



Ministry of Health

KENYA

PEN-Plus NATIONAL

OPERATIONAL PLAN

2025/26 - 2030/31



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Foreword

The Kenyan Health Sector is instrumental in ensuring the delivery of healthcare services in alignment with the commitments of the Kenya Health Policy 2014-2030. This policy aspires to achieve the highest standards of healthcare, guided by the Kenyan Constitution 2010 and tailored to the population's needs. A key government strategy is prioritizing universal health coverage ensuring access to care regardless of individuals' conditions or socio-economic status. This involves strengthening primary healthcare and shifting the emphasis from curative to preventive and promotive services. Non-communicable diseases (NCDs) have been prioritized within these initiatives, reflecting a necessary change in focus.

Non-communicable diseases (NCDs) are a leading cause of mortality, responsible for 74% of deaths globally. In Kenya, NCDs constitute 38% of all deaths, with this burden expected to increase due to rising exposure to risk factors. Kenya has made a firm commitment to attain the UN 2030 Sustainable Development Goals, particularly the target of reducing premature mortality from NCDs by one-third. In response, the Ministry of Health developed the National Strategic Plan for the Prevention and Control of Non-Communicable Diseases 2021/22-2025/26 as the guiding framework for policy and programmatic interventions to achieve this objective.

It's important to note that while significant efforts have been made to manage common NCDs like diabetes and hypertension, there's a pressing need to address the more severe NCDs that disproportionately affect the young and vulnerable lower socio-economic populations. Kenya's commitment to implementing the PEN-Plus strategy, adopted by WHO Afro member states in 2022, is a reassuring sign of the country's dedication to alleviating the burden of severe unaddressed NCDs. Thus, the inaugural development of the National Operational Plan for PEN-Plus serves as a significant milestone to guide the implementation and scale-up of PEN-Plus in the country.

PEN-Plus is crucial in aligning with the government's Universal Health Coverage (UHC) agenda by prioritizing severe NCDs affecting vulnerable populations. It facilitates capacity building among healthcare providers, particularly middle-level professionals such as nurses and clinical officers, enhancing their skills in screening, managing, and referring severe NCD cases. Moreover, PEN-Plus establishes a framework for creating and equipping comprehensive care centers for severe NCD management. The strategy also supports surveillance and outreach efforts, ensuring up-to-date data collection to inform evidence-based decision-making

The development and implementation of this national operational plan is crucial for strengthening the health system to support PEN-Plus scale up in the country. It outlines the policy and programmatic requirements needed for successful implementation, including resource mobilization. This plan will serve as a comprehensive guide for all stakeholders involved in the prevention and control of severe NCDs, aiming to reduce suffering and mortality and promote health equity by improving the well-being of the young and vulnerable.

We call upon all stakeholders and development partners to support the implementation of this operational plan to achieve our shared goals and targets.



Hon. Aden Duale, EGH

Cabinet Secretary

Ministry of Health

Acknowledgment

The successful development of the PEN-Plus national operational plan is a testament to the unwavering support, hard work, and dedication of a committed team drawn from various departments and institutions both within and beyond the health sector. This process was highly participatory and consultative, benefiting from the immense contributions of numerous partners and stakeholders. The Ministry of Health deeply appreciates the contributions, commitment, and both technical and financial support from all involved stakeholders.

We extend our heartfelt thanks to the leadership of the Ministry of Health, particularly the Office of the Cabinet Secretary, Principal Secretary, Director General, and the Director of the Directorate of Family Health. Their guidance and steadfast support were instrumental in the successful development of this action plan.

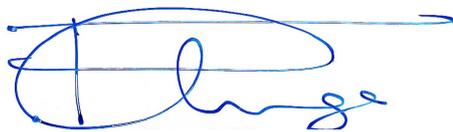
Special recognition goes to the technical team from the Ministry of Health, whose tireless efforts ensured the successful completion of this process. We particularly acknowledge the Division of Non-communicable Diseases for providing strategic leadership led by Dr. Gladwell Gathecha, Dr. Elizabeth Onyango, and the Ministry's focal person for PEN-Plus implementation, Dr. Yvette Kisaka. We also recognize the invaluable contributions from representatives of the Divisions of Health Financing, Clinical Services, Health Products and Technologies, Newborn and Child Health, and Adolescent Health, among others.

We offer special recognition to the NCDI Poverty Network for their technical and financial support in developing this document and for spearheading the implementation of PEN-Plus in Kenya. We also thank the NCD Alliance of Kenya, led by Executive Director Dr. Catherine Karekezi, for their immense support.

Special thanks to the World Health Organization (WHO) Afro for the technical and financial support.

We extend our gratitude to the county governments and the experts from public, private, and faith-based institutions, including PATH, Kenya Red Cross, and Medtronic Labs. We especially acknowledge Futures Health Economics and Metrics (F.H.E.M) led by Dr David Njuguna, for their essential role in providing a comprehensive costing of the plan. Your contributions were crucial to the success of this initiative.

The success of this collaborative effort underscores our collective commitment to advancing care for severe non-communicable diseases and the effective implementation of PEN-Plus. We acknowledge and deeply appreciate the dedication and support of each individual and organization involved in this significant undertaking.



Dr. Ouma Oluga, OGW

Principal Secretary

State Department for Medical Services

Executive Summary

PEN-Plus is a WHO-recommended strategy designed to strengthen service delivery for severe chronic non-communicable diseases (NCDs) such as type 1 diabetes, sickle cell disease, and advanced rheumatic heart disease at first-level referral facilities in low-resource settings. It focuses on decentralizing care to rural and underserved areas by training mid-level healthcare providers to deliver integrated, high-quality services including diagnosis, treatment, and long-term follow-up. Kenya is currently piloting the PEN-Plus model in Isiolo and Vihiga counties as part of efforts to enhance equitable access to NCD care and reduce premature mortality.

The plan is organized into six main chapters. Chapter one introduces PEN-Plus, focusing on its mission to address severe non-communicable diseases (NCDs) primarily affecting children and young adults. It outlines the implementation framework at first-level referral facilities and provides an overview of the epidemiology of severe NCDs at global, regional, and national levels. The chapter also highlights existing global and national commitments, legislation, and policies on which the plan is grounded. It also sets national and regional targets for severe NCDs and details the plan's vision and five main objectives: (1) to describe the PEN-Plus program design, objectives, and core elements, (2) to set goals and targets for national and sub-national scale-up, (3) to outline policy and programmatic requirements for scaling up, (4) to estimate expected outcomes and impacts from the scale-up, and (5) to quantify the resources required for implementation.

Chapter two details the comprehensive structure of the national PEN-Plus program. It describes the range of diseases the program addresses, including Type 1 diabetes, sickle cell disease, cardiovascular conditions (such as congenital heart disease, rheumatic heart disease, and severe hypertension), and respiratory conditions (including asthma and chronic obstructive pulmonary disease). This chapter outlines the PEN-Plus service package for these conditions, covering aspects from screening and diagnosis to treatment. It also specifies the minimum staffing requirements for establishing a PEN-Plus clinic. Additionally, the chapter recounts Kenya's experience with PEN-Plus, detailing the planning and launch of pilot sites and providing an update on case distribution during the first five months of implementation.

Chapter three outlines the pillars for effective PEN-Plus implementation, emphasizing the need to strengthen the entire health system. The pillars include:

- Leadership and Governance,
- Human Resources for Health,
- Service Delivery,
- Health Finance,
- Health Products and Technologies,
- Advocacy,
- Communication and Social Mobilization, and
- Surveillance and Research.

Each pillar is detailed with its objectives, strategies, and key activities.

Chapter four describes the implementation roadmap for PEN-Plus, identifying key stakeholders and their responsibilities. It provides a framework for scaling up the program through a phased approach and outlines criteria for onboarding counties in different phases. The plan also presents the Monitoring, Evaluation, Accountability, and Learning (MEAL) framework, which is crucial for assessing the effectiveness and sustainability of the program in Chapter five. This section includes impact and outcome indicators, monitoring approaches, reporting frequency, and evaluation methods. It also specifies the monitoring of different pillars, detailing expected outputs, key performance indicators, and evaluation timelines.

Chapter six of the plan details the resource requirements for effective implementation based on an activity-based costing methodology. The plan estimates that KES 1.8 billion will be required to fund the entire strategy over the planned period, with health products and technology accounting for the largest portion at 47.3% of the total cost. The chapter highlights the available resources, particularly those contributed by the government. Funding from government sources for Human Resources starts at KES 3.4 million in Year 1 and increases to KES 63 million by Year 7, totaling KES 224 million over seven years. To address the financing gap, the health sector requires an additional KES 912 million to successfully implement the PEN-Plus action plan.

The chapter also provides strategies for resource mobilization, identifying key stakeholders and approaches for securing additional funding. It includes cost estimations for constructing and furnishing PEN-Plus facilities, noting that costs range from KES 19 million in Year 1 to KES 5 million in Year 7, depending on existing human resource capacity. When human resources are unavailable, costs range from KES 22 million in Year 1 to KES 12 million in Year 7. The primary cost drivers identified are equipment and facility construction.

Overall, the national operational plan serves as a comprehensive blueprint for implementing and scaling up PEN-Plus in Kenya through 2030. We are confident that this plan will successfully support this initiative.



Dr. Patrick Amoth, EBS
Director General for Health
Ministry of Health



CHAPTER 1: BACKGROUND

1.1 Overview of PEN-Plus

PEN-Plus represents a comprehensive approach that compliments the Package of Essential Noncommunicable Disease Interventions (PEN) developed by the World Health Organization (WHO). Its primary aim is to elevate the quality of care for severe chronic non-communicable diseases (NCDs) at primary referral facilities in rural and low socio-economic regions. Conditions addressed by PEN-Plus providers typically include relatively complex diseases such as type 1 diabetes, advanced rheumatic heart disease, and sickle cell disease. PEN-Plus implementers also train and mentor WHO PEN workers in addressing conditions such as type 2 diabetes, uncomplicated hypertension, and asthma at health centers.

