009. In addition, the women's development team worked with the community in 2011 to expand the one-to-five network's service scope to include six families. Furthermore, the new HEP strategies were required to address the local health demands considering changes in the country's epidemiology, demography, and socioeconomic factors. To help achieve universal health coverage (UHC) through primary healthcare, a Roadmap for Optimizing the Ethiopian Health Extension Program (2020–2035) was created based on the challenges that were found in the 2019 national review of the HEP. The HEP roadmap requires HEWs/ UHE-Ps to disseminate public awareness messages, identify the most at-

#	Guidelines/plans/strategies	Linkage with the National Cancer Control Plan
		risk women for cervical precancerous lesions, and forward them to their respective public health centers.

4.2. Health system factors affecting the uptake of cervical cancer prevention and screening services provision in the public health centers in Addis Ababa.

4.2.1. Socio-demographic characteristics

The focus group discussions (FGDs) were conducted in four high-patient volume public health centers. Women (25-59 years old) were purposively chosen from outpatient clinics. A group of 8-10 participants were recruited for a discussion that lasted for 45-60 minutes per session. In all, eight focus group discussions (two for each health center) included 66 women. The sociodemographic details of the FGD participants are displayed in Table 4.3. The majority of participants, 35 (53%) were aged 30–39 years, and 53 (80.3%) of them were married. Among the respondents, 44 (66.7%) were employed, 28 (42.4%) had secondary-level education, and 52 (78.8%) of them had 1-3 children.

Table 4. 3: Socio-demographic characteristics of FGD participants (n=66)

Variables	Participants	Percent
Age group (years)		
25-29	10	15.2
30–39	35	53.0
40–49	21	31.8
Marital status		
Married	53	80.3
Single	4	6.1
Divorced	6	9.1
Widowed	3	4.5
Employment status		
Employed/self-employed	44	66.7
Unemployed	22	33.3
Education status		
Primary	21	31.8
Secondary	28	42.4
Tertiary/higher	13	19.7
None	4	6.1
Number of children		
0	8	12.1
1–3	52	78.8
4-6	6	9.1

4.2.2. Thematic analysis with relevant quotes for focus group discussions

Table 4.4 presents the thematic analysis of the eight FGD responses about factors influencing the uptake of cervical cancer screening at Addis Ababa public health centers.

Table 4. 4: Thematic analysis of the FGDs responses on the uptake of screening.

Themes	Sub-themes	Codes
Perception or awareness	Risk factors	Uterine viral infection, poor hygiene, loop/intrauterine device (IUD), repeated abortions, initiation of sexual intercourse at early ages, multiple sexual partners, smoking, excessive consumption of alcohol, giving birth at a late age, sexually transmitted infections (HIV, gonorrhea, and syphilis), uterine tumor, improperly cleaned and removed placenta.
	Signs and symptoms	Burning sensation, swelling of the body, white foul-smelling vaginal discharge, itching, uterine prolapse, cervical pain, irregular bleeding, urine color changes, ulcer in uterine, weight loss, lower back pain, pain around thighs, pain during sexual intercourse, weak and sick body, loss of appetite, diarrhea, paralysis, and insomnia.
	Preventive measures	Avoid promiscuous sexual practice, precautions from HIV and sexually transmitted infections, treatment of infections, pre-cancer screening, abstain, avoid smoking, share knowledge about the disease, avoid traditional practices, condom use, avoid early age sex, HPV vaccination, personal hygiene, eating cabbage and papaya.
	Understanding on screening	Self-care or awareness prevents death, identifies pre-cancer lesions and infections, scaring, a speculum is painful, it is against religion and culture, and lacks options for a self-examination device.
Personal barriers	Educational barriers	Inadequate training or public awareness messages.
	Knowledge barriers	Lack of knowledge, attitude, negligence, perceived lack of susceptibility to and severity of disease, lack of awareness of cervical cancer facilities, fear of the procedure or speculum pain, a feeling of embarrassment or fear of the test outcome, menstruation, and screening at a later stage of the disease.
	Household barriers	Lack of support from a partner, lack of engaging a partner, and childcare challenges.

Themes	Sub-themes	Codes
	Providers related barriers	Preference for female providers, concerns on safety of speculum and acetic acid, inadequate capacity of providers, and lack of compassionate services.
	Health facility-related barriers	Inadequate public awareness messages, inadequate patient recall system, unavailability of self-diagnosis device, safety, long facility waiting times, and lack of trust in providers.
Financial barriers	User fees	Screening is free, inadequate awareness about free services, and Pap smear testing outside the health facility.
	Transportation	Transportation cost for referrals
	Income	Loss of wage
Socio-cultural barriers	Myths or misconceptions	Discouraging screening, associating it with sexual outgoing, no cure for cancer, it is against God and contagious.
	Stigma/discrimination	Discrimination by neighbors
	Culture	Household issues (Yebet tata), encouraging traditional medicine
	Religious beliefs	Drinking holy water, more challenges for Muslim women, and a lack of awareness creation.
Screening facilitators	Health facility-related factors	Dissemination of public awareness messages in media including an announcement for free screening services during festivals and holidays, and at social institutions for mutual aid (edirs), reducing facility waiting times, compassionate services by health workers, ensuring that “single visit approach” is practiced at the facility, arranging for free referral tests, integrated services at the facility, and door to door service by HEWs/ UHE-Ps.

a) Perception or awareness of cervical cancer screening

Risk factors for cervical cancer

The majority of the FGDs responses on the risk factors for acquiring cervical cancer were including uterine viral infection during sexual intercourse with a person who had an infection, and having multiple sexual partners. The other listed risks were early-age sexual practice, human immunodeficiency virus (HIV), sexually transmitted infections (gonorrhea and syphilis), and poor hygiene. Loop/intrauterine device (IUD), repeated abortions, smoking,

excessive consumption of alcohol, giving birth at a late age, and uterine tumor were also mentioned by some of the respondents. Furthermore, a poor perception was noted by one of the respondents:

“I think clothing is important. It means we have to maintain the cleanliness of our underwear, and our cleanliness, e.g., not urinating in a place other than the place we usually urinate. The reason is that if we use it on the ground or in a place where it is not allowed, or if we go to the toilet and use it without flushing, that itself results in exposure. It is good to use a clean toilet.”
(Respondent 4 in FGD 1)

Signs and symptoms of cervical cancer

The majority of the responses were including unusual continuous white foul-smelling vaginal discharge and itching, and irregular and heavy menstruation or bleeding. Pain during sexual intercourse and frequent lower back pain were mentioned by some of the respondents. A few others stated a burning sensation, swelling, uterine prolapse, cervical pain, urine color changes, ulcer in the uterus, weight loss, and a feeling of pain around the thighs that occurs during cervical cancer.

Preventive measures for cervical cancer

The majority of participants' responses on preventive measures for cervical cancer were screening, precautions or using condoms during sexual intercourse, and avoiding promiscuous sexual practices in both men and women. The respondents also mentioned abstinence, avoiding smoking, sharing knowledge about the disease, avoiding early-age sex, human papillomavirus (HPV) vaccination, personal hygiene, and avoiding traditional practices as preventive measures for cervical cancer. One respondent had a wrong perception like eating cabbage and papaya prevents cancer.

Understanding of cervical cancer screening services

Among the main responses obtained from participants on their understanding of screening was explained by it is a self-care that checks pre-cancer lesions and infections, prevents death, and while others said a speculum is painful and scary. The respondents also mentioned that there is a lack of knowledge about it. The unavailability of self-sampling devices was a challenge.

“Pre-cancer screening is useful for caution. It helps us to know if there is a uterine infection or any other kind of disease. For example, I have been diagnosed with pre-cancer lesions and I am free. But I can be careful about it in the future. I do not care if I do not know it now. It is unknown when and what time it will come. And if I have it, it will be good for me to be treated and cured.” (Respondent 7 in FGD 1)

“I was scared when the providers requested me to be examined at the facility. But afterward, I came the next day and examined. It was easy to be examined. The test is very simple. Whether the disease is present or not, it is best to get tested. You will set yourself free. It is good to be screened and know yourself instead of thinking about it now and then. And I say it is very good.” (Respondent 5 in FGD 2)

b) Personal barriers

Provider barriers to cervical cancer screening

The provider's gender was one of the obstacles to cervical cancer screening. According to the respondents, exposing one's privates, especially to a male provider, is exceedingly challenging, sensitive, and embarrassing. The majority of respondents preferred female providers. They do not even talk freely about sex. They grew up with cultural issues like this and it was one of the major barriers to screening at primary health facilities. A response obtained from a respondent corroborates this:

“We are not transparent in our country. It is difficult for us to show our reproductive organs, except when we give birth or when we face a problem. It means in terms of our culture. I would like to get tested and find out for myself. However, it was not an experience to be checked by a male provider. But in terms of the provider's gender, for example, you feel embarrassed when a male checks you out. You will not be as free as you are checked out by a female. I think that's why most of us are afraid to be examined. I think the provider's gender impacts getting the services.” (Respondent 4 in FGD 1)

Knowledge barriers to cervical cancer screening

The major knowledge barriers indicated by the majority of respondents were a lack of awareness about cervical cancer and its screening services available at facilities, fear of procedure or pain, and embarrassment. A fear of the results of the screening, and a belief that one is not susceptible to the disease or its severity. The additional responses were attitudes and carelessness regarding services for preventing and screening for cervical cancer as well as screening at an advanced stage of the disease. The following response obtained from a respondent showed a lack of screening knowledge:

“I am not examined. The first is due to a lack of deep knowledge about the disease. Second, I did not feel sick and paid much attention to it. From that point of view, I think we are not qualified for this kind of thing. But, if we have the understanding and knowledge, it does not stop us from being screened. If you understand the issue, it is easy to share your knowledge and convince other people too.” (Respondent 5 in FGD 1)

Another respondent provided a further statement on the cervical cancer screening knowledge gap:

“The test is very scary because a device that you do not know enters your cervix. We fear that we may not be able to give birth again. If we had taken the cervical cancer screening training it would facilitate screening. I was married but my husband is dead. So, I do not think I am vulnerable to the disease because I had no relationship afterward. Therefore, I think it is not a must for me.” (Respondent 1 in FGD 5)

The following respondent indicated the rejection of cancer awareness messages by the community:

“The government disseminates cancer messages in the media and neighborhood. Health experts visit every village and create awareness of cancer. They teach people about communicable and non-communicable diseases very well but the population do not understand and accept them. They do not say I should do it rather they say, “They come here for their per diem, what are they doing for us?” This is ignorance. No one says, let us listen to them and learn. That is what is harming the people. If we had come for screening and known ourselves, the disease would not have been spread like this.” (Respondent 4 in FGD 6)

The following statement from a respondent explains the fear of the cervical cancer screening outcome:

“People have fear. Cervical cancer is considered a deadly disease. And people think that it would be better to die without knowing it. If you always think you have it, you might as well think you are going to die. I do not know if it will be cured by medicine. But, because there is such a threat, people prefer to die without knowing it.” (Respondent 8 in FGD 2)

Fear of the screening test outcome was one of the challenges reported by respondents. The following response confirms this further:

“The first thing is fear, and the second thing is assuming that if I have the disease, thinking that I will be cured or not, and hopelessness. If I have a disease myself, I wonder what will happen to my next life. The reason is we all are afraid of cancer. I am afraid of even its name. And if I have this disease, how will I live and continue my life? I was afraid of whom I will give my children to. This is what keeps us away from screening.” (Respondent 1 in FGD 3)

Educational barriers to cervical cancer screening

Inadequate training or public awareness messages were the gaps reported by the majority of focus group discussion participants.

Household barriers to cervical cancer screening

The majority of FGD participants stated that childcare and a lack of support from a male partner were the primary household barriers for screening. It was difficult to convince or

involve husbands in encouraging women to attend cervical cancer screenings at health centers. One of the participants provided the following statement:

“If I have pain internally, I do not tell my husband. I have to come and be screened at the health facility. But if you say I go for screening, you will face obstacles. If you have pain, men may not help you. But it is true. There is a problem. I am the one who knows about my illness and if I tell my husband about screening, he will not be supportive. I will come to a facility, and be screened on my own.” (Respondent 7 in FGD 2)

Health facility-related barriers to cervical cancer screening

The FGD participants indicated that a lack of self-sampling devices, a lack of trust on the safety of the speculum or fear of acquiring infection from of speculum, and the capacity of providers were the main health facility-related barriers. A respondent mentioned that acetic acid applied during the screening procedure could be harmful to the uterus. While others mentioned that inadequate public messaging through various media, inadequate patient recall systems, and long wait times were challenges encountered at health facilities.

c) Financial barriers

The focus group respondents mentioned that no cash payment was required for the screening services at public health centers. However, there was inadequate awareness of the population about free screening services. The transportation cost was mentioned as a challenge by some of the respondents especially when a Pap smear test was done outside the health facility or referred to specialty care at hospitals. Moreover, the Pap smear testing done in private diagnostic facilities attracted up to USD10 per test. Transportation was not a problem for some patients, though, because pre-cervical cancer lesions were screened for when they visited health centers for other treatments. Further, loss of wages was a challenge to some of the respondents.

d) Socio-cultural barriers

Some of the respondents believed that screening is against religion and culture. As per the focus group discussion respondents, the main societal acts were discouraging screening, associating it with outgoing, propagating that cancer is contagious and has no cure, and it is an act against God. Cultural issues such as “yebet tata”, preference for traditional medicines, and religious rituals such as treatment with “holy water” were prevalent in the community. Moreover, awareness creation on cancer was uncommon in religious institutions, and it was found to be more challenging for Muslim women than other religious followers. One of the sociocultural barriers to the uptake of cervical cancer screening, according to some respondents, is discrimination. Cervical cancer was stigmatized in the society, and people were

reluctant to discuss their screening plans or test results. This was explained by one of the respondents as follows:

“If you are not infected by the disease, you can talk freely. But if you are told that you have the disease, it is not something you talk about it openly like any other disease.” (Respondent 7 in FGD 1)

A response was obtained from a respondent on the cultural barriers as follows:

“My aunt was from the region. She became very sick. She was rich in her youth and became poor later in her life. And there is a traditional belief in Ethiopia called “yebet tata”. When she got sick, it was suspected that it is cancer. She had spent a lot of time at home before she got tested. Then she was referred and tested at the hospital and told that it is cervical cancer. Then she came back home and it was said to be another case. As a result, she remained untreated for a year and died. This is said as “yebet tata” in the Ethiopian culture. If she had received treatment in time, she would have been cured but influenced by the culture.” (Respondent 6 in FGD 2)

The following statement was made by a respondent further:

“Most of the time from our religious and cultural perspectives, we are very afraid to get cervical cancer screening. Anything that enters the cervix is like a foreign thing. Because people do not have much awareness, they see it as a big thing and most women would not like to be examined. I think it would be good if there was a better diagnostic tool.” (Respondent 8 in FGD 5)

The following sentence shows the religious barriers to the uptake of screening at health centers:

“They said to me, instead of always going to the health center when you are sick you will be saved if you drink holy water. This is the work of Satan. When you take the medicine, you will feel better for a while, and when you stop it, the pain will come back to you. It will heal you only because you believe in this. If you go to a place of faith, it can completely eradicate your disease. But I came here and took the patient card and got treated.” (Respondent 8 in FGD 4)

The societal influence on cancer patients is described in the following sentence:

“If you are a cancer patient, someone will point it out to you. If you are diagnosed with cancer, they just give up on you, they consider you as if you are dead. This shortens your life. You are worried about what someone will say about you. The whole family just gets discouraged. If you have cancer, your life is very difficult.” (Respondent 5 in FGD 8)

e) Suggestions for improvement of cervical cancer screening services

The majority of FGD participants made recommendations for enhancing cervical cancer screening services, such as having HEWs/UHE-Ps perform door-to-door services and spreading public awareness messages through the media (radio and TV), festivals and

holidays, and at traditional burial societies (edirs). Additionally, some of the respondents mentioned that people who received messages should share them with their fellows in the community. Health facilities should provide regular health education on cervical cancer, ensure that a single visit approach (SVA) is practiced at the facility, provide integrated services at the facility, reduce waiting times, provide compassionate services by trained health workers, and arrange for free referral testing such as for Pap smear.

One of the respondents stressed the importance of creating public awareness:

“I do not think we will protect it in any way, because we do not know it at first. I mean, none of us do pre-diagnosis, we do not have the awareness. Not much is said about this in the media. So, I do not think we take any precautions. I do not know what it means. Maybe when I feel pain or feel something, I do not call it cervical cancer. So, I do not think there is a solution, because I do not know anything in advance.” (Respondent 5 in FGD 1)

Another woman mentioned the importance of exploiting women’s festivals or annual holidays: *“The providers should facilitate cervical cancer screening at the health center even during holidays or festivals. But it would be good if the screening is done regularly. I mean it is good that this understanding is disseminated through media for the public at large.”* (Respondent 2 in FGD 2)

A response from another respondent gave a different view on improving public awareness:

“I would say that it is good if cervical cancer health education is given as a subject to over 14-year-old girls in schools. It is also good if this information is given at people gathering places. It is the biggest thing. There is fear in people but the biggest thing is to raise awareness. People should realize the benefits of cervical cancer screening.” (Respondent 2 in FGD 4)

The following statement was made by one respondent focused on the various mechanisms required to improve the uptake of cervical cancer screening:

“When I often come to the health center in the morning, many people gather at the facility. There is a TV but it has never been on. Firstly, it is good for health facilities to disseminate cervical cancer messages in the morning or afternoon when more patients show up. When something is said over and over again it comes to your mind. Secondly, if there is a way to work with religious institutions it could encourage women to go for cervical cancer screening. Thirdly, mothers should create awareness in their children as youth people play the biggest role in the fight against cancer. A woman can also reach out to two or three of her friends.” (Respondent 7 in FGD 4)

The following statement suggests the importance of involving cancer patients or cancer survivors in the public media:

“We should not ignore screening because of personal fear. There was a girl seen in the media as a cancer patient. She was young and had a child. And after I heard this, I was in a dilemma about whether to get screened or not. This was to know my status or get treatment quickly if it happens. Finally, I decided to get an examination after seeing that girl in the media.”
(Respondent 7 in FGD 5)

The following sentences give the participants' opinions on the significance of raising awareness about cervical cancer screening in households:

“I would say that it is easier to teach at home. It would be better if there is an awareness creation campaign by visiting every household. Because, for example, I would not have heard about screening if I had not come to the health center. So many women like me do not come to a health facility. And I say it is good if they go to every house and give awareness.”
(Respondent 5 in FGD 7)

“I would say if the women at home are trained and have awareness about the seriousness of the disease and its prevention measures. It would be good if we can share what we have learned, what we know, and even a little bit of the understanding that we have now with other women.” (Respondent 1 in FGD 7)

The following statement was made by one of the respondents for considering alternative testing devices:

“It is the screening device that scares most people. During the screening, it must be entered into the cervix. What if it is changed into the cervical specimen test? If we want to encourage women for pre-cancer screening of the cervix, the device should be changed into a liquid specimen test.” (Respondent 2 in FGD 8)

4.3. Health system factors affecting access to and quality of cervical cancer diagnosis and treatment services provision in the public and private general and specialized hospitals in Addis Ababa.

4.3.1. Background

The primary, secondary, and tertiary tiers of Ethiopia's three-tier healthcare delivery system are all in place. Up to 1-1.5 million people are served by general hospitals at the secondary level, and 3.5–5 million people are managed by specialist hospitals at the tertiary level. The private, for-profit sector is increasing quickly, adding to the health system and significantly contributing to the expansion of access to healthcare. For an efficient partnership among the stakeholders, including the private sector, the National Cancer Control Plan (NCCP) framework involves the entire health system. The Ministry of Health (MOH) introduced the public-private partnership (PPP) approach to increase the private sector's involvement in the

healthcare delivery system. The establishment of private sector forums was meant to raise service standards and meet national regulatory schemes.

The survey was conducted in Addis Ababa City Administration which is composed of 11 sub-cities and 126 woredas (districts) with 13 government and 38 private hospitals giving health services to a total population of about 5,228,000 people (2022). Eight randomly chosen hospitals served as the survey sites: one public and one private specialty hospital, and three public and three private general hospitals. Moreover, the Ethiopian Pharmaceuticals Supply Service (EPSS), and Ethiopian Food and Drug Authority (EFDA) responded to issues of procurement and regulation of cancer medicines, respectively.

4.3.2. Results and analysis

Secondary and tertiary level healthcare was being challenged by a lack of oncology health workers, gaps in in-service training, a lack of complex diagnostics, restricted access to cancer medications, inadequate oncology surgery, low radiation services, and a weak referral system. The National Cancer Control Plan (NCCP) framework and strategies required strengthening the public-private partnership to provide integrated and coordinated cervical cancer screening, diagnostic, and treatment services. The NCCP was not fully implemented due to inadequacies in these strategies. The rating scale of challenges identified from general and specialized hospitals is summarized in Table 4.5.

Table 4. 5: Major health system variables influencing cervical cancer services at hospitals.

Variable	Challenges	Rating scale of challenges (1=Minor, 2=Moderate, 3=Major, 4=Major persistent)
Addressing human resource challenges	<ul style="list-style-type: none"> • Shortage of oncology specialists for cancer diagnosis, treatment, and oncology surgery. • Lack of in-service training for midwives and nurses in the private sector. 	3
Leadership - strengthening health systems management	<ul style="list-style-type: none"> • Inadequate availability and sustainability of incentives for exceeding high-quality services. • Lack of public-private partnerships for capacity building and sharing of resources. 	2
Cancer service provision and improving coordination across providers	<ul style="list-style-type: none"> • Inadequate screening device options such as HPV DNA tests and Pap smear tests. • Inadequate “single visit approach” in facilities. • Limited chemotherapy, oncology surgery, and radiotherapy services. • Poor referral pathways with no functional public-private partnership. 	3
Improving access to quality medicines/equipment /supplies	<ul style="list-style-type: none"> • Unavailability of cancer medicines except in a few public hospitals. • Unavailability of cryotherapy, LEEP, and thermal ablation at private hospitals. • Unavailability of HPV DNA test at private and public hospitals. 	3

Variable	Challenges	Rating scale of challenges (1=Minor, 2=Moderate, 3=Major, 4=Major persistent)
	<ul style="list-style-type: none"> Limited access to colposcopy, MRI, CT scan, and radiotherapy at public hospitals. Unavailability of cancer standard treatment guidelines. 	
Creating adequate information solutions	<ul style="list-style-type: none"> Lack of accessible health information system for patient condition records and portability of information from primary healthcare facilities to specialized care hospitals. Limited availability of TV, radio, audio, video, and print media public messages on cancer. Unavailability of peer-to-peer, eHealth, and mHealth support to cancer patients. 	3
Ensuring access to care and reducing the financial burden	<ul style="list-style-type: none"> Resource constraints for the dissemination of public awareness messages, and availing complex diagnostics equipment, and cancer medicines. 	3

MOH- Ministry of Health; EPSS- Ethiopian Pharmaceuticals Supply Service; STGs- standard treatment guidelines; CBHI- community-based health insurance

The scale of challenges ranged from 1 to 4, where:
 1=Minor challenge- Does not prevent core services; 2=Moderate challenge- Moderate impact on core services;
 3=Major challenge- Big impact on core services; 4=Major persistent challenge- Systematic problem that requires reform. (Source: WHO Regional Office for Europe. Better non-communicable disease outcomes: Challenges and opportunities for health systems; 2014).

a) Addressing human resource challenges

Seventy-five percent (75%) of the facilities had adequate gynecologists, radiologists, midwives, nurses, and pharmacists required for cervical cancer diagnosis and treatment services in hospitals in Addis Ababa. Two public general hospitals reported unfilled jobs for seven gynecologists and five radiologists out of the eight hospitals surveyed. These two public general hospitals also needed to fill one nurse and one midwife position. Budgetary restrictions and the immigration of skilled employees were the two main causes of the scarcity of healthcare workers, according to only two public hospitals.

