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MINISTRY OF HEALTH - ETHIOPIA

NATIONAL DIAGNOSTICS STRATEGIC PLAN

Medical Service Lead Executive Office

Addis Ababa, Ethiopia

May 01, 2025

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FOREWORD FROM THE STATE MINISTER

As the State Minister of Health, it is with great commitment that I present Ethiopia's National Diagnostics Strategic Plan, a document that emerges from a rigorous situational analysis aimed at transforming diagnostic services in our country. Diagnostic services are central to ensuring accurate and timely identification of illnesses, a foundation for effective treatment and improved health outcomes. This strategic plan addresses these pressing challenges across four priority areas: leadership and governance, facility and technology access, service delivery, and diagnostics information management.

In Ethiopia, the absence of standardized guidelines and limited collaboration among stakeholders has hindered diagnostic quality and service consistency. This plan lays the groundwork for establishing national and regional governance structures, as well as implementing coordinated approaches to strengthen public-private partnerships (PPPs) for sustainable diagnostic financing.

Critical gaps in infrastructure, medical products, and diagnostic devices further impact service access and quality. The strategic plan highlights the need to upgrade facilities, improve supply chain management, and ensure equipment calibration and maintenance, which are essential for delivering accurate diagnoses and reliable patient care.

We recognize the urgent need to elevate diagnostic service access through capacity building, expanded training, and improved accreditation systems. Addressing these needs will ensure Ethiopia's healthcare workforce is equipped with the skills required for consistent and high-quality diagnostic services.

Finally, modernizing diagnostics information management systems and integrating telemedicine for remote consultations will enable seamless coordination across healthcare settings, enhancing access for those in underserved regions.

This National Diagnostics Strategic Plan represents our shared vision for equitable and high-quality diagnostic services in Ethiopia. The Ministry of Health is committed to realizing this vision through collaborative efforts with regional health bureaus, healthcare facilities, development partners, and the private sector.

Dr. Dereje Duguma

State Minister Health Service and Program Wing

FOREWORD FROM THE MEDICAL SERVICE LEAD EXECUTIVE OFFICER

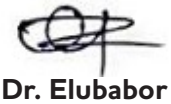
As the Medical Service Lead Executive Officer, it is with great pride and responsibility that I present the National Diagnostics Strategic Plan (NDSP) for Ethiopia. This document represents a crucial milestone in our commitment to addressing the challenges within the healthcare system, particularly in diagnostic services. It serves as both a strategic roadmap and a declaration of our dedication to ensuring equitable access to quality diagnostics for all Ethiopians. Reliable and efficient diagnostic services are the cornerstone of effective healthcare delivery, enabling early detection, accurate diagnosis, and timely treatment.

Despite their critical role, diagnostic services in Ethiopia face numerous obstacles. Limited infrastructure, shortages of skilled professionals, and disparities in service availability—especially in rural and underserved areas—have hindered timely and precise diagnoses. These challenges compromise healthcare outcomes and strain the overall health system. Addressing these gaps requires a coordinated, strategic approach that prioritizes accessibility, efficiency, and sustainability.

This strategic plan outlines comprehensive interventions designed to transform the diagnostic landscape. Key focus areas include strengthening leadership and governance by establishing national guidelines and coordinating bodies, enhancing infrastructure and accessibility by standardizing diagnostic facilities and supply chains, and improving service delivery systems through accreditation programs and quality management frameworks. Furthermore, the plan emphasizes leveraging technology and innovation, including telemedicine, digital information systems, and research initiatives, to modernize diagnostic services and expand their reach.

The successful implementation of this plan depends on strong collaboration among all stakeholders. The Ministry of Health, Regional Health Bureaus, healthcare institutions, development partners, and private sector entities must work together to mobilize resources and improve service quality. Public-private partnerships will be instrumental in advancing diagnostic capabilities, while academic institutions and professional associations will play a key role in training and research. A unified effort is essential to ensure that high-quality diagnostic services become a reality for every Ethiopian, regardless of location or socioeconomic status.

I urge all stakeholders to remain steadfast in their commitment to this vision. This plan is not just a document—it is a call to action to strengthen our healthcare system for the benefit of our people. I extend my sincere appreciation to all experts, partners, and organizations that have contributed to this initiative. Your dedication is invaluable, and with your continued support, we will achieve our shared goal of a robust, equitable, and high-quality diagnostic service system in Ethiopia.



Dr. Elubabor Buno

Medical Service Lead Executive Officer

EXECUTIVE SUMMARY

The Ministry of Health of Ethiopia (MOH-E) has developed a comprehensive National Diagnostics Service Strategic Plan to address critical gaps in diagnostic services in the areas of laboratory, pathology, radiology and nuclear diagnostics service across the country. While it is properly aligned with the Health Sector Medium-term Developments and Investment Plan (HSDIP, 2023/24-2025/26), this strategic plan aims to enhance the availability, accessibility, and quality of diagnostic services nationwide. Major initiatives and activities planned to improve laboratory diagnostic services are also well aligned with those captured in Strategic Plan for Health Laboratory System in Ethiopia developed by the Ethiopian Public Health Institute for the years 2023 to 2027

The situational analysis reveals significant disparities in diagnostic service coverage, particularly in rural and underserved areas. Key challenges include limited diagnostic facilities, uneven distribution of services, and shortage of skilled personnel, affordability barriers, and inadequate quality assurance systems. To address these issues, the strategic plan outlines four key objectives:

1. Improve leadership and governance of diagnostic services
2. Enhance the availability and accessibility of diagnostic service facilities, medical products, and technologies
3. Improve diagnostic service delivery systems
4. Strengthen information systems for diagnostic services

The Ethiopian diagnostic service strategy focuses on improving key areas to transform healthcare. It includes upgrading diagnostic facilities, ensuring a reliable supply chain, and providing specialized training for healthcare professionals in diagnostic techniques and assurance systems. The strategy aims to guide and facilitate the implementation of laboratory quality standards, , and promotes international accreditation to enhance diagnostic accuracy and reliability. Strengthening public-private partnerships will leverage private sector expertise and technology, while implementing electronic medical records, laboratory information systems, and telemedicine platforms will improve service efficiency and effectiveness. Additionally, the strategy emphasizes research and development to drive innovation and address emerging healthcare challenges.

Successful implementation requires a multi-stakeholder approach involving the Ministry of Health (MOH) and its agencies, Regional Health Bureaus, healthcare facilities, professional associations, and development partners. Dedicated funding, capacity building, and robust monitoring and evaluation mechanisms are crucial for achieving the plan's objectives. This strategy aims to ensure equitable access to quality diagnostic services across the nation, leading to better health outcomes for all citizens.

ACRONYMS

ASLM	African Society for Laboratory Medicine
CT scans	Computed Tomography
DIMS	Data Information Management System
DLIP	Diagnostics Leadership Improvement Program
EFDA	Ethiopian Food and Drug Administration
EPHI	Ethiopian Public Health Institute
EPSS	Ethiopian Pharmaceuticals Supply service
ERRTA	Ethiopian Radiographer and Radiology Technologist Association
ESP	Ethiopian Society of Pathologists
HHR&IPR	Health and Health related Institutional and Professional Regulatory
LEO	Health and Health related Institutional and Professionals Regulatory, Lead Executive Office
HSDIP	Health Sector Development Improvement Program
HSDIP	Health Sector Medium-Term Development and Investment Plan
IARC	International Agency for Research on Cancer
IPs	Innovative partnerships
LIMS	Laboratory Information Management System
MOH	Ministry of Health
MRI	Magnetic Resonance Imaging
MSH	Management of Science for Health
PPC	Public Private and Collaboration
PPP	Public Private and Partnership
RGOV	Regional Governments
RHB	Regional Health Bureaus
SWOT	Strengths, Weaknesses, Opportunities and Threats:
TAT	Turnaround Time
WHO	World Health Organization

CHAPTER 1

INTRODUCTION

CHAPTER 1: INTRODUCTION

1.1 Background

Ethiopia is making strides toward enhancing its healthcare system, particularly in the area of diagnostic services. However, challenges still exist in providing high-quality laboratory, pathology, radiology, and nuclear diagnostics. While there have been commendable efforts to improve health outcomes, the absence of standardized diagnostic services has created disparities in access, especially in remote and underserved regions. Basic diagnostic tests are commonly available in many facilities, but there is a notable scarcity of advanced diagnostics and consistent practices. This gap can lead to misdiagnoses and unequal access to care, affecting the overall efficiency of healthcare resources and ultimately patient outcomes. To tackle these challenges, the Ministry of Health of Ethiopia (MOH-E) has developed a comprehensive National Diagnostics Service Strategic Plan. This initiative aligns with the Health Sector Medium term Development and Investment Plan (HSDIP, 2023/2024-2025/26) and aims to significantly improve the availability, accessibility, equity, and quality of diagnostic services across the nation. Major initiatives and activities planned to improve laboratory diagnostic services are also well aligned with those captured in the Strategic Plan for Health Laboratory System in Ethiopia developed by the Ethiopian Public Health Institute for the years 2023 to 2027.Diagnostic services play a pivotal role in the prevention, early detection, and confirmation of diseases and monitoring the effectiveness of care and treatment interventions. Beyond individual patient benefits, diagnostic services have far-reaching implications for public health, contributing significantly to the prevention and management of public health emergencies. Moreover, effective diagnostic services have the potential to reduce morbidity and mortality, thereby enhancing the overall health of the population. By identifying problems early on and providing appropriate care and treatments, diagnostic services also contribute to reducing the catastrophic effects caused by long-term complications and debilitating health problems.

Prioritizing and enhancing diagnostic services in Ethiopia emerges as a vital component of the healthcare system strengthening strategies for achieving better health outcomes, promoting public welfare, and fostering economic growth. The World Health Organization's (WHO) report in 2018 revealed that an estimated 70% of all medical decisions depend on diagnostic services, underscoring their pivotal role in the healthcare system. However, access to these services remains limited, particularly in low- and middle-income countries, contributing to significant disparities with high-income countries.

This Strategic Plan aims to achieve four main objectives: Firstly, to improve leadership and governance of diagnostic services, to ensure that effective policies, standards, and oversight mechanisms are in place. Secondly, to enhance the availability and accessibility of standard diagnostic service facilities, medical products, and technologies, ensuring that all regions have equitable access to essential diagnostic services. Thirdly, to improve diagnostic service delivery systems, focusing on the efficiency, accuracy, and reliability of diagnostic procedures and workflows. Lastly, to strengthen information systems for diagnostic services , incorporating advanced data management and reporting tools to support informed decision-making and continuous quality improvement. The total budget required for the implementation of the Strategic Plan over the next five years (2025-2029) is approximately 146,551,292 USD.

1.2 Historical background of diagnostic service in Ethiopia

The historical development of diagnostic services in Ethiopian is intimately linked to the introduction and expansion of modern healthcare service delivery system in the country since the beginning of the

20th century. The Ethiopian Public Health Institute (EPHI) has made significant strides in improving medical and public health laboratory services, strengthening the national public health laboratory system including regional reference laboratories. EPHI's efforts have been instrumental in expanding the capacity and coverage of laboratory services, particularly for communicable disease diagnosis and surveillance.

Recognizing the importance of a comprehensive approach to diagnostics, MoH is actively working to expand its focus beyond the public health laboratory system. This includes strengthening diagnostic services at the health facility level, including private sector facilities. Additionally, MoH is broadening its scope to encompass other vital components of diagnostics, such as imaging, pathology, and nuclear medicine services. By taking these steps, MoH aims to further enhance the availability, accessibility, and quality of diagnostic services across Ethiopia. Following the restructuring of the Ministry of Health (MOH), Diagnostic service desk was established. This establishment presents an opportunity to take a more comprehensive and integrated approach to strengthening diagnostic services across the healthcare system. The MOH recognizes the need to expand the scope beyond just laboratory services to include imaging, pathology, and nuclear medicine as well, ensuring a holistic strengthening of diagnostic capabilities at all levels of the healthcare system.

1.3 Purpose of the Strategic Plan

The purpose of this Strategic Plan is to outline a comprehensive approach that aligns the MoH's objectives with its long-term goals in the realm of diagnostic services. This strategic blueprint serves as a guiding framework, detailing; infrastructure, building resource capacity, enhancing quality assurance, promoting public-private partnerships, and integrating information systems while also articulating clear strategies for enhancing service quality, expanding service offerings, optimizing operational efficiency, and ensuring financial sustainability.

1.4 Scope of the strategic plan

The scope of this strategic plan encompasses all diagnostic services within Ethiopia, including laboratory services, pathology services, Imaging and radiology services and nuclear diagnostics services. By addressing the gaps and challenges within these key areas, the National Diagnostics Strategic Plan aims to create a cohesive and comprehensive diagnostic service framework that ensures all Ethiopians have access to timely, accurate, and high-quality diagnostic services.

1.5 Rationale of the strategic plan

The Ethiopian diagnostic service strategy focuses on improving key areas to transform healthcare. It includes upgrading diagnostic facilities, ensuring a reliable supply chain, and providing specialized training for healthcare professionals in diagnostic techniques and quality control. The strategy aims to guide and facilitate the standardization sets of diagnostic service, implementation of quality assurance programs, and promotion efforts towards national as well as international accreditation for competence and best practices to enhance diagnostic accuracy and reliability. Strengthening public-private partnerships will leverage private sector expertise and technology while implementing electronic medical records, diagnostic service information systems, and telemedicine platforms will improve service efficiency and effectiveness. Additionally, the strategy emphasizes research and development to drive innovation and address emerging healthcare challenges.