In 2022, WHO Afro region member states adopted the PEN-Plus as a strategy to alleviate the burden of severe, unaddressed NCDs through decentralized outpatient services and integrated case management. The objectives of this strategy include enhancing access to quality care for severe NCDs at first-level referral facilities through targeted health policies, strengthening the capacity of health workers at district hospitals, ensuring the availability of essential medicines and equipment, and supporting monitoring, evaluation, and research on PEN-Plus interventions.

1.2 Epidemiology of Severe NCDs

Globally, NCDs account for 74% of mortalities, disproportionately affecting people in low- and middle-income countries. In the African Region, the proportion of mortality due to NCDs ranges from 27% to 88%¹. Cardiovascular diseases, diabetes, cancer, and chronic respiratory diseases account for 70% of the Region's NCDs burden².

In Kenya, non-communicable diseases (NCDs) contribute to 38% of all deaths (1). While information regarding the prevalence of severe NCDs is limited, available evidence suggests that cardiovascular diseases rank as the region's second most common cause of mortality, with hypertension affecting approximately 24% of the population. The prevalence of type 1 diabetes is estimated at 0.21% (GBD). Chronic respiratory diseases include asthma and chronic obstructive pulmonary disease. These conditions are accountable for approximately 1.73% of fatalities in Kenya. Furthermore, approximately 14,000 children are born with sickle cell disease (SCD) annually in Kenya(1). Recent evidence indicates that about 4.5% of children in the western region of Kenya are born with SCD, and 18% are born with the sickle cell trait.

1.3 Regional and National Policy Environment for Severe NCDs

Kenya has committed to the UN 2030 Sustainable Development Goals, with a particular focus on Indicator 3.4, which aims to ensure healthy lives and well-being by reducing the likelihood of death from Non-Communicable Diseases (NCDs) by one-third. The escalating prevalence of NCDs is anticipated to hinder poverty reduction efforts in low-income nations, notably by escalating household expenses related to healthcare access. According to the 2018 Kenya NCDI Poverty Commission report, non-communicable diseases (NCDs) reduce household income by 28%.

Moreover, Kenya endorsed the Brazzaville Declaration on NCDs during the WHO African Region ministerial meeting (2011), which broadens the prioritization of NCDs to include hemoglobinopathies, violence and injuries, and mental health. In 2022, Kenya endorsed a resolution (AFR/RC72/4) urging governments to initiate the rollout of PEN-Plus in 70% of Member States, specifically addressing NCDs at first-level referral health facilities.

At the national level, Kenya has established various legislations, policies, and socio-economic development agendas relevant to the prevention and reduction of NCDs, such as:

a) The Constitution of Kenya, 2010: Article 43 (1) (a) guarantees the right to the highest attainable standard of health,

1 WHO. Global Health Observatory. <https://www.who.int/data/gho/data/themes/topics/topic-details/GHO/ncd-mortality>

2 Gouda HN, Charlson F, Sorsdahl K, et al. Burden of non-communicable diseases in sub-Saharan Africa, 1990–2017: results from the Global Burden of Disease Study 2017. *Lancet Glob Health*. 2019; 7: e1375-e1387

encompassing the right to health care services. Article 21 (2) mandates the state to enact legislative, policy, and other measures for the progressive realization of the rights outlined in Article 43. Schedule 4 assigns the responsibility for health policy and technical support to the national government and health service delivery to the counties.

- b) **Health Act, 2017:** This legislation outlines a health service package at all levels of the health system, including services addressing promotion, prevention, curative, palliative, and rehabilitation, along with ensuring physical and financial access to health care. It incorporates interventions to alleviate the burden of NCDs, covering physical activity, addressing excessive alcohol consumption, combating adulteration of alcoholic products, reducing tobacco use, and promoting the supply of safe foodstuffs.
- c) **Kenya Health Policy 2014-2030:** This policy underscores the sector's commitment to achieving the highest possible health standards responsive to the population's health needs. Four of the six goals specified in this health policy are directly associated with PEN-Plus's efforts to address severe non-communicable diseases. These objectives include halting and reversing the increasing prevalence of non-communicable conditions, ensuring essential healthcare provision, reducing exposure to health risk factors, and enhancing collaboration with private and other health-related sectors.
- d) **The Kenya Health Strategic Plan 2023–2027:** This document provides a strong policy and operational framework to support the implementation of PEN-Plus in Kenya. The plan prioritizes the strengthening of primary healthcare through the establishment of functional Primary Care Networks, improved referral systems, and increased investment in community-level services. These priorities align closely with PEN-Plus, which aims to decentralize care for severe non-communicable diseases to district hospitals. The plan also focuses on addressing the growing burden of NCDs by enhancing access to early diagnosis and quality care. It commits to building a skilled and equitably distributed health workforce, including mid-level providers. In addition, the plan promotes multisectoral collaboration, health information system strengthening, and institutionalization of quality improvement, all of which are critical components for successful PEN-Plus implementation.
- e) **The National Strategic Plan for the Prevention and Control of Non-Communicable Diseases 2021/22 – 2025/26:** The strategy envisions a nation free from the preventable burden of NCDs, with its primary mission centered on halting and reversing the escalating burden of NCDs. In this strategic plan, severe NCDs targeted by PENPLUS receive priority attention, including cardiovascular diseases, sickle cell disease, chronic respiratory diseases, and type 1 diabetes. The strategy is structured around five main pillars, which include sectoral and multisectoral coordination and governance, minimizing exposure to modifiable risk factors, health system response for NCD management, advocacy, communication, and social mobilization, as well as surveillance, monitoring, evaluation, and research. The plan envisions the establishment of centers of excellence such as the PEN-Plus clinic, the decentralization of care and health care worker capacity building.
- f) **Guidelines and protocols:** The Ministry of Health has developed disease-specific guidelines, protocols, and standard operating procedures to guarantee the provision of standardized quality care throughout all tiers of healthcare service delivery. These include guidelines for managing cardiovascular diseases, diabetes, sickle cell disease, as well as guidelines for asthma management, along with protocols for managing selected NCDs in primary healthcare settings.

1.4 National targets for addressing severe NCDs

The prevention and management of non-communicable diseases in Kenya is guided by the NCD strategic plan 2021/22-2025/26 which has set out the targets below.

Table 1: NCD strategic plan targets 2021/22-2025/26

Expected Result	Indicator	Baseline (2015)	Baseline data source	Target (2025)
Relative reduction in the prevalence of raised blood pressure by 25	Prevalence of raised blood pressure (%)	23.8%	STEPS Survey, 2015	17.8%
Halt the rising burden of diabetes.	Prevalence of diabetes (%)	1.9%	STEPS Survey, 2015	1.7%
Improved management of diabetes cases	Proportion of persons living with diabetes achieving control (<7%)	N/A	KHIS	40%
Efficient management of hypertension cases.	Proportion of persons living with hypertension achieving control (< 140/90)	3.4%	STEPS Survey, 2015	50%

1.5 The Purpose of the National Operation Plan

This section covers the national operational plan's mission, vision, and objectives.

Vision: A nation free from the preventable burden of severe non-communicable diseases

Mission: To halt and reverse the rising burden of severe NCDs through effective multisectoral collaboration and partnerships by ensuring Kenyans among the vulnerable populations receive the highest attainable standard of NCD continuum of care that is accessible, affordable, quality, equitable, and sustainable.

Objectives:

The main objective of the PEN-Plus NOP is to provide guidance for the implementation and scale up of PEN-Plus strategy in Kenya.

The specific objectives include:

1. To describe PEN-Plus program design, objectives and core components
2. To set goals and targets for national and/or sub-national PEN-Plus scale up and planning
3. To describe policy and programmatic requirements for scale-up
4. To estimate expected outcomes and impact from PEN-Plus scale-up
5. To quantify resources required for PEN-Plus scale-up



CHAPTER 2:

STRUCTURE OF THE NATIONAL PEN-Plus PROGRAM

2.1 Description of PEN-Plus package and standards of care in the country

2.1.1 Level of implementation of PEN-Plus

In Kenya, health service delivery is organized into six levels:

Level 1: Community Health Services;

Level 2: Dispensaries;

Level 3: Health Centers;

Level 4: Sub-County Hospitals;

Level 5: County Referral Hospitals;

Level 6: National Referral Hospitals.

Note: The specific first-level referral hospitals for implementing PEN-plus are the sub-county hospitals (level 4 health facilities).

2.1.2 Scope of diseases covered

The severe non-communicable diseases currently included in the PEN-Plus package include:

1. Type 1 diabetes
2. Sickle cell disease,
3. Cardiovascular conditions – Congenital heart disease, Rheumatic heart disease, severe hypertension
4. Respiratory conditions – Asthma, chronic obstructive pulmonary disease

It is important to note that the list of specific severe NCDs included in PEN-Plus interventions is subject to review, and other conditions may be added in the future based on changes in prevalence, available funding, and government priorities.