Gynecologists, pathologists, and radiologists received formal training in the diagnosis and treatment of cancer. Nurses and midwives require in-service training on the prevention, screening, and treatment of cervical cancer to acquaint themselves with the current developments in terms of the service delivery system. Among 8 hospital surveys, all 4 private facilities had at least one trained nurse for chemotherapy services in the 24 months before the survey. Nevertheless, the remaining midwives and nursing staff members lacked training in cervical cancer prevention and control. Seven nurses and five midwives with training in treating cervical cancer were employed by the four public hospitals.

Fifty percent (50%) of partnerships among public hospitals were mostly with development partners including AIDS Healthcare Foundation (AHF), CDC, ICAP, and Pathfinder

International. Three facilities had partnerships with academic institutions that are the medical colleges of the hospitals. Whereas one hospital had a connection with a research institution. In the contrary, there were no partnerships noted among the three general private hospitals.

b) Leadership - strengthening health systems management

The chief executive officers (CEOs), deputy CEOs, and medical directors of hospitals had the authority and responsibility for hiring and firing personnel, purchasing, and contracting, organizing clinical services and improving quality and process, and review of funding plans. Out of the 8 hospitals surveyed, the managers in 5 general hospitals and 2 specialized hospitals received leadership skills, systems thinking, and change management training. All eight hospitals identified the health system challenges and implemented the quality improvement process to varying degrees. The medical college in one public general hospital was certified for the provision of training to senior and middle-level management, and case management teams. Its senior management received leadership, management, and governance (LMG) training, department heads trained on quality improvement processes, and case teams got case management training. Moreover, one of the facilities provided various managerial training to health management professionals including i) leadership training to most of the managers at different levels, ii) Systems thinking and change management course focused on healthcare quality and health systems to most of the professionals, and administration staff, and iii) continuing professional development (CPD) courses to various professionals in the facility. Additionally, the change idea was implemented at the hospital including in gynecology, cervical cancer screening, and other non-communicable diseases (NCDs) departments. It was meant to improve the outcome of the various processes, e.g., at the gynecology department, health system challenges were identified especially in areas demonstrated below standard achievement, and full package interventions were implemented to improve scope-based practices. Furthermore, in another general hospital, improving the quality and process was managed by the clinical governance and quality management department in coordination with the Addis Ababa City Administration Health Bureau (ACAHB), and development partners. Quality improvement was done for poor-performing units of the hospital based on (1) the performance improvement plan, and (2) the quality improvement project. Internal facility-level quality improvements were carried out by teams of health professionals who identified the performance challenges and came up with improvised interventions for achieving the desired quality health outcomes. All of these focused on PDSA (Plan-Do-Study-Act). Monitoring and evaluation were done every 6 months. In cases of inadequate changes, the project had been implemented again with other improvised mechanisms.

At private facilities, heads of departments were provided with internal and outsourced training on leadership skills, systems thinking, and change management at least once a year. The

facilities had a quality team composed of department heads and led by a quality officer who reports to the medical director. Departments that need improvement, serve many customers, and provide sensitive services were identified and interventions were put in place. The quality team monitors customer satisfaction and whether the departmental plans have been achieved or not. The team also provides mentorship on identified gaps. The incentives in hospitals were mostly in terms of recognition and managerial career paths.

c) Cancer service provision and improving coordination across providers

Table 4.6 presents the cervical cancer services and coordination across providers among selected hospitals in Addis Ababa (n=8). Cervical precancerous lesions treatment with cryotherapy, loop electrosurgical excision procedure (LEEP), and thermal ablation were not available in all four private hospitals surveyed. Their screening service was limited to Pap smear testing. In Ethiopia, the National Cancer Control Plan requires health facilities to practice a single-visit approach (SVA) or screen-and-treat approach (STA) for cancer patients. However, this was not practiced in the private health sector. Only two public hospitals had LEEP, colposcopy, chemotherapy, oncology surgery, and endocervical curettage services. While cone biopsy (conization) was provided in one public specialized hospital. The coordination of care in the facility was excellent for two private and three public hospitals. Most of the referrals from primary care to specialized facilities were done by professionals. The referrals to specialty care did not result in smooth cooperation and coordination in the existing model of care. Shortage of diagnostics and oncology gynecologists was a prevalent challenge among the eight hospitals surveyed in this study. This resulted in very long queues, especially for women who needed oncology surgery, chemotherapy, and radiotherapy. Moreover, due to the scarcity of oncologists, it was not easy to arrange rotational surgical treatment services at general hospitals in Addis Ababa.

Table 4. 6: Cervical cancer services and coordination across providers among selected hospitals in Addis Ababa (n=8)

Cancer service provision	Type of Hospital		Level of Hospital	
	Private Hospital	Public Hospital	General Hospital	Specialized Hospital
Services				
Cryotherapy machine with CO ₂ gas supply	0	4	3	1
LEEP procedure	0	2	1	1
Cone biopsy (conization)	2	1	2	1
Colposcopy	2	2	3	1
Radiotherapy	0	0	0	0
Chemotherapy	4	2	4	2
Oncology surgery	3	2	3	2
Blood transfusion	4	4	6	2
Histopathology	4	3	5	2
Endocervical curettage	3	2	3	2

Cancer service provision	Type of Hospital		Level of Hospital	
	Private Hospital	Public Hospital	General Hospital	Specialized Hospital
Thermal ablation	0	4	3	1
Coordination of care				
Poor	0	0	0	0
Below expectation	0	0	0	0
Meet expectation	1	0	1	0
Above expectation	1	1	2	0
Excellent	2	3	3	2
Referral system				
Self-referral	3	0	2	1
Professional referral	4	4	6	2
Third-party referral	2	0	2	0

d) Improving access to quality medicines/equipment/supplies

The cervical cancer medicines meant for use at public hospitals were reimbursed by the government and provided free to patients who produced community-based health insurance (CBHI) certificates. The 50% of the budget meant for the procurement of cancer medicines was covered by the MOH based on demand and 50% from the respective hospitals providing oncology services. There was no direct budget transfer by the hospitals but expected to pay after the delivery of products. Availability and access to generic cancer medicines were tried to be ensured through the national quantification and international competitive procurements done by the Ethiopian Pharmaceuticals Supply Service (EPSS). Although EPSS was not mandated to register products, it granted precedence to those that were registered with the Ethiopian Food and Drug Authority (EFDA). Among the challenges faced in supplying generic cancer medications were the Ethiopian Public Procurement and Disposal of Public Assets Authority's (PPDA) lengthy approval processes, the EFDA's registration requirements, and the absence of a national population-based cancer registry data for use in the national quantification exercise. Additionally, the unavailability of cancer standard treatment guidelines (STGs) did not promote cost-effective quantification and rational prescription of generic cancer medicines. Furthermore, the public-private partnership was not fully exploited to ensure access to cancer medicines and equity of services including for the most disadvantaged population groups. Cisplatin injection of 50 mg/50 ml was prescribed in two private and two public hospitals. Paclitaxel powder for injection of 6 mg/ml was used in one private and two public hospitals, 5 FU (Fluorouracil) was used in one public general hospital, and Carboplatin injection was prescribed in one public specialized hospital. Two public and two private hospitals had none of these medications. These cancer medicines were included in the Ethiopia Essential Medicines List, Sixth Edition, September 2020.

The prescription and availability of cancer medicines in the four hospitals for chemotherapy services are summarized in Table 4.7. The cancer medicines were prescribed and purchased in

two private hospitals while in one public general hospital and one public specialized hospital, the medicines were dispensed at the facility and/or prescribed and purchased from private pharmacy outlets when medicines were not available in the facility. In one public specialized hospital, only a limited number of oncology physicians were allowed to prescribe cancer medicines and provided their signature to the oncology pharmacy for dispensing purposes. Among the four hospitals, Cisplatin injection of 50 mg/50 ml was available in one public general hospital and one public specialized hospital. Paclitaxel powder for injection of 6 mg/ml was stocked out for at least four months in one public general hospital. There were no cancer medicines in the two private hospitals, purchased from private Pharmacy outlets by patients.

Table 4. 7: Prescription and availability of cancer medicines among selected hospitals in Addis Ababa (n=4)

Variables	Type of Hospital		Level of the Hospital	
	Private Hospital	Public Hospital	General Hospital	Specialized Hospital
Patients' acquirement of medicines				
Prescribed and purchased	2	0	2	0
Dispensed in the facility	0	0	0	0
Both	0	2	1	1
Prescriptions based on the STGs				
Yes	0	0	0	0
No	2	2	3	1
Cervical cancer medicines available in the facility				
Yes	0	2	1	1
No	2	0	2	0

STGs- standard treatment guidelines

The national quantification of cancer medicines was done by the MOH, EPSS, EFDA, oncology care hospitals, universities, and oncology professionals. The assumptions considered in the quantification of cancer medicines were targets or projected number of cases, consumption in the previous year, current prices, and budget. The number of patients to be seen has increased 12 times in the last 5 years preceding the survey. The chemotherapy-providing general and specialized hospitals were selected by the MOH. The drug supply management (DSM) team in hospitals quantifies cancer medicines based on consumption and morbidity methods. This helped with the triangulation of the quantification outcomes. The facilities attended the national quantification, analysis, and validation workshop conducted for 2 days. The supply plan was done after the completion of the quantification. The final output of the quantification was communicated to EPSS and publicly advertised (newspaper and electronic media) for procurement mostly using international competitive bidding. The total lead time for the procurement of cervical cancer medicines was from 240-300 days. The determinants of the total lead time were i) Registration status with EFDA, ii) Suppliers presented stringent regulatory authority (SRA) certificate still needed approval by EFDA, and

iii) Delayed letter of credit (LC) opening due to shortage of foreign currency. EPSS was considering direct procurement for small quantities. However, this required a waiver from PPDA. Nearly 100% of ordered quantities were procured and the unit prices were found to be low compared to international reference prices. Four purchase orders (2020 - 2022) from EPSS were reviewed in this survey. The median price for a Cisplatin injection of 50 mg/50 ml was USD1.90 and USD6.55 for Paclitaxel powder for injection of 6 mg/ml. The median price ratio (MPR) for Cisplatin injection and Paclitaxel powder for injection were USD1:7 and USD1:2 times the international reference prices (IRPs), respectively (Table 4.8).

Table 4. 8: Median price ratio (MPR) of generic cervical cancer medicines (2020 – 2022)

Purchase order (PO)	Price (USD)	
	Cisplatin injection: 50 mg/50 ml	Paclitaxel powder for injection: 6 mg/ml
PO 1	2.39	5.1
PO 2	2.59	5.1
PO 3	3.2	8.0
PO 4	4.1	9.6
IRP*	13.94	14.92
Median price	1.90	6.55
Median price ratio	1:7	1:2

*IRP: International reference price: FCA DBS Tilburg warehouse, The Netherlands (IDA Foundation Electronic Price Indicator, Quarter 2, 2022).

For Cisplatin injection: 50 mg/50 ml, there were 5 registered formulations and 3 first-line buyers (FLBs) approved by EFDA. On the other hand, 5 FLBs were registered with EFDA for 6 formulations of Paclitaxel powder for injection: 6 mg/ml. EFDA provided open access to the electronic registration information system (eRIS) for individuals, importers, and consultants who are interested in registering medicines, equipment, and medical devices. It reviews and approves products applied for registration by manufacturers and FLBs. EFDA also monitors products after marketing authorization is granted. However, a license to run the business is required during the importation of products. There was no limitation on in-country agents for manufacturers or suppliers. The review and registration approval of cancer medicines was done with a fast-track system. The registration of WHO-prequalified products could take up to 90 days. In addition, the collaborative registration was done by WHO and EFDA regulatory experts. Documents were shared between WHO and EFDA. In case of a need for face-to-face discussion, the EFDA experts travel to WHO offices in Geneva. EFDA also considers stringent regulatory authority (SRA) abbreviated review. So, good manufacturing practice (GMP) was a waiver for countries including Australia, Canada, European Union, Japan, the UK, the USA, and others. If SRAs approve marketing authorization or sales of a product from other countries in their country, it is approved by EFDA. Outside of SRAs or WHO prequalification, the GMP inspection was done by EFDA. The GMP application and inspection process for this took from 3-6 months. The application and inspection were done in parallel. This had shortened the time

required for the registration of products. The provisional marketing authorization of medicines under conditional approval was limited to a maximum of one year.

All eight of the hospitals that were assessed had access to forms for referrals, cervical cancer guidelines, national essential medicines list, X-rays, ultrasounds, personal protective equipment, speculums, blood, and blood products (Table 4.9). Two private and four public hospitals had adequate acetic acid (3-5%). All eight facilities did not possess usable HPV DNA tests and the stock on hand was expired during the time of the survey. Some IEC/SBCC materials such as flyers and brochures were available in two private and four public hospitals. Fully functional MRI service was available in three private hospitals. In one public specialized hospital, MRI was out of function for over 3 months. Two public general hospitals did not have functional CT machines and in one specialized public hospital, the CT machine had no contrast test. Pap smear tests were not available at public hospitals.

Table 4. 9: Availability of diagnostics, tests, and supplies among selected hospitals in Addis Ababa (n=8)

Description of item	Response	Type of Hospital		Level of the Hospital	
		Private Hospital	Public Hospital	General Hospital	Specialized Hospital
Speculum	Yes	4	4	6	2
	No	0	0	0	0
Acetic acid (3-5%)	Yes	2	4	5	1
	No	2	0	1	1
Papanicolaou (Pap) smear	Yes	4	0	3	1
	No	0	4	3	1
Blood and blood products	Yes	4	4	6	2
	No	0	0	0	0
X-ray	Yes	4	4	6	2
	No	0	0	0	0
CT	Yes	4	2	4	2
	No	0	2	2	0
Ultrasound	Yes	4	4	6	2
	No	0	0	0	0
MRI	Yes	3	0	2	1
	No	1	4	4	1
Personal protective equipment	Yes	4	4	6	2
	No	0	0	0	0
IEC/SBCC materials	Yes	2	4	4	2
	No	2	0	2	0
The National Essential Medicines List (NEML)	Yes	4	4	6	2
	No	0	0	0	0
Guideline for cervical CA prevention and control	Yes	4	4	6	2
	No	0	0	0	0
Referral forms	Yes	4	4	6	2
	No	0	0	0	0

Description of item	Response	Type of Hospital		Level of the Hospital	
		Private Hospital	Public Hospital	General Hospital	Specialized Hospital
HPV DNA test	Yes	0	0	0	0
	No	4	4	6	2

e) Creating adequate information solutions

The first population-based cancer registry was established in 2011 in the capital city of Ethiopia, Addis Ababa. It was completely operational by 2012. Data on cancer diagnosis and treatment for Addis Ababa inhabitants are gathered by the Addis Ababa City Cancer Registry (AACCR) from 17 selected Addis Ababa healthcare facilities. From 2016 to 2020, 13, 580 cases were recorded by the register. Female cases made up 67.19% of these. Women's age-standardized incidence rate (ASIR) was 147.8/100,000. The most common cancer among women was breast cancer, which was followed by cervical cancer. Following the AACCR's founding, there was no longer a hospital-based cancer registry. This study discovered that the main sources of client information records were patient cards, cervical cancer screening and treatment registers, EPI registers, administrative reports, and DHIS2 (Table 4.10). For the ten years prior to this survey, one public specialized hospital employed SmartCare to register each patient's screening findings in its ART clinic. The transfer of information from primary care to specialist hospitals and back to primary care facilities lacked an accessible system. For the interchange of patient information by facilities for follow-up purposes, the paper-based referral was ineffective. The majority of the patient education took place in facilities, either in one-on-one or group settings. There was a health literacy section to execute audio and video programs in one public general hospital. Patients with cervical cancer received condoms, sanitary pads, and home take messages when they were discharged. The hospital also intended to set up a 9484 call center. Workloads, consultation times, wait times, and Pap smear tests were reported to managers in private hospitals. The number of patients treated for cervix precancerous lesions and screened for cervical cancer was reported by the public hospitals.

Table 4. 10: Information solutions among selected hospitals in Addis Ababa (n=8)

Information solutions	Type of Hospital		Level of the Hospital	
	Private Hospital	Public Hospital	General Hospital	Specialized Hospital
Sources of data				
Electronic health record (EHR)	4	2	4	2
Patient card	4	4	6	2
Cervical cancer screening and treatment register	4	4	6	2
Referral form/tracker	3	4	6	1
DHIS2	4	4	6	2
Data portability				
Yes	0	0	0	0

Information solutions	Type of Hospital		Level of the Hospital	
	Private Hospital	Public Hospital	General Hospital	Specialized Hospital
No	4	4	6	2
Patient information				
Facility-based: one-on-one and/or group education	4	4	6	2
Media-based: using radio, television & print media	0	0	0	0
mHealth	0	0	0	0
eHealth	0	0	0	0
Activities reported to managers of managers				
Workloads	4	1	4	1
Consultation times	4	1	4	1
Wait times	4	0	3	1
No. of patients screened with VIA	0	3	2	1
No. of patients screened with HPV DNA test	0	3	2	1
No. of patients screened with Colposcopy	0	2	1	1
No. of patients screened with Pap smear test	4	2	4	2
No. of patients treated with Thermal Ablation	0	4	3	1
No. of patients treated with Cryotherapy	0	4	3	1
No. of patients treated with LEEP	0	2	1	1

DHIS2- district health information software 2; VIA- visual inspection with acetic acid; HPV- human papillomavirus; LEEP- loop electrosurgical excision procedure

f) Ensuring access to care and reducing the financial burden

The source of funding for private hospitals was an out-of-pocket payment from patients while for public hospitals it was mainly from the government. Cervical cancer services at public facilities were free as far as the products and services were available in the facility. For the majority of the hospitals, the priority investment area for controlling cervical cancer was found to be raising public awareness followed by ensuring the availability of diagnostic equipment and improving access to cancer medicines.

g) Cervical cancer screening and treatment services

The planning, screening, and treatment of cervical cancer in a few Addis Ababa hospitals are displayed in Table 4.11. Among the four private hospitals surveyed, though there was Pap smear testing there was no cervical cancer screening with VIA test, HPV DNA test, and colposcopy coupled with a lack of treatment with cryotherapy, LEEP, and thermal ablation. Pap smear testing was done daily by a Pathologist at the facility for suspected clients referred from gynecology, outpatient clinics, wards, and emergency clinics. The majority of nurses and midwives in the private sector did not receive in-service training on cervical cancer. They have been doing their work based on the orientation provided by the gynecologists in the facility. There was a need for public-private partnership especially on capacity building of the private

sector oncology staff. The study also identified an issue of poor planning in private and public hospitals. Three public hospitals planned and performed VIA testing, while one hospital performed testing without a plan; only two hospitals planned to test for the HPV DNA test, compared to four that performed; and only two hospitals conducted colposcopy tests.

Table 4. 11: Planning, screening, and treatment of cervical cancer among selected hospitals in Addis Ababa (n=8)

Screening/treatment	Type of Hospital			
	Private		Public	
	Plan	Test/Treat	Plan	Test/Treat
Screening				
VIA test	0	0	3	4
HPV DNA test	0	0	2	4
Colposcopy	0	0	0	2
Treatment				
Cryotherapy	0	0	1	4
LEEP	0	0	0	2
Thermal Ablation	0	0	0	3

The cervical cancer screening achievement (tested versus planned) among four public hospitals are summarized in Table 4.12. Hospital 1 had a very low cervical cancer screening achievement with the VIA test (39.3%) and HPV DNA test (9.8%). The VIA test achievement for Hospital 3 was 48%. Hospital 2 had achieved 100% VIA testing and HPV DNA testing. Hospital 4 did not have VIA testing or an HPV DNA testing plan. There was no HPV DNA testing plan in hospital 3. In all 4 public hospitals, there was no plan for screening cervical cancer with Colposcopy and its overall achievement was very low. In one public specialized hospital, the HPV DNA test was meant for self-sample taking and routine testing of clients. HPV DNA test was stocked out for 7 months preceding this survey. In one public hospital, measures taken to facilitate cervical cancer screening were: 1) Recruiting clients from gynecology and family planning clinics, 2) Women identified from the ART clinic accompanied to the screening unit, and 3) Sending clients from the outpatient clinic using a small identification card to the screening unit.

Table 4. 12: Planning and performance of cervical cancer screening services among selected public hospitals in Addis Ababa (n=4)

Public Hospital	VIA test			HPV DNA test			Colposcopy		
	Plan	Test	Achievement (%)	Plan	Test	Performance (%)	Plan	Test	Performance (%)
1	1900	746	39.3	1900	187	9.8	0	0	NA
2	1237	1552	100	654	692	100	0	60	NA
3	1033	497	48	0	226	NA	0	0	NA
4	0	551	NA*	0	376	NA	0	61	NA

*NA: not applicable

There was no clear planning for precancerous lesions treatment with cryotherapy, LEEP, and thermal ablation (Table 4.13). The overall performance was very low.

Table 4. 13: Planning and performance of cervical cancer treatment among selected public hospitals in Addis Ababa (n=4)

Public Hospital	Cryotherapy			LEEP			Thermal Ablation		
	Plan	Treat	Performance	Plan	Treat	Performance	Plan	Treat	Performance
1	8	8	100	0	0	NA	0	0	NA
2	0	24	NA*	0	5	NA	0	19	NA
3	0	17	NA	0	0	NA	0	17	NA
4	0	11	NA	0	6	NA	0	14	NA

*NA: not applicable

4.4. Health system factors affecting access to and quality of cervical cancer prevention and screening services provision in the public health centers in Addis Ababa.

4.4.1. Results and analysis

a) Establishing effective models of service delivery

The health systems survey was done in 51 public health centers in 11 sub-cities in Addis Ababa. The percentage achievement of cervical cancer services (against the plan for July 2021 - June 2022) provided in Addis Ababa public health centers is summarized in Table 4.14. Reviews of the administrative reports indicated that 79.1% of women received messages about cervical cancer prevention. The EPI registers showed that 61.2% of girls received the full recommended dose of HPV vaccinations against the disease by the age of 15. On the other hand, the screening and treatment registers for cervical cancer revealed that 71.1% of women underwent screening for the disease and 79.8% of women whose screening results were positive received treatment within a year. The median values are also provided in the table.

Table 4. 14: Percentage achievement of cervical cancer services at health centers in Addis Ababa (n=51)

Cervical cancer service	% Achievement				
	Minimum	Maximum	Mean	Std. Deviation	Median
Women reached with cervical cancer awareness messages*	20	99	79.1	22.4	89
Girls fully vaccinated against cervical cancer at the age of 15*	0	99	61.2	25.6	57
Women screened for cervical cancer*	13	99	71.1	24.3	73
Women with positive cervical screening treated*	1	99	79.8	33.3	99

*Against the plan for July 2021 to June 2022.

The public awareness messages plan was achieved (performance per annual plan) in 44 (86.3%) of the health centers. Rating the progress toward achieving the WHO 90-70-90 cervical cancer targets by 2030 indicated that 41 (80.4%) did not achieve full vaccination

against cervical cancer by the age of 15, and 30 (58.8%) achieved screening for cervical cancer in the period from July 2021-June 2022 (Table 4.15).