A multi-stakeholder approach involving the Ministry of Health (MOH), regional health bureaus, healthcare facilities, professional associations, and development partners is essential for successful implementation. Achieving the plan's goals will require robust monitoring and evaluation systems, capacity building, and sustainable dedicated financing. This strategy aims to improve the population's health across Ethiopia by providing more equitable access to high-quality diagnostic services.

1.6 Development process NDSP

The development process for the National Diagnostics Service Strategic Plan (NDSP) began with the establishment of a National Advisory Committee (NAC) under the Medical Service Hospital and Diagnostics Desk. The NAC included representatives from key organizations such as EPSS, EPHI, EFDA, ICUP, Clinton Health Access Initiative, WHO, and professional associations like EMLA, ASP, and the Radiology Association. Additionally, representatives from various MOH Lead Executive Offices (LEOs) were included. To support the NAC, a Technical Working Group (TWG) was formed, composed of professionals from 10 hospitals, diagnostic associations, and NGOs. This group was tasked with preparatory activities to ensure the strategic plan's development was well-informed and aligned with the NAC's guidance.

The NAC guided a situational assessment to evaluate Ethiopia's diagnostic services comprehensively. To achieve this, assessment tools were developed referencing ISO 15189:2015, national regulatory standards, and WHO guidelines. A two-day workshop was conducted with 30 professionals (three from each of the 10 selected hospitals in Addis Ababa, including laboratory, radiology, and pathology experts) to prepare these tools. The tools were then digitized using Google Forms, and a three-day Zoom meeting was held to clarify their use and ensure consistency among participants. These professionals assessed health facilities across all regions and sampled facilities, collecting data on laboratory, pathology, and radiology services.

Following the assessments, the data was analyzed in three dedicated workshops, focusing on laboratory, pathology, and radiology services individually. The analysis revealed common challenges across all diagnostic services, with laboratories showing slightly better performance in documentation processes compared to pathology and radiology services. These findings highlighted critical areas needing improvement and informed the development of the strategic plan.

The strategic plan was developed through a harmonized process to avoid duplication and ensure alignment with national priorities and standards in all four diagnostics service area. It integrated input from the NAC, TWG, and the situational assessment findings. This collaborative and structured approach ensured that the plan was comprehensive, actionable, and capable of addressing the diagnostic service challenges in Ethiopia while aligning with international best practices.

1.7 Alignment HSDIP with National Diagnostic Strategic Plan

The synergy established between the Health Sector Med term Development and Investment Plan (HSDIP) and the National Diagnostics Strategic Plan creates a unified effort that aims to not only elevate the quality of care but also improve accessibility, ensuring that healthcare services cater effectively to the diverse needs of population

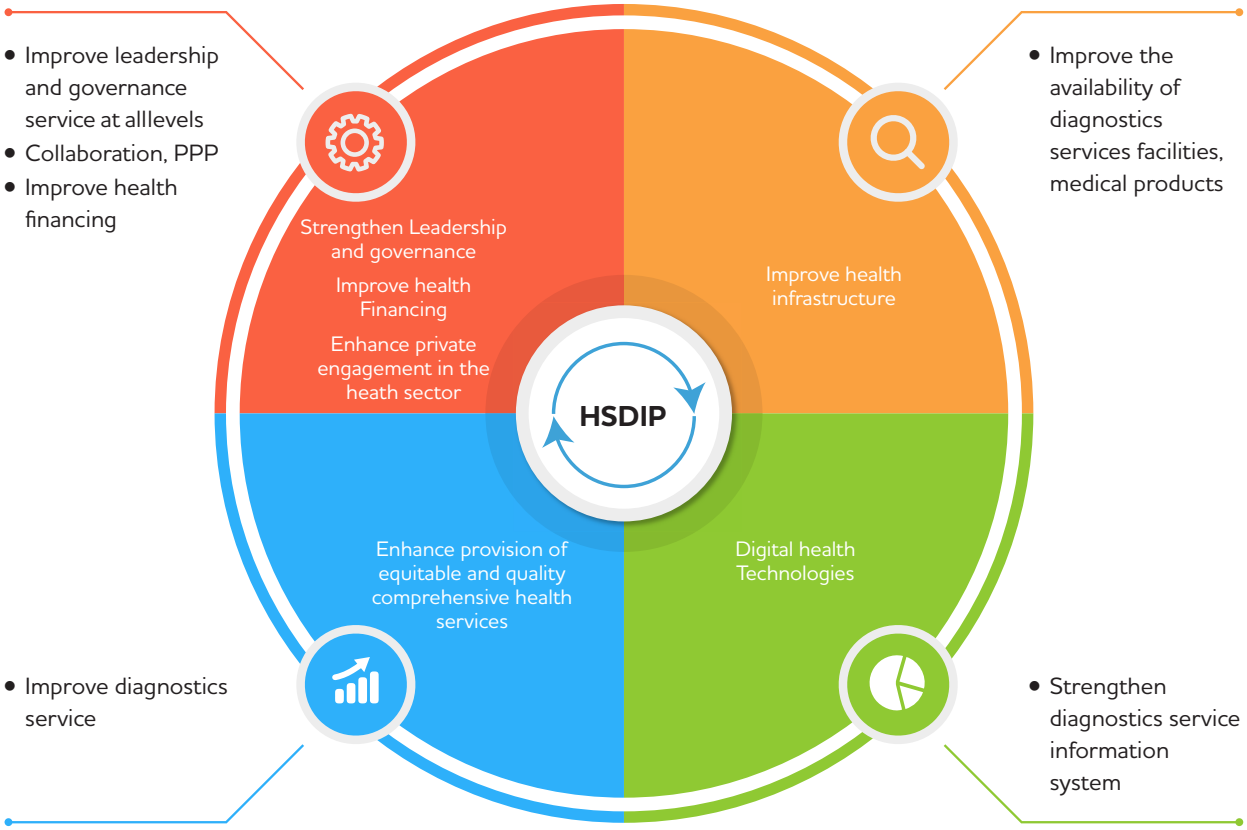


Fig 1: Alignment with HSDIP

The National Diagnostics Strategic Plan aligns well with the Health Sector Transformation Plan HSDIP, sharing core objectives. It prioritizes strengthening leadership and governance within the healthcare system to improve its structure and efficacy. The plan focuses on establishing a dedicated administrative structure within the MOH to enhance leadership, governance, collaboration, and private sector engagement across diagnostic service tiers, contributing to the broader vision outlined in the HSDIP.

The National Diagnostics Strategic Plan and the Health Sector Development and Investment Plan (HSDIP) in Ethiopia are closely aligned, working together to achieve the common goal of enhancing healthcare services throughout the country. The National Diagnostics Strategic Plan's focus on delivering equitable and high-quality healthcare services through accurate and timely diagnostics directly supports the HSDIP's aim of ensuring comprehensive and quality healthcare services for all. Furthermore, by prioritizing the improvement of diagnostic service facilities, medical products, and technologies, the National Diagnostics Strategic Plan reinforces the HSDIP's objectives of fortifying health infrastructure and improving access to essential pharmaceuticals and medical devices.

Additionally, the National Diagnostics Strategic Plan's emphasis on strengthening diagnostic service information systems complements the HSDIP's goal of advancing digital health technologies. By enhancing these information systems, the plan contributes to the broader objective of leveraging innovative technologies to streamline diagnostic processes and improve healthcare delivery. The alignment between the two plans demonstrates their cohesive and complementary nature, as they work hand in hand to address the various aspects of healthcare improvement in Ethiopia. This synergy between the National Diagnostics Strategic Plan and the HSDIP highlights the importance of a comprehensive approach to healthcare reform, recognizing the interdependence of various components within the healthcare system to achieve the common vision of enhancing healthcare services across the nation.

CHAPTER 2

SITUATIONAL ANALYSIS

CHAPTER 2: SITUATIONAL ANALYSIS

Diagnostic services play a pivotal role in ensuring the precise and timely identification of illnesses, fundamental aspect for successful treatment and better patient outcomes. In Ethiopia, the accessibility and quality of diagnostic services continue to present difficulties, particularly in remote rural regions. Based on the assessment and the Service Provision Assessment 2020/21, the current challenges in Ethiopia's diagnostic services can be categorized into four major areas: leadership and governance, availability and accessibility of diagnostic facilities, equipment and technology, service delivery, and diagnostics information management. This situational analysis is primarily based on the national diagnostic assessment conducted for this strategic document preparation

2.1 Leadership and Governance: Impact on Diagnostic Services

Guidelines: The Ministry of Health (MOH) Medical Service LEO has recently been organized to improve the availability, quality, and equity of diagnostic services in Ethiopia. This opportunity comes at a critical time when the country faces significant challenges in providing consistent and reliable diagnostic services across its healthcare facilities. Currently, there is no established guideline structure to lead and standardize these services. Although, there are standalone laboratory service guidelines, the absence of such guidelines in Pathology and Imaging service creates a substantial gap, hindering efforts to ensure that all health facilities adhere to consistent practices, quality standards, and protocols necessary for effective diagnostic service delivery. Without a comprehensive guideline structure, efforts to improve diagnostic services lack direction and coherence, resulting in continued disparities in the quality and accessibility of diagnostic services, particularly in remote and underserved areas. Facilities may struggle with inconsistent practices, inadequate training, and insufficient quality management systems, leading to misdiagnoses, inefficient use of resources, and overall suboptimal patient care. Establishing and implementing comprehensive guidelines is essential to provide the necessary framework for standardizing and enhancing diagnostic services, thereby fulfilling the MOH plan effectively.

Collaboration and Coordination with Key Stakeholders: The assessment results reveal significant gaps in collaboration and coordination among key stakeholders—government entities, healthcare providers, and private sector partners—in Ethiopia's diagnostic services sector. This fragmentation has led to the inefficient use of resources, duplicated efforts, and inconsistent service quality. Strengthening collaboration and coordination among stakeholders is essential to address these issues. Enhanced relationships can lead to shared resources, knowledge exchange, and the development of cohesive strategies that improve diagnostic service delivery. By creating a more collaborative environment, stakeholders can work together to standardize practices, ensure quality across all levels of healthcare facilities, and expand the reach of diagnostic services.

Coordinating Bodies/Units at National and Sub-National Levels: The recent establishment of a dedicated administrative structure for diagnostic services within the Ministry of Health (MOH) and the restructuring of the Ethiopian Public Health Institute (EPHI) to include a Deputy Director General (DDG) position dedicated to leading the health laboratory services represent significant milestones in strengthening Ethiopia's diagnostic services. These efforts are further supported by the existence of functional Regional Public Health Institutes and regional referral and reference laboratories in the country, which play a crucial role in improving health laboratory service delivery, presents a pivotal opportunity to extend this framework to regional levels across Ethiopia. Currently, while the MOH

has taken steps to centralize oversight and management of diagnostic services at the national level, the absence of similar structures at the regional level hinders effective coordination and management across the country. To address this gap, it is essential to strength the existing regional administrative structures for diagnostic services in each of Ethiopia's administrative regions. These regional structures would mirror the functions and responsibilities of the national body, ensuring consistent policy implementation, resource allocation, and quality assurance at both national and regional levels. By decentralizing responsibilities, each region can shape diagnostic services to local needs while adhering to national standards and guidelines.

Public-Private Partnerships: Ethiopia currently has limited practice of public-private partnerships (PPPs) in financing diagnostic services. The scarcity of robust PPP initiatives results in insufficient funding and resource allocation for diagnostic facilities nationwide. This shortage restricts the expansion of diagnostic capabilities, limits access to advanced technologies, and diminishes the overall quality of diagnostic services provided. Public-private partnerships (PPPs) can offer sustainable financing solutions for diagnostic services by leveraging private sector investments, technological advancements, and management expertise to enhance the country's diagnostic infrastructure and service delivery.

Financing Mechanisms: To addresses these challenges effectively, Ethiopia must strengthen its financing mechanisms for diagnostic services. Free service delivery of diagnostics and exempted services can deplete hospital budgets, compromising sustainability. Additionally, low reimbursements and service fees set by the government that is lower than the consumable costs further strain financial resources. This entails enhancing government funding, expanding insurance schemes, and leveraging donor contributions to ensure reliable financial support. By bolstering these mechanisms, Ethiopia can achieve consistent service delivery, improve infrastructure development, and enhance the overall quality of diagnostic services provided nationwide. Enhancing government funding will involve allocating adequate resources specifically earmarked for diagnostic services within the national healthcare budget. This dedicated funding will enable healthcare facilities to procure essential diagnostic equipment, maintain operational efficiency, and implement quality improvement initiatives. Additionally, expanding insurance schemes can provide sustainable financing solutions by increasing coverage for diagnostic tests and procedures, thereby reducing out-of-pocket expenses for patients.

2.2 Availability and Accessibility of Diagnostic Facilities, Medical Products, and Technologies

Infrastructure and Facilities for Diagnostic Services: Ethiopia's diagnostic services face critical challenges due to incompatible infrastructure and inadequate facilities across healthcare facilities. A significant proportion of these facilities, approximately 64%, do not meet national standards for diagnostic service infrastructure. This non-compliance poses serious risks, including compromised patient safety and suboptimal diagnostic accuracy. Inadequate facilities contribute to delays in diagnosis and treatment, affecting patient outcomes and satisfaction negatively. Moreover, the lack of standardized infrastructure leads to variability in service environments, hindering the efficiency and effectiveness of diagnostic services. Facilities with insufficient infrastructure struggle to maintain consistent service delivery, resulting in disparities in healthcare access and quality between urban and rural areas.