2.1.3. The PENPLUS Service Delivery Care Package

The PENPLUS care package is dedicated to ensuring the provision of high-quality healthcare, encompassing screening, diagnosis, and treatment for the targeted conditions, along with the provision of psychosocial support. Detailed information on these aspects is outlined below: -

Table 2: The PENPLUS care package

	Screening/ Diagnosis	Treatment
Type 1 Diabetes	<ul style="list-style-type: none"> • Fasting blood sugar • Random blood sugar • HBA1C • Urinalysis 	<ul style="list-style-type: none"> • Initiate and titrate insulin therapy. • Recognize and initiate management for complications, including diabetic ketoacidosis. • Counselling and education on home-based care, including glucose meter use. • Provide diabetic foot care and retinopathy screening
Sickle Cell Disease	<ul style="list-style-type: none"> • Infant screening using validated point-of-care tests. • SCD cascade screening • SCD confirmatory tests (Hb electrophoresis/HPLC/IEF (Onsite or referral to an offsite center) • Other tests – FHG, UECs, LFTs 	<ul style="list-style-type: none"> • Hydroxyurea • Prophylactic antibiotics • Prophylactic antimalarials • Immunizations • Folic acid supplementation • Counselling and education on home-based care • Blood transfusion

	Screening/ Diagnosis	Treatment
Cardiovascular Diseases	<ul style="list-style-type: none"> Perform and interpret ECG and echocardiography. Blood tests – UECs, LFTs, Lipid Profile Evaluate for secondary causes of hypertension. 	<ul style="list-style-type: none"> Provide medical management as per the cardiac condition, including hypertension. Penicillin prophylaxis for RHD Refer for surgical evaluation. Manage postoperative complications
Severe Asthma and Chronic Obstructive Pulmonary Disease (COPD)	<ul style="list-style-type: none"> Perform and interpret peak flow (Spirometry) Perform and interpret chest radiography. 	<ul style="list-style-type: none"> Initiate and titrate pharmacologic therapy Provide counseling and action plans for patients

2.1.4 Minimum staffing requirement for PEN-Plus

The PENPlus operational plan establishes essential staffing requirements to ensure effective service delivery, recognizing that the quality and quantity of the healthcare workforce are foundational to building resilient healthcare systems. By maintaining adequate staffing levels with appropriately skilled professionals, we can minimize waiting times, improve accessibility to care, and enhance patient outcomes through timely interventions. This approach promotes patient safety, reduces medical errors, and fosters trust between healthcare providers and patients.

Additionally, investing in continuous education and professional development opportunities ensures that healthcare professionals stay current with advancements in medical technology and best practices, elevating the overall standard of healthcare delivery. The table below outlines the minimum staffing requirements for establishing a PEN-Plus Clinic.

Table 3: Minimum staffing requirements for establishing and maintaining a PEN-Plus Clinic

Cadres	Roles	Numbers
Medical Officers	Oversee the coordination of the PEN-Plus clinics. Supervise and mentor mid-level healthcare providers, examine and diagnose patients, order laboratory and imaging investigations, prescribe treatment, and perform procedures within their training scope. Review referrals and link the clinic to specialists.	1
Clinical Officers	In charge in the absence of the Medical Officer. Examine, diagnose, order laboratory and imaging investigations, prescribe treatment, perform procedures within their training scope, and refer patients appropriately.	3
Nursing Officers	Work as a core part of the clinical team in the PEN-Plus clinics, providing counseling, education, and basic patient care. Assist with inpatient consultations and education. Facilitate mentoring at health centers and community outreach services	6
Laboratory technologist	Under general supervision, performs routine tests in medical laboratory to provide data for use in diagnosis and treatment of disease, ensuring validity and accuracy of test results.	1
Pharmaceutical technologists	Ensure accurate dispensing, patient counseling, and proper handling of pharmaceutical supplies. Provide effective pharmaceutical services, including compounding, re-packaging, and dilution of drugs according to guidelines.	1
Nutritionists	Counsel patients on nutrition issues and healthy eating habits based on their PEN-Plus condition requirements.	1

Cadres	Roles	Numbers
The counselor/ psychologist	Provides psychosocial support to patients and their families, helping them cope with the emotional and social challenges of living with severe chronic NCDs. Promote treatment adherence, conduct mental health screening, and offer targeted health education	1
Health Info Records	Manage patient files, documentation, and DHIS2 reporting. Flag files when needed to indicate lab results, missed appointments, and patient outcomes	1

2.1.5 The Kenyan PENPLUS Experience

Pilot sites: The initial phase of PEN-Plus implementation began in June 2022 with two facilities: Kinna Health Centre in Isiolo County and Hamisi Health Centre in Vihiga County. These regions have diverse geographical and demographic characteristics, with Isiolo County representing arid and semi-arid areas, while Vihiga County is more agricultural.

Planning: The implementation began with extensive consultative planning, including several introductory meetings with key stakeholders, culminating in a two-day PEN-Plus Project Joint Planning Workshop conducted by the NCD Alliance Kenya (NCDAK) in Eldoret. The workshop featured presentations on the national NCD burden, an overview of PEN-Plus, and details of the implementation plan and deliverables. The planning process involved discussions on identifying suitable clinic locations and training sites.

Before the official launch, a situational analysis (SITAN) was conducted to assess viability, needs, and gaps. The SITAN revealed a strong desire for access to care among underserved and marginalized populations. It highlighted the need to provide high-quality care to affected individuals without biases related to socio-economic status, age, or gender. Additionally, the SITAN report provided insights into key project aspects, including required infrastructure, human resource needs, health products and technologies, and the policy environment.

The Launch. The PEN-Plus clinic was officially launched in Hamisi, Vihiga county on the 19th of June, 2023 during the commemoration of World Sickle Cell Day. The clinic has since been operational. The clinic in Isiolo is also operational.

Leadership and governance: At the core of the PEN-Plus initiative is the Ministry of Health, both at the national level and through the County Health Departments. MoH provides overall leadership and implementation. NCD Alliance Kenya is involved with the day-to-day running of the project with closer linkage and operations with the County Health Departments, facility in-charges, and project staff.

The NCDI Poverty Network coordinates the national steering committee and regional support.

HealthCare worker training: To support effective diagnosis and management of enrolled patients, training sessions targeting nurses, clinical officers, laboratory technologists, pharmaceutical technologists, nutritionists, health records officers, and mental health practitioners were conducted. The initial training was didactic, consisting of one week of intensive theoretical sessions, each covering a specific disease in the PEN-Plus package. This was followed by facility-based mentorship and monthly virtual continuous medical education (CME) sessions. A total of 173 healthcare workers were trained. Mentorship and CME sessions are ongoing.

Infrastructure: During the pilot phase, construction and renovation of selected facilities was undertaken out of necessity, as the sites identified did not have adequate infrastructure to support PEN-Plus implementation. These clinics were equipped with essential amenities such as electricity, running water, security, ICT systems, and furniture, and included core service areas such as reception, waiting bays, consultation and examination rooms, recovery rooms, laboratories, pharmacies, washrooms, and staff lounges.

For the scale-up, the focus will be on integrating PEN-Plus within existing health facilities (level 4) that already have the infrastructure and capacity, while strengthening all health system pillars to ensure effective implementation and long-term sustainability.

Medications: The project has provided essential medicines for the specified PEN-plus conditions, which are supplied to patients for free. This includes insulin for type 1 diabetes; hydroxyurea, penicillin, folate, analgesics, and malaria prophylaxis for sickle cell disease; thiazide diuretics, angiotensin receptor blockers (ARBs); calcium channel blockers (CCBs), ACE inhibitors, and beta blockers for hypertension, anticoagulants and anti-arrhythmias for congenital heart disease; steroids, anti-inflammatory drugs, and antibiotics for rheumatic heart disease; statins and aspirin for lipid-lowering and anti-platelet therapy, among others.

Equipment, Laboratory and ICT and commodities: Key investments for the project included the acquisition of biochemistry analyzers, point-of-care ECG and ECHO machines, suction pumps, blood pressure monitors, weighing scales, peak flow meters, spirometers, inhaler spacers, glucometers, HbA1C analyzers, monofilaments, nebulizers, pulse oximeters, point-of-care INR machines, stethoscopes, and stadiometers. To enhance data management and support continuous care, the project also involved the installation of computers, ICT systems, power backup solutions, and providing phones and tablets for clinicians to facilitate data entry. Additionally, recognizing the arid conditions and **challenges in accessing clean water in Kina, a borehole was drilled and water storage tanks were installed.**

Case-finding strategy: Various strategies have been implemented, such as launching advocacy and awareness campaigns, as well as community outreach programs, to educate the public about PEN-Plus conditions and inform them about the clinic where they can access care. In addition, community health promoters play a key role in raising awareness, supporting screening efforts, and facilitating timely referrals. Moreover, facility-based screenings have been established, along with networking and referral systems among healthcare professionals and laboratories.

The figure below shows case distribution in the 5 months of clinic operations.

Table 4: Case distribution as of 31st March 2025

Active Patient by Site (March 31st 2025)				
Condition	Hamisi	Kinna	ICRH	Total
Diabetes Type 1	67	20	104	191
Diabetes Type 2	21	126	1	148
Hypertension	165	178	2	345
Hypertension/Diabetes Type 2	62	27	1	90
Rheumatic Heart Disease	27	2	5	34
Congenital Heart Disease	8	6	16	30
Other Cardiovascular Conditions- Cardiomyopathies, HFIHD	50	30	23	103
Stroke	0	0	0	0
Sickle Cell Disease	164	0	4	168
Chronic Respiratory Disease	42	71	16	129
Total	606	460	172	1238

Social support: The project has established an extensive social support mechanism to address factors hindering treatment adherence and ensure optimal clinical outcomes. This includes providing enrolled patients with transportation, school fee assistance, nutritional support, agricultural inputs to support farming and the establishment of kitchen gardens for sustained nutritional support.