Table 4. 15: Annual achievement of cervical cancer services versus the WHO targets at health centers in Addis Ababa (n=51)

Cervical cancer service	Achievement	Count	Percent
Women reached with cervical cancer awareness messages	Not achieved	7	13.7
	Achieved	44	86.3
	Total	51	100.0
Girls fully vaccinated against cervical cancer at the age of 15*	Not achieved	41	80.4
	Achieved	10	19.6
	Total	51	100.0
Women screened for cervical cancer*	Not achieved	21	41.2
	Achieved	30	58.8
	Total	51	100.0

*Against the WHO 90-70-90 cervical cancer targets by 2030.

Among the 51 health centers, 48 (94.1%) had adequate staff against the health workforce plan (Table 4.16). The survey also showed that 40 (78.4%), 38 (74.5%), and 18 (35.3%) of the facilities had nurses, midwives, and health officers who received cervical cancer training, respectively in 24 months preceding this survey.

Table 4. 16: Availability and training of staff at health centers in Addis Ababa (n=51)

Variables	Count	Percent	95.0% CI for percent	
			Lower	Upper
Adequate staff available in the facility				
Yes	48	94.1	85.1	98.3
No	3	5.9	1.7	14.9
Midwife staff received cervical cancer training*				
Yes	38	74.5	61.4	84.9
No	13	25.5	15.1	38.6
Nurse staff received cervical cancer training*				
Yes	40	78.4	65.8	88.0
No	11	21.6	12.0	34.2
Health officer staff received cervical cancer training*				
Yes	18	35.3	23.3	48.9
No	33	64.7	51.1	76.7

The public health centers were providing free cervical cancer screening and treatment of cervix precancerous lesions. This was covered through government, development partners, and Community-Based Health Insurance (CBHI) funds. The survey among 51 public health centers showed that 66.7% of them had adequate funds for cervical cancer services.

The survey revealed that patients had a choice of provider in 33 (64.7%) of the facilities, and there was a continuous relationship with an identified provider in 41 (80.4%) of the health centers (Table 4.17). E-register for cervical cancer patients' conditions was unavailable in 44

(86.3%) of the facilities, and 39 (76.5%) of them had a patient call and recall systems (telephone), especially for second screening tests.

Table 4. 17: Provider preference and health information system at health centers in Addis Ababa (n=51)

Variables	Count	Percent	95.0% CI for percent	
			Lower	Upper
Patients have any choice of provider				
Yes	33	64.7	51.1	76.7
No	18	35.3	23.3	48.9
Patients have a continuous relationship with an identified provider				
Yes	41	80.4	68.0	89.4
No	10	19.6	10.6	32.0
E-register for cervical cancer patients' conditions in place				
Yes	7	13.7	6.4	25.1
No	44	86.3	74.9	93.6
Patient call and recall systems (SMS/telephone) available at the facility				
Yes	39	76.5	63.6	86.4
No	12	23.5	13.6	36.4

The cervical cancer focal persons reported average waiting time for cervical cancer services was 30 minutes or longer for 41.2% of facilities, 20-29 minutes for 35.3% of them, and 10-19 minutes for 23.5% of them (Figure 4.4).

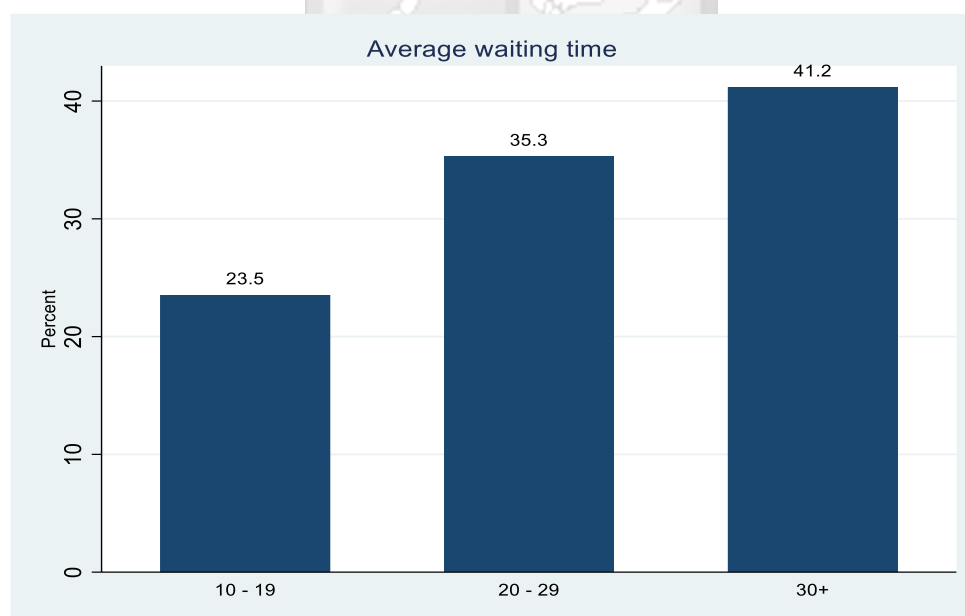


Figure 4. 4: Facility waiting times (in minutes) for cervical cancer services at health centers in Addis Ababa (n=51)

Table 4.18 presents the Turnaround Time (TAT) for laboratory results and the referral system for cervical cancer patients. The information for TAT of laboratory tests and referral systems

at health centers in Addis Ababa was obtained from interviews (verbal reporting) with cervical cancer focal persons. In 48 (94.1%) of the facilities the TAT for the VIA test was 1 minute which complied with the established testing algorithm. Pap smear tests were unavailable at health centers. Patients were referred to the Family Guidance Association of Ethiopia (FGAE) or private diagnostic facilities. The testing attracted about USD10 per test. The test results were not received as expected within 1 week in 49 (96.1%) of the facilities. Practically the TAT was from 15 - 30 days. The distance for referral to the hospital was reasonable for 39 (76.5%) of the facilities, and there was no computers-e-referral in 100% of the health centers surveyed. Patient clinical records did not travel in either direction in 26 (51%) of the health centers, and 33 (64.7%) had inadequate transportation for referral services.

Table 4. 18: Turnaround time of laboratory tests and referral system at health centers in Addis Ababa (n=51)

Variable	Count	Percent	95.0% CI for percent	
			Lower	Upper
TAT meets established standards for VIA test				
Yes	48	94.1	85.1	98.3
No	3	5.9	1.7	14.9
TAT meets established standards for Pap smear test				
Yes	2	3.9	0.8	12.0
No	49	96.1	88.0	99.2
Reasonable distance for referral to the hospital				
Yes	39	76.5	63.6	86.4
No	12	23.5	13.6	36.4
Computers-e-referral in place				
Yes	0	0.0		
No	51	100.0		
Patient clinical records travel in either direction				
Yes	25	49.0	35.7	62.5
No	26	51.0	37.5	64.3
Adequate transportation available for referral services				
Yes	18	35.3	23.3	48.9
No	33	64.7	51.1	76.7

TAT – turnaround time; VIA- visual inspection with acetic acid; Pap- Papanicolaou

b) Improving access to equipment, reagents, vaccines, and supplies

Table 4.19 shows the availability of equipment, reagents, vaccines, and supplies among selected public health centers. Speculum, guidelines for cervical cancer prevention and control, and referral forms were available in 51 (100%) of the facilities. Among 51 health centers, a cryotherapy machine with CO₂ gas supply was available in 50 (98%), acetic acid in 50 (98%), HPV vaccine in 28 (54.9%), poster in 47 (92.2%), flyer in 39 (76.5%), and brochure in 44

(86.3%) of the facilities. Audio materials were not available in 45 (88.2%) facilities while 46 (90.2%) did not possess video recording for public awareness messages. The shortage and congestion of space were reported by some of the health centers which forced screening to be done in the delivery or family planning shared room.

Table 4. 19: Availability of equipment, vaccines, and supplies among health centers in Addis Ababa (n=51)

Variables	Count	Percent	95.0% CI for percent	
			Lower	Upper
Speculum				
Available	51	100.0		
Cryotherapy machine with CO2 gas supply				
Available	50	98.0	91.2	99.8
Not available	1	2.0	0.2	8.8
Acetic acid				
Available	50	98.0	91.2	99.8
Not available	1	2.0	0.2	8.8
HPV vaccine				
Available	28	54.9	41.3	68.0
Not available	23	45.1	32.0	58.7
IEC/SBCC material (poster)				
Available	47	92.2	82.4	97.3
Not available	4	7.8	2.7	17.6
IEC/SBCC material (audio)				
Available	6	11.8	5.1	22.7
Not available	45	88.2	77.3	94.9
IEC/SBCC material (video)				
Available	5	9.8	3.8	20.2
Not available	46	90.2	79.8	96.2
IEC/SBCC material (flyer)				
Available	39	76.5	63.6	86.4
Not available	12	23.5	13.6	36.4
IEC/SBCC material (brochure)				
Available	44	86.3	74.9	93.6
Not available	7	13.7	6.4	25.1
Guideline for cervical cancer prevention and control				
Available	51	100.0		
Referral forms				
Available	51	100.0		

c) Linkage with the community and service users

All 51 health centers were working with Urban Health Extension Professionals (UHE–Ps) for the provision of community services. Under a given health center, there were on average 10–15 trained UHE–Ps. The UHE–Ps provided public awareness messages on cervical cancer prevention and managed household visits to identify the most at-risk women and link them to

their respective health facilities. According to the responses from 48 (94.1%) of the facilities, the major area of involvement of UHE–Ps was public education followed by 47 (92.2%) of the respondents indicated referral to a health facility as their key role in the community. The UHE–Ps public engagement areas were mostly community outreach (100%) and schools (70.6%). (Table 4.20). In addition, the UHE-Ps track and document the number of women who are sent to health centers and undergo cervical screening. In the 24 months before to the study, 49% of the 51 health centers trained UHE-Ps on cervical cancer services (Figure 4.5). Nonetheless, the health extension supervisors provided new UHE-Ps with onboarding training on fundamental skills and understanding of cervical cancer prevention and screening services. Afterward, they get one-week training on 16 Primary Healthcare Unit (PHCU) packages including cervical cancer. In July 2021-June 2022, through WHO support, orientation on NCDs was given to 45 UHE–Ps and 39 health centers' Chief Executive Officers (CEOs) and medical directors in Addis Ababa.

Table 4. 20: Roles of health extension workers engaged with health centers in Addis Ababa (n=51)

Variables	Count	Percent	95.0% CI for percent	
			Lower	Upper
Areas of involvement of UHE–Ps in the cervical CA services*				
Public Education	48	94.1	85.1	98.3
Risk identification	35	68.6	55.1	80.1
Early detection	29	56.9	43.2	69.8
HPV vaccination	15	29.4	18.3	42.8
Referral to a health facility	47	92.2	82.4	97.3
Public engagement areas of UHE–Ps for cervical CA services*				
Schools	36	70.6	57.2	81.7
Community outreach	51	100.0		
Vulnerable populations	30	58.8	45.1	71.5
Youth center	23	45.1	32.0	58.7
House to house	7	13.7	3.9	21.6

*Participants had provided more than one response. UHE–Ps- Urban Health Extension Professionals; CA - cancer

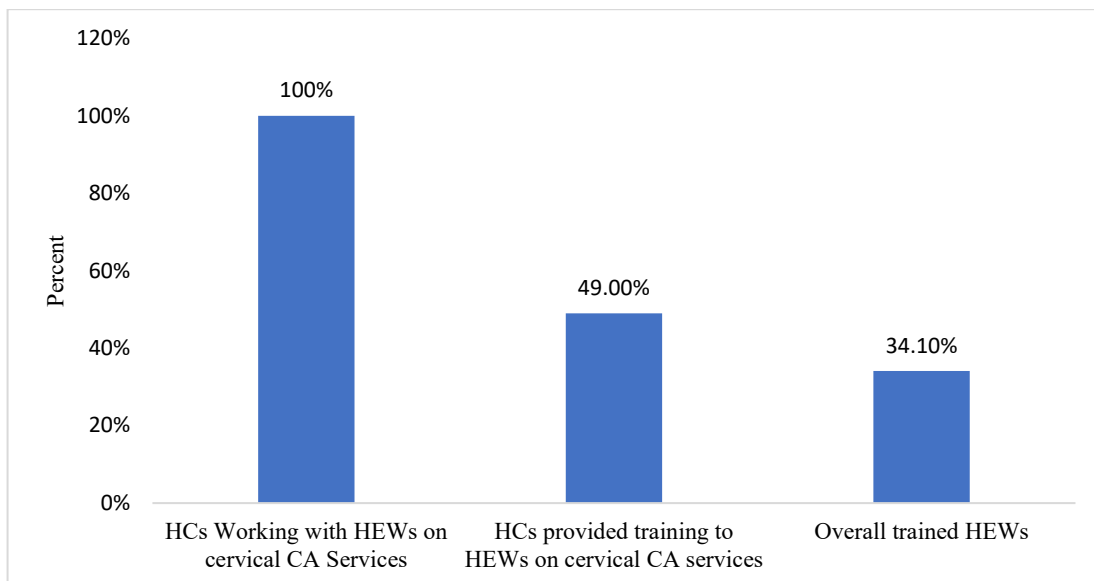


Figure 4. 5: Urban health extension professionals and training at health centers in Addis Ababa (n=51)

Table 4.21 depicts the prevention and screening, community linkage/referral, and area of improvement for cervical cancer services at selected public health centers. Among the survey respondents, 49 (96.1%) of them indicated that the major cervical cancer prevention and screening service challenge was inadequate public education followed by 30 (58.8%) facilities that mentioned inadequate media coverage (TV, radio) as a critical shortcoming of the program. The major challenges in the linkage of women from the community to primary care were transportation costs (35.3%) and distance to the facility (29.4%). Among the 51 focal persons, 41 (80.4%) of the respondents view the provision of training to cervical cancer service providers as a critical one. While 39 (76.5%) indicated better media coverage of cervical cancer prevention and screening services, and 31 (60.8%) thought that improving the diagnostic capacity of primary care facilities is mandatory.

Table 4. 21: Challenges and areas of improvement of cervical cancer services at health centers in Addis Ababa (n=51)

Variables	Count	Percent	95.0% CI for percent	
			Lower	Upper
Prevention and screening service challenge*				
Education	49	96.1	88.0	99.2
Religious factors	7	13.7	6.4	25.1
Stigma	9	17.6	9.1	29.7
Language barrier	5	9.8	3.8	20.2
Lack of space for screening	10	19.6	10.6	32.0
Unavailability of SBCC/IEC materials	6	11.8	5.1	22.7
Inadequate media coverage (TV, radio)	30	58.8	45.1	71.5
Major challenges on community linkage/referral*				
Transportation cost/allowance	18	35.3	23.3	48.9
Distance to the facility	15	29.4	18.3	42.8

Variables	Count	Percent	95.0% CI for percent	
			Lower	Upper
Capacity of HEWs/ UHE-Ps	3	5.9	.0	13.7
Fear of procedure	8	15.7	5.4	24.8
Lack of awareness	12	23.5	12.5	40.5
Negligence	5	9.8	2.7	17.6
Areas of improvement in cervical cancer prevention and screening services*				
Provide transportation allowance	11	21.6	12.0	34.2
Shorten waiting time	8	15.7	7.7	27.4
Provide staff training	41	80.4	68.0	89.4
Improve diagnostic capacity	31	60.8	47.1	73.3
Ensure preference for a provider	13	25.5	15.1	38.6
Spouse or partner support	21	41.2	28.5	54.9
Promote media coverage	39	76.5	63.6	86.4
Facilitate suitable room	7	13.7	6.6	27.5
Include routine HPV vaccine service	4	7.8	2.0	13.7

*Participants had provided more than one response. HEWs- health extension workers; UHE-Ps- Urban Health Extension Professionals; HPV- human papillomavirus; IEC - information, education, and communication; SBCC- social and behavior change communication

4.5. Health system factors affecting utilization of cervical cancer prevention and screening services provision in the public health centers in Addis Ababa.

4.5.1. Results and analysis

a) Sociodemographic characteristics

Table 4.22 provides the sociodemographic characteristics of women who participated in exit interviews at selected health centers. Among the 80 participants, 35 (43.8%) of the cervical cancer-screened women were aged 30–39 years followed by 27 (33.8%) for the age group of 40–49 years. Regarding marital status, 49 (61.3%) of the women who attended cervical cancer screening were married. The employment status shows that 40 (50%) were employed and 39 (48.8%) were unemployed. The education status of the participants shows that 30 (37.5%) completed secondary education, and 24 (30%) of them attended primary education, and the majority, 45 (56.3%) had 1-3 children.

Table 4. 22: Sociodemographic characteristics of exit interview participants at health centers in Addis Ababa (n=80)

Variables	Count	Percent	95.0% CI for percent	
			Lower	Upper
Age category (years)				
< 30	12	15.0	8.5	24.0
30–39	35	43.8	33.3	54.7
40–49	27	33.8	24.1	44.5
50+	6	7.5	3.2	14.8

Variables	Count	Percent	95.0% CI for percent	
			Lower	Upper
Marital status				
Married	49	61.3	50.3	71.4
Single	8	10.0	4.8	18.0
Separated	3	3.8	1.1	9.7
Divorced	12	15.0	8.5	24.0
Widowed	8	10.0	4.8	18.0
Employment status				
Employed/self-employed	40	50.0	39.2	60.8
Unemployed	39	48.8	38.0	59.6
Retired	1	1.3	0.1	5.7
Education status				
Uneducated	18	22.5	14.4	32.5
Primary	24	30.0	20.8	40.6
Secondary	30	37.5	27.5	48.4
Tertiary/higher	8	10.0	4.8	18.0
Number of children				
0	13	16.3	9.4	25.5
1–3	45	56.3	45.3	66.7
4+	22	27.5	18.6	38.0

b) Decision-making point for cervical cancer screening

A woman's decision to get screened for cervical cancer was mostly determined by her attendance at the ART clinic (35%), public awareness campaigns (28.8%), and family planning visits (25%) (Figure 4.6).

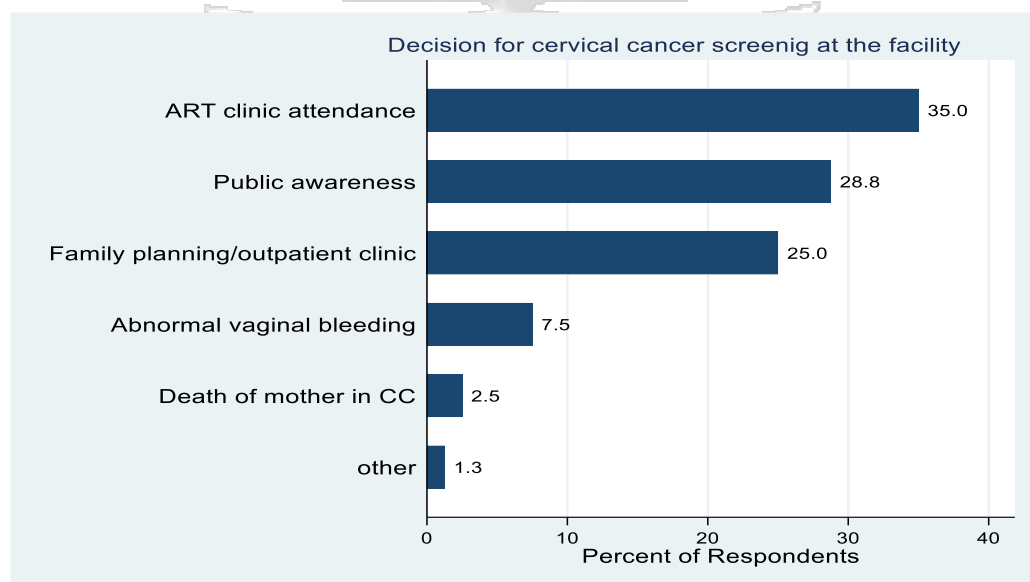


Figure 4. 6: Women's decision-making point for cervical cancer screening in Addis Ababa health centers (n = 80)

c) Perception of women on cervical cancer screening and challenges of referral linkage

Table 4.23 shows the perception of women on cervical cancer screening and the challenges of referral linkages to primary care. Among 80 women interviewed, 59 (73.8%) mentioned that cervical screening is safe, and 48 (60%) of them understood that it prevents death from the disease. Half of them, 40 (50%) self-referred to health centers for cervical cancer screening. Distance to the health facility, 24 (30%) coupled with transportation fare, 24 (30%) were equally challenging to the women screened at the health facility.

Table 4. 23: Perception and referral linkage of women at health centers in Addis Ababa (n=80)

Variables	Count	Percent	95.0% CI for percent	
			Lower	Upper
Perception of early cervical cancer screening services*				
Safe	59	73.8	63.4	82.4
Cost-effective	24	30.0	20.8	40.6
Prevents death from the disease	48	60.0	49.1	70.2
The person referred the client to the facility				
Self	40	50.0	39.2	60.8
HEW/UHE-P	19	23.8	15.5	33.9
HDA	18	22.5	14.4	32.5
Third-party	3	3.8	1.1	9.7
Challenges on referral linkage of women to the facility*				
Distance to the facility	24	30.0	20.8	40.6
Transportation cost	24	30.0	20.8	40.6

*Participants provided more than one response. HEW- health extension worker; UHE-P- Urban Health Extension Professional; HDA- health development army.

d) Coordination and quality of cervical cancer service

Table 4.24 describes the level of coordination and quality of care at selected health centers. Among the 80 women screened at health centers, 55 (68.8%) of them were screened once while 19 (23.8%) screened twice, and 6 (7.5%) screened more than twice. For 64 (80%) women, the facility waiting time for cervical cancer screening was less than an hour. Among respondents, 44 (55%) had no preference for a provider. The capacity of health professionals was rated excellent by 37 (46.3%) of the women. The overall coordination and quality of care was rated excellent by 29 (36.3%) of women followed by met expectations for 28 (35%) of them.

Table 4. 24: Coordination and quality of care responses of women at health centers in Addis Ababa (n=80)

Variables	Count	Percent	95.0% CI for percent	
			Lower	Upper
Frequency of screening for cervical cancer				
Once	55	68.8	58.1	78.1

Variables	Count	Percent	95.0% CI for percent	
			Lower	Upper
Twice	19	23.8	15.5	33.9
More than twice	6	7.5	3.2	14.8
Waiting time for the screening service in the facility				
< 1 hour	64	80.0	70.3	87.6
1-2 hours	11	13.8	7.5	22.5
> 2 hours	5	6.3	2.4	13.2
Had a preference for a provider				
Yes	36	45.0	34.4	55.9
No	44	55.0	44.1	65.6
The most preferred provider				
Doctor	33	41.3	30.9	52.2
Midwife	31	38.8	28.6	49.7
Nurse	15	18.8	11.4	28.3
Health officer	1	1.3	0.1	5.7
Rating of the capacity of a health professional who provided cervical cancer screening and/or treatment at the facility				
Poor	0	0.0		
Below expectation	4	5.0	1.7	11.4
Met expectation	20	25.0	16.5	35.3
Above expectation	19	23.8	15.5	33.9
Excellent	37	46.3	35.6	57.1
Rating of the overall coordination and quality of care in the facility				
Poor	4	5.0	1.3	11.3
Below expectation	6	7.5	2.5	15.0
Met expectation	28	35.0	22.6	43.8
Above expectation	13	16.3	7.5	25.0
Excellent	29	36.3	25.0	51.2

e) Areas of improvement for better utilization of cervical cancer screening

Among the 80 respondents, 39 (48.8%) suggested that shortening waiting time should be given priority, 35 (43.8%) recommended the provision of transportation allowance, and 32 (40%) stressed the importance of improving the staff attitude or capacity (Table 4.25).