Diagnostic Devices Management: Managing diagnostic services equipment presents several critical challenges that hinder effective healthcare delivery. These include inadequate calibration and

maintenance practices, with only a small fraction of pathology laboratories (approximately 12%) equipped with properly calibrated devices. This deficiency leads to inconsistent and potentially inaccurate diagnostic results, impacting patient care quality. Furthermore, delays in installing new equipment, combined with insufficient training on its operation and maintenance, frequently disrupt service continuity. The absence of a structured system to compare and select optimal equipment from trusted manufacturers further complicates matters, compromising healthcare providers' ability to deliver timely and accurate diagnostics. These challenges collectively impede efforts to enhance diagnostic services, contributing to inefficiencies and suboptimal healthcare outcomes.

Supply Chain Management: One of the significant challenges facing diagnostic services in Ethiopia is inefficient supply chain management, leading to frequent stockouts and service disruptions. The procurement processes often lack standardization and efficiency, resulting in delays and unreliable access to essential diagnostics kits and reagents. Inventory management practices are inadequate, with insufficient tracking systems to monitor stock levels in real-time and adjust orders accordingly, leading to either overstocking or critical shortages. Distribution networks struggle with inefficiencies, causing delays in delivering supplies to healthcare facilities, particularly in remote areas. These issues collectively impact the timely availability of diagnostics materials, contributing to compromised healthcare delivery, misdiagnoses, and inadequate patient care across the country. Addressing these supply chain inefficiencies through improved procurement procedures, enhanced inventory management systems, and optimized distribution networks is crucial to ensuring consistent access to high-quality diagnostics services nationwide.

2.3 Access and Quality of Diagnostic Service Delivery

Access and Quality of Diagnostic Services: The landscape of diagnostic services in Ethiopia varies significantly based on facility type and infrastructure capabilities. Comprehensive hospitals meet a minimum of 72% of FDA-required tests, demonstrating their relatively stronger diagnostic capacity. In comparison, general hospitals offer 58%, primary hospitals provide 40%, and health centers cover 47%, reflecting varying levels of diagnostic capability across different tiers of healthcare facilities. Pathology services, crucial for accurate disease diagnosis and management, are nationally available in only 20% of health facilities, highlighting significant gaps in specialized diagnostic capabilities. Moreover, access to essential infrastructure components such as water supply, internet, and electricity stands at 29%, underscoring challenges in maintaining operational readiness for diagnostic services.

In terms of imaging and radiology services, there are notable discrepancies in accessibility across the country. Basic services like X-ray and ultrasound are more widely available, with 85% of facilities offering these tests. However, specialized services such as CT scans and MRI are much less accessible, available in only 30% and 9% of facilities respectively. More advanced services like mammography, interventional radiology, and CAT labs are even scarcer, with availability rates ranging from 3% to 15%. These disparities indicate the need for targeted investment and infrastructure development to enhance diagnostic capabilities, particularly in advanced imaging technologies. The availability of basic laboratory tests such as malaria and HIV diagnostics is relatively widespread, with approximately 65% of facilities equipped to handle these essential screenings. However, access diminishes for crucial tests like TB microscopic investigations (43%) and hemoglobin tests (37%), essential for managing conditions such as anemia. Specialized tests like DBS collection and ALT/creatinine tests are even scarcer, available in less than 20%

of facilities. Critical tests for diseases like HIV/AIDS and tuberculosis, such as CD4 counts and TB rapid tests, are available in only 2% of facilities. Similarly, syphilis serology services are limited to 7% of facilities nationwide. These gaps underscore the urgent need for targeted interventions to improve diagnostic capabilities across all healthcare levels, ensuring equitable access to advanced testing and improving overall health outcomes for Ethiopians.

Skills and Knowledge of Diagnostic Service Providers: The shortage of long-term training opportunities for diagnostic professionals in Ethiopia presents a critical challenge, particularly in radiology and pathology. While laboratory training primarily focuses on program-specific services like TB, ART, and malaria, training initiatives for radiology and pathology services have not been initiated. This gap in training provision neglects crucial areas where specialized knowledge is vital for accurate diagnoses and effective patient care. Addressing this issue requires expanding training programs to encompass a broader spectrum of diagnostic services, ensuring comprehensive skill development across all disciplines. By prioritizing long-term training initiatives for radiology, pathology, and other diagnostic professionals, Ethiopia can enhance healthcare capacity, improve service quality, and better meet the diagnostic needs of the population.

Accreditation Systems in Diagnostic Services: One of the primary challenges in Ethiopia's diagnostic services is the low participation in accreditation systems. Lack of accreditation leads to inconsistent quality standards and reliability of diagnostics tests. This gap is exacerbated by limited awareness among healthcare providers about the accreditation process and its benefits, as well as inadequate support for facilities navigating accreditation requirements. The result is a fragmented healthcare landscape where patients may receive varying levels of diagnostic accuracy and quality depending on the facility. Addressing this issue requires targeted interventions to increase participation, improve awareness, and provide comprehensive support to healthcare facilities seeking accreditation, ultimately ensuring consistent and high-quality diagnostic services across the country.

Regulatory System in Diagnostics Services: Current gaps include insufficient documentation practices, inconsistent monitoring of service quality, and limited enforcement of standards. These deficiencies contribute to varying levels of service reliability and quality across healthcare facilities, potentially compromising patient care and treatment outcomes. Addressing these issues requires bolstering the regulatory framework with clearer policies, regular audits, and robust enforcement mechanisms. Strengthening regulatory oversight will ensure adherence to standards, enhance service reliability, and ultimately improve the overall effectiveness of diagnostic services nationwide

2.4 Information Systems in Diagnostics Services

Information Systems: Limited data integration currently hampers coordination within Ethiopia's diagnostics services, impacting overall efficiency and effectiveness. The lack of interconnected health information systems, electronic medical records, and standardized data-sharing protocols creates silos of information, hindering seamless communication and collaboration across different healthcare settings. Enhancing interoperability through integrated health information systems, electronic medical records, and standardized data-sharing protocols is crucial. These improvements will streamline operations, facilitate informed decision-making, and ultimately enhance patient care quality. By integrating disparate data sources and ensuring seamless information exchange, Ethiopia can achieve more cohesive diagnostic service delivery, optimizing resource allocation and improving health outcomes nationwide.

Remote Consultation in Diagnostics Services: Accessing diagnostic services in remote areas of Ethiopia poses a significant challenge due to inadequate infrastructure and healthcare resources. Many remote communities lack essential diagnostic facilities such as laboratories and imaging centers, leading to delayed diagnoses and limited treatment options for residents. The geographical isolation of these areas exacerbates the problem, requiring patients to travel long distances to receive diagnostic tests, which can be costly and time-consuming. Moreover, the shortage of trained healthcare professionals capable of conducting and interpreting diagnostic tests further impedes access to timely healthcare services. Addressing these challenges necessitates innovative solutions that prioritize the expansion of healthcare infrastructure and the adoption of telemedicine and mobile health technologies to enable remote consultations and diagnostics. Comprehensive efforts are needed to improve healthcare access and outcomes for populations in Ethiopia's remote regions.

Research and Development in Diagnostics Services: Ethiopia faces challenges in advancing its diagnostic services due to limited research and development (R&D). There is insufficient investment and infrastructure to support innovative research in diagnostic methods and technologies. This hinders the introduction of advanced tools crucial for accurate disease detection, monitoring, and treatment. Without robust R&D efforts, the diagnostic services remain outdated and unable to meet the evolving healthcare needs of the population. Addressing these gaps in R&D funding, infrastructure, and collaborative opportunities is essential to improve diagnostic capabilities and ensure equitable access to high-quality healthcare services nationwide. Enhanced investment in R&D can lead to the development of new diagnostic methods, improved technologies, and ultimately better health outcomes for the entire nation.

2.5 Table 1: SWOT Analysis

Strengths	Weaknesses
• Higher Leadership commitment to improving the healthcare outcomes. • Alignment with the Health Sector Mid-term Investment Plan. • Acknowledgment of the critical role of diagnostic services. • Initiations of utilization of digital technologies. • Ongoing professional development programs • Existence of Health Laboratory Strategic plan • Laboratory quality improvement initiatives, EQA, Accreditation, SLMTA/SLIPTA • Existence of functional Regional public health institutes/Regional reference laboratories	• Insufficient multi- disciplinary diagnostic team (man power) at national level. • Weak collaborative effort of key stakeholders. • Insufficient administrative framework • Shortage of diagnostics service guidelines. • Limited financing mechanisms • High cost of diagnostic infrastructure. • Limited PPP and other business model implementation • Limited availability and access to standardized diagnostic facilities. • Inadequate quality assurance program (EQA) • Suboptimal equipment management system • Inefficient supply chain management. • Inefficient procurement system • Shortage of skilled personnel. • Insufficient diagnostic information systems • Limited research on diagnostic service

Opportunities	Threats
• Increased demand for diagnostic service utilization • Leveraging public-private partnerships. • Increased national capacity of ICT • Increased international concern for diagnostic service due to emerging and re-emerging diseases. • Increased global innovation and artificial intelligence on diagnostic technologies.	• Financial constraints and limited resources. • Socioeconomic factors • Global instability in peace and economy • Emerging Health Challenges

2.6 Table 2: Stakeholder Analysis

Stakeholders /Implementer/	Role	Anticipated Challenge	Institutional response / Strategic Implication/
MOH	• Provide guidance and direction for implementation of NDSP • Establishes national coordinating body • Policy, regulation and guidelines development • Resource mobilization • Funding coordination. • Capacity building and Technical support • Partnership engagement • M&E	• Resource limitation	• Strong stewardship of DS program at all levels • Lobby for resources & allocate budget • Integrate DS with other programs • Promote DS Strengthen and implementation • Periodic M&E
Ministry of Finance	• Provide financial resources	• Budget shortage	• Give special consideration for health related issue.`
Ministry of Education	• Curriculum development and revision related to diagnostics service	• Budget shortage and multiple competing programs	• Quality workforce development • Resource mobilization
Ethiopian Public Health Institute (EPHI)	• Coordination of the health laboratory system under the direction oh MOH • Capacity building and technical support to health laboratories • Research and development • Surveillance • M&E of the health laboratory system • Quality assurance program , (EQA)	• Emerging and reemerging diseases • Natural and manmade disaster	• Resource mobilization • Emergency response and management • Conduct research. • Build institutional capacity
Ethiopian pharmaceutical ls Supplies Service (EPSS)	• Equipment's, Reagents, chemicals and supply chain management related to diagnostics service	• Limited equipment, Reagents, chemicals and supply list • Efficient Stock management • Competing interest • Long lead time • Global supply challenge	• Consider diagnostic related VEN list • Proper quantification and risk management • Efficient distribution • Efficient coordination and communication • Multi-disciplinary operation

Ethiopian Food and Drug Administration (EFDA)	• Conduct quality control and testing of diagnostic products • Health professional licensing	• Limited Capacity	• Regulate food, drug and healthcare services. • Provide license for health professionals. • Strengthen their analytical capacity of their laboratory
Partners	• Provision of TA • Provide assistance on funding	• Fragmented support • Phase out of projects	• Integrate program support.
Regional Health Bureaus (RHB/ Zonal/District	• Resource Mobilize. • Coordinate healthcare system. • Solicit and engage partners and stakeholders. • Community mobilization • M&E	• Shortage of budget. • Lack capacity. • Staff turnover • Frequent and multiple health changes	• Strengthen resource mobilization. • Capacity building • Strengthen community surveillance. • Strengthening healthcare system. • Strengthen health Insurance system.
Regional public health institutes/ regional referral and reference Labora tories.	• Conduct laboratory tests • Surveillance and Research • Coordination of the regional health lab service • Capacity building and technical support to the regional health laboratories • M&E of the regional health laboratory system	• Limited resources • Limited Capacity • High turnover of staff • Weak research activity	• Expand diagnostic laboratory service. • Strengthen capacity building. • Strengthen surveillance system. • Strengthen research capacity and integration with higher education. • Strengthen LQMS, EQA, and biosafety and biosecurity.
Health Facilities	• Ensure availability and quality diagnostic services. • Strengthen DQMS implementation and accreditation. • Report diagnostic KPIs regularly • Implement diagnostic strategic directions	• Limited capacity • Shortage of budget • High staff turnover • Weak infrastructure	• Resource mobilization • Strengthening capacity building • Create a staff motivational scheme. • Provide quality and reliable diagnostic services.
Diagnostic professionals	• Adherence to standards and procedures • Be motivated, compassionate and competent. • Provide advisory service to healthcare provides	• Lack of Motivation • Lack of Conducive working environment Skill limitation	• Laboratory, Radiology and Pathology professionals and Scientists: • Conduct tests, analyze samples, perform medical imaging procedures and generate accurate results.
Healthcare providers	• Proper utilization of diagnostic service • Provide feedback to the DS • Harmonize patient care in accordance to diagnostic output • Stewardship the diagnostic service	• Luck of information • Attitude and behavior • Lack of motivation	• Providing information regularly • Collaboration and cooperation

Health insurance companies	• Establish and implement efficient and effective health insurance system • Ensure that health insurance is being implemented in all institutions required to implement it • Create conducive conditions to expand and strengthen health insurance service, • Encourage and coordinate those engaged in the field • Properly refund healthcare facilities.	• Limited coverage and community acceptance • An affordability • Refunding problems	• Conclude contracts with and effect • payment to accredited health service providers and monitor their performances • Undertake public education and sensitization on health insurance Perform other activities as may be necessary for the attainment of its objectives
Health professional association	• Provision of technical advice & consultancy • Capacity building • Research and development	• Lack of capacity • Limited budget	• Advisory/consultancy • Resource mobilization • Capacity building
In service training center (CPD centers)	• Ensure the development of appropriate & standard training materials • Ensure provision of standard training (including knowledge & skill)	• Shortage of updated standardized training materials and methodology • Limited budget	• Technical support and capacity building • Improved M&E and certification
Client and Patients	• Participation, engagement & ownership on community surveillance • Support awareness creation • Service utilization. • Providing feedback on healthcare service delivery	• Lack of awareness and responsibility	• Implement health extension packages. • Strengthen community awareness.
Private Sectors	• Manufacturing quality medical equipment, diagnostic supplies, and distribution. • Provide quality diagnostics service. • Participate in PPP • Policy advocacy • Data sharing and collaboration	• Limited coordination and collaboration • Service and supply inconsistency • Service cost gap between public and private sectors	• Create strong collaboration with the public sector • Create agreement with the public sector • Engage in public private partnership. • Promote efficiency of services provided.
Ethiopia Accreditation Service	• To develop, establish and operate a national diagnostic accreditation program.	• Limited resource and awareness creation, capacity, resource	• Promote accreditation. • Build capacity. • Mobilize resource.
Ethiopia Standard Agency	• To promote the implementation of standards. • To Promote Ethiopian Standard Mark and authorize its use	• Limited resource and awareness creation, capacity, resource	• Awareness creation • Build capacity • Mobilize resource
Ethiopia National Metrology Institute	• Provide calibration services. • Capacity Building and Research • Collaborating with Stakeholders • Maintaining National Reference Standards (traceability)	• Limited resource, awareness and capacity	• Mobilize resource
Armauer Hanson Research Institute	• Research and development. • Capacity building • Molecular and bioinformatics	• Shortage of resource and skilled workforce	• Resource mobilization • Establish a partnership. • Diversify donor organization. • Innovation.