CHAPTER 3:

PEN-PLUS IMPLEMENTATION PILLARS

Introduction

PEN-Plus is pivotal in supporting the government's goals by prioritizing severe NCDs that disproportionately impact vulnerable populations. The initiative contributes to the capacity building of healthcare providers, particularly middle-level providers such as nurses and clinical officers, enhancing their skills to proficiently screen and manage severe NCDs while implementing efficient referral mechanisms. It establishes a structured framework for creating and equipping comprehensive care centers or centers of excellence dedicated to managing severe NCDs. Furthermore, PENPLUS contribute to the surveillance and outreach efforts for severe NCDs, ensuring evidence-based decision-making.

The successful implementation of PENPLUS necessitates effectively strengthening the entire health system. Guided by this principle, the initiative will be implemented based on the following WHO health system strengthening pillars.

1. Leadership and governance
2. Human resources for health
3. Service Delivery
4. Health finance
5. Health products and technologies
6. Advocacy communication and social mobilization
7. Surveillance and Research

3.1 Pillar 1: Leadership and Governance

Strategic Objective: To strengthen multi-sectoral coordination, leadership, and governance for the PEN-Plus program at the National and County levels.

Key Strategies and Activities

1. To strengthen sectoral and multi-sectoral coordination and collaboration
 - a) Map and review partners and stakeholders.
 - b) Hold stakeholder engagement meetings on PEN-Plus at national and county levels.
 - c) Incorporate the PEN-Plus program as part of the NCD-ICC agenda.
 - d) Establish mechanisms for information sharing on PEN-Plus implementation progress within the county and national levels.
 - e) Strengthen private sector partnership engagement by conducting sensitization meeting
2. To strengthen leadership and governance at all levels (National, County, and health facility levels)
 - a) Establish a PEN-Plus program secretariat/steering committee
 - b) Hold sensitization forum leadership on PEN-Plus at National, County, Sub-County, and health facility levels (mentorship, site-exchange visits)
 - c) Integrate PEN-Plus interventions with relevant technical working groups at the County/Sub-County level.

3.2 Pillar 2: Human Resources for Health

Strategic Objectives: To strengthen the human resources capacity for effective service delivery at PEN-Plus facilities in Kenya.

Key Strategies and Activities

1. Establish human resource needs for PEN-Plus across all levels of care.
 - a) Map, establish, and maintain a database for healthcare workers who have been trained and those in need of PEN-Plus training to facilitate continuous tracking.

- b) Conduct regular assessments to establish the existing knowledge gap among the healthcare workers who have been trained and those in need of training.
2. Strengthen the capacity of service providers to meet the demand for PEN-Plus service delivery.
 - a) Review and periodically update the PEN-Plus training curriculum and material.
 - b) Develop a PEN-Plus mentorship guide to support onsite mentorship of healthcare workers
 - c) Disseminate training material and equipment (Job-aids, telehealth, digital platform)
 - d) Conduct training for identified healthcare workers on PEN-Plus
 - e) Develop a training curriculum for community health assistants (CHAs) and community health promoters (CHPs) on PEN-Plus
 - f) Conduct training for Community Strategy Focal Persons, CHAs, and CHPs on identifying severe NCDs and referrals.
 - g) Link the PEN-Plus facilities to consultants to facilitate continuous mentorship.
 - h) Develop supportive supervision tools to facilitate standard assessment for PEN-plus facilities.
 - i) Conduct quarterly supportive supervision visits to PENPlus facilities.
 3. Engage with training institutions and regulatory bodies to integrate PEN-Plus into training curricula and teaching plans.
 - a) Sensitize the regulatory bodies and training institutions on severe NCDs.
 - b) Participate in the review of the training curriculum and teaching plans to incorporate the PEN-Plus strategy
 - c) Train the identified training institution faculty teams on severe NCDs
 - d) Link the training institutions with PEN-Plus facilities for trainees' attachments.
 4. Mainstream task-sharing strategies to enhance PEN-Plus service delivery.
 - a) Sensitize the health administration (County Health Management Teams) and staff on task sharing policy.
 5. Establish retention mechanisms for PEN-Plus trained staff
 - a) Conduct regular employee satisfaction surveys.

3.3 Pillar 3: Service Delivery

Strategic Objective: To strengthen the provision of effective patient-centered health service delivery interventions for severe NCDs

Key Strategies and Activities

1. Strengthen case identification mechanisms for severe NCDs.
 - a) Conduct targeted mobile outreach screening programs in schools.
 - b) Integrate infant screening for sickle cell disease at all Maternal Child Health Clinics
 - c) Integrate screening and cross-linkage of severe NCDs at service delivery points.
 - d) Strengthen diagnostic capabilities of PEN-Plus conditions.
2. Design and implement a comprehensive PEN-Plus care package for severe NCDs.
 - a) Conduct an annual review and update of the PEN-Plus care package
 - b) Conduct sensitization of healthcare workers on the PEN-Plus care package in all PEN-Plus clinics
3. Enhance and optimize interventions aimed at facilitating a seamless continuum of care for persons living with severe NCDs for PEN-Plus

- a) Define the referral networks for all PEN-Plus clinics (up/downward)
 - b) Develop a PEN-Plus package for patient self-care management for severe NCDs
 - c) Implement the quality improvement framework in all PEN-Plus facilities.
 - d) Implement defaulter tracing mechanisms and follow up for linking back to care
4. Establish effective social support mechanisms for patients enrolled in care in the PEN-Plus clinics
 - a) Develop a social support assessment tool for persons enrolled at PEN-Plus clinics.
 - b) Map persons enrolled at PEN-Plus clinics requiring social support
 - c) Develop and review social support packages for persons enrolled in the PEN-Plus clinics.
 - d) Establish social support groups for patients and their caregivers (for severe NCDs)
 - e) Sensitize the established support groups on self-care management and income-generating activities.
5. Strengthen mechanisms for infrastructural improvement for effective PEN-Plus Service delivery.
 - a) Develop minimum infrastructural requirements for the establishment of PEN-Plus service delivery.
 - b) Conduct assessments to identify gaps for infrastructural improvements.
 - c) Support infrastructural development/improvements of PEN-Plus clinics.
 - d) Equip the facilities identified for PEN-Plus implementation with essential equipment required for PEN-Plus interventions.

3.4 Pillar 4: Health Financing

Strategic Objective: To increase innovative sustainable financing for PEN-Plus implementation and scale-up both at County and National levels in Kenya.

Key Strategies and Activities

1. Strengthen multisectoral collaboration for PEN-Plus financing in Kenya.
 - a) Develop and review a map of potential funders supporting NCD interventions.
 - b) Develop a framework of engagement of funders and stakeholders for PENPlus.
 - c) Convene biannual coalition funders' engagement for resource mobilization and feedback on progress on PEN-Plus.
2. Ensure inclusion and regular review of PEN plus package of care in the SHA/SHIF cover.
 - a) Map persons living with severe NCDs not registered under social health authority (SHA).
 - b) Sensitize people living with severe NCDs on the social health insurance schemes and enrolment.
3. Promote prioritization and financing of PEN-Plus both at the County and National levels.
 - a) Support people living with severe NCDs to attend public participation meetings for planning and budgeting processes both at national and county levels.
 - b) Conduct investment case for PEN-Plus interventions for PEN-Plus initiatives
4. Strengthen efficiency in resource allocation and use for PEN-Plus interventions.
 - a) Conduct annual needs assessments to guide budgeting for PEN-Plus activities.
 - b) Monitor allocation and utilization of resources for PEN-Plus initiative.
5. Ensure a sustained resource mobilization plan for PEN-Plus.
 - a) Mobilize resources to support PEN-Plus initiatives.

- b) Develop proposals for funding PEN-Plus initiatives

3.5 Pillar 5: Health Products and Technologies

Strategic objective: Ensure a sustainable and resilient supply chain system for the provision of quality, affordable, and accessible essential health products and technologies for PEN-Plus

Key Strategies and Activities

1. Enhance accurate forecasting and quantification at the facility, County, and National levels for HPTs for severe NCDs.
 - a) Update MOH 647 to include tracer elements for severe NCDs.
 - b) Develop/ adapt forecasting and quantification tool for Severe NCDs
 - c) Conduct forecasting and quantification of essential PEN-Plus HPTs
2. Strengthen procurement of PEN-Plus HPTs
 - a) Advocate for the inclusion of PENPLUS commodities in the national essential medicine and diagnostic lists
 - b) Facilitate inter-facility redistribution of essential PEN-Plus HPTs
3. Enhance collaboration with manufacturers and/or distributors to ensure pooling and cost reduction.
 - a) Strengthen the capacity of central procurement of NCDs.
 - b) Engage manufacturers and distributors of essential PEN-Plus HPTs to expand or establish access programs.
 - c) Support local manufacturing and extemporaneous preparation of commodities and technology transfer for PEN-Plus HPTs
4. Strengthen pharmacovigilance and post-market Surveillance for PEN-Plus HPTs
 - a) Integrate PENPLUS medicines and technologies into the national pharmacovigilance system (Pharmacy and Poisons Board)
 - b) Conduct regular post-market surveillance activities for PEN-Plus HPTs
5. Strengthen reporting of HPTs for PEN-Plus
 - a) Review the NCD tracer tool to incorporate PEN-Plus HPTs (FCDRR, Monthly reporting)
 - b) Integrate PEN-Plus HPTS into the KHIS Dashboard or Integrated LMIS
 - c) Include PEN-Plus HPTs in the quarterly Data Quality Audits (DQAs)
6. Enhance Human Resource capacity in supply chain management for PEN-Plus commodities.
 - a) Conduct supply chain and commodity management training for PEN-Plus for County and National staff.

3.6 Pillar 6: Advocacy, Communication and Social Mobilization

Strategic Objective: To strengthen advocacy, communication, and social mobilization for the adoption, implementation, and maintenance of the PEN-Plus strategy at all levels in Kenya by 2030.