Table 4. 25: Key areas for improving utilization of cervical cancer screening at health centers in Addis Ababa (n=80)

Variables	Count	Percent	95.0% CI for percent	
			Lower	Upper
Key areas of improvement for better utilization of screening service*				
Provide transportation allowance	35	43.8	33.3	54.7
Shorten waiting time	39	48.8	38.0	59.6
Improve staff attitude/capacity	32	40.0	29.8	50.9
Preference for a provider	11	13.8	7.5	22.5
Spouse or partner support	25	31.3	21.9	41.9
Improve public awareness message	19	23.8	15.5	33.9

*Participants provided more than one response.

f) Factors associated with frequency, provider preference, and perception of the safety of cervical cancer screening

The association of sociodemographic characteristics and point of decision with frequency, provider preference, and perception of the safety of cervical cancer screening by women is provided in Table 4.26. Women aged ≥ 40 years were 13.9 times more likely to utilize cervical cancer screening than those aged < 30 years (AOR=13.85; 95% CI: 1.40, 136.74). There was a strong preference for a female provider (AOR=7.07; 95% CI: 1.53, 32.75) among women screened after attending antiretroviral therapy clinics and among those screened due to abnormal vaginal bleeding (AOR=6.87; 95% CI: 1.02, 46.44) than women referred from family planning clinics. Perception of the women on the safety of cervical cancer screening was negatively associated with women aged 30–39 (AOR=0.045; 95% CI: 0.003, 0.696), and women who attended primary education, and secondary education and above, (AOR=0.016; 95% CI: 0.001, 0.262), and (AOR=0.054; 95% CI: 0.004, 0.724), respectively.

Table 4. 26: Factors associated with cervical cancer screening frequency, provider preference, and safety concerns among women screened in Addis Ababa health centers (n=80)

Variables	Frequency of screening		COR (95 % CI)	p-value	AOR (95 % CI)	p-value
	Once n (%)	Twice+ n (%)				
Frequency of screening						
Age group (years)						
< 30	11 (91.7)	1 (8.3)				
30–39	31 (88.6)	4 (11.4)	1.42	0.765	1.16 (0.11, 12.48)	0.905
40+	13 (39.4)	20 (60.6)	16.92	0.010	13.85 (1.40, 136.74)	0.024*
Education status						
No formal education	13 (72.2)	5 (27.8)	1.70	0.428	0.75 (0.16, 3.53)	0.713
Primary	11 (45.8)	13 (54.2)	5.23	0.005	3.11 (0.79, 12.31)	0.105
Secondary and above	31 (81.6)	7 (18.4)				
Constant					0.08	0.016
Provider preference						
	Yes n (%)	No n (%)				
Currently married						
Yes	33 (67.3)	16 (32.7)	2.98	0.022	2.09 (0.69, 6.34)	0.192
No	26 (83.9)	5 (16.1)				
Education status						
Uneducated	6 (33.3)	12 (66.7)	3.43	0.041	3.73 (0.92, 15.09)	0.065
Primary	14 (58.3)	10 (41.7)	1.22	0.704	1.01 (0.31, 3.33)	0.989
Secondary	24 (63.2)	14 (36.8)				
Decision for screening						
Family planning	15 (75.0)	5 (25.0)				
Public awareness	15 (65.2)	8 (34.8)	1.75	0.437	1.98 (0.38, 10.39)	0.421
ART clinic attendance	25 (89.3)	3 (10.7)	8.44	0.002	7.07 (1.53, 32.75)	0.012*
Other	4 (44.4)	5 (55.6)	8.00	0.021	6.87 (1.02, 46.44)	0.048*
Constant					0.15	0.004
Perception of the women on the safety of cervical cancer screening						
	Yes n (%)	No n (%)				
Age group (years)						
< 30	11 (91.7)	1 (8.3)				
30–39	21 (60.0)	14 (40.0)	0.14	0.070	0.045 (0.003, 0.696)	0.026*
40+	27 (81.8)	6 (18.2)	0.41	0.432	0.2 (0.012, 3.431)	0.267
Currently married						
Yes	33 (67.3)	16 (32.7)	2.52	0.108	0.247 (0.055, 1.115)	0.069

Variables	Frequency of screening		COR (95 % CI)	p-value	AOR (95 % CI)	p-value
	Once n (%)	Twice+ n (%)				
No	26 (83.9)	5 (16.1)				
Education status						
Uneducated	17 (94.4)	1 (5.6)				
Primary	14 (58.3)	10 (41.7)	0.08	0.024	0.016 (0.001, 0.262)	0.004*
Secondary and above	28 (73.7)	10 (26.3)	0.16	0.099	0.054 (0.004, 0.724)	0.028*
The decision for cervical cancer screening						
Public awareness	15 (65.2)	8 (34.8)				
Family planning	15 (75.0)	5 (25.0)	1.60	0.488	0.702 (0.125, 3.949)	0.688
ART clinic attendance	25 (89.3)	3 (10.7)	4.44	0.047	3.778 (0.647, 22.059)	0.140
Other	4 (44.4)	5 (56.6)	0.43	0.288	0.157 (0.018, 1.372)	0.094
Constant					1413.02	0.002

COR: Crude Odds Ratio; AOR: Adjusted Odds Ratio. *Significantly associated factors.

4.6. Summary of the findings from the five parts of the study

4.6.1. *The extent to which institutional strategies for improving the quality of care for women with cervical cancer support the implementation of the Ethiopian National Cancer Control Plan framework.*

Through the leadership of the Ethiopian First Lady, the government demonstrated a high level of political commitment. The National Cancer Committee was co-chaired by the First Lady and the Health Minister of Ethiopia. However, powerful and prominent women leaders or celebrities in the public and private sectors, particularly in the dissemination of public awareness messages, did not fully support the fight against cervical cancer. The MOH was able to expand cervical cancer screening and treatment services in 1218 health facilities across 800 woredas (districts) of the nation, with at least one facility per woreda, through collaboration with partners. In public health facilities, the cervical cancer service was free. Partners such as WHO, CDC, ICAP, Pathfinder International, Wings of Healing, and others provided technical support, allotted funds, provided diagnostics and tests, deployed trained workers, and helped mentor and oversee cervical cancer programs. Despite the MOH's support for PPPs, there remained a lack of cooperation between the public and private sectors. The MOH created a program to combat cervical cancer (3Cs) that screens five women every day in a facility. There were reports of screening (55%) and treatment (53%). Out of the 10.7 million women who were eligible nationwide, 900,000 (8.4%) of them underwent screening. On the other hand, according to the national data (July 2021–June 2022), HPV 1 (105%) and HPV 2 (84%) performance were attained against the projected targets of HPV 1 (95%) and HPV 2 (92%) respectively. Overall, 4.8 million schoolgirls received the first dose of the HPV vaccine from the MOH in partnership with the Ministry of Education, and 3.1 million received the second dose by the time they turned 15 years old. Addis Ababa achieved HPV 1 vaccine (77%), HPV 2 vaccine (62%), screening (95%), and treatment (69%).

The prevention and control of non-communicable diseases (NCDs), including cancer, did not have a specific budgetary allocation. Chemotherapy, radiation, and oncology surgery services were in shortage at hospitals. Patients with cervical cancer who were referred from primary and secondary healthcare facilities to specialty hospitals received incomplete and delayed services, and feedback was rarely provided to lower levels. The issue of the lack of community cancer registries and cancer monitoring systems was prevalent in the health systems, which was primarily driven by a lack of resources. The creation of cervical cancer prevention and control guidelines was done at the national level. The guidelines were disseminated and monitored, and Training of Trainers (TOT) for regional oncologists was delivered before the regions cascaded the fundamental instruction to healthcare facilities. However, formal education and continuing professional development (CPD) training still need to take the guidelines into account. Facility-based one-on-one counseling and/or group instruction were provided by healthcare providers, supported by constrained national radio and television messaging, to increase population empowerment. Print media, a free helpline, mobile and online health resources, and peer-to-peer cervical cancer patient support were all lacking, nevertheless. No appropriate incentive structures, such as a monthly fee per beneficiary or payment for enhanced cervical cancer care, were in place to influence the behavior of providers. The Cervical Cancer Prevention and Control Guidelines, the National Reproductive Health Strategy, the National Strategic Action Plan (NSAP) for Control of NCDs, the Health Sector Transformation Plan II, and A Roadmap for Optimizing the Ethiopian Health Extension Program were all adequately linked to the National Cancer Control Plan (NCCP).

4.6.2. Health system factors affecting the uptake of cervical cancer prevention and screening services in the public health centers in Addis Ababa.

The majority of participants in focus group discussions (FGDs) cited screening, using condoms or other protection during sexual contact, and refraining from promiscuous sexual conduct in both men and women as the best approaches to avoid cervical cancer. Most respondents said they preferred female providers. The majority of respondents reported that lack of understanding regarding cervical cancer and the screening services offered by institutions, fear of the procedure or its pain, and humiliation were the main knowledge barriers. Fear of the screening result and a perception of a lowered susceptibility to and severity of the disease followed. The majority of FGD participants stated that childcare and a lack of support from the male partner were the primary household barriers to screening. Husbands were difficult to engage or persuade to attend cervical cancer screenings at primary healthcare institutions. The lack of self-sampling devices, apprehension about the risk of the speculum or the possibility of catching an infection through it, and the competence of healthcare professionals were the main barriers associated with health facilities, according to the FGD participants. Some

respondents raised the issue of the cost of transportation, particularly when a Pap smear test was performed outside of the health facility. Society dissuades screening and holds the notion that there is no cure for cancer. The majority of interviewees said it was essential to increase public knowledge about cervical cancer screening through TV, radio, households, and public events like festivals.

4.6.3. Health system factors affecting access to and quality of cervical cancer diagnosis and treatment services in the public and private general and specialized hospitals in Addis Ababa.

Government as well as private healthcare facilities were experiencing a scarcity of oncologists. For nurses and midwives in particular, there was a dearth of in-service training in the private sector. The majority of managers in both private and public facilities have received training in change management, leadership, and systems thinking. Service delivery concerns included inadequate screening equipment alternatives and a lack of a "single visit approach," especially at private institutions. Services like LEEP, colposcopy, chemotherapy, cancer surgery, and radiotherapy were often unavailable and inaccessible in public hospitals. Despite the favorable median price ratio (MPR) against international reference prices (IRPs) for a few tracer cancer medicines, such as Paclitaxel powder for injection and Cisplatin injection, in this survey, only a small number of patients had access to quality generic cancer drugs in few public hospitals. This was partially because it took eight to ten months to procure medicines from overseas. Public hospitals also faced difficulties with restricted access to MRI and CT scanners and the intermittent availability of HPV DNA tests. There were no Standard Treatment Guidelines (STGs) for the judicious prescription of cancer medications. At general and specialty hospitals, there were no easily accessible systems for patient data or information transfer from primary care to specialized care. The government, development partners, and Community-Based Health Insurance (CBHI) provided funds for public hospitals to guarantee access to care and free screening services. When it came to involving the private sector in the healthcare delivery system, the Ministry of Health's Public-Private Partnership approach was not working. Providing sustainable incentives in terms of financial awards, recognition, managerial career routes, and additional education posed a challenge at both private and public facilities.

4.6.4. Health system factors affecting access to and quality of cervical cancer prevention and screening services in public health centers in Addis Ababa.

At public health centers, the government offers free cervical cancer services. According to the survey, 71.1% of women were screened for cervical cancer between July 2021 and June 2022, 61.2% of girls had received the full HPV vaccine by the age of 15, 79.8% of women with positive lesions were treated, and 79% of women had received cervical cancer awareness messages. Ninety-four percent of the fifty-one health centers have enough employees. In 33

(64.7%) of the screening facilities, there was a provider choice, and in 41 (80.4%) of them, relationships had been established with recognized providers. Further, 39 (76.5%) of the facilities had patient call and recall systems, whereas 44 (86.3%) did not have an electronic patient register. The typical time spent waiting for cervical cancer screening services was less than an hour. The Turnaround Time (TAT) for counseling women, cervical cancer screening, and precancerous lesion treatment was under 15 minutes. A fee of about USD10 was charged for each Pap smear test performed in a private diagnostic facility. The TAT for the Pap smear test was more than a week. The majority of health centers lacked sufficient transportation to send patients to hospitals for specialized care. Patient healthcare records were not electronically referred by computer in either direction. In the majority of the health centers, there was access to fundamental tools, such as a speculum, acetic acid, cryotherapy, guidelines, referral forms, and IEC/SBCC materials. Only 28 (54.9%) facilities have HPV vaccination available. Audio and video public messages were challenging to provide for the majority of the facilities. Ten to fifteen qualified Health Extension Workers (HEWs)/Urban Health Extension Professionals (UHE-Ps) were used by a particular health center to provide community services. The HEWs/UHE-Ps had at the very least attended an orientation on services for cervical cancer. The greatest obstacle to offering services for cervical cancer was indicated by respondents in 49 (96.1%) of the facilities as inadequate public education.

4.6.5. Health system factors affecting utilization of cervical cancer prevention and screening services in the public health centers in Addis Ababa.

Women over 40 years were 13.9 times more likely than women under 30 years to utilize cervical cancer screening. The majority of women decided to undergo a cervical cancer screening when attending an ART clinic (35%), hearing public awareness messages (28.8%), and going for family planning (25%). For cervical cancer screening, fifty percent of the women who took part in the interview self-referred. However, women who desired to use the screening services offered by healthcare institutions were challenged by the cost of transportation and the distance to the facility. Most of the women had only undergone one screening; the average waiting time was less than an hour; and most of the women preferred that the screening be conducted by a doctor or midwife. Women who were screened after attending antiretroviral therapy clinics and those who were screened owing to abnormal vaginal bleeding had a much stronger preference for female providers (AOR=7.07; 95% CI: 1.53, 32.75) and (AOR=6.87; 95% CI: 1.02, 46.44) respectively than those who were referred via family planning clinics. The capacity of medical staff as well as the general coordination and standard of cervical cancer care were rated excellent. Nevertheless, reducing the waiting period and providing transportation support to the most vulnerable women in the community are important factors that need to be considered to increase the utilization of cervical cancer screenings.

Chapter 5: Discussion

The study assessed health system factors affecting services for cervical cancer at primary, secondary, and tertiary levels in Addis Ababa, Ethiopia. Data from both qualitative and quantitative sources were gathered using a mixed-method study approach. Discussions in Chapter 5 cover the following topics: i) the key informant interviews and secondary data sources that explore the degree to which current national initiatives facilitate the implementation of the Ethiopian National Cancer Control Plan (NCCP). The main strategies considered in this study include political commitment, priority setting, interagency cooperation, incentives, population empowerment, and the application of evidence to practice; ii) the surveys that assess the components of the health system influencing the diagnosis and treatment of cervical cancer at the secondary and tertiary levels of healthcare. The emphasis of this study was on human resources, leadership, accessibility to services, cancer medicines, equipment, diagnostics, and vaccines, as well as information solutions and financing. It also examines the integration and coordination of services across the four public and the four private hospitals; iii) the study assesses the healthcare system's influence on cervical cancer services at health centers, the "inputs" (financial, human, physical, and information systems) and "outputs" (target achievement, availability, timeliness, patient-centeredness, and equity) of the health system. The focus group discussions (FGDs) investigate how women's perceptions of the disease, as well as societal, economic, and personal issues, affect the uptake of cervical cancer screening. Also, the exit interviews assess the utilization of cervical cancer screening with a focus on how people perceive the disease and its screening, how they choose to get screened, how difficult it is to get a referral, how long it takes to get screened, how well providers are coordinated, and identification of rooms for improvement. Additionally, it considers elements related to frequency, provider preferences, and perception of the safety of cervical cancer screening by women; and iv) strengths and limitations of the study.

5. 1. The extent to which institutional strategies for improving the quality of care for women with cervical cancer support the implementation of the Ethiopian National Cancer Control Plan framework.

According to a 2017 World Health Assembly (WHA) decision, countries need to give the fight against cancer a top priority and mobilize more funding because it is an obvious and quickly growing disease globally (WHO, 2017a). The NCCP was created and put into effect by the Ethiopian government in 2015. In addition, in order to achieve universal health coverage and enhance the population's overall health, the Ethiopian Health Sector Transformation Plan II (HSTP-II) and the Roadmap for Optimizing the Ethiopian Health Extension Program were put

into place. The goal of the HSTP-II is to raise the percentage of women aged 30-49 who obtain screenings for cervical cancer from 5% to 40% (FMoH, 2021a). There was strong support from the Ethiopian First Lady and the Minister of Health who co-chaired the National Cancer Committee. However, there was inadequate political support at sub-national level mainly in public awareness creation about cervical cancer. The Ministry of Health (MOH) was working in coordination with development partners on resource mobilization, financing, provision of diagnostics and tests, deployment of trained personnel, mentorship, supervision, and technical support in 1218 health facilities in 800 woredas (districts) of the country. The MOH implemented a combat cervical cancer (3Cs) initiative for screening five women per facility daily and this was continuously evaluated in the presence of regional health bureau focal persons. Several strategies for scaling up and eliminating cervical cancer were reported by previous studies (Duncan et al., 2021; Taghavi et al., 2020; Holme et al., 2017; Tsu & Ginsburg, 2017).

The budgetary limitations for managing non-communicable diseases (NCDs) were not adequately addressed by the national strategies. This necessitates the government mobilizing and allocating more resources while working with other stakeholders. The continuous availability of HPV DNA tests was a challenge in public and private healthcare institutions. A baseline assessment done in six African nations (Eswatini, Guinea, Malawi, Rwanda, Uganda, and Zambia) proposed to switch from acetic-acetic cervix inspection to more precise HPV screening (Stefan et al., 2022). Pap smear test was not available in public health facilities. Likewise, availing the infrastructure, technical capacity, and kits for Pap smear testing at facilities was a challenge as reported in other fragmented healthcare systems (Taplin & Rodgers, 2010). Moreover, the health system faced a shortage of specialty care (LEEP, CT scans, MRI, and Radiotherapy) which probably contributed to delayed diagnosis for 75% of the patients (more than 30 days) in Ethiopia (Dereje et al., 2020). Due to the lack of continuous availability of cancer medicines at public facilities clients were forced to purchase products from private pharmacy outlets. This corroborates the previous Ethiopian study that showed a median waiting time of 2 months for chemotherapy services (Feuchtner et al., 2019). In Addis Ababa, it was found that the public sector had a mean availability of 56.9% of the lowest-priced generic (LPG) cancer medications, whereas the private sector had an average of 18.8% (Tadesse & Fang, 2018). This fell substantially short of the 2012 World Health Assembly's target of 80% accessible, cost-effective essential medications for the treatment of NCDs in both public and private institutions by 2025 (WHO, 2012). Considering Ethiopia's low per capita income of USD 825 (The World Bank, 2021), the lack of cancer medications may have caused a financial catastrophe or led to patient poverty. The radiotherapy service was given in one specialized hospital and required expansion as clients had to wait up to 7 months before

getting services (Feuchtner et al., 2019). Section 3.7 of the HSTP II demands priority given to the expansion and building of health infrastructure. To address a shortage of radiotherapy treatment a study recommended the usage of Brachytherapy alone (LaVigne et al., 2017). Furthermore, the unavailability of a national population-based cancer registry, poor electronic health records, weak referral networks, and the absence of a cancer surveillance system were challenges in the health system. A Kenyan study found similar limitations in the prevention of cervical cancer (Mwenda et al., 2022) while an Ethiopian study recommended the expansion of population-based registry sites (Memirie et al., 2018). These are part of the priorities set by the HSTP II (strategy 4.6.1.7.), and the NCCP.

An integrated cancer management is recommended by the 2017 World Health Assembly (WHO, 2017a). In a similar vein, the NCCP and HSTP II strategy 4.7 mandate that all stakeholders be involved in activities to prevent and treat cancer. The HSTP II (strategy 4.6.14.) and the NCCP also recognizes the significance of collaboration between public and private entities in the fight against cancer. However, there was poor coordination between public and private facilities. The MOH works with the Technical Working Group (TWG) across government sectors and various development partners in cancer prevention activities and management. By avoiding duplications and overlaps, this initiative makes it easier to leverage resources for cancer prevention and cure. Despite this, the interagency cooperation required promoting Health in All Policies (HiAP) as per the HSTP strategy 4.6.13 across the various government ministries, especially in the establishment of pooled funding to fight cancer. The NCCP strategies to fight cervical cancer are adequately linked with the HSTP II, cervical cancer guidelines, NCDs action plan, primary healthcare, and reproductive health strategies. Yet, cervical cancer services demanded full integration with routine health programs. This corroborates a Kenyan study that proposed promoting the inclusion of services for the detection of cervical cancer and its cure in regular healthcare programs (Mwenda et al., 2022). Since the NCDs share similar risk factors and preventive mechanisms, integrated intervention mechanisms could be planned, promoted, and implemented in a coordinated manner by facilities at various healthcare levels. In this regard, NCDs, Maternal and Child Health, and Primary Healthcare directorates of the Addis Ababa City Administration Health Bureau were required to improve coordinated planning, implementation, monitoring, and evaluation of the activities related to cervical cancer. The availability and accessibility of screening for cervical cancer and treatment options may be mapped, and initiatives to enhance care coordination and integration between private and public institutions could aid in improving the services for cervical cancer.

The requirements set by the Oncology Care Model (OCM) and the Institute of Medicine (IOM) guidelines facilitate providing integrated cancer services that are consistently high-quality,

high-value, and patient-focused (Kline et al., 2017). Respecting patients' views, preferences, and expressed requirements is one of them. Others include ensuring physical well-being, offering psychological assistance, involving family members, and providing information in a coordinated and integrated manner. Moreover, the IOM's framework—which consists of six interconnected parts—may also be considered to raise the standard of cancer treatment. These elements include offering accessible and affordable care, involving patients, placing staff who are suitably trained and coordinated, offering evidence-based cancer services, applying healthcare IT systems, and using quality measurement to improve service performance (Mayer, 2014).

International partnerships with academic institutions and professional associations were required for capacity building and skills transfer, technical assistance, NCCP review, mentoring, monitoring and evaluation, and evidence-based planning (Torode et al., 2023; WHO, 2020; Duncan et al., 2019). The national policymakers could explore any opportunities for regional cooperation, such as that which exists between the Intergovernmental Authority on Development (IGAD) and the Common Market for Eastern and Southern Africa (COMESA). This cooperation could be employed to promote joint research, capacity building, the creation of cancer registries and surveillance systems, and knowledge sharing. The African Organization for Research and Training in Cancer (AORTIC) promotes research projects and training; the African Cancer Registry Network (AFCRN), improves cancer registration and surveillance in Africa; the African Comprehensive Cancer Consortium (AC3), enhances cancer treatment and care; and African Radiation Oncology Group (AFROG), addresses the issue of radiation oncology in Africa, are some of the areas that may be considered in the context of regional collaboration in the battle against cancer.

The Technical Working Group (TWG) at the national level was leading the development, dissemination, implementation, and monitoring of guidelines. The first cervical cancer guideline was launched in 2015 and revised in 2021 by the MOH of Ethiopia in coordination with other stakeholders. The guidelines were disseminated throughout the health facilities unlike the low availability reported in 2014 (Gelibo et al., 2017). The training materials were prepared from the guidelines with the support of university hospitals. The Training of Trainers (TOT) was conducted for regional oncologists and the regions cascaded the basic training on cervical cancer to lower levels. The hubs were well-established at university hospitals and focused on improving skills in the form of refresher training. However, the guidelines were not fully considered in the formal education of health professionals and e-learning modules.