CHAPTER 3

VISION, MISSION, GOAL AND GUIDING PRINCIPLES

CHAPTER 3: Vision, Mission, Goal and Guiding Principles.

Vision:

To see a healthy, productive, and prosperous society

Mission:

To promote the health and well-being of the society through providing and regulating a comprehensive package of diagnostics services of the highest possible quality in an equitable manner

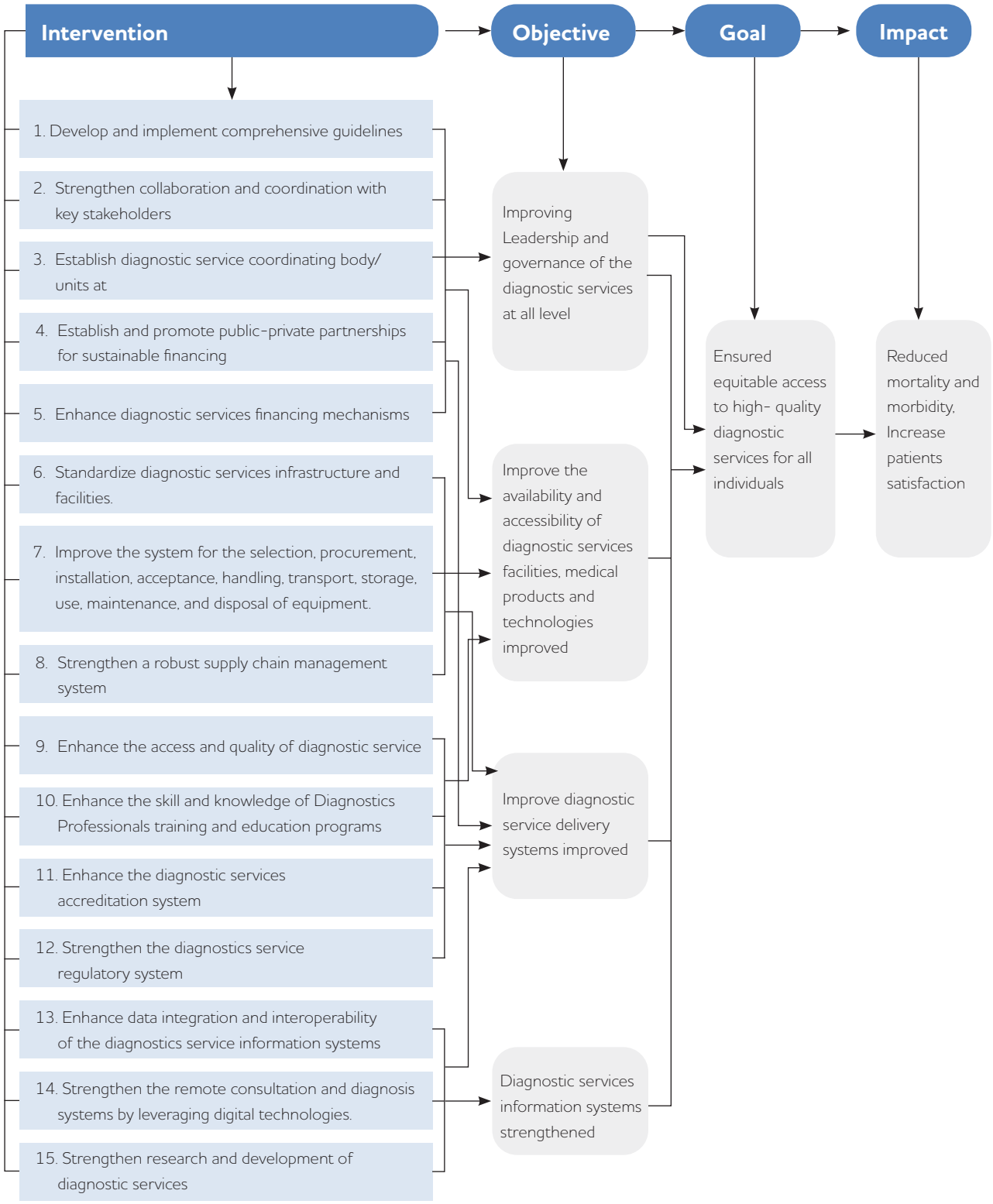
Goal:

To enhance a comprehensive and sustainable diagnostic service to provide equitable access to accurate and timely diagnostic service throughout the country

Guiding principles

1. **Accessibility:** The strategic plan places a strong emphasis on diagnostic services are reached in terms of physical access, cost, time and skilled personnel
2. **Collaboration and partnership:** Collaboration and partnerships among various stakeholders includes engagement with interdisciplinary healthcare providers, diagnostic centers, regulatory agencies, professional associations, patient advocacy groups, and research institutions
3. **Patient-centered care:** The needs and preferences of patients should be at the center of any diagnostic service
4. **Quality and accuracy:** An effective diagnostic service strategy should prioritize the use of evidence-based practices, standardized protocols, and ongoing quality improvement initiatives to ensure that diagnostic tests and procedures are accurate and reliable
5. **Continuous quality improvement:** Diagnostic services must ensure that they meet the highest standards of quality and safety at any time
6. **Innovation and technological advancement:** Foster culture of innovation research and development to continuously improve diagnostic methods and tools
7. **Ethical and Responsible Practice:** to upholding ethics and professionalism in diagnostics, safeguarding patient privacy, respecting autonomy, and using resources responsibly
8. **Sustainability and Financial Viability:** ensuring long-term stability and financial health of diagnostic services through effective resource management and financial strategies

Conceptual framework



Strategic Objective 1: Improve leadership and governance of the diagnostic services

Description: The focus of this strategic plan is to enhance the leadership and governance of diagnostic services at all levels. This aim will be achieved through the creation and implementation of comprehensive policies and guidelines formulated specifically for diagnostic services, fostering better collaboration and resource optimization coordinating bodies for imaging and pathology service will be newly established and strengthen existing structure of laboratory service at national and sub-national levels to boost operational efficiency. Furthermore, the plan advocates for public-private partnerships to diversify funding sources, thereby ensuring the long term financial sustainability of diagnostic operations. It also aims to improve financing mechanisms, making diagnostic services more accessible and affordable to all. This multifaceted approach strengthens leadership, governance, and financial sustainability, thereby enhancing the provision and accessibility of diagnostic services across the healthcare landscape.

Key Intervention 1.1: Develop and implement comprehensive guidelines for diagnostic services.

Developing and implementing comprehensive guidelines for diagnostic services holds most importance in the healthcare landscape. Firstly, these guideline serve as a blueprint for standardizing practices, ensuring that diagnostic procedures across healthcare facilities adhere to the highest quality standards. This standardization not only promotes consistency in patient care but also contributes to increased efficiency and reduced risks of errors. Furthermore, the establishment of clear guidelines plays a crucial role in enhancing patient safety by alleviating potential risks associated with diagnostic procedures; promote a sense of trust and confidence in healthcare services.

Key Intervention 1.2: Strengthen collaboration and coordination with key stakeholders.

Strengthening collaboration and coordination with key stakeholders in the healthcare sector is of very importance for the effectiveness and efficiency of diagnostic services. It promotes a unified approach towards addressing challenges and seizing opportunities, promote a cohesive healthcare ecosystem. Enhanced collaboration ensures that all stakeholders, including government bodies, healthcare providers, and community representatives, work together towards a shared vision, resulting in improved patient outcomes, modernized healthcare delivery, and optimal resource utilization

Key Intervention 1.3: Strengthening diagnostic service coordinating bodies/units at national and sub national l

The strategic key intervention aims to strengthen diagnostic service coordinating bodies or units at both national and subnational levels for a synchronized and efficient healthcare system. These bodies, providing overarching guidance and strategic direction at the national level and aligning with local needs at the subnational level, serve as hubs for collaboration, communication, and decision-making. By strengthening the existing structure to addresses specific diagnostic challenges in different healthcare contexts, enabling targeted problem-solving and knowledge exchange. A Diagnostic Center Leadership Incubation Program (DLIP) is also proposed for capacity building, aimed at enhancing leadership, collaboration, and strategic decision-making skills among professionals within the coordinating bodies.

Additionally, a systematic approach to regular reviews and evaluations is emphasized to ensure ongoing effectiveness and relevance of services, enabling continuous improvement. Collectively, these initiatives contribute to efficient leadership, targeted problem-solving and continuous improvement, aligning diagnostic services with the evolving healthcare landscape and delivering optimal outcomes for patients

Key Intervention 1.4: Establish and promote public-private partnership for sustainable financing of diagnostic services.

Public-private partnerships (PPPs) involve collaboration between government bodies and private entities to achieve mutually beneficial goals. In the context of diagnostic services, enhancing such partnerships can improve access, quality, and sustainable financing. The process begins with developing a national strategy that aligns with health priorities and addresses diagnostic service challenges. This strategy is formed through workshops engaging stakeholders from both sectors. Then, a comprehensive assessment of the diagnostic services landscape is conducted to identify gaps and opportunities for partnership.

Standardized agreements clearly define roles, responsibilities, and benefits for both sectors, promoting a structured and transparent partnership environment. Joint training programs enhance competencies, while partnership investments upgrade diagnostic infrastructure and technology. Moreover, Continuous Quality Improvement (CQI) practices ensure services adapt to changing healthcare needs. Knowledge exchange platforms and a strategic monitoring system with Key Performance Indicators (KPIs) facilitate evidence-based decision-making and continuous learning. Lastly, policy advocacy aligns national healthcare policies with effective PPPs in diagnostic services, promoting an environment conducive to innovation. By implementing these activities, a robust PPP framework can improve access and quality of diagnostic services on a national scale.

Key Intervention 1.5: Strengthening Financing Mechanisms for Diagnostic Services.

This strategic intervention aimed at enhancing financing mechanisms for diagnostic services that involves a holistic approach to ensure stable and sustainable funding. By collaborating with health insurance providers and international organizations to secure funding, a diverse range of financial streams will be introduced. This collaborative approach promotes financial resilience and stability for diagnostic services, leading to broader coverage, quality diagnostic service and improved overall financial governance. To improve the financial management and governance of diagnostic services, capacity-building initiatives play a crucial role and advocacy efforts also have a significant role in improving financing mechanisms. By actively advocating for the importance of diagnostic services in healthcare influence policymakers to allocate sufficient financial resources

Strategic Objective 2: Enhance the availability and accessibility of diagnostic services facilities, medical products and technologies.

Description: This strategic objective aimed to enhance the availability and accessibility of diagnostic services facilities, medical products, and technologies encompasses a comprehensive set of interventions. The focus is on standardizing infrastructure and facilities for diagnostic services by addressing various aspects of equipment and diagnostics kits management. This includes initiatives to improve the entire system involved in the selection, procurement, installation, acceptance testing, handling, transport, storage, usage, maintenance, conditioning, and disposal of equipment and diagnostics kits. This ensures a consistent and reliable flow of essential resources and supplies specifically used for diagnostic services. By implementing these interventions, the strategic plan aims to create a more standardized, efficient, and reliable infrastructure that supports diagnostic services. The ultimate goal is to enhance their accessibility and availability across the entire healthcare system.

Key Intervention 2.1: Standardize diagnostic services infrastructure and facilities

This strategic intervention aimed to standardize diagnostic services infrastructure and facilities that involves a series of key activities to create a quality environment across diagnostic centers. The development of standardized guidelines for diagnostic facilities is foundational to this effort. These guidelines provide a blueprint for creating facilities that meet specific standards, ensuring consistency and optimal functionality.

To begin the standardization process, an assessment of the current state of diagnostic center infrastructure will be conducted. This involves evaluating existing facilities, identifying gaps, and determining areas for improvement. Renovation efforts are then initiated for selected diagnostic centersto bring them up to the established standards. Equipping the centers with the necessary medical technologies, equipment, and diagnostics kits is a critical step in ensuring their functionality and effectiveness. Additionally, periodic facility and infrastructure maintenance activities are implemented to sustain the established standards over time.

Key Intervention 2.2: Improve the diagnostic services devices management.