1. Enhance and sustain advocacy for PEN-Plus at all levels in Kenya by 2030
 - a) Disseminate the PEN-Plus National Operational Plan to the Council of Governors, Parliamentary and Senate Health committees.
 - b) Sensitize the national and county governments to prioritize the PEN-Plus NOP in the National NCD strategy, CIDPs, and Annual Work Plans.
 - c) Hold advocacy and sensitization forums with stakeholders to mobilize resources for implementing PEN-Plus.
 - d) Advocate for the integration of the PEN-Plus National Action Plan into the health financing framework (UHC/

- SHA framework)
- e) Commemorate World Health Days for Severe NCDs
 - f) Support persons living with severe NCDs to participate in the national and county planning and budgeting process levels.
 - g) Advocate for inclusion of PEN-Plus HPTs into the Kenya essential medical lists
2. Enhance and disseminate communication strategies for PEN-Plus to communities and other stakeholders in Kenya
 - a) Develop and implement a communication and media strategy to develop key messages for PEN-Plus
 - b) Develop and disseminate the key messages for PEN-Plus to the communities (Utilizing digital tools, media, and forums).
 - c) Create an online presence for PEN-Plus (Website).
 3. Strengthen and enhance social mobilization for PEN-Plus at all levels in Kenya
 - a) Identify and build the capacity of PEN-Plus champions in the political space and among civil society organizations.
 - b) Hold community engagement for special interest groups such as religious leaders, opinion leaders, youths, and women to educate on the PEN-Plus strategy
 - c) Sensitize community health promoters on the PEN-Plus strategy to create awareness of Severe NCD and the availability of health care services.

3.7 Pillar 7: Surveillance and Research

Strategic Objective: To strengthen surveillance and promote research on severe NCDs to inform decision-making and planning.

Key strategies & activities

1. To integrate and strengthen information systems for surveillance of severe NCDs
 - a) Review data collection tools for severe NCDs
 - b) Disseminate reviewed data collection tools for severe NCDs
 - c) Integrate severe NCD indicators into existing relevant EMRs
 - d) Conduct regular data quality audits.
2. To promote research on severe NCDs and knowledge translation
 - a) Review severe NCDs research agenda.
 - b) Conduct operational/implementation research on severe NCDs with partners
 - c) Disseminate research findings in various forums/platforms- seminars, workshops, conferences



CHAPTER 4: PEN-Plus SCALE-UP ROADMAP

Role of stakeholders in the scale up

The scaling-up of PEN-PLUS in Kenya will follow an incremental approach based on a continuous improvement strategy that facilitates stakeholder involvement and collective resource mobilization as guided by the first pillar of the strategic plan for preventing and controlling non-communicable diseases 2021/22-2025/26. The key stakeholders and their responsibilities are outlined below:

Table 5: Key stakeholders and their responsibilities for the scaling-up of PEN-PLUS in Kenya

a) Stakeholders

Actor	Responsibilities
Ministry of Health	<ul style="list-style-type: none"> • Provide overall leadership, coordination, and stewardship in implementing the PEN-Plus scale-up. • Develop policies and guidelines to support PEN-Plus • Map and engage new stakeholders for PEN-Plus interventions • Advocacy and social mobilization. • Provide stewardship to align PEN-Plus interventions in line with existing policies and legislation • Resource mobilization and linkage of partners to counties. • Provide sector frameworks to guide investments in PEN-Plus • Coordinate PEN-Plus data management and dissemination as well as research and technology platforms. • Capacity development for HRH for PEN-Plus. • Monitoring and evaluation of PEN-Plus implementation
NCDI Poverty Commission of Kenya	<ul style="list-style-type: none"> • Policy recommendation • Technical support for PEN-Plus implementation • Monitoring of PENPLUS implementation • Resource mobilization • Advocacy
The County Government	<ul style="list-style-type: none"> • Implement the PEN-Plus Action Plan. • Prioritizing and including PEN-Plus interventions in their CIDP, AWP, and budgets. • Identify the level IV facilities for implementation of PEN-Plus. • Deploying, training, and retention of HRH for PEN-Plus. • Advocacy, communication, and social mobilization to support PEN-Plus scale-up. • Ensuring availability of essential HPTs. • Resource allocation & mobilization • Streamlining referral services. • Support supervision of the PEN-Plus sites, including private facilities
Private Sector/ Manufacturers	<ul style="list-style-type: none"> • Resource mobilization for PEN-Plus implementation and scale-up. • Manufacture/provide quality, affordable, accessible healthcare goods and services (e.g. medicines, pharmaceutical products, and rehabilitation). • Undertake CSR activities targeting community awareness for severe NCDs. • Insurance companies should develop PEN-Plus packages. • Conduct responsible advertising and follow NCD risk control laws and policies. • Support technology innovation and use in the health sector for PEN-Plus interventions. • Create a conducive workplace environment for persons living with severe NCDs. • Comply with policies, strategies, and guidelines on control and management of severe NCDs.

Actor	Responsibilities
Private Health Facilities and Faith-Based Facilities	<ul style="list-style-type: none"> • Offer quality healthcare for persons living with severe NCDs seeking care in private hospitals. • Undertake CSR activities targeting community awareness for severe NCDs. • Participate in the referral networks for PEN-Plus • Comply with policies, strategies, and guidelines on prevention, control, and management of severe NCDs • Build capacity of their staff on prevention and control of severe NCDs • Ensure consistent reporting on severe NCDs
WHO/ UNICEF	<ul style="list-style-type: none"> • Network PENPLUS implementing countries • Provide technical support for implementing PEN-Plus • Support resource mobilization and financing of PEN-Plus interventions • Advocacy • Policy guidance for PENPLUS implementation
Other development partners	<ul style="list-style-type: none"> • Provide technical support and capacity building • Support resource mobilization and financing of PEN-Plus interventions • Participate in multisectoral coordination committees
Regulatory and professional associations	<ul style="list-style-type: none"> • Review and develop healthcare workers' training curricula incorporating severe NCDs. • Implement PEN-Plus HRH strategies addressing staffing norms and standards, task-sharing, career progression, and recognition. • Support drug and technology registration related to PEN-Plus
Lawmakers (national and county assemblies)	<ul style="list-style-type: none"> • Support bills for the prevention and control of severe NCDs • Lobby for increased allocation of resources for severe NCD prevention, control, and management • Legislate the ring-fencing of sin tax for severe NCD control and management
Academic, Research, and Health Training Institutions	<ul style="list-style-type: none"> • Support education and training on severe NCDs • Review education curricula in consultation with regulatory bodies to respond to the current severe NCD trends • Conduct severe NCD research to inform policy, planning, and programming
Media	<ul style="list-style-type: none"> • Engage in advocacy and community mobilization for the PEN-PLUS scale-up • Participate in the development and dissemination of health messages on severe NCDs and risk factors • Educate the public on severe NCDs and their risk factors. • Sensitize and mobilize their members to support PEN-Plus implementation and scale-up • Advocate and ensure accurate and evidence-based reporting on severe NCDs • Conduct responsible advertising and adhere to and promote severe NCD risk control policies and regulations
Individuals and Communities/ Persons living with severe NCDs/ PEN-Plus Champions	<ul style="list-style-type: none"> • Advocacy/ champion for the rights of people living with NCDs and sustainable financing of PEN-Plus • Adopt appropriate health care-seeking behaviors when ill • Participate actively in health promotion and social mobilization for severe NCD control and management activities • Increase demand by lobbying and seeking insurance policies for financial and social protection through the primary care networks. • Participate in policy, planning, and budget making processes through public participation forums • Embrace screening for severe NCDs

b) Framework for implementation and scale-up

Implementation and scale-up of PEN-Plus will be done in four phases, with the two counties included in the first phase (pilot phase) and six counties included in each of the subsequent phases, targeting a minimum of 20 counties by 2030. Each phase is projected to span two years. Subsequently, the 27 counties not covered within the initial four phases will be given priority in the years following 2030 or be integrated into either of the implementation phases.

The selection and distribution of counties will take into account the county-specific disease burden of the PEN-PLUS conditions, regional balance, the population coverage, and status of health system support to provide care for severe NCDs, including the distribution of level four facilities where PEN-PLUS clinics will be set up.

Counties play a pivotal role in the effective implementation, scaling, and sustainability of the PEN-Plus strategy as the primary providers of health services. Priority will be given to counties demonstrating solid political commitment towards PEN-Plus implementation and active involvement from county leadership and healthcare management teams. The success of this initiative will also rely on strengthening existing health systems. Counties with established infrastructure for PEN-Plus clinics and a skilled health workforce will be prioritized. The national steering committee will oversee the selection of the counties.

c) Steps for county entry and implementation

- County leadership sensitization and alignment meetings
- Identification of potential PEN -Plus implementing facilities
- Capacity assessments of the selected sites
- Infrastructure readiness
- Procurement of relevant HPTs
- Curriculum review and updating
- Training of Master Trainers
- Training and mentorship of health workers
- Implementation of the PEN-Plus interventions
- Continuous demand creation
- Implementation Monitoring
- Program evaluation



CHAPTER 5:

MONITORING, EVALUATION, ACCOUNTABILITY AND LEARNING (MEAL) FRAMEWORK

An effective Monitoring, Evaluation, Accountability, and Learning (MEAL) framework is crucial for the success and sustainability of health programs. This section presents the PEN-Plus MEAL framework, which combines impact and outcome indicators with comprehensive implementation strategies. The framework systematically monitors inputs, outputs, outcomes, and impacts to pinpoint areas for improvement. By adopting this approach, we aim to enhance accountability and transparency, demonstrating the value of PEN-Plus to funders, policymakers, and the community. This data-driven strategy supports informed decision-making, efficient resource allocation, and the development of evidence-based policies.