The HSTP II strategy 4.6.3 and the NCCP require engaging citizens through the concerted efforts of all stakeholders. Facility-based one-on-one counseling and/or group education were

given by healthcare providers coupled with some national radio and television messages. An Ethiopian study also recommended health education of clients through one-to-one encounters and the provision of home-take educational materials (Abu et al., 2020). It was imperative to involve consumers and communities more, as they are co-producers of health and should have more say in defining their requirements and choices. To reach out to more population groups, free hotlines, mobile health, e-health, and peer-to-peer cervical cancer patient support were not implemented. The survivors of cervical cancer were expected to take part in public education initiatives, organize support groups, and lobby for effective cervical cancer services across the nation. To involve the community, spread cancer knowledge, and lessen the stigmatization of cancer patients, civil society organizations (CSOs), print media, cancer societies, professional associations, religious individuals, and traditional healers were not effectively exploited. Working with religious leaders could aid in providing cancer patients with additional psychosocial support. Due to their access to numerous clients, traditional healers may also be crucial in the fight against cervical cancer. These are good opportunities to identify the most at-risk women and link them with Urban Health Extension Professionals (UHE–Ps) for referral to primary care without significant delays. UHE–Ps are well positioned to mobilize support groups at the kebele (the basic administrative unit) level such as with religious leaders, traditional healers, and health development armies (HDAs). Moreover, UHE–Ps have family folders at health posts and conduct home visits which is a good opportunity for the dissemination of public awareness messages including for cervical cancer. Considering the aforementioned various stakeholders in cervical cancer training could be one of the strategies for promoting population empowerment. Several studies reported public awareness challenges in managing cervical cancer (Mwenda et al., 2022; Kasim et al., 2020; Haileselassie et al., 2019; Getachew et al., 2019; Tapera et al., 2019; Binka et al., 2019; Black et al., 2019).

No effective incentive structure, such as a monthly fee per beneficiary or payment for an enhanced cervical cancer service, was in place to influence the behavior of healthcare providers. Incentives for UHE–Ps might be given priority especially for identifying the most at-risk women and linking them with the health facilities for cervical screening. The application of incentives was recommended by HSTP II (strategy 4.6.8.) and several Ethiopian studies (Lott et al., 2021; Weldegebriel et al., 2016; Yami et al., 2011). The Oncology Care Model also suggests payment incentives (Kline et al., 2017).

The NCCP is designed to work with various programs and through cross-cutting interventions in the fight against cancer. The document review in this study showed the presence of adequate NCCP linkage with the other national strategies as indicated in section 1.6 of the NCCP (FMoH, 2015). As a result, the NCCP is connected to the cross-sectional interventions for cervical cancer included in Ethiopia's Health Sector Transformation Plan II,

National Strategic Action Plan for Control of NCDs in Ethiopia, Ethiopian Cervical Cancer Guidelines, National Reproductive Health Strategy for Ethiopia, and A Roadmap for Optimizing the Ethiopian Health Extension Program.

5.2. Health system factors affecting access to and quality of cervical cancer diagnosis and treatment services provision in the public and private general and specialized hospitals in Addis Ababa.

The Donabedian Model was utilized to inform this study in identifying the different factors that affect the quality and availability of services for cervical cancer at general and specialized hospitals (Kelley & Hurst, 2006; Donabedian, 1988). Based on this various indicators were assessed: 1) Indicators of the structure (human, infrastructure, financing, information system, leadership, and medications, diagnostics, and tests); 2) Indicators of the process (HPV vaccination, screening, diagnosis, and treatment); and 3) Indicators of the outcome (delivered and preventive care) (Ibn El Haj et al., 2013). In addition, the research was guided by the Oncology Care Model (OCM) to evaluate the presence of quality, valuable, and patient-orientated services in healthcare organizations (Kline et al., 2017). The study specifically examined: 1) patient-centered and coordinated quality of care; 2) use of certified electronic health records (EHRs); 3) treatment of patients per national guidelines; and 4) provision of care navigation services. The quality in the continuum of cancer care (QCCC) model, which evaluates the variables influencing the services for cancer and the shifts that occur between the components at various levels (community, patients, facilities, and policies) that may affect the availability, accessibility, and standard of services, was employed as an additional source of information in this study (Zapka et al., 2003). This approach assisted in locating weaknesses in the healthcare delivery system and put up workable ideas for enhancing hospital diagnosis and treatment services.

The health workforce plan for cancer was not fulfilled as per the major strategic initiatives of the HSTP II (strategy 4.6.6.). The survey showed a shortage of specialized human resources mainly for oncology gynecologists and pathologists at public general and specialized hospitals. Moreover, there was a lack of in-service training mainly for midwives and nurses in the private sector. This confirms the previous Ethiopian study that showed only 4 % of the facilities had staff who received in-service training on cancer in 2014 (Gelibo et al., 2017). Similarly, a Tanzanian study found an inadequate number of competent staff to provide services related to cervical cancer (Mugassa & Frumence, 2020). The previous Ethiopian studies proposed measures for improving cervical screening through the provision of training to healthcare providers in facilities (Burrowes et al., 2022; Lott et al., 2021). The use of hospitals connected to medical schools to provide in-service training for healthcare professionals was underutilized. To promote excellence in the quality of services through the delivery of training

and knowledge exchange to the oncology health workforce, there were no international collaborative projects among oncology specialists. A study recommended partnerships to be formed with internationally renowned cancer treatment facilities or oncology associations (Dittrich et al., 2016).

The Ethiopian Health Sector Transformation Plan II (HSTP II) strategy 3.6.1 demonstrates that in an effort to improve the managerial skills of leaders in the health sector, the Ministry of Health (MOH) launched the Leadership Incubation Program (LIP) in 2019. The study revealed that nearly all healthcare management professionals in both private and public hospitals received training in leadership skills, systems thinking, and change management. Leadership skills training equips healthcare management professionals with the ability to analyze data, identify trends, and make informed decisions. With this training, professionals can develop effective strategic plans for cervical cancer services, including resource allocation, setting priorities, and implementing evidence-based practices. In system thinking they learn to identify bottlenecks, inefficiencies, and areas for improvement within the service. Change management training equips healthcare management professionals with the skills to effectively plan, communicate, and manage the implementation of new technologies, protocols, or organizational changes. Coordination between general and specialized hospitals was required to use the existing Continuing Professional Development (CPD) centers. A Ugandan study showed the feasibility of in-service leadership training in resource-limited settings (Nakanjako et al., 2015). Another study emphasized that one of the most important steps to lower cancer death rates by 2030 is to engage in worker training (Ngwa et al., 2022). It was difficult to provide and maintain incentives in facilities in terms of monetary awards, recognition, managerial career prospects, and further education. To fill these gaps and deploy improvised techniques in hospitals, the quality improvement process needs to be strengthened coupled with resource mobilization by the decision-makers.

The World Health Organization advises using a "screen and treat" approach (STA) , wherein a woman who has a positive screening result is treated at the same facility, if practical (WHO, 2013b). Likewise, The Ethiopian National Cancer Control Plan (NCCP) requires that health facilities use a single-visit approach (SVA) or STA for cancer patients. However, implementation of the single-visit approach was hampered by a shortage of testing and treatment options available at healthcare facilities.

Vertical coordination was used to oversee cervical cancer interventions at various healthcare delivery levels. Coordination of the cervical cancer services was necessary, beginning with providing the community's women with sufficient information to enable self-referral to primary care. Additionally, efficient coordination between healthcare professionals, managers,

administrators, and institutions at different levels was necessary to refer patients. Chemotherapy, complex diagnostics, radiotherapy, and oncology surgery were used to handle the tertiary prevention of women with invasive cervical cancer. Radiotherapy service was provided at Tikur Anbassa Hospital only, and chemotherapy was available in a couple of public facilities. Gynecologists treated patients with LEEP, however, it was not available in 2/3 of public general hospitals, and 3/3 of private general hospitals. Thus, the referral of patients from primary healthcare facilities to general and specialty hospitals for these services did not lead to seamless cooperation and coordination under the current care paradigm. Patients referred from primary and secondary facilities for oncology surgery at tertiary hospitals were left unattended and needed to wait for months before receiving the services. This supports a research from Ethiopia that found women with cervical cancer had to wait months for referrals, and that additional delays were caused by a scarcity of hospital beds and malfunctioning tools (Burrowes et al., 2022). This also supports research findings that revealed fragmented healthcare systems and several transitions in cancer care might lead to failures, including gaps in quality (Taplin & Rodgers, 2010). Furthermore, the WHO report showed that insufficient healthcare systems that do not fairly and effectively meet the needs of the general population contributed for up to 50% of all early deaths from NCDs, including cancer (WHO, 2015b). The hospitals not full apply patient callbacks, free hotline services, and electronic health records (EHRs). The health system's many problems made it more challenging to access patients' clinical information, track the loss of cervical cancer patients (for follow-up appointments), and possibly hampered efforts to eradicate the disease. Hence, these require intervention by decision-makers.

By emphasizing on establishing equity in the delivery of free cervical cancer services, the Addis Ababa City Administration Health Bureau (AACAHB) in Ethiopia works to ensure that everyone, especially members of disadvantaged groups, has access to necessary healthcare without facing obstacles due to their geographical area or other personal characteristics, such as being a woman. The AACAHB achieved equity in services for cervical cancer through over 90 public health facilities dispersed in 11 Addis Ababa sub-cities, even though there are still gaps in hospital diagnosis and treatment facilities. This supports a research that found that three-quarters of patients with cervical cancer delayed receiving diagnostic confirmation (more than 30 days) (Dereje et al., 2020). Oncology specialists in Ethiopia compelled to use foreign guidance for treating cancer patients as STGs were unavailable. The government, partners, and non-governmental organizations were still required to give attention, priority, and investment to improving the availability of diagnostics/equipment through public-private partnership (PPP).

For chemotherapy, the average wait period in Tikur Anbassa Specialized Hospital was two months (Feuchtner et al., 2019). In terms of improving access to quality medicines, the national quantification of products was done by MOH, Ethiopian Pharmaceuticals Supply Service (EPSS), and partners. The procurements were managed by EPSS. For international competitive procurement, a total lead time of 240–300 days was needed. A scarcity of foreign currency, the inadequate number of suppliers for small-scale transactions, and drawn-out regulatory approvals were some of the causes of this. This study revealed that three-fourths of hospitals lacked the availability of generic cancer medications. Due to this, patients were forced to purchase the medications outside of the health facility at private pharmacy outlets. This supports the findings of a prior study, which found that the average availability of the lowest-priced generic (LPG) cancer medications was 56.9% in the public sector and 18.8% in the private sector in Addis Ababa (Tadesse & Fang, 2018). To improve the availability of cancer medicines in facilities, the forecasting and quantification needs to be based on standard treatment guidelines (STGs), a national essential medications list (NEML), and a national population-based cancer registry. However, Ethiopia lacked a national cancer registry (Gessese et al., 2018; Memirie et al., 2018). A previous Ethiopian study suggested that facilities providing cancer care should have access to essential medicines along with provision of evidence-based national guidelines (Gelibo et al., 2017). To enhance efficient procurement, the Ethiopian Food and Drug Authority (EFDA) is required to further streamline the expedited approval process of products that meet the WHO pre-qualification process and approved by the stringent regulatory authority (SRA). Additionally, the Public Procurement and Disposal of Public Assets Authority of Ethiopia needs to work on reducing the approval time for procurements, including those involving small quantities. Furthermore, public-private collaboration can provide a possibility for collective administration and monitoring of the supply pipeline of quality, safe, and effective cancer medications. With accountability systems in place, the insurance systems may consider paying private retail pharmacies for filling outpatient prescriptions of generic cancer medications as long as the prices are the same as with the public sector.

According to strategy 3.5.5 of the Health Sector Transformation Plan II (HSTP II) of Ethiopia, the government created the policy documents and guidelines for health information systems. . Patient cards, cervical cancer screening and treatment registers, and District Health Information Software 2 for a bottom-up reporting of cervical cancer services were the available information sources. Implementing the National Cancer Control Plan (NCCP) strategies still require having reliable, evidence-based data users can access though Addis Ababa has had a population-based cancer registry since 2011 (Memirie et al., 2018). The establishment of the national cancer registry was necessary for sharing of information on

cancer epidemiology and for the allocation of funding based on the nation's most common cancer types. At general and specialty hospitals, there were no easily accessible systems for patient data or information transfer from primary healthcare facilities to specialty care. This supports a study conducted in Ethiopia that identified a weak referral mechanism as one of the system's issues (Haileselassie et al., 2019). Raising public awareness at private and public hospitals was hampered by the lack of audio, video, print, eHealth, and mHealth messaging. The MOH digital health initiative would have provided oncology practitioners with an excellent opportunity for online in-service training.

The funding for public hospitals was primarily provided by the federal government with support from development partners, and community-based health insurance (CBHI) for 100% free screening and treatment services at public facilities. To increase the efficiency and effectiveness of care, the Health Sector Transformation Plan II (strategy 4.6.8) mandates the development and application of achievement and results-driven financing schemes. However, no incentive programs were set up to influence the behavior of the providers, such as a monthly charge per beneficiary or payment for increased cervical cancer care. A study done in Jimma, southwest Ethiopia, found that of the 145 health workers, 67 (46%) were not happy with their professions mostly due to inadequate motivation, low salaries, and limited opportunities for training (Yami et al., 2011). Nonfinancial incentives were shown to be one of the most reliable predictors of health worker motivation in a different study conducted at public hospitals in northwest Ethiopia (Weldegebriel et al., 2016).

5.3. Health system factors affecting the uptake, utilization, access to, and quality of cervical cancer prevention and screening services provision in the public health centers in Addis Ababa.

Increasing the dissemination of public awareness messages, screening, treatment, and conducting extensive HPV vaccination campaigns were among the main efforts made by the Ethiopian government to combat cervical cancer (FMoH, 2015). A routine immunization program for 14-year-old girls in Ethiopia adopted the Human Papillomavirus (HPV) vaccine in December 2018 (FMoH, 2021b).

5.3.1. Uptake of cervical cancer screening

Gaining a comprehensive understanding of the experiences, interests, worries, and social processes that impact making decisions and the uptake of screening for cervical cancer was the primary objective of this study. Based on this it examined the cues to action, views, and habits related to screening in the context of their beliefs, personal experiences, financial conditions, and societal influences. The Health Belief Model (Baum et al., 1997), which explains why people fail to participate in the prevention and treatment of a disease, was found

to be consistent with the whole spectrum of responses that may affect the behavior of women seeking cervical cancer screening. A Ugandan study indicated the complex interplay of individual, structural, and sociocultural barriers to accessing cervical cancer screening services (Black et al., 2019). Out of the individuals who took part in the study, 35 (53%) were aged 30 - 39, and 53 (80.3%) were married. An Ethiopian study found that employed women were more likely to use screening services, and screening was more common among women aged 30 to 49 years old than those under 30 years old (Teame et al., 2019).

The main risk factors for developing cervical cancer that were mentioned by the focus group discussion (FGD) participants included uterine viral infection, multiple sexual partners, and early initiation of sexual activity. Some responders also mentioned smoking, drinking too much alcohol, and uterine tumors. The earlier Ethiopian study's participants agreed that being married at a young age, having multiple sexual partners, and inadequate hygiene are risk factors for cervical cancer (Solomon et al., 2023). Participants in a different Ethiopian study connected the disease to unprotected sexual activity (Demissie et al., 2022). The main signs and symptoms mentioned by the respondents included unusually persistently smelling vaginal discharge and itching, irregular and heavy menstruation or bleeding, pain during sexual activity, and frequently occurring lower back pain. According to an Indian study, the most common indications of cervical cancer were odorous discharge and bleeding between menstruations (Taneja et al., 2021). The majority of FGD participants who responded to questions about cervical cancer prevention measures included screening, taking precautions or using condoms during sexual contact, and abstaining from promiscuous sexual behavior in both men and women. One participant mentioned that eating cabbage and papaya prevents cancer. However, there was no clear explanation or supporting evidence for this.

The majority of FGD respondents expressed ignorance regarding cervical cancer and the screening options offered by facilities, fear of the screening process or its pain, and embarrassment concerns. Anxiety of the screening outcomes and the belief that one is not susceptible to the disease, or its severity were the other personal barriers. Understanding the benefits and obstacles to screening, the disease's severity and susceptibility, and one's ability to recognize cues to take action were all impacted by knowledge of the disease, socioeconomics, the women's personalities, and the gender of the facility's provider (Kasprzyk, 2008; Baum et al., 1997). Several Ethiopian research reported on the impact of ignorance on screening for cervical cancer (Solomon et al., 2023; Burrowes et al., 2022; Demissie et al., 2022; Lott et al., 2021; Ayenew et al., 2020; Getachew et al., 2019), and African studies (Binka et al., 2019; Black et al., 2019; Tapera et al., 2019; Ndejjo et al., 2017). Moreover, in Ethiopia, women were not screened due to a lack of perceived susceptibility to the disease (Demissie et al., 2022; Ayenew et al., 2020). The Southeast Asia systematic review study also

found that the most common challenges to women getting screened for cervical cancer were shamefulness and a lack of information (Chua et al., 2021). Furthermore, a Ghanaian study found that feelings of shame and perceived invulnerability to cervical cancer presented screening obstacles (Ampofo et al., 2020). The majority of the FGD participants preferred female providers. Exposing one's private areas, particularly to a male provider, was exceedingly challenging and delicate for women. It was very difficult for Ethiopian women to go to cervical cancer screenings because they raised gender-sensitive topics like these. Likewise, the gender of the screener was also a barrier to screening in Ghana (Ampofo et al., 2020).

The following health facility constraints (related to health system factors) were noted by participants in focus group discussions (FGDs): lack of self-sampling devices; doubts regarding the competence of healthcare professionals; lengthy wait times; and perceptions regarding the risk of contracting an infection from the screening tool (speculum). A Ugandan study showed that health system challenges were barriers to screening for cervical cancer (Ndejjo et al., 2017). Furthermore, a Ghanaian study revealed that one of the challenges was a lack of understanding about screening facilities (Ampofo et al., 2020). An Ethiopian study also revealed a lack of infrastructure and space for cervical screening, as well as a low provider understanding of cervical cancer and its screening services (Lott et al., 2021). Additionally, many earlier research reported delayed services, inaccurate diagnoses, and perceived attitudes as well as the incompetence of healthcare providers (Burrowes et al., 2022; Ampofo et al., 2020; Binka et al., 2019; Tapera et al., 2019).

The majority of FGD participants indicated that the key household barriers for screening were childcare and a lack of male partner support. These findings were supported by the Southeast Asian and Ghanaian studies that reported a busy work schedule was a challenge to screening (Chua et al., 2021; Ampofo et al., 2020). It was challenging for women to talk to or persuade spouses to come to screening for cervical cancer appointments at medical institutions. In terms of cervical cancer prevention, an Indonesian study revealed a relationship between the husbands' attitude and their supportive conduct. To reduce the morbidity and mortality of women, it was proposed that partners should take an active role in enhancing the prevention of cervical cancer (Armini et al., 2019).

According to the FGD respondents, screening services at public health centers is free. However, the general public was not sufficiently informed about free screening programs. Some respondents identified the cost of transportation as a barrier. This confirms an Ethiopian study that reported travel funds as one of the barriers to screening (Burrowes et al., 2022). It was more challenging when a Pap smear test was done in private diagnostics which attracted

up to USD10 per test. Similarly, a Ugandan study found that access to screening was hampered by financial barriers (Ndejjo et al., 2017). Furthermore, studies conducted in Ghana revealed that impediments to screening for cancer of the cervix were high costs and low earnings (Ampofo et al., 2020; Binka et al., 2019).

The FGD participants stated that society resists screening and thinks that cancer is contagious, incurable, and results from a sin. Among the cultural barriers to screening identified in a previous Ethiopian study were the beliefs that cervical cancer is caused by exposure to the sun, the devil's intrusion, or God's judgment (Solomon et al., 2023). The participants in another Ethiopian study also perceived that cervical cancer is not curable (Demissie et al., 2022). Cultural issues such as household rituals or “yebet tata”, treatment with traditional medicines, and “holy water” were prevalent in the community. Similarly, the perception of participants was a challenge in Uganda such as believing that contraception and witchcraft cause cervical cancer (Ndejjo et al., 2017). Our study also showed that due to fear of discrimination, people do not want to disclose their screening plans or outcomes of the test. This is consistent with research from Ethiopia and Uganda that found stigma to be one of the obstacles to screening women for cervical cancer (Burrowes et al., 2022; Black et al., 2019). A Ghanaian study also reported that the sociocultural beliefs of communities about cervical cancer were a challenge in screening (Binka et al., 2019). A prior Ethiopian study showed that the screening uptake rate in southern Ethiopia was only 10.3% (Kasim et al., 2020).

5.3.2. Utilization of cervical cancer screening

Women 40 years of age and older were 13.9 times more likely than those under 30 to use screening services, according to this study. This finding is consistent with other earlier Ethiopian research on the subject (Azene, 2021; Ayenew et al., 2020; Teame et al., 2019). Most of the women decided to undergo a cervical cancer screening when attending an ART clinic (35%), hearing public awareness messages (29%), and going for family planning (25%). This is a strong indication of the value of facility-based individual counseling and group awareness campaigns, both of which were advised by the earlier Ethiopian study (Abu et al., 2020). Approximately 50% of the women surveyed stated that they had self-referred to their primary care provider for screening and that the procedure was safe and effective at preventing the women's death. The current proportion of self-referral is encouraging and requires attention for better results while taking into account the ongoing difficulties of public awareness messages. On the other hand, exit interviews revealed that women were concerned about screening safety, which needs the attention of the healthcare providers. This corroborates a perceived safety issue associated with cervical cancer screening among Asian women (Salehiniya et al., 2021). The review done by a previous Ethiopian study showed an estimated

utilization rate of 5.47% (Kassie et al., 2020). Similarly, in India, Pap smear screening was performed on merely 5% of women including the ages of 30 to 60 years (George, 2021), whereas 40.7% of Bahraini women underwent Pap smear testing (Jassim et al., 2018). There was a need to increase focus on public messaging at lower-aged women (<30 years), improve the perception of the safety of screening, and achieve a smooth referral system to increase previously reported screening utilization of 5.47% (Kassie et al., 2020).

Most of the women in this study were not offered the opportunity to choose their preferred provider. Women who had undergone screening following attendance at antiretroviral therapy clinics or because of unusual vaginal bleeding were more likely to select a female healthcare provider. This supports a Bahraini study that revealed 83.3% of women felt embarrassed after a male doctor examined them (Jassim et al., 2018). Our study revealed that distance to the facility and the cost of transportation were the largest barriers for women pursuing screening at the health centers. This confirms the findings of a Nigerian study that showed one of the primary variables influencing the use of screening was financial limitations (Ndikom & Ofi, 2012).

5.3.3. Access to and quality of cervical cancer prevention and screening services at health centers

Health centers are a foundation for the primary contact with users and communities for the provision of public awareness, identification of cases, referral, and follow-up of the cases. In the 51 health centers surveyed for this study, the government offered free cervical cancer services, and 94% of them had sufficient staff. There were guidelines for cervical cancer in all facilities. Compared to the last Ethiopian survey, which showed that only 8% of all health institutions possessed cancer guidelines, this was found to be greatly enhanced (Gelibo et al., 2017). Most facilities have issues with long wait times (up to an hour). In all 51 public health centers paper-based registers were in use, no electronic patient registration was in place. The data quality would have been improved by putting in place an application capable of collecting dependable and real-time patient and logistical management data. Health centers also had difficulties with the absence of Pap smear testing, the irregular availability of HPV DNA tests, and poor access to LEEP procedures. The private diagnostics (outside the facility) Pap smear testing took between 15 and 30 days and cost USD10 per test. This might have led to a loss to follow-up (LTFU) and financial impoverishment of women who visited facilities for screening. In addition, the problem of the single-visit approach was impaired due to this. Similar challenges were reported by a previous Ethiopian study (Haileselassie et al., 2019). Moreover, an Ethiopian study identified that 75% of the patients had delayed diagnostic confirmation (more than 30 days) (Dereje et al., 2020). The absence of computer e-referrals for the transmission of patient clinical records to specialty care at hospitals was another

significant gap in health facilities. In Addis Ababa, there has been a population-based cancer registry since 2011 (Memirie et al., 2018), though none was available for usage in Ethiopia (Gessese et al., 2018). Certain facilities had space shortages and congestion, which is in line with a study conducted in Ethiopia that identified a lack of infrastructure and space as one of the barriers to screening (Lott et al., 2021). The Ethiopian government, regional health bureaus, and other relevant parties need to work together on this.