The strategic objective is to enhance the management of diagnostic services devices through systematic and comprehensive activities. This includes developing a national framework for assessing device performance, establishing protocols for selection and acceptance testing, defining guidelines for handling and storage, implementing regular conditioning and calibration, and conducting incident tracking and audits. These measures aim to ensure compliance, efficiency, and reliability in the management of diagnostic devices, contributing to improved healthcare delivery.

Guidelines for handling and storage minimize the risk of damage or deterioration, while regular conditioning and calibration maintain optimal device performance. Incident tracking and audits enable proactive measures to address issues and continuously improve the device management system. Through these activities, the overall management of diagnostic services devices is strengthened, leading to enhanced healthcare outcomes.

Key Intervention 2.3: Establish a robust supply chain management for diagnostics service.

This intervention begins with regular assessment and monitoring of the existing supply chain system to evaluate its effectiveness, identify potential bottlenecks, and implement improvements in supply chain management of diagnostics. These contribute to the adaptability and resilience of the supply chain, ensuring it remains responsive to the dynamic needs of diagnostic services. This robust supply chain management of diagnostic supplies will be ensured through the following activities:

Strategic Objective 3: Improve diagnostic service delivery systems

Description: This strategic objective aims to establish Patient-centered and improve diagnostic service delivery system through implementing quality management systems. Additionally, skill and knowledge of diagnostic service providers would be enhanced through tailored capacity building program. Further, regulatory and standard accreditation systems would be enhanced to ensure quality compliance, accountability and continuous improvement. The goal is to ensure adherence to QMS to improve the accuracy and reliability of diagnostic services and ensure diagnostic services are accessible, affordable, and equitable for all and ultimately improve patient outcomes.

Key Intervention 3.1: Enhance the access and quality of central diagnostic services

The construction of a national diagnostics center consolidating laboratory, pathology, and radiology services under one roof represents a significant leap toward comprehensive diagnostic infrastructure. This centralized facility not only ensures convenient access for patients but also promote the collaborative diagnostic services. By combining these essential diagnostic elements in a single location, the national diagnostics center streamlines processes, facilitates interdisciplinary collaboration, and ultimately enhances the efficiency and effectiveness of diagnostic services. This integrated approach contributes to a more holistic healthcare system, promoting better patient outcomes and facilitating timely and accurate diagnoses.

To ensure the highest standards in diagnostic services, it is imperative to identify relevant quality standards and procedures. This involves a thorough examination of internationally recognized benchmarks for health facilities and diagnostic services. Subsequently, the development of a quality policy manual based on these standards establishes a framework for consistent excellence. Creating standardized operating procedures for selected diagnostic services ensures that protocols are clear, uniform, and aligned with international benchmarks. Implementing a safety manual further strengthens the commitment to patient well-being; promote a culture of safety within the diagnostic center. Regular diagnostics service quality assessments and audits, coupled with ongoing staff training on quality management principles, establish a foundation for continuous improvement. Through these measures, the national diagnostics center not only meets but exceeds international standards, providing a benchmark for quality healthcare services in the region

Key Intervention 3.2: Enhance the skills and knowledge of diagnostic service providers

This intervention focuses on the need for the production of a competent health workforce to ensure availability of quality and right number of diagnostic health service providers to meet the HRH needs of health sector considering the increment of ethnic, gender and geographic diversity of students through improved capacity of pre-service education. Moreover, this would be achieved through designing long term training program (PG-diploma, Msc, PhD)and implementing access to quality continuing professional development (CPD) that will help to maintain and upgrade the competency of diagnostic health service providers.

Key Intervention 3.3: Enhance the diagnostic services accreditation systems

Developing a robust accreditation plan is a fundamental step to ensuring the diagnostic service to meet recognized quality standards and promotes a culture of continuous improvement within the healthcare system in an organization. Further elevates the credibility of the healthcare facility. The implementation of quality standard measures, along with performance measurement and improvement strategies, ensures ongoing compliance with accreditation requirements. A proactive adherence to quality standards, addressing feedback and recommendations from accreditation bodies becomes an opportunity for reinforcement and optimization in pursuit of continuous enhancement in diagnostic healthcare service delivery.

Key Intervention 3.4: Strengthen the diagnostics service regulatory system

Promoting a unified commitment to regulatory compliance ensures that all stakeholders understand and actively participate in complying with regulatory requirements for an effective functioning of diagnostic services which is leading to a harmonized healthcare environment that prioritizes client safety, data security, and ethical practices. Enhancing regulatory awareness and enforcement provide further strengthens for regulatory framework within the diagnostic health service delivery sector. By enhancing awareness and enforcement, the diagnostic service units can proactively address challenges, alleviate risks, and create an environment where regulatory standards are met and continually upheld. Establishing a periodic recognition mechanism for diagnostics services with the regulatory leadership bodies further emphasizes the commitment to maintaining high standards. This recognition serves as a tangible acknowledgment of compliance efforts, motivating healthcare providers to consistently uphold regulatory requirements and continually improve their services.

Strategic Objective 4: Improve diagnostic services information systems.

Description: This strategic objective aims to create a seamless and interconnected ecosystem for diagnostic service information. It focuses on improving the ability of diagnostics service systems and facilities to share, exchange, and utilize diagnostic data effectively.. It enables remote consultation and diagnosis involves using digital technologies to provide diagnostic services to patients who are not physically present in the same location as the healthcare provider which helps to enhance access of the service to patients and increase quality results/ diagnosis. It also emphasizes on health research and development in diagnostic services aims to promote innovation, advancements, and effective utilization of research in the field of diagnostics. It seeks to improve patient care, reduce duplication of efforts and enable healthcare professionals to make well-informed decisions.

Key Intervention 4.1: Enhance data integration and interoperability of the diagnostics service information systems

The importance of the outlined activities lies in their collective impact on optimizing data management within the healthcare domain. The initial step is to identify current data integration challenges and system gaps, thus laying the groundwork for strategic decision-making. This understanding allows healthcare organizations to direct resources towards specific issues effectively, enhancing data interoperability and creating a cohesive healthcare information landscape. Concurrently, it's crucial to develop standardized data formats and communication protocols to create a unified, easily interpretable data structure. This simplifies the exchange of information between systems, mitigating the risk of misinterpretation and errors. Furthermore, these standardized formats enable seamless data integration, allowing healthcare professionals to access and share information consistently, leading to more accurate diagnostics and patient care.

The final step in enhancing data integration and interoperability involves implementing secure APIs and interfaces, coupled with a robust master data management strategy. These not only ensure the confidentiality, integrity, and accuracy of healthcare data but also align with privacy regulations and ethical standards. Reliable data exchange mechanisms are crucial for protecting patient information while a master data management strategy maintains the accuracy of essential data elements, fostering trust in the information used for decision-making. Together, these activities build a secure and modernized healthcare data ecosystem, promoting improved patient outcomes, and informed decision-making.

Key Intervention 4.2: Strengthen the remote consultation and diagnosis systems by leveraging digital(telecommunication) technologies.

Strengthening remote consultation and diagnosis systems through digital technologies is paramount in modernizing healthcare services. The assessment of existing digital infrastructure and telecommunication capabilities is foundational, offering insights crucial for the effective implementation of telemedicine solutions. By understanding the current state of digital infrastructure, healthcare organizations can identify strengths and weaknesses, allocate resources efficiently, and strategically plan for the integration of telehealth technologies. A robust digital foundation is essential for ensuring seamless and reliable remote diagnostic services, thereby enhancing accessibility and quality of care.

Identifying suitable telemedicine platforms and technologies is equally vital for enhancing diagnostic capabilities. The selection of appropriate tools enables healthcare providers to connect effectively with patients, share diagnostic information securely, and conduct remote consultations seamlessly. Considerations such as compatibility with existing systems, scalability, and user-friendly interfaces are pivotal in restructuring the adoption and utilization of telemedicine technologies among healthcare professionals and patients alike. Developing secure and user-friendly teleconsultation systems is essential for building trust and promoting widespread adoption, as healthcare professionals and patients are more likely to engage with intuitive and secure technologies.

Capacity building of healthcare professionals in using remote diagnostic tools is a key component in the successful implementation of telemedicine. Comprehensive training ensures proficiency in utilizing teleconsultation systems, interpreting diagnostic data remotely, and effectively communicating with patients. Continuous education and support are essential to keep healthcare professionals up-to-date with evolving telemedicine technologies, fostering a confident and skilled workforce. Ensuring compliance with privacy and data security regulations, promoting patient awareness and participation, monitoring service effectiveness, establishing transparent fee structures, and tracking patient satisfaction contribute to the ongoing success and acceptance of telemedicine solutions in the healthcare ecosystem.

Key Intervention 4.3: Advancing diagnostic capability through research and innovation

The outlined activities play a crucial role in advancing the field of diagnostic technology and services, contributing to both scientific progress and improved diagnostic service outcome. First and foremost, establishing partnerships with academic institutions and research organizations is essential for leveraging collective expertise; promote collaborative research, and ensuring that cutting-edge knowledge is integrated into diagnostic advancements. These partnerships create a synergy that accelerates the pace of innovation and promotes interdisciplinary approaches to solve complexdiagnostics.

Secondly, allocating funding for basic and applied research in diagnostic tools and technologies is very. Financial support provides the necessary resources for researchers to explore novel ideas, conduct experiments, and translate theoretical concepts into practical solutions. This funding ensures that the diagnostic field remains dynamic and responsive to emerging trends, enabling the development of moreaccurate, efficient, and accessible diagnostic tools that can ultimately enhance patient care.

The organization of workshops, conferences, and training sessions serves as a vital platform forknowledge exchange among researchers, experts, and professionals. These events facilitate the dissemination of the latest research findings, foster networking opportunities, and create an environment conducive to collaborative problem-solving. By promoting a culture of continuous learning and information-sharing, the diagnostic community stays informed about the latest developments, promote a collective intelligence that propels the field forward. Lastly, surveillance activities provide data-driven insights that guide decision-making, ensuring that research efforts are directed towards areas of greatest need.

CHAPTER 4

IMPLEMENTATION ARRANGEMENT

CHAPTER 4: IMPLEMENTATION ARRANGEMENT

This strategic plan describes the goals of the Diagnostic Service, which can be realized through collaborative efforts involving various actors within the health system. The success of this plan requires a concerted efforts, commitment, active involvement and accountability across relevant stakeholders. Hence, it is crucial to establish a clear framework outlining the specific mandates, roles, and responsibilities of each party involved. This framework should accommodate the unique working arrangements essential for implementing new initiatives under while considering the existing structures. Furthermore, the execution of this strategy will be integrated with the Health Sector Medium-term Plan and will be aligned with the objectives of the Sustainable Development Goals (SDGs).

Roles and responsibilities

Stakeholder	Roles and responsibilities
MoH	• Oversees overall implementation of the national diagnostic services strategy • Lead and coordinate national working groups, taskforces and advisory committees. • Ensure the integration and alignment of diagnostic services policies, legal frameworks, standards, guidelines, and training manuals. • Ensure equitable implementation of major interventions. • Enhance health information systems and promote local data utilization for informed decision making. • Establish robust supply chain and logistics management systems to ensure efficiency. • Coordinate quality assurance & capacity building activities. • Support and coordinate an implementation of research. • Conduct periodic surveys on diagnostic services related interventions. • Undertake continuous performance monitoring & evaluation. • Advocate for resource allocation and budgetary support from the government and partners at the national level. • Advocate for an accreditation system. • Organizing the documentation and expand best practices

EPHI	• Build capacity for the implementation of a health laboratory diagnostic accreditation system • Advocate the national diagnostics strategy to national and global communities. • Advocate for resource allocation, budgetary support, and the implementation of a diagnostic accreditation system • Develop a common harmonized platform for the implementation of the national diagnostics strategy under the direction of MOH • Coordinate and provide technical support for quality laboratory services. • Enroll laboratories in programs to strengthen laboratory management towards accreditation (SLMTA) and enable ISO 15189/17025 accreditation • Coordinate and conduct public health research at different tiers of the healthcare system • Build capacity for national external quality assurance programs and strengthen regional programs. • Monitoring and evaluation (M&E) activities related to laboratory services. • Provide in-service training for laboratory personnel and strengthen biosafety, biosecurity, and backup testing services to support clinical, public health, and emergency diagnostic services • Coordinate laboratory service expansions including public priority diseases • Standardize health laboratory testing menu at all tier levels • Standardize and coordinate implementation of the national EQA program. • Coordinate the implementation of all laboratory biosafety and biosecurity measures
RHBs	• Develop a regional level implementation plan and ensure activities are properly implemented in the region. • Allocate resources and build the capacity of diagnostic service in the region. • Conduct regularly supervise and provide timely feedback on the implementation of the strategy at zone, wereda & health facility levels. • Ensure the performance of continuous monitoring and evaluation activities. • Organizing the documentation and expand best practices • Periodically review the performance of diagnostic service strategic plan implementation

Regional public health institute/ Regional referral and reference laboratorial	• Resource mobilization • Build capacity for the implementation of a health laboratory diagnostic accreditation system in the regions • Provide referral and reference service • Adopt/develop and implement guidelines, manuals and forms for health laboratory • Strengthen health laboratory equipment management system in the region • Strengthen coordination and implementation of regional EQA schemes • Strengthen implementation of health laboratory Biosafety and biosecurity program • Coordinate health laboratory quality assurance and capacity building activities in the region • Provide technical support for quality laboratory services. • Strengthen laboratory quality management systems towards accreditation (SLMTA) and enable ISO 15189/17025 accreditation • Ensure laboratory service expansions including public priority diseases in the region • Coordinate and conduct public health research and survey at regional level • Monitoring and evaluation (M&E) • Provide in-service training for laboratory personnel
Health facilities	• Implement an access, quality and equitable diagnostic services as per the national facility standards. • Strengthen facility level data generating, data use and reporting to the higher levels. • Strengthen a functional system to improve institutional supply chain management. • Ensure adequate budget allocation for the diagnostic services. • Strengthen the existing system for regular preventive and corrective maintenance • Regularly monitor the diagnostic service inventory system.
EFDA	• Enforce strong adherence to local standards by private and public sectors. • Create conducive regulatory environment for both public and private facilities. Professional Societies • Ensure quality, safety, and efficacy/performance of medical products by developing science based regulatory tools • Conduct periodic post market diagnostic products quality assessment
Professional Societies	• Support continues professional development activities for the diagnostic services system. • Support the development of national protocols and treatment guidelines. • Advocate accreditation system
Partner organizations	• Provide technical and financial support toward the realization of the national diagnostic strategy. • Advocate the strategy to the national and global communities • Develop a common harmonized platform for implementation of the strategy.
Ethiopian pharmaceutical Supplies Service(EPSS)	• Strengthen National Pharmaceutical quantification • Strengthen an efficient coordination and communication with regional hubs & diagnostic service provision facilities. • Hire the right professional mi to address an essential diagnostic equipment, supplies and reagents. • Establish modern digital information system for administrating Pharmaceutical supplies.