5.1 Impact Indicators/Common Results and Accountability Framework

Table 6: Impact Indicators/Common Results and Accountability Framework

	Indicator	Numerator	Denominator	Baseline data	Source	Target 2030
1	Mortality rate due to severe NCDs	Deaths due to severe NCDs	Total population	Type 1 diabetes -0.93/100,00 Sickle cell disease – 0.59/100,000 RHD – 0.87/100,000 Asthma – 4.6/100.000	GBD	Type 1 diabetes -0.31/100,00 Sickle cell disease – 0.19/100,000 RHD – 0.29/100,000 Asthma – 1.5/100.000
2	Years lived with Disability	YLD		Type 1 diabetes -15/100,00 Sickle cell disease – 18/100,000 RHD – 53/100,000 Asthma – 112/100.000	GBD	Type 1 diabetes -10/100,00 Sickle cell disease – 13/100,000 RHD – 48/100,000 Asthma – 97/100.000
3	Early detection rates for severe NCDs	Number of severe NCDs diagnosed without complications	Total number of diagnosed severe NCDs	Type 1 diabetes - No baseline data Sickle cell disease – No baseline data RHD – No baseline data Asthma – No baseline data	PEN-Plus registry	60%
4	Proportion of PEN-Plus facilities with tracer HPTs for severe NCDs Management (%)	Number of PEN-Plus facilities with tracer HPTs for severe NCDs Management (%)	All PEN-Plus facilities	No baseline data	Health Facility Assessment	80%
5	Proportion of NCD partners funding PEN-Plus strategy	Number of NCD partners funding PEN-Plus strategy	All NCD partners sensitized on funding PEN-Plus strategy	No baseline data	Reports and PEN-Plus data base	100%
6.	Proportion of PEN-Plus patients with health insurance	Number of PEN-Plus patients with health insurance	Total number of PEN-Plus patients	No baseline data	Assessment	80%

5.2 Outcome Indicators

Table 7: Outcome Indicators

	Indicator	Numerator	Denominator	Baseline data	Source	Target
1.	Proportion of patients with T1D with HbA1C < 8 on last measure	# of patients with T1D with an A1C result in the last 6 months that is < 8	# of patients with T1D with an A1C in last 6 months	NA	NA	80%
2.	The proportion of patients with T1D who have had DKA in the past 12 months	# of patients with T1D who have had DKA in the past 12 months	# of patients with T1D with data on DKA episodes in last year	NA	NA	No target
3.	Proportion of patients with none or mild limitation in activity (NYHA I and II) at last visit	# of cardiac patients with NYHA I or II at last visit	# of patients with cardiac conditions with NYHA results at last visit	NA	NA	No target
4.	% of patients with SCD needing transfusion within the last 12 months who were transfused	# of SCD patients who needed and received a transfusion in the last 12 months	# of SCD needing transfusion within the last 12 months	NA	NA	No target
5.	% of patients with asthma who at last visit were well controlled (based on GINA system)	# of patients with asthma well controlled on GINA score at last visit	# patients with asthma	NA	NA	80%
6.	Proportion of patients who had a hospitalization within the last year	Number of patients who had a hospitalization event in the last year	Total number of patients	Type 1 diabetes Sickle cell disease CVDs Asthma	NA	No target

5.3 Monitoring Reports and periodicity

Table 8: Monitoring Reports and periodicity

Process/ Report	Frequency	Responsible entity	Timeline
Annual work plans	Yearly	PEN-Plus facilities PEN-Plus National Steering Committee	End of June
Monthly reports	Monthly	PEN-Plus facilities	5 th of the subsequent month
Quarterly reports	Quarterly	NCD Alliance Kenya	5 th of the subsequent month after the quarter
Data quality analysis reports	Quarterly	DQA team	One month after the DQA
Annual performance reports and reviews	Yearly	NCD Alliance Kenya	Begins in July and ends in November
Surveys	As per need	PEN-plus National Steering committee	Periodic surveys

5.4 Evaluation of the national Operational plan

The evaluation process is designed to measure progress toward the objectives outlined in the national operational plan for PEN-Plus. This involves monitoring stakeholder efforts and accomplishments throughout the implementation period. A midterm review and final evaluation will be conducted to assess the degree to which the strategic plan's goals have been realized.

Monitoring and Evaluation Matrix

1 Leadership and Governance

Key Result Area(s)	Strategic Objectives (s) (Outcome area)	Proposed Intervention(s)/Activities	Expected Outcomes	Key Performance Indicators	% of #	Source of data	Periodicity	Baseline FY2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31		
Leadership and Governance	To strengthen sectoral and multi-sectoral coordination and collaboration	Map and review partners and stakeholders	Stakeholder and partner database	The existence of a National Database	#	County and national-level reports	Once	1	1	1	1	1	1	1		
		Hold stakeholder engagement meetings on Pen-plus at the national level.	Engagement meetings held	No. of stakeholder engagement meetings held	#	Minutes and participant list	Biennial	1	0	1	0	1	0	1		
		Hold stakeholder engagement meetings on Pen-plus at the county level.	Engagement meetings held	No. of stakeholder engagement meetings held	#	Meeting Minutes	biennial	1	0	1	0	1	0	1		
		Incorporate the PEN-Plus program as part of the NCD-ICC agenda	PEN-Plus incorporated into NCD-ICC agenda	No. of NCD-ICC meetings held with PEN-Plus agenda	#	NCD-ICC minutes	Biannually	2	2	2	2	2	2	2	2	
	To strengthen private sector partnership engagement	Establish mechanisms for information sharing on Pen-plus implementation progress within the county and national levels.	Establish mechanisms for information sharing on Pen-plus implementation progress within the county and national levels.	Information-sharing mechanisms established	No. of functional information-sharing platforms shared (Journals, Website newsletters, conferences, dashboards, etc.)	#	Reports	biennial	1	0	1	0	1	0	1	
			Conduct sensitization of private sector players on PEN-Plus interventions.	Sensitization meetings held	No. of private sector sensitization meetings held	#	Minutes and reports	annually	1	1	1	1	1	1	1	
			Leverage on existing Kenya Health Public Private Collaboration Strategy on regular private sector engagement.	Regular private-sector engagements held	No. of regular private sector engagements held with PEN-Plus agenda	#	Minutes and reports	annually	1	1	1	1	1	1	1	1

Key Result Area(s)	Strategic Objectives (s) (Outcome area)	Proposed Intervention(s)/Activities	Expected Out-puts	Key Performance Indicators	% or #	Source of data	Periodicity	Baseline FY2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
	To strengthen leadership and governance at all levels (National, County, and health facility levels)	Establish a National PEN-Plus program secretariat.	PEN-Plus secretariat established	A functional secretariat in place	#	Appointment letters TORs minutes	Once	0	0	0	0	0	0	0
		Hold sensitization forum leadership on PEN-Plus at National, County, Sub-County, and health facility levels (mentorship, site-exchange visits)	Sensitization meetings conducted	No. of Sensitization meetings conducted	#	Reports	annually	1	1	1	1	1	1	1

2 Human Resource for Health

Key Result Area(s)	Strategic Objectives (s) (Outcome area)	Proposed Intervention(s)/Activities	Expected Outputs	Key Performance Indicators	% or #	Source of data	Periodicity	Baseline Data FY 2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	
Human Resource for Health	Establish human resource needs for PENPlus across all levels of care.	Map, establish and maintain a database for healthcare workers who have been trained and those in need of PENPlus training to facilitate continuous tracking.	Database for healthcare workers who have been trained and those in need of PENPlus training established and maintained	Existence of a National data base	#	Report from database	Annual	1	1	1	1	1	1	1	
		Conduct regular assessments to establish the existing knowledge gap among the healthcare workers who have been trained and those in need of training.	Assessments on the existing knowledge gap among the healthcare done	Number of Assessments	#	Assessment reports	Biennial	1	1						
	Facilitate continuous mentorship by linking PEN-Plus facilities with relevant medical consultants	Review and periodically update the PENPlus training curriculum and material.	PENPlus training curriculum and material reviewed Conduct training for identified healthcare workers on PEN-Plus service package	Number of revised versions	#	Revised curriculum	Once in three years	1	1						
		Disseminate training material and equipment (Job-aids, telehealth, digital platform)	Training material and equipment disseminated	Number of job-aids	#	Dissemination report	Annual	2000	2000						
		Conduct training for identified healthcare workers on PEN-Plus	Healthcare workers trained on PEN-Plus	Number of HCW trained on PEN-Plus	#	Report from training	Annual	150	150	150	150	150	150	150	150
		Develop a training curriculum for CHAs and CHPs on PEN-Plus	Curriculum for CHAs and CHPs developed	Existence of curriculum	#	Workshop report	Once								
		Conduct training for CSFP, CHA CHPs on the identification of severe NCDs and referral.	Training for CSFP, CHA CHPs on the identification of severe NCDs and referral conducted	Number of CHPs trained	#	Training report	Annual	142	142	142	142	142	142	142	142
		Develop supportive supervision tools to facilitate standard assessment.	A standard supervision tool developed	Existence of tool	#	workshop report	once	1	1						
		Conduct two supportive supervision visits to PEN-Plus facilities per quarter.	Quarterly supportive supervision visits to PEN-Plus facilities conducted	Number of supervision visits	#	Supervision report	Quarterly	8	8	8	8	8	8	8	8