All of the public health facilities surveyed had fundamental diagnostic tools, such as a speculum and a cryotherapy machine. The findings of our study have shown much more progress than the previous Ethiopian study that reported a lack of materials including cryotherapy machines for the “screen-and-treat” approach (Lott et al., 2021). The referral forms and guidelines were available in all of the 51 health centers surveyed. This showed much improvement compared to a prior study in Ethiopia, which discovered that only 8% of healthcare facilities held cancer guidelines in 2014 (Gelibo et al., 2017). Though the quadrivalent HPV vaccine was introduced in Ethiopia in December 2018 (FMoH, 2021b) its availability was a challenge as only about 55% of facilities have some HPV vaccination on hand, primarily leftovers from campaigns. Inadequate public education in the prevention and screening of cervical cancer reported by 49 (96.1%) of the health centers. In 45 (88.2%) of the facilities, audio record messages were not available, while 46 (90.2%) of them lacked video record messages. These may have had a detrimental impact on the public awareness achievement of 79% shown in this study. This finding supports the limited community awareness identified by previous studies conducted in Ethiopia (Lott et al., 2021; Haileselassie et al., 2019).

In Addis Ababa, the health centers deployed urban health extension professionals (UHE-Ps) to provide community services. The initiative is known as the Urban Health Extension Program (UHEP), and unlike the agrarian and pastoralist health extension workers (HEWs), these individuals are trained nurses. There were enough UHE-Ps deployed in the community, with an average of 10 to 15 of them working under one health center. The UHE-Ps' primary role was to use the communities and schools to disseminate information about cervical cancer and related services. Additionally, the UHE-Ps link eligible women to screenings at public health centers. However, the lack of transportation, particularly for the referral of the most vulnerable women, was a problem for the linkage to primary care institutions. If transportation costs had been factored into the model of care, screening would have been a higher priority in the community. According to Ethiopia's cervical cancer guidelines, patients must get information through print media, radio, television, mobile, and electronic health channels, as well as in facilities or the community, in groups or individually (FMoH, 2021b). Nonetheless, this study discovered that the information option that enabled patients to participate more

actively in their healthcare was predominantly facility-based one-on-one and/or group teaching. This corroborates a prior Ethiopian study (Abu et al., 2020). On the other hand, previous Ethiopian research indicated a gap in community awareness as one of the obstacles to the fight against cancer (Lott et al., 2021; Haileselassie et al., 2019). Among the 51 health centers surveyed in this study, only 49% of their UHE-Ps were trained in cervical cancer services. This result validates research done in Addis Ababa that showed 48.4% of UHE-Ps did not know enough about screening for cervical cancer (Ararsa et al., 2021), and 51.5% of UHE-Ps lacked adequate understanding regarding cervical cancer (Berhanu, 2019). Furthermore, only 4% of the facilities had staff who received in-service training on cancer in 2014, according to findings from earlier Ethiopian research (Gelibo et al., 2017). The above-discussed results show how important it is to improve UHE-Ps' in-service training to meet the demands of the existing community services.

5.3.4. Progress toward achieving the WHO 90-70-90 targets by 2030

Under the direction of the First Lady, the Ethiopian government has demonstrated a significant commitment to combating cervical cancer since 2009. The NCCP of Ethiopia aspires to set up "a healthcare system that is filled with skilled, competent, and motivated employees, and well-equipped to provide a comprehensive program for cancer services." Nonetheless, inadequate planning was evident for the screening and treatment services of cervical cancer, and low success rates were reported across the hospitals surveyed. The health centers' survey on the target achievement (against the annual plan for July 2021–June 2022) showed that 79% of women received cervical cancer prevention messages, 61% of girls received full HPV immunization before the age of 15, 71% of women received cervical cancer screenings, and nearly 80% of women with positive cervical screening obtained treatment. Though better screening coverage has been achieved concerted efforts were still required from all stakeholders for reaching the WHO target of 90% for HPV vaccination by 2030 (WHO, 2020). In 2022 nearly 900, 000 (8.4%) women were screened out of the eligible 10.7 million which is way below the WHO's 70% target for screening by 2030 (WHO, 2020). Likewise, the baseline assessment in six African nations (Eswatini, Guinea, Malawi, Rwanda, Uganda, and Zambia) showed that screening for cervical cancer is still far short of the WHO target set for 2030 (Stefan et al., 2022). Visual inspection with acetic acid (VIA) was the most common procedure for the screening of cervical cancer in Ethiopia and many other African countries (Stefan et al., 2022). An Ethiopian study showed that VIA received recognition for being appropriate for cervical cancer screening (Lott et al., 2021). On the other hand, disparate diagnostic environments were seen across the healthcare system, encompassing the infrastructure, and technical professionals necessary to facilitate Pap smear testing. In contrast, Pap smear test (73.1%) was the most prevalent screening method, followed by VIA, according

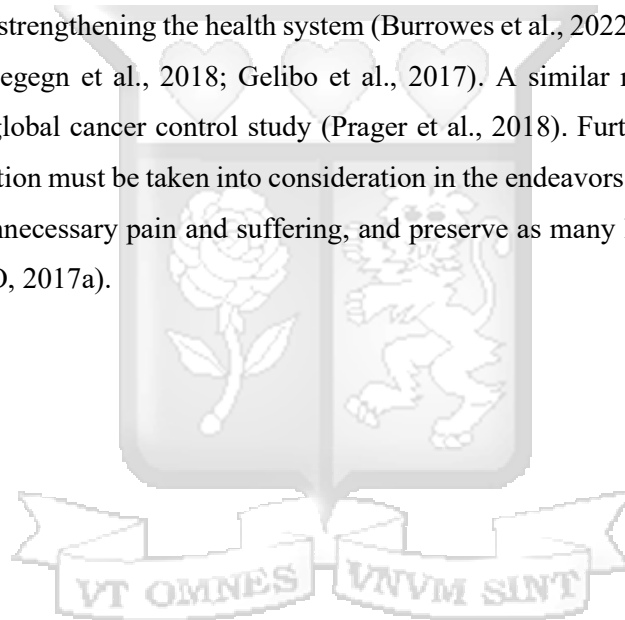
to a systematic review of 93 studies conducted in Southeast Asia (Chua et al., 2021). Furthermore, WHO recommends women to be screened using a high-performance test by the age of 35, and again by the age of 45 (WHO, 2020). However, HPV testing was being introduced gradually in Ethiopia. Therefore, it was necessary to take action to switch from VIA to more precise HPV screening. The study revealed inadequate progress toward achieving the WHO's 90-70-90 cervical cancer targets by 2030 and an incidence rate of < 4 per 100,000 women. This was attributed to gaps in the NCCP strategies implementation, cancer service provision, and linkage with the communities and service users. Therefore, the government and other stakeholders are still required to make concerted efforts to the full implementation of the 2017 WHO cancer resolution (WHO, 2017a), to close these gaps and make progress toward the WHO 2030 targets, which will lead to the eradication of cervical cancer in the next century (WHO, 2020).

5.3.5. Suggestions for enhancing the screening of cervical cancer

There was a need to address the variables that affect cervical cancer screening at the levels of the individual, healthcare facility, and the entire health system. Consequently, this study identified, analyzed, compared, and triangulated the health system challenges in great detail and suggested solutions for enhancing the access and quality of cervical cancer services. The translation of the NCCP's plan is impacted by delays in deciding to seek care, getting to a medical facility, and getting the appropriate care. Many of the FGDs, exit interviews, and health center survey participants suggested enhancing public awareness through TV, radio, print media, and public events or festivals to boost cervical cancer screening. In addition, they suggested that creating awareness through door-to-door visits by Urban Health Extension Professionals (UHE-Ps) could aid in this. The participants also recommended enhancing frequent health education at facilities through audio and visual messages. Some respondents suggested that those who received messages should pass them on to their families, friends, neighbors, and the community. Similarly, the previous Ethiopian studies proposed measures for improving the screening including demand creation for screening through mass media (Burrowes et al., 2022; Lott et al., 2021).

For better screening services, the majority of survey respondents in 51 facilities cited the importance of provider training, and enhancing public health centers' diagnostic capabilities. The Ethiopian service availability and readiness assessment showed that only 9 % of Ethiopian healthcare institutions offered cervical cancer diagnosis and treatment in 2018 (FMoH and EPHI, 2018). Similar gaps were noted in the delivery of cancer services by a previous study (Haileselassie et al., 2019). The cervical prevention and screening service may have been impacted by low UHE-Ps and health officers' training, which calls for the MOH, regional health bureaus, and development partners' attention. It is also necessary to improve

the mentoring service providers, providing supportive supervision, tracking progress, and evaluating strategies. The earlier Ethiopian research recommended strategies for enhancing screening, including, training for healthcare professionals, and integrated health service delivery in institutions (Burrowes et al., 2022; Lott et al., 2021). The Oncology Care Model (OCM) also recommends practice redesign activities for the provision of high-quality, high-value, and patient-focused services at facilities (Kline et al., 2017). On the other hand, The FGD participants also highlighted the importance of applying the single visit approach (SVA) in the facility including setting up cost-free referral tests like Pap smear. The FGDs and exit interviews of this study indicated the importance of lowering wait times and delivering compassionate care by trained healthcare providers. The exit interview participants suggested offering transportation reimbursements as one of the top priorities that need to be considered for higher utilization of screening. This is supported by several Ethiopian studies that recommended strengthening the health system (Burrowes et al., 2022; Lott et al., 2021; Kasim et al., 2020; Tegegn et al., 2018; Gelibo et al., 2017). A similar recommendation was put forward by a global cancer control study (Prager et al., 2018). Furthermore, the 2017 WHO Cancer Resolution must be taken into consideration in the endeavors to decrease the burden of cancer, stop unnecessary pain and suffering, and preserve as many lives from this disease as possible (WHO, 2017a).



Chapter 6: Conclusions and Recommendations

6.1. Conclusions

Though highly preventable and treatable cervical cancer still affects Ethiopian women in the prime of their lives with about 5,338 deaths annually. This is impacted by the prevailing inadequate health systems that do not respond effectively and equitably to the healthcare needs of women.

The National Cancer Control Plan (NCCP) strategies implementation study addressed the following questions: a) How did the different actors perceive and comprehend the NCCP intervention strategies? b) How have important actors' positions, interests, concerns, influence, and power relationships affected the NCCP's implementation? c) What are the NCCP implementation achievements, and the main factors that contributed to its successes and failures? d) How are the NCCP's implementation strategies linked with other important national strategies and policies? Key informant interviews and a review of secondary data were employed in this study. In the key informant interviews, it was discussed how the NCCP implementation is supported by government commitment, priority setting, interagency cooperation, evidence-based practice, population empowerment, and incentive systems. The percentage of target achievement for HPV vaccination, screening for cervical cancer, as well as treatment was calculated by assessing the NCCP's status of implementation using secondary data. Furthermore, the NCCP's connection with important national strategies and policies for cervical cancer crosscutting interventions (Health Sector Transformation Plan II (HSTP II), cervical cancer guidelines, strategic plan for non-communicable diseases (NCDs), national reproductive health strategy, and roadmap for health extension program) was established. The analysis showed that government agencies and stakeholders had an immense dedication to combat cervical cancer. The National Cancer Committee (NCC), which the First Lady of Ethiopia co-chaired with the Minister of Health, oversaw and directed the nation's cancer-control efforts. However, there was a need for increased political support mainly at the sub-national level. The other noteworthy initiatives included the availability of the National Cancer Technical Working Group (TWG), provision of the decentralized health services, and the adoption of cervical cancer guidelines. Since public funding for NCDs has always been limited, the government has set up priorities. Cancer resource mobilization requires enhanced cooperation between government and development partners. Poor public-private partnerships hampered the NCCP's implementation in cervical cancer services delivery. Cervical cancer guidelines were used by the Ministry of Health of Ethiopia to instruct healthcare professionals during in-service training, but they were not included in the formal education and distance learning modules for health professionals. The patient support initiatives were concentrated on

one-on-one counseling of clients. Performance-based payment (PBP) was not in use in the health services.

The survey done at hospitals addressed the following questions: a) How accessible are cervical cancer services currently and how good are they? b) What challenges do methods for delivering quality services for cervical cancer present? c) How do the NCCP's limitations affect cervical cancer services? This descriptive study provided an accurate profile of cervical cancer interventions and services at eight selected public and private hospitals at the secondary and tertiary levels in Addis Ababa. It concentrated on factors that affect the diagnosis and treatment of cervical cancer. For this, the survey focused on the availability and attainment of services, leadership capacity, health workforce, information and financing for healthcare management, medications, diagnostics, and vaccines. In the four public hospitals surveyed for this study, there were health system gaps due to poor planning, low screening, diagnosis, and treatment achievements. LEEP, Colposcopy, chemotherapy, MRI, CT scans, cancer surgery, and radiotherapy services were also found to be inadequate. Additionally, the cervical cancer testing services provided by public hospitals were being hampered by the absence of Pap smear tests, and HPV DNA tests. These gaps prevented the "single visit approach" to client care from being practiced. Public awareness messages were not satisfactorily disseminated in the hospitals via audio, video, print, eHealth, and mHealth. This was also identified through the key informant interviews of the NCCP implementation. Despite playing a significant role in the screening and treatment of cervical cancer, most oncology staff members in private institutions lacked in-service training. Several other hindrances, such as specialty care shortages, the absence of cancer registries, poor electronic health records, and the challenge of patient data transmission, impacted the provision of prompt and well-coordinated services. In addition, prolonged (8–10 months) lead periods for purchasing chemotherapy medications presented a problem for supply chain management, resulting in product shortages in public hospitals. The lack of guidelines for the treatment of cancer was one of the obstacles to the prudent prescription of cancer medications.

The survey conducted at public health centers highlighted and dealt with health system variables impacting accessibility to and the performance of services for cervical cancer. The organizational, structural, staffing, financial, health information, referral, testing equipment, HPV vaccines, and community linkages of the facilities were the main areas of the survey. Though Ethiopian government has made efforts to achieve equity in cervical cancer services (public messaging, HPV vaccination, screening, and treatment) in eleven Addis Ababa sub-cities there were still barriers in the health system that prevented more individuals from receiving high-quality and patient-focused care. The performance of HPV vaccination (61%) against the annual plan was found to be low which might be due to poor engagement of school

and drop-out girls, and lack of continuous availability of the vaccine. The cervical cancer screening still demands minimized facility wait time (< 30 minutes).

The uptake of cervical cancer screening study was carried out in four public health centers that see quite many people. It investigated the complex interplay of social processes, experiences, interests, worries, and decision-making related to cervical screening, as well as the factors that impact the uptake of cervical cancer services. The most common things that influence these women's health-related actions and signals to behaviors were examined, with consideration given to financial, socioeconomic, and personal aspects. The study also investigated the women's knowledge of the disease's severity and susceptibility, as well as their understanding of the advantages of screening. These made it easier to comprehend why so few women take steps to prevent and screen for cervical cancer. The study has identified low perceptions of women (cervical cancer, causes, risk factors, prevention, and screening). The main barriers to screening were related to personal (lack of knowledge, inadequate awareness, embarrassment, fear of the procedure and outcome of the test, and poor perception of susceptibility to and severity of disease), socio-cultural (discrimination, lack of male support, cultural and religious beliefs), financial (transportation costs and referral incentives for the most vulnerable women linking to primary care), and health system (provider preference difficulties, lack of screening equipment options and privacy, and absence of free referral testing). Whereas cervical cancer screening utilization exit interviews that were conducted at four health centers with high patient turnover looked into the essential components of the healthcare system, such as how women perceive cervical cancer and screening, the referral process, and the coordination and quality of care offered by facilities. This study identified various health system challenges including delays in receiving health services, inadequate capacity and training of providers, insufficient infrastructure and space, and lack of screening device options.

6.2. Recommendations

To achieve universal health coverage (UHC) for cervical cancer services, it was essential to improve the NCCP execution, which covers the entire health system (health policy and strategy, health service delivery at all levels, communities, and service users). Examining and monitoring the health system's performance as well as determining which strategies—depending on how policy is established in the fight against cancer—need to be changed were the main concerns of individuals making decisions at the national and local levels. The Ethiopian Ministry of Health, in coordination with partners for development, should increase resource mobilization in this area to strengthen it. In addition, decision-makers have to address several concerns, one being the absence of performance based payment (PBP). Financial incentives for service providers may be taken into account if they exceed the monthly quality

of services set by facilities. Further to this, to improve screening for cervical cancer, pragmatic incentives such as covering the transportation of the most vulnerable women in the community to reach healthcare institutions might be considered.

To offer integrated and coordinated services for cervical cancer diagnosis and treatment at public and private hospitals, better implementation of the NCCP strategies is demanded, especially in the areas of resource sharing, strengthening capacity, and referral pathways. The government, private sector, national and international development partners, and non-governmental organizations must continue to make stronger coordinated efforts to devote attention, priority, and investment to the fight against cervical cancer, focusing on mitigating the identified health systems gaps experienced in hospitals.

At public health centers, focusing on providing healthcare that adheres to improving availability and accessibility, is evidence-based, aims to achieve improved results (target attainment), and reduces delays (timeliness) can help achieve high-quality cervical cancer services in Addis Ababa. The district and health facility managers are required to exploit missed opportunities while ensuring the availability of HPV vaccines through the allocation of adequate resources, proper quantification, efficient procurement, an inventory control system, and an efficient distribution system to minimize wastage. The continual availability of screening with Pap smear and HPV DNA tests should be a priority for policymakers as these tests can increase screening coverage by giving women preference (Bogale et al., 2022; Holme et al., 2020). The public awareness messages that reached 79% of eligible women in the community still necessitate more population empowerment. Strategies to increase the uptake and utilization of cervical cancer screening demand an innovative and thorough approach combining numerous channels and techniques including i) Transmission of public awareness information through media outlets such as radio and television. This requires creating interesting educational content to clarify myths and increase awareness; ii) Encouraging the community's health extension workers (HEWs) or urban health extension professionals (UHE-Ps) to make door-to-door visits and educate communities about the advantages of early screening for cervical cancer while also handing out leaflets or brochures to spread awareness. During these visits the most at-risk women could also be assisted with appointments and/or provision of transportation allowance to visit primary healthcare facilities; iii) Working with religious organizations/religious leaders to promote about cervical cancer screening at religious events and address cultural or religious attitudes that might prevent people from using screenings; iv) Taking into account the traditional healers influence on the community and engage their assistance in promoting cervical cancer screening. This also requires giving them clear information on the disease and the significance of screening, and encourage them to direct women to healthcare facilities for screenings. It is also important

to urge cooperation between HEWs or UHE-Ps and the traditional healers; v) Encouraging survivors of cervical cancer to engage with the community by sharing their experiences and stories, especially on the need for HPV vaccination, identifying the most common symptoms, understanding possible risks, early identification, reduction of the disease's stigma, and the value of screening. Moreover, establishing support groups for survivors, and urging them to attend public gatherings, media campaigns, and community gatherings is mandatory; vi) Holding public meetings in accessible locations like community centers (kebeles), schools, or youth centers, at holidays, festivals, and public gatherings, and at traditional burial organizations (edirs). In these events healthcare professionals could be invited to talk about cervical cancer, screening procedures, and available treatments (preferably assisted with audio and video materials). In addition, those who received messages of cervical cancer awareness should be encouraged to spread them to their families and friends in the community.

Enhancing the quality of primary healthcare services through provider training, ensuring provider preference, and delivering care that is coordinated, integrated, compassionate, and respectful to patients could help to minimize long wait times (Lott et al., 2021). Ultimately, to enhance the provision of coordinated and integrated care for cervical cancer in Addis Ababa health centers, an easily navigable electronic health record system and electronic platform for referral of patients to specialty treatment and back to primary healthcare for follow-up purposes must be implemented. Additionally, facilities should work to enhance the single-visit approach, offer comprehensive quality care by qualified health experts, and set up free referral tests (such as for Pap smears) that may be covered through development partners support.

Ensuring the full implementation of the NCCP is imperative for all stakeholders if the country is aiming to minimize the physical, financial disasters, and emotional burden, and promote, restore, and sustain good health for users and the general population. To achieve the WHO 90-70-90 cervical cancer targets by 2030, future initiatives should primarily emphasize and overcome the identified constraints, utilize the available opportunities, and implement improvised solutions proposed in this study. Moreover, increased survival rates and reduced cervical cancer-related disability could be attained for all women, particularly those in disadvantaged population groups, by coordinating the efforts of all stakeholders in the country. Furthermore, these measures could make it easier to achieve UHC, equity, effectiveness, and efficiency of services, and move faster toward eliminating cervical cancer in Ethiopia.

6.3. Contributions of the Research

This study has a variety of benefits about factors in the health system that influence the delivery of services for cervical cancer in settings with limited resources. It provides enlightening details regarding the inputs and outputs of the healthcare system concerning services related

to cervical cancer at the primary, secondary, and tertiary levels. Due to low funding and training resources, Ethiopia lacked a comprehensive system for cancer surveillance and had cancer research that did not adequately reflect the severity of the issue in the country. Moreover, qualitative investigations examining the causes and variables impacting the uptake of screening for cervical cancer were exceedingly uncommon and poorly documented. The focus of facility-based studies on factors influencing the uptake and usage of the screening was on the capacity of the providers, coordination, quality, and patient-centered care at primary healthcare facilities in Addis Ababa. In contrast, several research conducted in Ethiopia employed community-based cross-sectional studies with a primary focus on women of reproductive age. These studies aimed to identify and address the facilitators and/or barriers to the uptake or utilization of screening in both rural and urban settings. As a result, this research will add value to the body of academic research done on cancer in resource-limited settings, Ethiopia, and other countries with middle or low incomes. It might inspire other researchers to carry on their study of the healthcare system. The examination of the translation of the national strategies supporting the national cancer control plan's implementation may also open the door for future research, policy-related concerns, and interventions for other cancers, cardiovascular diseases, diabetes, mental illnesses, and chronic obstructive pulmonary diseases. These could aid in challenging the way cancer and other NCDs policies are developed and implemented. The study will further assist in better comprehension of the methods used to understand the performance and operations of public and private healthcare institutions. Further, the study made an effort to include findings from the Ethiopian NCCP strategies and health system elements influencing services for cervical cancer at various healthcare levels to create comprehensive quality improvement measures. Eventually, the proposals could increase the number of people who get cervical cancer screenings, which would help to meet the WHO's 90-70-90 targets by 2030. These can be accomplished by decision-makers working together with healthcare providers, communities, and service users. Furthermore, because the populations of Horn of Africa and East Africa share similar cultures, norms, values, interests, concerns, and preferences, the research will deepen regional understanding of the impact of health system and policy variables on the availability, accessibility, target achievement, uptake, and utilization of high-quality services for cervical cancer in urban settings. The study could also serve as a guide for the implementation of improvised and economical interventions that are necessary to enhance the contributions by communities and service users.