Risk and Mitigation Plan

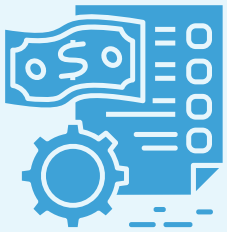
Risk	Mitigation Plan
Outbreak	• Collaborate with the Ethiopian Public Health Institute (EPHI) to create and regularly update protocols for diagnostics during disease outbreaks (e.g., COVID-19, cholera).
Market Inflation	• Negotiate contracts with local suppliers of laboratory materials to stabilize costs and reduce reliance on imports. • Purchase supplies of long shelf life in bulk. • Create a financial reserve specifically for handling unforeseen price increases in essential diagnostic materials.
Conflict	• Work with local and international agencies to enhance security for diagnostic facilities, especially in conflict-affected regions. • Enhance virtual communication channels and activate centralized referral service provision. • Enhance fast rehabilitation of diagnostic facilities for conflict affected areas.
Decreased Donor Support	• Seek partnerships with private sector entities, local businesses, and philanthropic organizations to reduce dependence on foreign aid. • Clearly articulate the impact of diagnostic services on public health outcomes to attract and retain donors. • Generate internal revenue
Changing Policy	• Stay updated on health policy changes at the national and regional levels • Engage with local health advocacy groups to influence policies that support diagnostic services and align with the Ethiopian health policy framework. • Build flexibility into the strategic plan to quickly adjust to new regulations or health policy shifts, ensuring continued compliance and relevance.

Sustainability

To ensure the sustainability of improved leadership and governance in diagnostic services, implementing comprehensive guidelines is essential. These guidelines will create a standardized approach across facilities, ensuring quality and efficiency in service delivery, while mitigating risks. Establishing diagnostic coordinating bodies at both national and sub-national levels will allow for ongoing oversight, adaptation, and strategic planning meeting local and national needs. Strengthening partnerships with key stakeholders, including private sector entities, is crucial; through public-private partnerships (PPPs), diagnostic services can diversify funding sources and attract investments that enhance infrastructure and technology. Moreover, financial stability can be fostered by improving financing mechanisms, such as engaging health insurance providers and international partners to provide continuous support for diagnostic services.

Sustainability in diagnostic services also depends on the availability and accessibility of essential resources, advanced infrastructure, and trained professionals. Standardizing diagnostic facilities and ensuring proper supply chain management will create a reliable flow of medical products and technologies, particularly in underserved areas. Developing accreditation and regulatory systems will reinforce quality standards, making diagnostic services more resilient. Furthermore, enhancing information systems through data integration and interoperability ensures efficient data management, while remote consultation capabilities broaden access to diagnostic services. By continuously investing in quality management, ongoing professional development, and regulatory adherence, diagnostic services can maintain high standards and adapt to evolving healthcare demands, providing a lasting positive impact on patient care.

CHAPTER 5



COSTING AND FINANCING ARRANGEMENT

CHAPTER 5: COSTING AND FINANCING ARRANGEMENT

Costing is a vital component of any strategic plan. It translates ambitious goals into a realistic roadmap by estimating the financial resources required to achieve them. This information is crucial for identifying potential funding gaps or highlighting areas where additional resources might be needed, and prioritization of initiatives based on their cost-effectiveness to ensure the plan focuses on activities that deliver the most significant impact for the allocated budget. Costing also fosters transparency and accountability, enabling stakeholders to track progress and assess the efficiency of resource utilization throughout the implementation of the national strategic plan.

5.1 Costing Method

The approach used to estimate the cost of implementing the national diagnostic strategic plan involves the use of program costing method. It primarily involves identification and quantification of the activities to be costed, determining and quantifying the type of specific inputs for implementing the activities and gathering unit costs from different sources.

The strategy is organized in four strategic objectives under which there are key intervention areas and activities that need to be accomplished to achieve the objectives. The activities were used costing units for the costing exercise of the strategy. There were 97 sub-activities to be costed under 15 main activities which might require different types of inputs for its execution, and hence, determining what inputs are needed was the next step. For the activities identified as costing units, the type and number of inputs required were then determined by the task force considering the realization of the strategic objectives through the execution of the activities. According to the nature of the inputs and methodological advantage, the inputs were categorized into the following groups: 1) Training and workshop; 2) Supervision; 3) Infrastructure construction; 4) Medical Equipment; 5) Facility Renovation; 6) Research and knowledge sharing; and 7) Other costs.

Unit costs for the different inputs were gathered from various sources, which include unit cost database available from the Strategic Affairs Executive Office (SAEO) where most of the unit costs were taken. In addition, standards and reports provided by the MOH and implementing partners were considered. If specific costs for items were not available, the costing data were drawn from an African regional or international source and noted as such in the costing tool. We have used a discounting rate of 3% and USD to ETB exchange rate of 56.

5.2 Costing summary of results

Based on the approach stated above, the total cost of implementing the national diagnostic strategic plan over the five years is estimated to be about USD 146.5 million. On average, this is equivalent to an average annual investment need of USD 29 million every year. The total cost of each year as well as the investment needs under each strategic objective are given in the table below.

Table 1: Total estimated cost under each strategic objective (USD)

Strategic Objective	2025	2026	2027	2028	2029	Total
SO1: Improve leadership and governance of the diagnostic services at all levels	4,617,677	4,756,208	4,898,894	5,045,861	5,197,236	24,515,875
SO2: Enhance the availability & accessibility of diagnostic service facilities, medical products & tech	9,861,227	10,157,063	10,461,775	10,775,628	11,098,897	52,354,591
So3: Improve Diagnostic service delivery system.	10,141,360	10,445,601	10,758,969	11,081,738	11,414,190	53,841,857
SO4: Improve Diagnostic service information system	2,983,342	3,072,842	3,165,028	3,259,979	3,357,778	15,838,969
Total cost (USD)	**27,603,606**	**28,431,714**	**29,284,665**	**30,163,205**	**31,068,102**	**146,551,292**

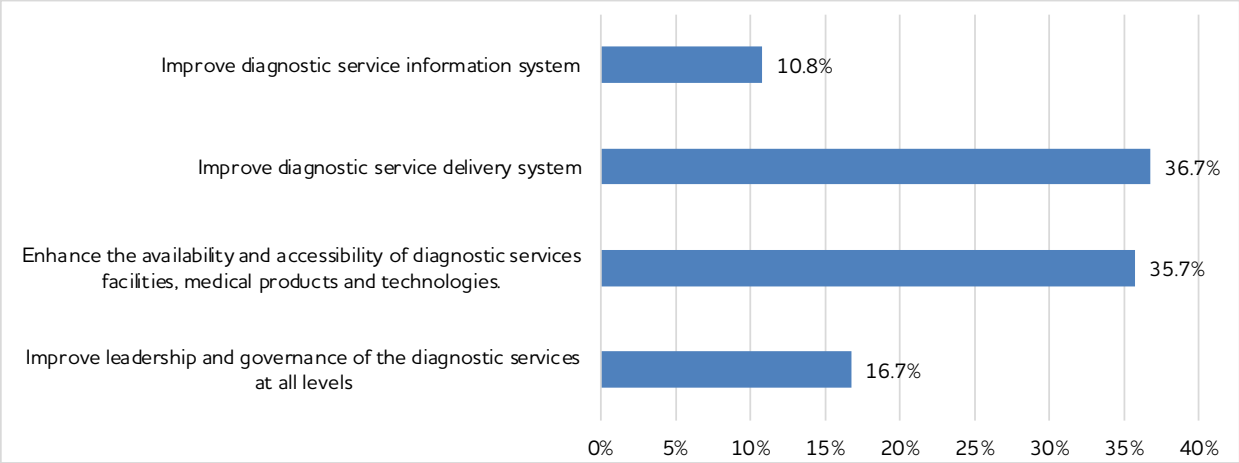


Figure: Distribution of total cost across strategic objectives

From the total cost, the strategic objective on 'Improve diagnostic services delivery systems' constitute the majority share – 36.7% while the 'Improve leadership and governance of the diagnostic services at all levels' constitute 35.7% of the total cost. The main cost driver of the improvement of the diagnostic service delivery system involves the establishment of a comprehensive diagnostic center focusing on delivering Radiology, Pathology and Laboratory services. The estimated costs are further disaggregated by the fifteen key intervention areas as shown in the table below.

Table 2: Cost breakdown by type of activity (USD)

#	Key Interventions	2025	2026	2027	2028	2029	Total
1	Access and quality of diagnostics Service	6,375,369	6,566,630	6,763,628	6,966,537	7,175,533	**33,847,697**
2	Develop and implement policies and guideline for diagnostic service	1,197,110	1,233,023	1,270,014	1,308,114	1,347,358	**6,355,620**
3	Diagnostic Services Devices Management	861,159	886,994	913,604	941,012	969,242	**4,572,010**
4	Enhance Data Integration and Interoperability	473,811	488,026	502,667	517,747	533,279	**2,515,529**
5	Enhance Diagnostic Services Accreditation Systems	1,020,404	1,051,016	1,082,547	1,115,023	1,148,474	**5,417,463**
6	Enhance financing mechanisms for diagnostic services	340,955	351,183	361,719	372,570	383,747	**1,810,174**
7	Enhance Skills and Knowledge of Healthcare Professionals	2,386,179	2,457,764	2,531,497	2,607,442	2,685,665	**12,668,546**
8	Establish coordinating bodies/units at national and subnational level	979,763	1,009,156	1,039,431	1,070,614	1,102,732	**5,201,696**
9	Establish Robust Supply Chain management	233,409	240,411	247,623	255,052	262,704	**1,239,199**
10	Promote public-private collaboration (PPC)	1,720,462	1,772,076	1,825,238	1,879,995	1,936,395	**9,134,165**
11	Research and Development	450,148	463,653	477,562	491,889	506,646	**2,389,899**
12	Standardize diagnostic service infrastructure and facility	8,766,659	9,029,658	9,300,548	9,579,565	9,866,952	**46,543,381**
13	Strengthen collaboration and coordination among crucial stakeholders	379,388	390,769	402,492	414,567	427,004	**2,014,221**
14	Strengthen Diagnostics Service Regulatory System	359,409	370,191	381,297	392,736	404,518	**1,908,151**
15	Strengthen the remote consultation and diagnosis systems by leveraging digital (telecommunication) technologies.	2,059,382	2,121,164	2,184,799	2,250,343	2,317,853	**10,933,540**
Total Cost (USD)		**27,603,606**	**28,431,714**	**29,284,665**	**30,163,205**	**31,068,102**	**146,551,292**

The estimated cost for each type of activity is also computed and presented as shown below. Infrastructure development, procurement and installation of medical equipment, and supervision are taking much of the cost – 30.3%, 25.3% and 24.7% respectively. On the other hand, R&D and other cost items category take less than 5% each of the total cost. This shows that the bulk of the required resources for implementing the strategy goes to highly capital-intensive investments which would have much long-term benefits.