Key Result Area(s)	Strategic Objectives (s) (Outcome area)	Proposed Intervention(s)/Activities	Expected Outcomes	Key Performance Indicators	% or #	Source of data	Periodicity	Baseline Data FY 2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
-		Link the PENPlus facilities to consultants to facilitate continuous mentorship.	PENPlus facilities linked to mentors	Number of facilities with ongoing mentorship	#	Mentorship report	Signed rota form/facility reports and	8	8	13	20	24	30	35
-		Sensitize the regulatory bodies and training institutions on severe NCDs.	Sensitization of regulatory bodies and training institutions done	Number of regulatory bodies and training institutions sensitized	#	Meeting reports	Once	20						
-	Engage with training institutions and regulatory bodies to integrate PENPlus into their training curriculum and teaching plans	Participate in the review of the training curriculum and teaching plans to incorporate the PEN-Plus strategy.	Participation in review of the curriculum	Number of training institutions forums participated in	#	Reports	Annual	2	2	2	2	2	1	1
		Link the training institutions with PENPlus facilities for trainees' attachments.	Institutions linked to the PEN-Plus facilities	Number of institutions that have been linked to the PEN-Plus facilities	#	Facility reports	Annual	2	2	4	7	10	13	15
	Mainstream task-sharing strategies to enhance PEN-Plus service delivery.	Sensitize the health administration (County Health Management Teams) and staff on task sharing policy. Conduct regular employee satisfaction surveys	CHMT and staff sensitized on task sharing policy Employee satisfaction surveys conducted	% of facilities sensitized Number surveys	% #	Supervision report Survey report	Annual Annual	60% 9	60% 9	70% 15	80% 20	90% 26	95% 31	100% 35
	Establish retention mechanisms for PENPlus trained staff.	Advocate for fair remuneration and retention policies in line with labour laws Certify and provide the Continuing Professional Development (CPD) points Certification after the training	Advocacy for fair remuneration and retention policies conducted Trainees are certified and issued CPD points	Number of advocacy activities % of trainees issued CPD points	# %	Advocacy meeting reports online survey	Every 3 years Annual	1 60%	1 60%		1 80%			100% 100%

3. Service delivery

Key Result Area	Strategic objective	Proposed Intervention(s)/ Activities	Expected Outputs	Key Performance Indicators	Assumption/ Logic	% or #	Source of data	Periodicity	Baseline Data FY2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31		
Service Delivery	Strengthen case identification mechanisms for those suspected of living with severe NCDs	a) Conduct targeted mobile outreach screening programs in schools.	Mobile outreach conducted per County	# of outreaches conducted	3 outreaches per county per quarter	#	Outreach reports	Quarterly	24	156	156	288	288	420	420		
		b) Integrate infant screening for sickle cell disease at all Maternal Child Health Clinic	Integrated SCD screening at MCHs Infants screened for SCD	# of children screened The proportion of infants screened for SCD	15 children screened per by a team of 6 HCWs	#	Outreach reports	Quarterly	360	2,340	2,340	4,320	4,320	6,300	6,300		
		c) Integrate screening and cross-linkage of severe NCDs at service delivery points.	Enhanced screening at OPD, IPD, and MCH Clinics	Proportion of Service Points with Screening per PPC % of eligible Clients Screened at the Service Delivery Points		%	Facility Reports	Monthly	2	13	13	24	24	35	35		
		d) Strengthen diagnostic capabilities of PEN-Plus conditions.	enhanced diagnostic capacity for PEN-Plus conditions	Proportion of PEN-Plus Facilities with Diagnostic Capacity For Severe NCDs	Capacity building at the beginning of the project in each facility	%	Assessment Reports	Quarterly	100%	100%	100%	100%	100%	100%	100%	100%	
		a) Conduct an annual review and update of the PEN-Plus care package	PEN-Plus Package Reviewed and Updated	# of reviews	National Review is done	#	Report	Annually	1	1	1	1	1	1	1	1	
		b) Disseminate existing guidelines protocol for severe NCDs to all PEN-Plus clinic	Guidelines and protocols disseminated to all Counties	% of PEN-Plus clinics with disseminated guidelines/ protocols	Prior sensitization on the guidelines and protocols	%	Report	Annually	100%	100%	100%	100%	100%	100%	100%	100%	100%
		c) Conduct sensitization to healthcare workers on PEN-Plus care package in all PEN-Plus clinics	HCPs in PEN-Plus Clinics sensitized on PEN-Plus care package	Percentage of HCPs PEN-Plus Clinics		%	Report	Annually	100%	100%	100%	100%	100%	100%	100%	100%	100%

Key Result Area	Strategic objective	Proposed Intervention(s)/Activities	Expected Outputs	Key Performance Indicators	Assumption/Logic	% or #	Source of data	Periodicity	Baseline Data FY2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31		
Enhance and optimize interventions aimed at facilitating a seamless continuum of care for persons living with severe NCDs for PEN-Plus		d) Implementing the quality improvement framework in PEN-Plus facilities	Quality Improvement Framework implemented	#	Done once	#	Workshop reports report	Biennial	1	-	-	-	-	-	-		
			Quality Improvement Framework implemented in PEN-Plus Clinics	% of PEN-Plus clinics implementing the QIF	Continuous process	%	PPC Facility Reports	Bi-annually	100%	100%	100%	100%	100%	100%	100%	100%	
		e) Implement defaulter tracing mechanisms and follow up for linking back to care	Defaulter tracing mechanism developed	% retention of patients per PPC				%	PPC Facility Reports	Monthly	100%	100%	100%	100%	100%	100%	100%
			Referral networks for all PEN-Plus clinics (up/downward) developed	% of successful referrals				%	PPC Facility Reports	Monthly	100%	100%	100%	100%	100%	100%	100%
			b) Develop a PEN-Plus package for self-care management developed/reviewed	# Developed or reviewed packages				#	Report	Biennial	1	-	-	1	-	-	-
	Establish effective social support mechanisms for patients enrolled in care in the PEN-Plus clinics	c) Develop social support assessment tool for persons enrolled at PEN-Plus clinics	Patients using the self-care mgt tool/App	% of patients using the tool/App			%	Analytics/report	Monthly	100%	100%	100%	100%	100%	100%	100%	
			Social support assessment tool developed	# developed or reviewed				#	Report	Annually	1	1	1	1	1	1	
		a) Map persons enrolled at PEN-Plus clinics requiring social support	Clients socially supported	% of Clients socially supported				%	Facility Reports	Monthly							
			Persons requiring social support enlisted	% of facilities mapping patients				#	Facility Reports	Quarterly	100%	100%	100%	100%	100%	100%	100%

Key Result Area	Strategic objective	Proposed Intervention(s)/ Activities	Expected Outputs	Key Performance Indicators	Assumption/ Logic	% or #	Source of data	Periodicity	Baseline Data FY2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31		
		b) Develop social support packages for persons enrolled in the PEN-Plus clinics.	Social support package developed for persons enrolled in the PEN-Plus clinics	# of packages developed		#	Report	Annually	1	1	1	1	1	1	1		
		c) Establish social support groups for patients and their caregivers (for severe NCDs)	Social support groups for patients and their caregivers (for severe NCDs) established	% of facilities with social support groups		%	Report	Quarterly	100%	100%	100%	100%	100%	100%	100%	100%	
		e) Sensitize the established support groups on self-care and income-generating activities (IGAs)	Support groups sensitized on self-care and IGAs	% of Support groups sensitized on self-care and IGAs		%	Report	Quarterly	100%	100%	100%	100%	100%	100%	100%	100%	100%
		f) Sensitize caregivers of patients with severe NCDs on self-care management and income-generating activities.	Caregivers of patients with severe NCDs sensitized	% of caregiver support groups sensitized		%	Report	Quarterly	100%	100%	100%	100%	100%	100%	100%	100%	100%
		a) Review minimum infrastructural requirements for the establishment of PEN-Plus service delivery	Minimum infrastructural requirements for the establishment of PEN-Plus service delivery reviewed	# reviews		#	Report	Annually	1	1	1	1	1	1	1	1	1
		b) Conduct an assessment to identify gaps in infrastructural improvements	Assessment conducted	# of assessments		#	Report	Annually	2	13	13	13	24	24	24	35	35
		c) Support infrastructural improvements of PEN-Plus Clinics	Infrastructural development/improvements supported	# of PPCs supported		#	Report	Annually	2	13	13	24	24	35	35	35	



Key Result Area	Strategic objective	Proposed Intervention(s)/ Activities	Expected Outputs	Key Performance Indicators	Assumption/ Logic	% or #	Source of data	Period-icity	Baseline Data FY2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
		d) Furnish facilities identified for PEN-Plus services	Facilities furnished	# of PPCs furnished		#	Report	Annually	2	13	13	24	24	35	35
		e) Equip the facility with essential equipment required for PEN-Plus interventions	Facilities equipped	# of PPCs equipped		#	Report	Annually	2	13	13	24	24	35	35