6.4. Suggestions for the Future Research

The study's findings might not have addressed the comprehensive aspects of the health system's challenges in access to and quality of cervical cancer services at macro, meso, and micro levels. Therefore, it is crucial to move forward and carry out cervical cancer research in

settings with few resources. Future research may consider rural areas, other regional cities, the private sector, the expertise of healthcare personnel, and the viewpoints of other significant informants. Additionally, to address the gaps in the single-visit approach (SVA), researchers could consider the challenges faced in implementing HPV DNA tests, Pap smears, and HPV vaccination as well as the linkage of the most vulnerable women in the community with primary healthcare facilities. Furthermore, it is important to further investigate the various barriers and facilitators in the implementation of the National Cancer Control Plan strategies toward meeting WHO 90-70-90 targets by 2030.

6.5. Limitations of the Research

The shortcomings of this study included the following areas:

First of all, a significant constraint on this study was its lack of resources. Due to this, low-volume health centers could not be included in the examination of the factors influencing the adoption and use of screening. Had this been the case, the study could have ascertained if cervical screening was impacted by the volume of services. Furthermore, it was unable to assess the problems with the healthcare system that prevented services from being provided in private health centers. It might have achieved this by drawing comparisons between the operational and performance standards of public and private healthcare organizations. The study might not be able to give a complete picture of the healthcare system and how it affects the services for cervical cancer. Additionally, in the selected institutions, it was not possible to measure how much knowledge healthcare professionals had regarding cervical cancer, its preventive and screening services, and the rate of uptake and utilization. On the other hand, the key informant interviews did not go deeper into the viewpoints of cancer societies, professional associations, patient support groups, and the media with regard to national activities that support execution of the Ethiopian National Cancer Control Plan. Again, due to limited resources, it was not possible to assess all general and specialty hospitals in Addis Ababa that offer services for cervical cancer. Furthermore, social desirability bias might have prevented this study from gathering more information.

The second constraint is the external validity- the extent to which the study's conclusions may be applied to other regions in Ethiopia, as this was carried out in Addis Ababa. The study's conclusions might be appropriate to metropolitan environments, but they might not accurately reflect the obstacles that exist in rural or other regions of the nation. When extrapolating the results beyond the study's confines, care should be used because different places may have different infrastructures, access to services, and cultural norms.

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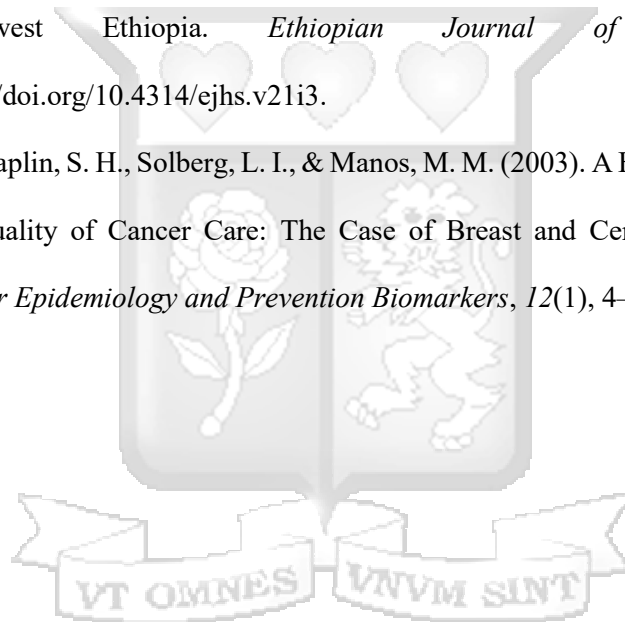
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Appendices

Appendix A: Respondent Information and Consent Document

Investigator: Kemal Ahmed Hussein

Institutional affiliation: Strathmore University, Nairobi, Kenya.

Question	Response
What is the objective of this study?	To study the elements of the health system that influence the delivery, uptake, and utilization of services for cervical cancer at public and private health institutions in Addis Ababa, Ethiopia.
What is the rationale for this research?	This study will identify and address the aspects of the health system and the Ethiopian National Cancer Control Plan that prevent patients from accessing high-quality services for cervical cancer. It will also suggest optimal ways to improve patient outcomes, including minimizing disability and raising the survival rate by easing the financial, emotional, and physical burden on patients and their families.
Is participation in this study mandatory?	Involvement in this research is entirely discretionary. If you decide to take part, you will be asked questions concerning Addis Ababa's health system and/or policies around cervical cancer. You are not required to justify your refusal to participate in the study at any point.
Who is qualified to be included in this research?	Individuals attending health institutions, both public and private that provide services related to cervical cancer.
Who is not qualified to be included in this research?	Women outside both private and public healthcare organizations that provide services for cervical cancer prevention, screening, and treatment.
What is expected from the participant in this study?	If you are pleased with the research's goal and want to take part, you will be provided a written consent document to sign before the study commences. If required, we will record the interview and/or take notes to ensure that your ideas, opinions, and thoughts are accurately captured.
Does this study have any risks or harm?	There are no potential risks associated with this research. All of the information from the interviews or discussions will be kept in complete confidentiality. The information respondents provide will not be linked to any names.
What advantages come with participating in this study?	The results of this research will be utilized to improve Addis Ababa's cervical cancer services.
What happens if you decide not to take part in this study?	There are not any bad outcomes at all. People are free to decide whether or not to take part in this research. You are free to quit from the research at any moment, even if you voluntarily decide that you will take part in it.
Who is allowed to access the data that I have given?	The information that is kept private will be accessible to the research's primary investigator. The information will be password-protected or kept in locked cabinets.
Who should I get in touch with if I have any further inquiries?	The principal investigator, Kemal Hussein at kemalahmedfenet@gmail.com or using +251911159715. Alternatively, the principal supervisor, Professor Gilbert Kokwaro at gkokwaro@strathmore.edu or using +254722323651.

The research's explanation has been provided to me and I have received adequate replies to all of my inquiries. I have understood all that has been discussed with me. I recognize that I can change my viewpoint at any moment. Therefore, I consent _____ /do not consent _____ to take part in this research. Furthermore, I consent _____ /do not consent _____ to the storage of the data I have submitted for use in the future research.

Name of the participant: _____ **Date:** _____

Signature of the participant: _____ **Time:** _____

I, _____, certify that I have followed the guidelines of the study and fully briefed the participant all the questions regarding the research. After comprehending the purpose of the study, she/he has provided consent to participate.

Name of the investigator: _____ **Date:** _____

Signature of the investigator: _____ **Time:** _____



Appendix B: Qualitative Research Instruments

Exploring Factors Affecting the National Cancer Control Plan Implementation in Ethiopia

Objective: To ascertain the extent to which the strategies presently in place assist in the execution of the National Cancer Control Plan of Ethiopia to deliver high-quality services for cervical cancer.

Guide: Good morning/afternoon. Interviewer: introduce yourself and ask the key informants to introduce themselves. Ensure that the consent form is signed by individual participants. Subsequently, discuss the next set of queries that aim to investigate the difficulties associated with implementing the Ethiopian National Cancer Control Plan to obtain higher quality cervical cancer programs and services.

1. Political commitment

The following questions aim to identify the level of political commitment by the national/regional government to improve cervical cancer care.

1. What is your opinion regarding political commitment by the government/national political leadership for cervical cancer care in the country?
2. What do you think about the level of attention given to cervical cancer by activists, cancer societies, citizens, civil society organizations, intellectuals, and patients during the FMoH annual review meeting (ARM) or annual NCDs meeting?
3. In light of the affordability of cervical cancer preventive and control programs, what steps have been taken to enhance public investment during the healthcare budget allocating process?

2. Priority-setting

The purpose of the following inquiries is to determine whether clear protocols and methods for prioritizing activities based on evidence are in place.

1. What are the measures being taken into account when setting priorities by the government on cervical cancer services? Probe for equity (income, place of residence, and ethnicity).
2. What are the essential cancer medicines, diagnostic tests, or equipment that health facilities would like to have but cannot get funding for?
3. What happens for individuals who, as a result of restrictions on public funding, are not treated for cervical cancer?

3. Interagency cooperation

The next inquiries center on verifying interagency coordination networks and how effective they are.

1. What are the National Cancer Committee's (NCC) Terms of Reference (TOR)? To what extent does the NCC's role in goal setting, executing policies, tracking, and providing reports on cervical cancer care in the nation meet its objectives?
2. What particular actions have the Ethiopian Ministry of Health taken to get other sectors' support for the implementation of health in all policies or pooled funding?

4. Integrating evidence into practice

The processes for incorporating evidence into healthcare delivery are examined in the following topics.

1. What do you think of the ability of the department that create and update cervical cancer guidelines?
2. How are clinical guidelines for cervical cancer developed and distributed, how are medical professionals trained, and how is it determined whether providers follow the guidelines?
3. In what way are the new guidelines included in the formal training and/or ongoing education of healthcare professionals? Who undertakes the training?

5. Population empowerment

The processes and initiatives that empower people to serve as primary caregivers for cervical cancer patients are examined in the following areas.

1. Which policies, plans, or guidelines encourage communities and individuals to assume accountability for determining their own requirements and preferences, dealing with their health using the right kind of assistance from medical professionals, and being aware of where services for cervical cancer are offered?
2. What efforts are being employed to support peer-to-peer/web-based cervical cancer patients including marginalized or vulnerable populations?

6. Incentive systems

The following inquiries look at the incentive structures in place, how they affect the actions of those involved in the system, and potential effects on the delivery or use of services for cervical cancer.

1. What are the payment rewards to providers for achieving or surpassing the required quality of care? Probe for any performance-based payment (PBP): a fee per beneficiary per month or monthly enhanced cervical cancer care.
2. What are the mechanisms in place to support patients' adherence to the prescribed medication, peer-to-peer support, transportation cost, or housing to ensure equitable access to facilities?
3. What are the major challenges faced by decision-makers while trying to implement the right incentive systems for providers and/or patients?

Examining Factors Influencing the Uptake of Cervical Cancer Screening at Public Health Centers in Addis Ababa- Ethiopia

Objective: To investigate the components of the healthcare system that impact the uptake of screening for cervical cancer provided at public health centers in Addis Ababa.

Guide: Good morning/afternoon. Interviewer: introduce yourself and ask the focus group discussion (FGD) participants to introduce themselves. Ensure that the consent form is signed by individual participants. Afterward, elucidate the subsequent inquiries, which seek to investigate the variables impacting the uptake of screening for cervical cancer among women of outpatient clinics.

1. Participants' sociodemographic characteristics

Characteristic	Tick as appropriate
a) Age category (years)	
25-29	
30-39	
40-49	
50+	
b) Status of marriage	
Married	
Single	
Separated	
Divorced	
Widowed	
c) Status of employment	
Employed	
Unemployed	
Retired	
d) Status of education	

Primary	
Secondary	
Tertiary/higher	
None	
e) Number of children	
0	
1-3	
4-6	
7+	

2. Focus group discussions (FGDs) on the factors impacting the uptake of screening for cervical cancer among public health centers will be guided by the six main questions stated below.

Objective of the focus group discussions

The goal of this FGD is to investigate in-depth, demand-side factors that affect the uptake of high-quality cervical cancer screening services among women who visit outpatient clinics. The focus of the discussion includes the following areas:

1. Perception among women on cervical cancer and its screening program.
2. Factors related to financial, sociocultural, and personal aspects of cervical cancer screening.
3. Ideas to increase the uptake of the cervical cancer screening program.

Logistical arrangements

I am Kemal Hussein, a doctoral student enrolled at Strathmore University's Institute of Healthcare Management in Nairobi. I appreciate your presence with me today. Before we start the interview, I would like to go over a few logistical matters. There will be a 45–60 minute duration to the interview. I have authorization from the Addis Ababa City Administration Health Bureau and Strathmore University to perform this research in Addis Ababa. Your true name will not be disclosed in any of our findings, and everything we discuss during this interview will be kept confidential. Thus, please make an effort to answer the FGD questions honestly and completely. If it is okay with you, I will give you a consent form to read and sign. This interview will be taped utilizing a mobile phone in order to obtain correct information. Facilitator, if participants have given consent, please start the tape recording or turn on the recorder.

Key questions	Probes
<p>1. Perception or awareness</p> <p>What do you think about cervical cancer and the services that are available for screening?</p>	<p>1. What risk factors can you mention?</p> <p>2. What signs and symptoms are you aware of?</p> <p>3. What preventive measures do you know?</p> <p>4. What is your understanding of the screening?</p>
<p>2. Personal barriers</p> <p>What personal factors hinder women from using cervical cancer screening services?</p>	<p>1. What is the impact of education, language barrier, marital status, childcare, and ignorance of screening institutions on the uptake of cervical cancer screening?</p> <p>2. What effect does the perception of being immune to the severity and vulnerability of the disease, feelings of shame, anxiety about the process and associated discomfort, and preference for the gender of the screener have on the uptake of cervical cancer screening?</p>
<p>3. Financial barriers</p> <p>What financial barriers exist for women who want to use cervical cancer screening services?</p>	<p>1. What is the influence of out-of-pocket payment, transportation, and lost wages on pursuing cervical cancer screening?</p>
<p>4. Sociocultural barriers</p> <p>What social and cultural obstacles exist for women who want to use cervical cancer screening services?</p>	<p>1. What are the myths/misconceptions about cervical cancer screening?</p> <p>2. What kind of stigma/discrimination did you encounter while seeking cervical cancer screening?</p> <p>3. What are the views of different religious beliefs on cervical cancer screening?</p>
<p>5. Suggestions</p> <p>What are your suggestions for improving the cervical cancer screening uptake by primary healthcare facilities?</p>	<p>1. Which methods, in your opinion, are most effective for raising public awareness of cervical cancer screening?</p> <p>How about transportation and referral networks?</p>
<p>6. Other factors</p> <p>Are there any other factors you would like to discuss regarding the uptake of cervical cancer screening?</p>	

Appendix C: Quantitative Research Instruments

Section 1. Assessment of Indicators for the Ethiopian National Cancer Control Plan (NCCP) Implementation.

1.1. Primary Prevention of Cancer

	Healthcare level	Objective	Monitoring indicator	Responsible bodies
101.	Primary	(a) To offer cancer prevention awareness information to 50% of the general public by 2020	(a) % of women (against the target population) reached with cervical cancer prevention awareness messages	MOH, RHB
		(b) To lessen the burden of infections that cause cancer	(b) % of girls (against the target population) fully vaccinated against cervical cancer at the age of 15	MOH, RHB

MOH: Ministry of Health; RHB: Regional Health Bureau

1.2. Early Detection of Cancer

	Healthcare level	Objective	Monitoring indicator	Responsible bodies
102.	Primary	To enhance precancer cervical lesion identification	a. Percentage of women (versus the target group) who underwent VIA screening for cervical cancer	MOH, RHB
			b. Percentage of women who received cryotherapy after a positive cervical screening	MOH, RHB

1.3. Diagnosis and Treatment of Cancer

	Healthcare level	Objective	Monitoring indicator	Responsible bodies
103.	Secondary	(a) To provide 20% of patients—identified by early detection—with an appropriate diagnosis and course of therapy	a. Number of fully equipped and functional cancer diagnosis & treatment health facilities	MOH, Ethiopian Pharmaceuticals Supply Service (EPSS)
		(b) To achieve a 50% increase in surgical care accessibility for qualified patients by 2020	a. % of individuals with cervical cancer who were eligible for surgery and received it	MOH, RHB, University Hospitals
104.	Tertiary	(a) To hire half as many health professionals as needed by 2020 in order to properly diagnose and treat cervical cancer	a. % availability of the required human resource for diagnosis & treatment of cervical cancer	MOH, Universities, Partners
		(b) To guarantee that by 2020, 30% of newly screened individuals with cancer would have the opportunity to receive cancer diagnosis and treatment	a. % availability of functional complex cancer diagnostic equipment	MOH, EPSS
		(c) To achieve uninterrupted cancer treatment by 2020	a. % availability of cervical cancer medicines	MOH, EPSS

Section 2. Assessment of Factors Affecting the Provision of Cervical Cancer Services at General and Specialized Hospitals in Addis Ababa- Ethiopia

111	Facility identification and location		
	a. Region <i>[Scripter: Insert the region – Addis Ababa]</i>	Addis Ababa	1
	b. Sub-city (<i>Scripter: Write name</i>)		
	c. Woreda (<i>Scripter: Write name</i>)		
	d. City (<i>Scripter: Write name</i>)		
112	Full name of the facility (including the level)		
113	Type of the facility by level	Tertiary/specialized hospital	1
		General hospital	2
		Health center	3

1. Human resources

201.	Health workforce		Yes	No
		(a) Does the demographic mix of the oncology health workforce correspond with what is needed to prevent and control cervical CA? <i>[Scripter: Skip to Q201 (b) if code 2 is selected at Q201 (a)]</i>	1	2
		(b) If no (above), what is the number of open posts for health workers (HWs) in the facility? (MULTIPLE RESPONSES)	Specialty	#
			a. Gynecologic oncologist	
			b. Gynecologist	
			c. Radiologist	
			d. Pathologist	
			e. Midwife	
			f. Nurse	
202.	Oncology training	How many midwives and nurses, in the 24 months prior to this study, had in-service training on cervical cancer?	Specialty	No.
			a. Midwife	
			b. Nurse	
203.	Collaboration project	What partnerships exist among oncology professionals to foster excellence in cervical cancer diagnosis and treatment? (MULTIPLE RESPONSES) <i>[Scripter: if the response is 'other', please specify]</i>	a. Research institutions	1
			b. Academic institutions	2
			c. Professional associations	3
			d. International collaborative projects	4
			e. Other	5

			f. None	6
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2. Leadership

204.	Managerial training	What managerial training is provided to health management professionals? (MULTIPLE RESPONSES)	a. Leadership skills	1
			b. Systems thinking	2
			c. Change management	3
			d. None	4
205.	Authority & Responsibility	What are the responsibilities and authority of managers of healthcare facilities? (MULTIPLE RESPONSES)	a. Hiring and firing of staff	1
			b. Purchasing of goods	2
			c. Contracting procurements	3
			d. Coordinating clinical services	4
			e. Improving quality and process of services	5
			f. Ensuring providers compliance with guidelines	6
206.	Incentives	What are the economic and/or non-economic performance-based incentives for managers? (MULTIPLE RESPONSES)	a. Financial rewards	1
			b. Recognition	2
			c. Managerial career paths	3
			d. None	4
207.	Change management	a. Are managers noticing how the healthcare system has to be changed to provide greater coordination and high-quality cervical cancer care? <i>[Scripter: Skip to Q207 (b) if code 1 is selected at Q207 (a)]</i>	Yes	No
			1	2
		b. If yes, what system or facility-level program did they create to put the improvements into practice?		

3. Service provision

		Yes	No	
208.	Services	a. Cryotherapy machine with CO ₂ gas supply	1	2
		b. LEEP procedure	1	2
		c. Cone biopsy (conization)	1	2
		d. Colposcopy	1	2
		e. Radiotherapy	1	2
		f. Chemotherapy	1	2
		g. Radical surgery	1	2
		h. Blood transfusion	1	2
		i. Histopathology	1	2
		j. Endocervical curettage	1	2

209.	Coordination of care	How effective is the multidisciplinary coordination of healthcare providers in the outpatient and in-patient setting of cervical cancer care? (SINGLE RESPONSE)	a. Poor	1
			b. Below expectation	2
			c. Meet expectation	3
			d. Above expectation	4
			e. Excellent	5
210.	Referral system	How are acute incidents in patients with long-term cervical cancer referred from the primary healthcare institution to the hospital? (MULTIPLE RESPONSES)	a. Self-referral	1
			b. Professional referral	2
			c. Third-party referral	3

4. Medicines/equipment/supplies

1. Procurement and supply management of cancer medicines.

212.	Medicines	(a) What generic cervical cancer medicines are in use in the facility? (MULTIPLE RESPONSES) <i>[Scripter: if the response is 'other', please specify]</i>	a. Cisplatin injection: 50 mg/50 ml	1
			b. Paclitaxel powder for injection: 6 mg/ml	2
			c. Other	3
		(b) How do patients acquire medicines for cervical cancer care?	a. Prescribed and purchased	1
			b. Dispensed in the facility	2
			c. Both	3
213.	Prescriptions	a. Are prescriptions based on the STGs?	Yes 1	No 2
		b. Are prescriptions recorded in a database?	1	2
214.	Availability	a. Are cervical cancer medicines available in the facility? <i>[Scripter: Skip to Q214 (b) if code 2 is selected at Q214 (a)]</i>	Yes 1	No 2
		b. If no (above), how long was the stock-out period (months) in the last year?		
215.	Procurement	(a) Who is responsible for the quantification of cancer medicines? <i>[Scripter: if the response is 'other', please specify]</i>	a. FMOH	1
			b. EPSS	2
			c. EFDA	
			d. Partners	
			e. Oncology care hospitals	
			f. Oncologists	
			g. Universities	
		(b) What are the assumptions used in the quantification of cancer medicines? (MULTIPLE RESPONSES) <i>[Scripter: if the response is 'other', please specify]</i>	a. Targets/number of cases	1
			b. Current prices	2
			c. Budget	3
d. Other	4			

		(c) What is the procurement method for acquiring cancer medicines? (MULTIPLE RESPONSES) <i>[Scripter: if the response is 'other', please specify]</i>	a. Request for quotation	1	
			b. National competitive bidding	2	
			c. International competitive bidding	3	
			d. Limited competitive bidding	4	
			e. Direct procurement	5	
			f. Request for proposals	6	
			g. Other	7	
		(d) Is the procurement publicly advertised in line with the requirements of the public procurement manual (newspapers, electronically)?	Yes	No	
			1	2	
		(e) Do the procured cervical cancer medicines agree with the quantified amounts? <i>[Scripter: Indicate the percentage]</i>	1	2	
		(f) How do the prices of cancer medications stack up against global reference prices? <i>[Scripter: Indicate the median price ratio (MPR)]</i>	a. Low	1	
			b. Medium	2	
			c. High	3	
		(g) What is the overall lead time (in months) for procuring medications for cervical cancer?			
216.	Regulation	(a) What cervical cancer medicines are registered with the Ethiopian Food and Drug Authority (EFDA)? (MULTIPLE RESPONSES) <i>[Scripter: if the response is 'other', please specify]</i>	a. Cisplatin injection: 50 mg/50 ml	1	
			b. Paclitaxel powder for injection: 6 mg/ml	2	
			c. Other	3	
				(b) How many first-line buyers (FLBs) are approved by EFDA for the importation of cervical cancer medicines?	
		(c) Which prices are under EFDA control to guarantee that cancer medications are accessible and reasonably priced? (MULTIPLE RESPONSES)	a. Price information		
			b. Price competition		
			c. Price control		
			d. Reduction in duties/taxes/markups		
			e. None		
		(d) Has the prevalence of shoddy or fake cancer medications ever been reported? <i>[Scripter: Skip to Q216 (e) if code 1 is selected at Q216 (d)]</i>	Yes	No	
1	2				

	(e) If yes (above), what percentage of imported medicines were found to be counterfeit/sub-standard?	
--	--	--

2. Availability of diagnostic equipment, reagents, tests, and supplies

	Description of item	Available (Yes/No)		Any stock-out/failure (months)
		Yes	No	
217.	a. Speculum	1	2	
	b. Acetic acid (3-5%)	1	2	
	c. Papanicolaou (Pap) smear	1	2	
	d. Blood and blood products	1	2	
	e. X-ray	1	2	
	f. CT	1	2	
	g. Ultrasound	1	2	
	h. MRI	1	2	
	i. Personal protective equipment	1	2	
	j. IEC/SBCC materials	1	2	
	k. The National Essential Medicines List	1	2	
	l. Guidelines for cervical CA prevention and control	1	2	
	m. Referral forms	1	2	