Table: Summary of cost by type of cost category (USD)

Cost Breakdown	2025	2026	2027	2028	2029	Total
Training and Workshop	2,928,232	3,016,079	3,106,562	3,199,759	3,295,751	15,546,384
Supervision	6,817,720	7,022,251	7,232,919	7,449,906	7,673,403	36,196,199
Infrastructure	8,370,523	8,621,639	8,880,288	9,146,696	9,421,097	44,440,243
Medical Equipment	6,997,220	7,207,137	7,423,351	7,646,051	7,875,433	37,149,192
Renovation work	1,643,231	1,692,528	1,743,304	1,795,603	1,849,471	8,724,137
Research & Development	793,667	817,477	842,002	867,262	893,280	4,213,688
Other cost items	53,012	54,603	56,241	57,928	59,666	281,449
Total Cost	**27,603,606**	**28,431,714**	**29,284,665**	**30,163,205**	**31,068,102**	**146,551,292**

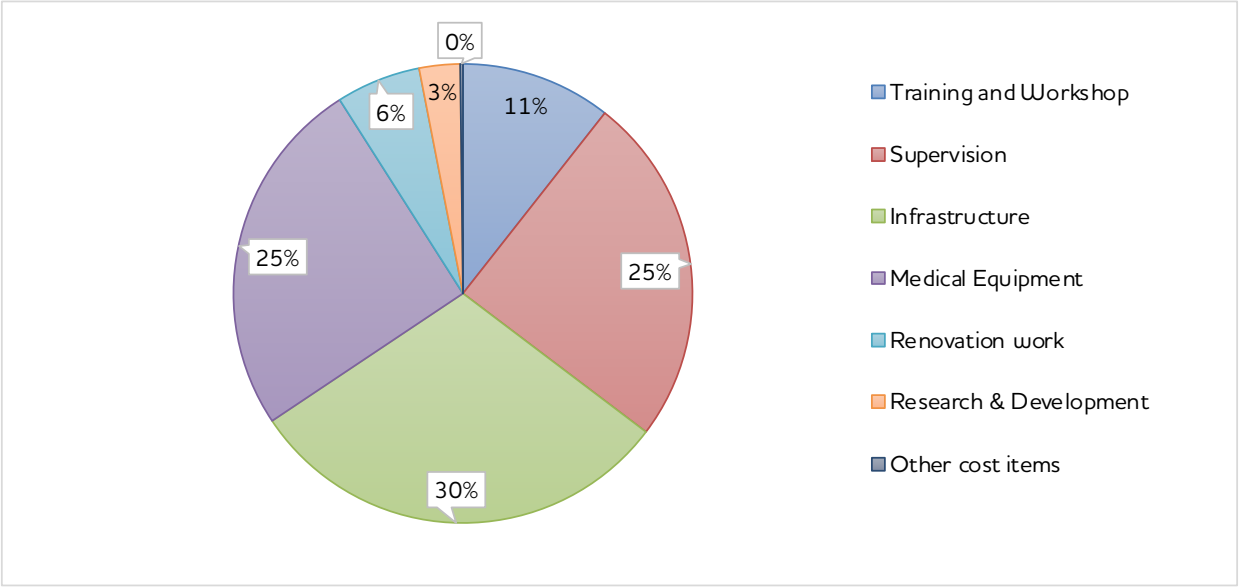


Figure: Distribution of the total cost under each type of cost category

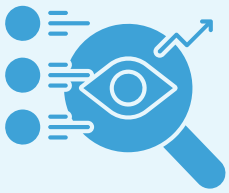
5.3 Proposed financing arrangement

Securing finance for the implantation of the strategy is very important. It is planned to leverage resources from federal and regional governments, development partner as well as public-private partnership (PPP). The proposed share of finance from each of these sources is given in the table below including the expected amount annually and the five-year period. The federal and regional governments option primarily targets budgetary allocations, while the development partner option can explore loans, grants, and concessional financing from donor agencies. Developing a strong proposal that clearly outlines the strategy's goals, potential impact, and cost-effectiveness is crucial for attracting financing. The PPP financing modalities shall be used to finance the supply and operation of medical equipment for the diagnostic center to be developed and shall be implemented as per the national PPP legal framework.

Table: Proposed financing arrangement

Source of Finance	Share	Expected Budget in 5-years (USD)	Expected Budget in 5-years (ETB)	Annual Expected Budget (USD)	Annual Expected Budget (ETB)
Federal Government	35%	50,781,584	2,792,987,099	10,156,317	558,597,420
Regional Government	15%	21,982,694	1,209,048,160	4,396,539	241,809,632
Development Partners	25%	36,637,823	2,015,080,266	7,327,565	403,016,053
Public Private Partnership (PPP)	25%	37,149,192	2,043,205,540	7,429,838	408,641,108
Total	**100%**	**146,551,292**	**8,060,321,065**	**29,310,258**	**1,612,064,213**

CHAPTER 6



MONITORING AND EVALUATION

CHAPTER 6: MONITORING AND EVALUATION

Monitoring and Evaluation (M&E) plays a fundamental role in ensuring the successful implementation of the diagnostics strategy. By systematically assessing leadership structures and governance mechanisms, the plan aims to identify and address areas for enhancement, thereby promoting more effective and efficient decision-making. Additionally, the M&E approach meticulously tracks the distribution of diagnostic facilities, medical products, and technologies, ensuring that patients have seamless access to essential services and resources when needed.

The M&E plan is dedicated to monitoring and evaluating service delivery systems to ensure they operate efficiently, provide timely services, and uphold high standards of quality, ultimately leading to improved patient outcomes. Furthermore, the M&E framework examines data collection, management, and dissemination processes to ensure the accuracy and utility of diagnostic information. the Ministry of Health strives to remain adaptable, responsive, and accountable, continuously enhancing diagnostic services for the benefit of patients and the overall healthcare system.

Monitoring and Evaluation Framework of NDSP

Principle →	Integration	Simplification	Standardization	Participatory	Continuity
Domain	Input	Process	Output	Outcome	Impact
Leadership and Governance	Diagnostic Financing Workforce Diagnostics Equipment, Reagents, Supply Diagnostics Infrastructure Information technology Guidelines and SOPs	PPP Capacity building Purchasing and inventory Community Engagements Innovations and Research Remote consultation Coordination and collaboration Mentorship Review meeting	Availability of essentials diagnostics service improved Resilient diagnostics service Demand for diagnostics service increased	Coverage of quality diagnostics service improved Financial risk protection improved Health life style improved Health system responsiveness enhanced	Improved Health Status
Data source	Routine health information system, HMIS, LIS, RIS, MEMS, Facility Assessment, SPA, SARA			HMIS, Facility based Survey, Research	
Data Analysis	Data quality assurance: Triangulation with different source; Comparison of performance against bench mark (National and international standard and commitment)				
Communication and Use	Regular reporting: by performance monitoring team regional and national level, JSC, ARM and Other forum, end Evaluation, Global reporting share information product via different plat form				

Figure 2: NDSP Monitoring and Evaluation Framework adopted from HSTP II M&E framework

Table 4: Performance Measurement Indicators

No	Indicators	Indicator Measure	Data source	Frequency of data collection	Bassline	Y1	Y2	Y3	Y4	Y5
1	Percentage of test within Average Turn Around Time (TAT)	Quality	HMIS	Quarterly	-	10%	15%	20%	25%	30%
2	Diagnostics Staff Satisfaction	Quality	HMIS	Quarterly	-	10%	15%	20%	25%	30%
3	Client satisfaction	Quality	HMIS	Quarterly	-	10%	15%	20%	25%	30%
4	Pathologist productivity	Access & Equity	HMIS	Monthly	-	10%	15%	20%	25%	30%
5	Radiologist productivity	Access & Equity	HMIS	Monthly	-	10%	15%	20%	25%	30%
6	Radiology Service Availability	Access & Equity	HMIS	Monthly	-	10%	15%	20%	25%	30%
7	Pathology Service Availability	Access & Equity	HMIS	Monthly	-	10%	15%	20%	25%	30%
8	Essential Laboratory Testing Availability	Access & Equity	HMIS	Monthly	54%	60%	75%	85%	90%	95%
9	Percent of accredited health facilities	Quality	HMIS	Quarterly	-	10%	15%	20%	25%	30%
10	Laboratory chapter Average in HSIG	Quality	HMIS	Quarterly	68%	75%	80%	85%	90%	95%
11	Specialty chapter Average in HSIG	Quality	HMIS	Quarterly	-	10%	15%	20%	25%	30%
12	Number of public-private partnerships established	Equity	Report	Yearly	-	5%	10%	15%	20%	25%
13	Diagnostic service coordinating bodies established	Equity	Report	Yearly	-	2	5	10	14	14
14	Inpatient mortality rate	Quality	Report	Monthly	1.04	< 2	< 2	< 2	< 2	< 2
15	Emergency mortality rate	Quality	Report	Monthly	0.2	0.18	0.16	0.15	0.14	0.13
16	Stock-outs of essential diagnostic supplies	Access & Equity	Survey Report	Quarterly	-	5%	10%	15%	20%	25%
17	Percentage of diagnostic information systems integrated and interoperable	Access & Equity	Report	Yearly	-	5%	10%	15%	20%	25%
18	Number of remote consultation and diagnosis systems established and operational	Access & Equity	Report	Yearly	-	5%	10%	15%	20%	25%
19	Number of research and development initiatives focused on improving diagnostic services	Quality	Report	Yearly	-	5%	10%	15%	20%	25%
20	Proportion of healthcare professionals trained in diagnostics	Quality	Report	Yearly	-	5%	10%	15%	20%	25%

Remark:

1. **Baseline Data** – Most indicators lack baseline data *(e.g., client satisfaction, staff satisfaction, TAT compliance)*. If available, it would be beneficial to set a realistic starting point.
2. **Incremental Growth** – The progression of some indicators seems uniform *(e.g., 5%, 10%, 15%, 20 %...)*.
3. **Alignment with Strategic Goals** – Ensure that targets for equity, quality, and access align with broader national health objectives.
4. **Verification Methods** – While HMIS and reports are primary sources, periodic audits or independent evaluations might strengthen reliability.

Performance Monitoring and Reporting Mechanism

The main source of data for performance reporting in national facilities comes from audits conducted by the Performance Monitoring Team (PMT) and the quality department or unit at healthcare facilities. These audits utilize both existing and supplementary audit methods, such as Lot Quality Assurance Sampling (LQAS) and Routine Data Quality Assessment (RDQA). This comprehensive approach ensures thorough data collection and reliability.

After conducting the audits, the PMT provides written feedback to all service units based on the findings. This feedback is designed to address any discrepancies and suggest improvements, fostering a culture of continuous quality enhancement within the healthcare facilities. Such feedback mechanisms are vital for maintaining high standards in diagnostic services.

This reporting structure ensures a standardized, centralized, and efficient flow of performance data from healthcare facilities to the Federal Ministry of Health (FMOH) through District Health Information Software 2 (DHIS2). Facilities submit routine reports and supplementary data, including surveys, via DHIS2, allowing for real-time monitoring, data-driven decision-making, and improved health service planning. The existing structures at various administrative levels compile, review, and validate the reports before forwarding them to FMOH, ensuring data accuracy, consistency, and alignment with national health priorities. This system enhances transparency, accountability, and evidence-based policy implementation across Ethiopia's healthcare sector.

At the federal level, the FMOH analyzes the compiled data to monitor and improve national performance. This structured flow of information from facility to regional and then to federal levels ensures a robust and systematic approach to overseeing and enhancing diagnostic services across the country. Through regular audits, comprehensive data collection, and structured feedback, the performance reporting mechanism aims to ensure diagnostic accuracy and service quality in all healthcare facilities.

Table 5: The strategic goals, proposed intervention, and associated activities within timeframe from 2025 to 2029

Objective 1: Improve leadership and governance of the diagnostic services at all levels									
Intervention (Key activities)	Detail Activity	Targets	Performance Indicators	Funding Source and Approx	Y1	Y2	Y3	Y4	Y5
Develop and implement comprehensive guidelines for diagnostic services.	1.1 Conduct landscape assessment		Completion of assessment report	MOH, Partner					
	1.2 Develop comprehensive service guideline diagnostics service: addressing quality, safety and accessibility		Completed guidelines developed	MOH, Partner					
	1.3 Establish mechanisms for implementation, monitoring and corrective actions		Number of monitoring and evaluation report, corrective action	MOH, Partner					
Strengthen collaboration and coordination with key stakeholders.	2.1 Establish National Diagnostics Advisory Committee (NAC) at National and TWG at Regions level		NAC and TWG members appointed; number of meetings held	MOH, Partner					
	2.2 Stakeholder Engagement and Management (Conduct stakeholder mapping and identify priority area of collaboration)		Stakeholder map created; number of engagement sessions conducted	MOH, Partner					
	2.3 Establish Regular communication channel (Meeting, Fourm, digital platform)		Number of communication channels established; frequency of updates	MOH, Partner					
	2.4 Develop a collaborative and joint annual plan.		Annual plan developed; stakeholder sign-offs	MOH, Partner					
	2.5 Organize knowledge sharing and transfer sessions.		Number of knowledge-sharing sessions conducted documents created	MOH, Partner					
Establish diagnostic service coordinating body/units at national and subnational levels.	3.1 Establish the national and Regional diagnostic service case team		Teams established at national and regional levels	MOH, Partner					
	3.2 Arrange capacity building to coordinating body professionals to enhance skill in the area of leadership, collaboration etc		Number of training sessions conducted	MOH, Partner					
	3.3 Establish system for periodic review and evaluation to diagnostic service in regional level		Review and evaluation system implemented	MOH, Partner					
	3.4 Regular review and Evaluation to assess performance or effectiveness to regional coordinating unit or body		Number of performance reviews conducted	MOH, Partner					

Promote public-private partnerships	4.1 Assess the existing public private collaboration system		Assessment report; recommendations for improvement	MOH, Partner					
	4.2 Continue the technical Support of the Pilot Integrated Diagnostic Service Center (IDSC) Established in St Peter Hospital	Technical support reports; performance improvement of IDSC	MOH, Partner						
	4.3 Promote the benefits of PPPs to stakeholders	Number of promotional events conducted	MOH, Partner						
	4.4 Scale up implementation of the Pilot IDSC project Federal and University Hospitals	Number of new IDSCs established; service utilization rates	MOH, Partner						
	4.5 Monitoring and Evaluation diagnostic Services implemented through Public Private Partnership	Monitoring and evaluation reports; PPP performance metrics	MOH, Partner						
Enhance diagnostic services financing mechanisms	5.1 Advocacy to increase diagnostic service budget allocation	Budget allocation changes; advocacy event records	MOH, Partner						
	5.2 Resource mobilization initiative both domestic and international organizations (Grant solicitation, social response cooperation, etc.)	Amount of resources mobilized; number of partnerships formed	MOH, Partner						
	5.3 Strengthen and collaborate with health insurance providers to expand coverage for diagnostic services	Number of insurance providers collaborated with; increase in diagnostic service coverage	MOH, Partner						
	5.4 Explore collaboration with international organizations for funding, grants	Number of collaborations formed; amount of funding secured							
	5.5 Provide capacity-building initiatives how to compete funding, grants	Number of training sessions held; participant feedback and outcomes	MOH, Partner						
	5.6 Strengthen system for proper and efficient utilization of diagnostics resource	Utilization rates; resource management efficiency metrics	MOH, Partner						