5. Information solutions

218.	Sources of data	What is the source of cervical cancer care outcome data? (MULTIPLE RESPONSES) [Scripter: if the response is 'other', please specify]	a. Electronic health record (EHR)	1
			b. Patient portal	2
			c. Patient card	3
			d. Referral form/tracker	4
			e. DHIS2	5
			f. Other	6
219.	Data portability	Is there an easily accessible system for patient records and information, specialized care, and back-to-primary care that facilitates the coordination of care across levels?	Yes	No
			1	2
220.	Patient information	Which means of disseminating information are used to empower patients? (MULTIPLE RESPONSES) [Scripter: if the response is 'other', please specify]	a. Facility-based: one-on-one and/or group education	1
			b. Community-based: one-on-one and/or group education	2
			c. Media based: using radio, television & print media	3

			d. mHealth	4
			e. eHealth	5
			f. Other	6
221.	Reports	(a) What are the activities reported to managers of managers (at the district/regional level)? (MULTIPLE RESPONSES) <i>[Scripter: if the response is 'other', please specify]</i>	a. Workloads	1
			b. Consultation times	2
			c. Waiting times	3
			d. Number of patients screened with VIA	4
			e. Number of patients screened with HPV DNA test	5
			f. Number of patients screened with Pap smear test	6
			g. Number of patients screened with Colposcopy	7
			h. Number of patients treated with Cryotherapy	8
			i. Number of patients treated with Thermal Ablation	9
			j. Number of patients treated with LEEP procedure	10
				(b) Are information on the use of services and results related to cervical cancer regularly assessed, evaluated for patterns in population coverage, and included in reviews of plans and funding?
			1	2

6. Financing

222.	Source of funding	a. What is the source of cervical cancer care funding? (MULTIPLE RESPONSES) <i>[Scripter: if the response is 'other', please specify]</i>	a. Government	1
			b. Development partners	2
			c. CBHI	3
			d. Out of pocket	4
			e. Other	5
223	Adequacy of funding	a. What is the annual budget (USD) required for cervical cancer care in the facility?		
		b. What is the % of available funds against the annual budget to provide cervical cancer care in the last year?		
224.	Subsidies	a. What kind of demand-side support is offered to lessen the financial crisis and destitution brought on by out-of-pocket expenses? (MULTIPLE RESPONSES)	a. Medical consultation	1
			b. Lab tests/diagnosis	2
			c. Cancer medicines	3
			d. Pain medications	4

		b. What is the average percentage of subsidy/copayment covered by the facility?		
225.	Guidelines	a. Are there national health financing policies, standardized tools, and guidelines in the facility?	Yes	No
			1	2
226.	Investment	a. If cervical cancer services are to be strengthened, where is the most investment needed?	a. Awareness raising	1
			b. Diagnostics/equipment	2
			c. Cancer medicines	3
			d. In-service training	4

Section 3. Assessment of Factors Affecting the Provision of Cervical Cancer Prevention and Screening Services at Public Health Centers in Addis Ababa-Ethiopia

114	Facility identification and location		
	a. Region <i>[Scripter: Insert the region – Addis Ababa]</i>	Addis Ababa	1
	b. Sub-city (<i>Scripter: Write name</i>)		
	c. Woreda (<i>Scripter: Write name</i>)		
	d. City (<i>Scripter: Write name</i>)		
115	Full name of facility (including the level)		
116	Type of facility by level	Tertiary/specialized hospital	1
		General hospital	2
		Health center	3
117	Which year did the facility's cervical cancer screening service become operational? <i>[Scripter: Record the year in GC (DD/MM/YYYY)]</i>	Year	
		Don't know	999

1. Models of service delivery

301.	I. Facility services		
	a. % of women (against plan) reached with cervical cancer prevention awareness messages in the last 12 months.		
	b. % of girls (against plan) fully vaccinated against cervical cancer at the age of 15 in the last 12 months.		
	c. % of women (against plan) who underwent VIA screening for cervical cancer within the previous 12 months.		
302.	II. Staff	Yes	No
	a. Is the facility adequately staffed (against the health workforce plan)? <i>[Scripter: Skip to Q303 (b) if code 2 is selected at Q303 (a)]</i>	1	2
	b. If no (above), how many posts for health workers (HWs) are open in the facility?	Specialty	No.
		a. Midwife	

		b. Nurse		
		c. Lab technologist		
		d. Health officer		
	c. The number of staff members that are available and underwent cryotherapy and VIA in-service training within the last 24 months. The choices include 1. Screening, 2. Cryotherapy, 3. Both	Specialty	No.	
		a. Midwife		
		b. Nurse		
		c. Lab technologist		
		d. Health officer		
303.	III. Financing	Yes	No	
	a. Is the facility adequately funded (against the annual budget) to be the center of care for cervical cancer patients?	1	2	
304.	IV. Provider	Yes	No	
	a. Do patients have any choice of provider?	1	2	
	b. Do a patient and a designated healthcare provider have an ongoing relationship?	1	2	
305.	V. Health information systems	Yes	No	
	a. Is there an e-register for cervical cancer patients' conditions?	1	2	
	b. Are there telephone or SMS patient call and recall systems that automatically remind patients to schedule screening and check-up appointments?	1	2	
306.	VI. Waiting times			
	a. How long are the average waiting times in the facility?			
	b. Do waiting times meet the established standards?	Yes 1	No 2	
307.	VII. Laboratory results			
	a. What is the normal turnaround time (TAT) for receiving laboratory results (VIA and Pap smear)?	a. VIA		
		b. Pap		
	b. Does the TAT meet established standards (VIA and Pap smear)?		Yes	No
		a. VIA	1	2
b. Pap		1	2	
308.	VIII. Referral system	Yes	No	
	a. Is the distance for referral to the hospital reasonable?	1	2	
	b. Is there computers-e-referral?	1	2	
	c. Do clinical records for patients move from primary care to specialty care (either way)?	1	2	
	d. Is there adequate transportation for referral services?	1	2	

2. Availability of equipment, reagents, vaccines, and supplies

	Description of item	Available (Yes/No)		Any stock-out/failure (months)
		Yes	No	
309.	a. Speculum	1	2	
	b. Cryotherapy machine with CO2 gas supply	1	2	
	c. Acetic acid	1	2	
	d. HPV vaccine	1	2	
	e. IEC/SBCC materials (Posters, Audio, Video, Flyer, Brochure, None, Other (specify))	1	2	
	f. Guideline for cervical cancer prevention and control	1	2	
	g. Referral forms	1	2	

3. Linkage with the community and service users

310.	I. Training of health extension workers (HEWs)		Yes	No
	a. Is the facility working with the HEWs for improving cervical CA prevention and screening services?		1	2
	b. Are HEWs trained in cervical CA prevention and screening services? <i>[Scripter: Skip to Q310 (c) if code 1 is selected at Q310 (b)]</i>		1	2
c. If yes (above), how many HEWs have been trained (out of the total number) in the last 24 months? Include 1) trained ----- 2) total number----- 3) percent---- <i>[Scripter: Indicate the percentage of trained personnel]</i>				
311.	II. Roles of HEWs			
	(a) What are the areas of involvement of HEWs in cervical CA services? (MULTIPLE RESPONSES)	a. Public education	1	
		b. Risk identification	2	
		c. Screening/early detection	3	
		d. HPV vaccination	4	
		e. Referral to a health facility	5	
		f. None	6	
	(b) What are the public engagement areas for cervical CA services by HEWs? (MULTIPLE RESPONSES) <i>[Scripter: if the response is 'other', please specify]</i>	a. Schools	1	
		b. Community outreach	2	
		c. Vulnerable populations	3	
d. Youth center		4		
e. Other		5		
312.	III. Prevention and screening services			
	What are the challenges to cervical CA public awareness, HPV vaccination, and screening? (MULTIPLE RESPONSES)	a. Education	1	
		b. Religious factors	2	
		c. Stigma	3	
		d. Language barrier	4	
		e. Lack of space for screening	5	

		f. Unavailability of SBCC/IEC materials	6
		g. Inadequate media coverage (TV, radio)	7
313.	IV. Community linkage/referral		
	What are the major challenges in the community linkage or referral of the most at-risk women to the primary healthcare facility? (MULTIPLE RESPONSES) <i>[Scripter: if the response is 'other', please specify]</i>	a. Transportation cost/allowance	1
		b. Distance to the facility	2
		c. Unavailability of referral forms	3
		d. Other	4
314.	V. Improving services What actions are necessary to enhance the cervical cancer services?	a. Provide transportation allowance	1
		b. Shorten the waiting time	2
		c. Provide staff training	3
		d. Improve diagnostic capacity	4
		e. Ensure preference for a provider	5
		f. Spouse or partner support	6
		g. Promote media coverage	7
		h. Other, specify	8

Section 4. Assessment of Factors Influencing Utilization of Cervical Cancer Screening Services at Public Health Centers in Addis Ababa- Ethiopia

118	Facility identification and location		
	a. Region <i>[Scripter: Insert the region – Addis Ababa]</i>	Addis Ababa	1
	b. Zone/Sub-city (<i>Scripter: Write name</i>)		
	c. Woreda (<i>Scripter: Write name</i>)		
	d. City (<i>Scripter: Write name</i>)		
119	Full name of facility (including the level)		
120	Type of facility by level	Tertiary/specialized hospital	1
		General hospital	2
		Health center	3
121	Which year did the facility's cervical cancer screening service become operational? <i>[Scripter: Record the year in GC (DD/MM/YYYY)]</i>	Year	
		Don't know	999

Objective: To examine the various components of the health system impacting the use of cervical cancer screening services at public health centers in Addis Ababa.

Guide: Good morning/afternoon. Interviewer: introduce yourself and ask the participants to introduce themselves. Ensure that the consent form is signed by individual participants. Then, explain the following questions for assessing factors influencing the use of cervical cancer screening services.

1. Socio-demographic characteristics of participants.

	Characteristic	Tick as appropriate
401.	1. Age group (years)	
	<25	1
	25-29	2
	30-39	3
	40-49	4
	50+	5
402.	2. Status of marriage	
	Married	1
	Not-married	2
	Separated	3
	Divorced	4
	Widowed	5
403.	3. Status of employment	
	Employed	1
	Unemployed	2
	Retired	3
404.	4. Status of education	
	Primary	1
	Secondary	2
	Tertiary/higher	3
	None	4
405.	5. Number of children	
	0	1
	1-3	2
	4-6	3
	7+	4

2. Issues that influence the use of cervical cancer screening programs.

406.	Decision screening for	When did you determine to visit the institution for a cervical cancer screening?	A. Public awareness	1
			B. Antenatal care/MCH attendance	2
			C. ART clinic attendance	3
			D. Abnormal vaginal bleeding	4
			E. Increased vaginal discharge	5
			F. Known someone dead from cervical cancer	6
			G. Other	7
407.	Perception	What is your perception of early cervical cancer screening services?	A. Safe	1
			B. Cost effective	2
			C. Prevents death from the disease	3
408.	Referral system	Who has referred you to the facility?	A. Self	1
			B. Health extension worker (HEW)	2

			C. Health development army (HDA)	3	
			D. Third party	4	
		What are the challenges in the linkage of women with primary healthcare facilities?	A. Distance to the facility	1	
			B. Transportation cost	2	
			C. Referral forms	3	
			D. Other	4	
409.	Coordination and quality of care	What number of cervical cancer screenings have you had?	A. Once	1	
			B. Twice	2	
			C. More than twice	3	
		How long did you wait for the screening service in the facility?	A. < 1 hour	1	
			B. 1-2 hours	2	
			C. > 2 hours	3	
		Did you have a preference for a provider?	Yes	No	
			1	2	
		Whom would you like to give you service?	A. Doctor		1
			B. Midwife		2
			C. Nurse		3
			D. Health officer		4
		How would you rate the capacity of health professionals in the facility?	A. Poor		1
			B. Below expectation		2
			C. Meeting expectation		3
			D. Above expectation		4
E. Excellent			5		
What is your opinion of the facility's overall coordination and its quality of care?	A. Poor		1		
	B. Below expectation		2		
	C. Meeting expectation		3		
	D. Above expectation		4		
	E. Excellent		5		
410.	Key areas for improvement	Which of the following needs to be addressed in order for a facility to provide high-quality services for cervical cancer screening?	A. Provide transportation allowance	1	
			B. Shorten the waiting time	2	
			C. Improve staff attitude/capacity	3	
			D. Preference for a provider	4	
			E. Spouse or partner support	5	
			F. Other	6	

Appendix D: Ethical Approvals

1. *The Strathmore University- Kenya*



24th June 2022

Mr Hussein Kemal,
kemalahmedfenet@gmail.com

Dear Mr Hussein,

RE: Health Systems Factors Affecting Cervical Cancer Services


This is to inform you that SU-ISERC has reviewed and **approved** your above **SU-PhD** research proposal. Your application reference number is **SU-IERC1373/22**. The approval period is **24th June 2022 to 23rd June 2023**.

This approval is subject to compliance with the following requirements:

- i. Only approved documents including (informed consents, study instruments, MTA) will be used
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-ISERC.
- iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-ISERC within 48 hours of notification.
- iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-ISERC within 48 hours.
- v. Clearance for export of biological specimens must be obtained from relevant institutions.
- vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days upon completion of the study to SU-ISERC.

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

Yours sincerely,


for: Dr Ngoye,
Secretary, SU-ISERC.



Ole Sangale Rd, Madaraka Estate. PO Box 59857-00200, Nairobi, Kenya. Tel +254 (0)703 034000
Email admissions@strathmore.edu www.strathmore.edu

2. *The Addis Ababa City Administration Health Bureau- Ethiopia*



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City Government of Addis Ababa Health Bureau

REF.N.O A/A/0024/2014
DATE 01/11/2014

TO:

- ARADA SUB CITY HEALTH OFFICE
- ADDIS KETEMA SUB CITY HEALTH OFFICE
- YEKA SUB CITY HEALTH OFFICE
- BOLE SUB CITY HEALTH OFFICE
- GULELE SUB CITY HEALTH OFFICE
- KIRKOS SUB CITY HEALTH OFFICE
- NIFAS SILK LAFTO SUB CITY HEALTH OFFICE
- KOLFE KERNIYO SUB CITY HEALTH OFFICE
- LEMI KURA SUB CITY HEALTH OFFICE
- LIDETA SUB CITY HEALTH OFFICE
- AKAKI KALITY SUB CITY HEALTH OFFICE

Subject: Request to access Facilities to conduct approved research

This letter is to support **Kemal Ahmed Hussein** to conduct research which is entitled as “**Health Systems Factors Affecting Cervical Cancer Services Delivery at Primary, Secondary, and Tertiary Levels in Addis Ababa, Ethiopia**” The study proposal was duly reviewed and approved by Addis Ababa Health Bureau procedures and submit an activity progress report to the Ethical Committee as required. Therefore we request the facility and staffs to provide support to the principal investigator.

With Regards

Ethical Clearance Committee

Cc

- Kemal Ahmed Hussein
- ETHICAL CLEARANCE COMMITTEE



Appendix E: The List of Selected Public and Private Health Facilities

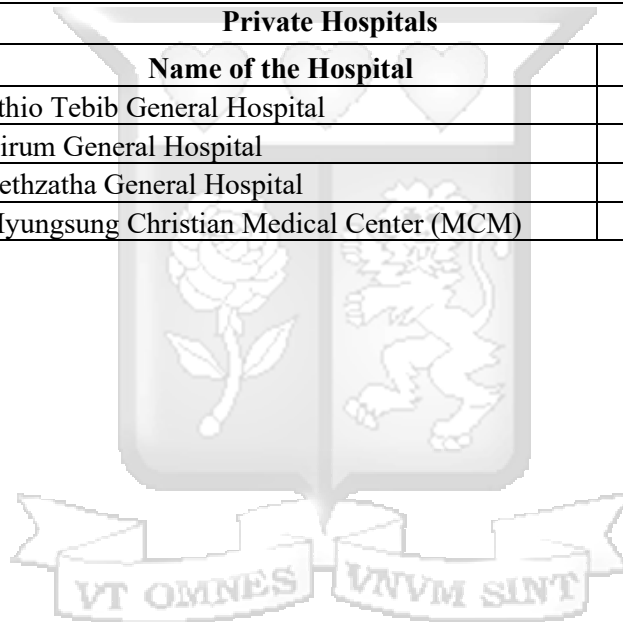
1. The list of public health centers and hospitals

S.No.	Name of the Health Facility	Sub-city
1	Abyssinia HC	Addis Ketema
2	Kolfe HC	Addis Ketema
3	Kuasmada HC	Addis Ketema
4	Lomimeda HC	Addis Ketema
5	Mikililand HC	Addis Ketema
6	Woreda 3 HC	Addis Ketema
7	Akaki HC	Akaki Kality
8	Kality HC	Akaki Kality
9	Saris HC	Akaki Kality
10	Tuludimtu HC	Akaki Kality
11	Afinchober HC	Arada
12	Baeta HC	Arada
13	Churchil HC	Arada
14	Janmeda HC	Arada
15	Ras Emiru HC	Arada
16	Semen HC	Arada
17	Bole 17 HC	Bole
18	Gergi HC	Bole
19	Addisu Gebeya HC	Gulele
20	Entoto Fana HC	Gulele
21	Shegole HC	Gulele
22	Shiro Meda HC	Gulele
23	Hiwot Amba HC	Kirkos
24	Gotera Masalechia HC	Kirkos
25	Kirkos HC	Kirkos
26	Efoyta HC	Kirkos
27	Alem Bank HC	Kolfe Keraniyo
28	Keraniyo HC	Kolfe Keraniyo
29	Woreda 3 HC	Kolfe Keraniyo
30	Woreda 9 HC	Kolfe Keraniyo
31	Bole Arabsa HC	Lemi - Kura
32	Goro HC	Lemi - Kura
33	Hidase HC	Lemi - Kura
34	Woreda 2 HC	Lemi - Kura
35	Yeka Abado HC	Lemi - Kura
36	Beletshachew HC	Lideta
37	Lideta HC	Lideta
38	Jagama Kello HC	Lideta
39	Teklehaimanot HC	Lideta
40	Woreda 2 HC	Lideta
41	NSL Woreda 1 HC	NSL
42	NSL Woreda 5 HC	NSL
43	NSL Woreda 6 HC	NSL

44	NSL Woreda 9 HC	NSL
45	NSL Woreda 11 HC	NSL
46	NSL Woreda 12 HC	NSL
47	Entoto No. 1 HC	Yeka
48	Woreda 6 (Abuare) HC	Yeka
49	Woreda 8 (Cheafe) HC	Yeka
50	Woreda 10 HC	Yeka
51	Woreda 12 HC	Yeka
52	Yekatit 12 General Hospital	Arada
53	Ras Desta Damtew General Hospital	Arada
54	Zewditu General Hospital	Kirkos
55	St. Paul Specialized Hospital	Gulele

2. The list of private hospitals

Private Hospitals		
S.No.	Name of the Hospital	Sub-city
56	Ethio Tebib General Hospital	Addis Ketema
57	Girum General Hospital	Addis Ketema
58	Bethzatha General Hospital	Kirkos
59	Myungsung Christian Medical Center (MCM)	Bole



Appendix F: Glossary

TERM	DEFINITION
Access	The capacity of an individual or a segment of the population to acquire or get suitable medical treatment. Programs, services, facilities, and records must all be readily available. Several factors can affect access, including finances (not having adequate funds), geography (distance to health facilities), education (unaware of available services), sociological factors (discrimination, language, or cultural barriers), and appropriateness and acceptability of services for individuals and the wider community.
Barrier	Anything that prevents progress or makes it difficult for someone to achieve something.
Cancer	The creation of aberrant cells that proliferate or divide uncontrollably, can infiltrate and kill healthy bodily tissue, and occasionally form tumors, are the hallmarks of a wide range of disorders.
Care	The utilization of knowledge for the good of a person or community.
Cervical cancer	Cervical cancer is a cancer of the cervix characterized by an abnormal growth of cells that start at the lowest part of uterus.
Chemotherapy	The use of chemicals to treat illness, particularly cytotoxic and other medicines.
Chronic condition/disease	A condition that meets one or more of the following criteria: it is the result of irreversible pathological alternation; it results in residual disability; it calls for specialized patient instruction during rehabilitation; or it may necessitate prolonged patient monitoring, care, or supervision.
Cost of healthcare	Actual expenses of delivering healthcare services, which include the cost of therapies, surgeries, and medicines.
Diagnosis	The process of ascertaining one's current state of health and recognizing an illness, injury, or condition based on its symptoms or the cause of it. A diagnosis may be assisted by a physical examination, a health history, and diagnostic procedures like biopsies, imaging tests, and blood tests.
Essential medicines	Essential medicines are the chemical ingredients that meet a population's top healthcare demands.
Equity	It seeks to provide high-quality healthcare services to all people without distinction based on their geographical location, gender, income, or disabilities.
General hospital	General hospitals provide obstetrics and gynecology services, as well as preventive, curative, rehabilitative, and promotive treatments. These therapy programs and diagnostic centers require a minimum of 50 beds.
Health center	In addition to basic laboratory and pharmacy services, a health center at the primary healthcare system level offers promotive, preventative, curative, and rehabilitative outpatient services. It can accommodate ten beds for delivery and emergency services.
Health development	The process of continuously and steadily improving the overall wellness of a population condition.

Health resources	The infrastructure, health workforce, supplies, finances, technologies, and knowledge needed to run the health system.
Health sector	The sector comprises private individuals and companies, social security and health insurance plans, government ministries and agencies, non-government organizations, and development partners that provide health services.
Health system	The complex of interconnected factors that affect health in communities, workplaces, homes, schools, public spaces, and the physical and psychological environments, as well as in the health and allied industries. A health system is typically structured at different levels, with the community level, which is also referred to as the primary level of healthcare, being the most peripheral level and moving up to the intermediate (district, regional, or provincial) level before ending at the central level.
Health team	A collection of individuals with a shared health objective, to which each team member contributes via expertise, talent, and collaboration with other team members' roles.
Quality of healthcare	The degree to which communities and service users receive healthcare services that enhance targeted health outcomes.
Radiotherapy	The application of ionizing radiation to treat medical conditions. Also known as radiation treatment. High-energy radiation is frequently used in radiotherapy to harm cancer cells and prevent them from proliferating and dividing.
Screening	A rough sorting procedure is called screening. By segregating those who most likely do not have the ailment from those who most likely do, it functions like a sieve. In order to provide an early course of therapy or intervention, screening is intended to identify individuals within a healthy population who are more susceptible to a health problem or disease.
Specialized hospital	With a minimum bed capacity of 110, the specialty hospitals offer curative and rehabilitative services as well as gynecological and obstetrics services. They have a minimum of two additional subspecialties and demand modern diagnostic and treatment facilities. At least four subspecialty services are provided by government-owned comprehensive specialized hospitals, which have a minimum bed capacity of 300.
Surgery	A branch of medicine or dentistry that operates on patients using both physical and instrumental methods in order to diagnose or treat pathological conditions including illnesses or injuries, enhance physical appearance, restore damaged areas, or help with disease prevention.
Treatment	A procedure meant to help a patient or client reach their ideal state of health.
Universal health coverage	When everyone has access to essential, high-quality health services, such as palliative care, treatment, promotion, and prevention, both individually and within a community. Its objectives are to lower direct

expenses, broaden the population coverage, and advance service coverage.

Vaccine

A chemical substance that can be synthesized to function as an antigen without causing disease, a dead or weakened strain of a microorganism; it is used to stimulate the production of antibodies to increase immunity against diseases.



Appendix G: Turnitin Report

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