Objective 2: Enhance the availability and accessibility of diagnostic services facilities medical products and technologies									
Intervention (Key activities)	Detail Activity	Targets	Performance Indicators	Funding Source and Approx	Y1	Y2	Y3	Y4	Y5
Standardize diagnostic services infrastructure and facilities.	6.1 Develop standardized floor design guidelines for diagnostic facilities		Number of guidelines developed; stakeholder approval and dissemination	MOH, Partner					
	6.2 Assess the current state of diagnostic center infrastructure		Assessment report; number of centers assessed.	MOH, Partner					
	6.3 Renovations for selected diagnostic centers to meet standards		Number of centers renovated; compliance with standards	MOH, Partner					
	6.4 Equip diagnostics facilities with necessary medical technologies and furniture		Number of facilities equipped; equipment and furniture utilization rates	MOH, Partner					
	6.5 Periodic facility and infrastructure maintenance activity		Frequency of facility monitoring and maintenance activities	MOH, Partner					
Improve the system for the selection, procurement, transport, storage, installation, acceptance, handling, use, maintenance and disposal and replacement of equipment.	7.1 Develop national frame work to assess Medical Equipment Performance or efficiency		Framework developed; stakeholder approval and dissemination	MOH, Partner					
	7.2 Check performance of Medical Equipment efficiency and reliability using developed national frame work		Number of performance checks conducted; equipment performance improvement metrics	MOH, Partner					
	7.3 Develop protocol for medical equipment selection (To use additional Specification to get best diagnostics equipment's from the above)		Protocol developed; number of equipment selections based on protocol	MOH, Partner					
	7.4 Capacity building on installation and acceptance testing, regular audit, safety and operation of diagnostics equipment's		Number of training sessions conducted; participant skill assessments	MOH, Partner					
	7.5 Establish guidelines for equipment handling, transport, and storage diagnostics service		Guidelines developed; stakeholder approval and dissemination	MOH, Partner					
	7.6 Assess the current calibration system of diagnostics medical equipment's		Assessment report; recommendations for improvement						

	7.7 Establish system and practice (SOP) for regular diagnostics equipment maintenance, conditioning and calibration.		SOP developed; compliance with SOP	MOH, Partner					
	7.8 Track incidents of equipment malfunction or deterioration diagnostics equipment's		Number of incidents tracked; incident resolution metrics	MOH, Partner					
	7.9 Conduct regular audits of the diagnostics equipment management system		Number of audits conducted; audit findings and resolutions	MOH, Partner					
	7.10 Monitor compliance with equipment management guideline and procedures including (MEMIS)		Compliance rates; number of corrective actions taken	MOH, Partner					
Strengthen a robust supply chain management system to ensure a consistent and reliable flow of essential resources and supplies used for diagnostics service.	8.1 Implement electronic logistics and inventory management		System implemented; inventory accuracy rates	MOH, Partner					
	8.2 Conduct regular assessments on supply chain system		Assessment reports; supply chain performance improvement metrics	MOH, Partner					
	8.3 Implement mechanisms to detect and address supply chain disruptions		Number of disruptions detected and resolved; system response time	MOH, Partner					
	8.4 Strengthening inventory management system (provide Laboratory Commodity management, IPLS training)		Inventory management performance metrics; training session records	MOH, Partner					
	8.5 Support diagnostics service by diagnostics reagents and consumable		Availability of reagents and consumables; service utilization rates	MOH, Partner					

Strategic Objective 3: Improve diagnostic service delivery systems									
Key Intervention (Key activities)	Detail Activity	Target	Performance Indicators	Funding Source and Approx	Y1	Y2	Y3	Y4	Y5
Enhance the access and quality of diagnostic services.	9.1 Construct a national diagnostics center, (laboratory, pathology, radiology, and Nuclear diagnostic center)		Construction progress; center operational status	MOH, Partner					
	9.2 Establish PT production center and promote the national EQA program.		Center established; number of EQA program participants	MOH, Partner					
	9.3 Establish a comprehensive functional network and communication systems among diagnostic facilities.		Network established; communication frequency and effectiveness metrics	MOH, Partner					
	9.4 Identify relevant quality standards and procedures for diagnostic services		Standards and procedures identified; stakeholder approval and dissemination	MOH, Partner					
	9.5 Develop a quality policy manual based on international standard for Health Facilities		Manual developed; stakeholder approval and dissemination	MOH, Partner					
	9.6 Create a protocol to develop standardized operating procedures for diagnostic service		Protocol developed; number of SOPs created and implemented	MOH, Partner					
	9.7 Develop Diagnostic quality management system implementation score card.		Scorecard developed; number of facilities using the scorecard	MOH, Partner					
	9.8 Provide Training on Diagnostic quality management system		Number of training sessions held; participant feedback and outcomes	MOH, Partner					
	9.9 Promote Self regular quality audits and performance assessments		Number of audits conducted; audit findings and resolutions	MOH, Partner					
	9.10 Establish a system for continuous quality improvement (QIP)		System established; number of QIP initiatives implemented	MOH, Partner					
	9.11 Collect and analyze data on quality metrics and outcome and Review and update quality management systems		Quality data collected and analyzed; quality improvement actions taken						
	9.12 Monitor adherence to standardized procedures and quality policy manual		Adherence rates; number of corrective actions taken						

Enhance the skill and knowledge of healthcare professionals involved in diagnostics through education and training programs	10.1 Conduct health care professionals education needs assessment to determine type, mix and number of healthcare students for diagnostic health service		Needs assessment report; number of professionals assessed	MOH, Partner					
	10.2 Conduct a thorough needs assessment to identify the specific knowledge and skill gaps among the diagnostic health service providers and determine the priority areas for CPD		Needs assessment report; number of professionals assessed	MOH, Partner					
	10.3 Develop training programs and curricula for health care professionals engaged in diagnostic service		Training programs and curricula developed; stakeholder approval and dissemination						
	10.4 Conduct workshops, seminars, and online courses		Number of workshops, seminars, and courses conducted; participant feedback	MOH, Partner					
	10.5 Provide hands-on training and simulation exercises		Number of training sessions held; participant skill assessments	MOH, Partner					
	10.6 Promote peer-to-peer learning and case discussions		Number of peer-to-peer sessions held; participant feedback	MOH, Partner					
	10.7 Facilitate long term training based on gap of need assessment in healthcare diagnostics education programs		Number of training programs conducted; participant skill assessments	MOH, Partner					
	10.8 Leverage technology to deliver CPD programs through online platforms, webinars, and e-learning modules, Making professional development opportunities accessible to a wider audience, including those in remote areas.		Number of online CPD programs delivered; participant feedback	MOH, Partner					
	10.9 Facilitate the designing and developing of CPD programs that are tailored to address recent evidence changes and identified skill gaps on health care diagnostic service providers,		Number of CPD programs developed; participant feedback and outcomes						

Enhance the diagnostic services accreditation systems	11.1 Develop an accreditation plan		Accreditation plan developed; stakeholder approval and dissemination	MOH, Partner					
	11.2 Conduct diagnostic accreditation baseline assessment		Baseline assessment report; number of facilities assessed	MOH, Partner					
	11.3 Awareness creation workshop for stakeholders		Number of workshops conducted; stakeholder feedback	MOH, Partner					
	11.4 Mentor and technically support health diagnostics for limited and full scope accreditation to pertinent National/international standards		Number of facilities mentored; accreditation	MOH, Partner					
	11.5 Prepare annual accreditation recognition forum		Forum conducted; number of participants	MOH, Partner					
	11.6 Mentor and technically support diagnostics to maintain their accreditation status		Number of facilities supported; accreditation maintenance status	MOH, Partner					
	11.7 Support diagnostic continuous quality improvement project		Number of CQI projects supported; project outcomes	MOH, Partner					
	11.8 Update and distribute diagnostic service national quality manual and standard operating procedures (SOPs)		Updated manual and SOPs distributed; number of facilities using them	MOH, Partner					
	11.9 Establish robust feedback and complaints handling mechanism		Feedback and complaints handling system established; number of feedbacks and complaints addressed	MOH, Partner					
	11.10 Implement a transparent system for sharing quality performance data with the public		System implemented; number of quality performance data shares	MOH, Partner					
	11.11 Regularly review and update quality standards and protocols to reflect advancements and best practices		Number of updates conducted; stakeholder approval and dissemination	MOH, Partner					
Strengthen the diagnostics service regulatory system	12.1 Promote unified commitment to regulatory compliance through awareness creation, inspection and enforcement		HR development plan created; stakeholder approval and dissemination	MOH, Partner					
	12.2 Implement regulatory and legal frameworks for diagnostic that possess, use, and transfer of hazardous pathogens and toxins		Number of professionals recruited, retained, and deployed; retention and deployment effectiveness metrics	MOH, Partner					
	12.3 Provide capacity building on Biosafety and Biosecurity infrastructure for diagnostic facilities		HR needs assessment reports; number of assessments conducted	MOH, Partner					
	12.4 Conduct bio-risk assessment across all diagnostic facility		Number of recruitment initiatives conducted; gap filling effectiveness	MOH, Partner					
	12.5 Establish and implement diagnostic service standard		Number of retention initiatives implemented; retention rates	MOH, Partner					
	12.6 Promote health facilities to request licensing and consider regulatory feedback during EHAQ 4th cycle implementation		Number of training and development programs conducted; participant feedback and outcomes	MOH, Partner					

Strategic Objective 4: Improve diagnostic services information systems									
Key Intervention (Key activities)	Detail Activity	Targets	Performance Indicators	Funding Source and Approx	Y1	Y2	Y3	Y4	Y5
Enhance data integration and interoperability of the diagnostics service information systems	13.1 Conduct gap assessment on EMR/DIS Implementation process and software application		Number of gaps identified in the EMR/DIS implementation process	MOH, Partner					
	13.2 Awareness creation for users DIS		Percentage of users who attend awareness sessions	MOH, Partner					
	13.3 Conduct site readiness assessment and selection for DIS//LIS Installation		Number of sites selected for DIS/LIS installation based on readiness assessment	MOH, Partner					
	13.4 Undertake DIS/LIS software Deployment/ Installation and operationalization activities In EMR		Number of sites where DIS/LIS software is installed and operational	MOH, Partner					
	13.5 Establishing to generate analytics indicators		Number of analytics indicators established and available	MOH, Partner					
	13.6 Procurement of Supplies for the LIS Expansion		Percentage of required supplies procured	MOH, Partner					
	13.7 Conduct DIS/LIS supper user training for LIS installed sites		Number of super users trained	MOH, Partner					
	13.8 Conduct DIS/LIS supportive supervision and technical support		Percentage of sites receiving supportive supervision and technical support	MOH, Partner					
	13.9 Conduct Consultative Workshop on review and evaluation of DIS/LIS		Availability of a detailed review and evaluation report post-workshop	MOH, Partner					

Strengthen research and development of diagnostic services	14.1 Identify research priority/green area in diagnostics service		Number of research priorities/green areas identified	MOH, Partner					
	14.2 Allocate funding for operational research in the field of diagnostic tools and technologies		Total amount of funding allocated for operational research	MOH, Partner					
	14.3 Conduct seminars, training and sessions on how to work research		Number of participants attending seminars, training, and sessions	MOH, Partner					
	14.4 Conduct operational research with academic institution on innovative diagnostic technology and Methodology		Number of collaborative research projects initiated						
	14.5 Organize workshops and conferences to facilitate knowledge sharing among researchers and experts.		Number of knowledge sharing sessions conducted						
	14.6 Conduct different surveillances on 10 top disease transmission		Frequency and timeliness of surveillance reports						
	14.7 Organize QI grants support and promote innovation ideas		Number of Quality Improvement (QI) grants awarded						
Strengthen the remote consultation and diagnosis systems by leveraging digital (telecommunication) technologies.	15.1 Assess existing digital infrastructure and telecommunication capabilities		Percentage of healthcare facilities where digital infrastructure and telecommunication capabilities have been assessed	MOH, Partner					
	15.2 Identify suitable telemedicine platforms and technologies		Number of suitable telemedicine platforms and technologies identified	MOH, Partner					
	15.3 Train healthcare professionals in using remote diagnostic tools		Number of healthcare professionals trained	MOH, Partner					
	15.4 Ensure compliance with privacy and data security regulations		Percentage of telemedicine platforms compliant with privacy and data security regulations	MOH, Partner					
	15.5 Promote patient awareness and participation in remote consultations		Percentage of patients participating in remote consultations	MOH, Partner					
	15.6 Establishing framework service fee provision protocol for remote consultation		Availability of a service fee provision protocol for remote consultation						
	15.7 Monitor and evaluate the usage and effectiveness of teleconsultation services		Number of teleconsultations conducted	MOH, Partner					

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3. Federal Ministry of Health (FMOH) and Ethiopian Public Health Institute (EPHI) SARA [Service Availability and Readiness Assessment]. Annual Report 2016/17. Addis Ababa, Ethiopia: FMOH and EPHI; 2017.

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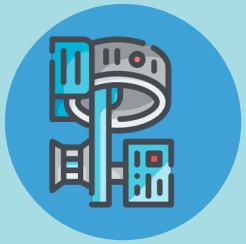
NATIONAL DIAGNOSTICS STRATEGIC PLAN



Medical Service Lead Executive Office