4. Health Finance

Key Result Area(s)	Strategic Objectives (s) (Outcome area)	Proposed Intervention(s)/Activities	Expected Outputs	Key Performance Indicators	% or #	Source of data	Periodicity	Baseline FY 2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	
Health Financing	Strengthen Multi-sectoral collaboration for PENPlus financing	Develop and review a map of potential funders supporting NCD interventions	Develop a database of funders	Existence of database	#	National/County (DPHK, NCD Partners navigator, HENNET)	Once	0	0	0	0	0	0	0	
		Review the database of Funders	Number databases reviewed	#		National/County (DPHK, NCD Partners navigator, HENNET)	Annually	1	1	1	1	1	1	1	
		Sensitization workshops	The proportion of stakeholders and funders sensitized	%		workshop reports & participant list	Annually	95%	95%	95%	95%	95%	95%	95%	95%
		The funder engagement framework developed	Existence of framework	#		Funder engagement framework	Biennial	1	0	1	0	1	0	0	1
	Ensure financial protection mechanisms for persons living with severe NCDs under PENPlus.	Convene biannual coalition funders' engagement for resource mobilization and feedback on progress on PENPlus.	Engagement meetings held	Number of meetings held	#		Meeting minutes	Biannual	2	2	2	2	2	2	2
		Map persons living with severe NCDs without SHIF across all levels of care.	Database of persons living with severe NCDs without SHIF	The proportion of persons living with severe NCDs without SHIF	%		Facility reports	Annually	40%	30%	20%	15%	19%	5%	0%
		Sensitize people living with severe NCDs to the new social health insurance schemes and enrollment.	Support group sensitization in partnership with the CHPs	Proportion sensitized	%		Sensitization reports	Quarterly	100%	100%	100%	100%	100%	100%	100%

Key Result Area(s)	Strategic Objectives (s) (Outcome area)	Proposed Intervention(s)/Activities	Expected Outputs	Key Performance Indicators	% or #	Source of data	Periodicity	Baseline FY 2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
		Advocate for comprehensive cover for severe NCDs to the social health authority.	Advocacy conducted for comprehensive cover for severe NCDs to the social health authority	Number of advocacy meetings	#	Minutes of meetings	Annually	1	1	1	1	1	1	1
	Ensure sustained resource mobilization plan for PENPlus.	Mobilize resources to support PENPlus initiatives.	Funds mobilized to support PENPlus initiatives	Number of successfully funded proposals to support PEN-Plus initiatives	#	Financial reports	Annually	2	2	2	2	2	2	2
		Develop proposals for funding PEN-Plus initiatives.	Proposals developed	Number of proposals developed	#	Proposals	Annually	2	2	2	2	2	2	2
	Strengthen efficiency in resource allocation and use for PENPlus interventions.	Conduct annual needs assessments to guide budgeting for PENPlus activities.	Needs assessment to guide budgeting done	Needs assessment report	#	Needs assessment report	Annually	1	1	1	1	1	1	1
		Monitor allocation and utilization of resources for the PENPlus initiative.	Regular Monitoring done	Number of financial reports	#	Reports	Annually	1	1	1	1	1	1	1
		Conduct investment case for PENPlus interventions to guide resource mobilization and allocation.	Investment case report on PEN-Plus intervention	Existence of investment case for PEN-Plus	#	Investment case reports	Once			1				

5. Health products and technologies

Key Result Area(s)	Strategic Objectives (s) (Outcome area)	Activity	Assumption	Expected Outputs	Key Performance Indicators	% or #	Source of data	Periodicity	Baseline Data FY 2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
Health Products and Technologies	Enhance accurate forecasting and quantification at the facility, County, and National levels for HPTs for severe NCDs	Update the MOH 647 to include tracer items for severe NCDs		Updated MOH 647	#Reviews	#	Workshop report	Bi-annual	-	1	-	-	1	-	-
		Disseminate the updated MOH 647 tool.		HCPs at PPC sensitized.	Proportion of PPCs sensitized	%	Training reports	Bi-annual	-	100%	-	-	100%	-	-
		Conduct forecasting and quantification of essential PEN-Plus HPTs	Full quantification is done every 2 years, aligned to the phases, and reviewed the following year.	PENPlus HPTs quantified	#reviews	#	quantification report	Annual	1	1	1	1	1	1	1
		Advocate for inclusion of PEN-PLUS commodities in the national essential medicine and diagnostic lists		PENPlus HPTs included in the essential lists	#versions of the essential lists that include PENPlus HPTs	#	Essential lists	Bi-annual	1	-	-	-	1	-	-
		Develop an inter-facility redistribution plan of essential PEN-Plus HPTs		Redistribution plan developed/reviewed.	The existence of an inter-facility redistribution plan	#	Plan/report	one-off	1						
		Review the inter-facility redistribution plan of essential PEN-Plus HPTs		Redistribution plan developed/reviewed	#reviews	#	Plan/report	Bi-annual	-	-	-	1	-	-	-
	Enhance collaboration with manufacturers and/or distributors to ensure pooling and cost reduction.	Support registration of new technologies and medicines for PEN-Plus		New HPTs for PENPlus supported	#Technologies	#	Reports	Bi-annual	-	-	1	-	-	1	-



Key Result Area(s)	Strategic Objectives (s) (Outcome area)	Activity	Assumption	Expected Outputs	Key Performance Indicators	% or #	Source of data	Periodicity	Baseline Data FY 2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	
		Procure and distribute PEN-Plus HPTs centrally. from KEMSA or MEDS to ensure quality.	based on quantification done, subject to centralized funding, enabled by SHA and FIF acts	PENPlus HPTs produced and distributed to PPCs	% of PPCs with essential PENPlus HPTs available	%	facility reports	Quarterly	-	50%	75%	85%	95%	100%	100%	
		Engage manufacturers and distributors of Essential PEN-Plus HPTs to establish access programs.	Especially SCD and DM type 1	Access programs established	#access programs	#	MOU	Bi-annual	-	1	-	-	-	-	-	-
		Support local manufacturing and extemporaneous preparation of commodities and technology transfer for PEN-Plus HPTs	Especially SCD, hydroxyurea in children	Targeted PENPlus HPTs locally manufactured or extemporaneously prepared	#PENPlus HPTs locally manufactured or extemporaneously prepared	#	MOU, Reports	Bi-annual	-	1	-	-	1	-	-	-
Strengthen pharmacovigilance and post-market Surveillance for PEN-Plus HPTs		Strengthen the pharmacovigilance system at PPCs for PENPLUS HPTs		Pharmacovigilance system strengthened in PPCs	Proportion of PPCs with functional PV system for PENPlus HPTs	%	facility reports	Annual	50%	60%	75%	85%	95%	100%	100%	
		Conduct regular post-market surveillance activities for PEN-Plus HPTs	Targeted HPTs each year subject to funding	Post-market surveillance of PENPlus HPTs to ensure quality	#Post-market surveillance done	#	PMS Reports	Annual	0	1	1	1	1	1	1	1
Strengthen reporting of HPTs for PEN-Plus		Review the NCD tracer tool to incorporate PEN-Plus HPTs (FCRR, Monthly reporting)		PENPlus HPTs included in the NCD Tracker tool	#reviews	#	Reports	Bi-annual	-	1	-	-	-	-	-	



Key Result Area(s)	Strategic Objectives (s) (Outcome area)	Activity	Assumption	Expected Outputs	Key Performance Indicators	% or #	Source of data	Periodicity	Baseline Data FY 2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	
		Integrate PEN-Plus HPTs into KHIS Dashboard and/or Integrated LMIS		PENPlus HPTs included in the KHIS and/or i-LMIS	#reviews	#	KHIS or LMIS	Once in three years	-	1	-	-	1	-	-	
		Include PENPlus HPTs in the quarterly Data Quality Audits (DQAs)	a few HPTs are already included in the current DQA. Link to M&E section	PENPlus HPTs included in DQAs	#audits	#	DQA reports	Quarterly	1	4	4	4	4	4	4	4
		Training on supply chain and commodity management for PEN-Plus for County and National staff	train 5 per PPC the; pharmacist, p-tech, lab, nurse and one other member of the MTC per facility	PPC staff trained	No of staff trained	#	training reports	Bi-annual	-	65	-	55	-	-	55	-

6. Advocacy communication and Social Mobilization

Key Result Area(s)	Strategic Objectives (s) (Outcome area)	Proposed Intervention(s)/ Activities	Expected Out-puts	Key Performance Indicators	% or #	Source of data	Periodicity	Baseline Data 2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	
Advocacy, Communication, and Social Mobilization	Enhance and sustain advocacy for PEN Plus at all levels in Kenya by 2030	Disseminate the PEN Plus National Action Plan to the Council of Governors, Parliamentary, and Senate Health committees.	PEN Plus National Action Plan disseminated	Number of counties disseminated to	#	Workshop report	Annually	8	8	16	26	36	42	47	
		Sensitize the national and county governments to prioritize the PEN Plus Action plan in the National NCD strategy, CIDPs, and Annual Work Plans.	National and county governments sensitized on prioritization of PENPlus	Number of sensitisation meetings	#	Sensitisation report	Biennial	1	1	0	1	0	1	1	0
		Hold advocacy and sensitization forums with stakeholders to mobilize resources for the implementation of PEN Plus.	Advocacy and sensitization forums held	Number of fora	#	Workshop report	Annual	1	1	1	0	1	1	1	1
		Advocate for the integration of the PEN Plus National Action Plan into the health financing framework (UHC/SHA framework)	Advocacy on the integration of the PEN Plus into the UHC/SHA conducted	Number of meetings	#	Workshop report	Annual	0	0	1	1	1	1	1	1
		Commemorate World Health Days for Severe NCDs	World health Day commemorated	Number of WHD	#	WHD report	Annual	0	0	3	3	3	3	3	3
		Support persons living with severe NCDs to participate in the national and county planning and budgeting process levels.	Persons living with severe NCDs to participate are facilitated	Number of PLWNCDs supported	#	Participation report	Annual	0	0	330	330	330	330	330	330
		Develop and implement a communication and media strategy to develop key messages for PEN- Plus	Communication and media strategy developed and disseminated	Existence of Communication and media strategy	#	Communication and media strategy	Once	0	0	1	0	0	0	0	0
		Develop and disseminate the key messages for PEN Plus to the communities (Utilizing digital tools, media, and forums).	PEN Plus key messages developed and disseminated	Number of media report messages	#	Media reports	Annual	5	5	6	6	6	6	6	6
		Create a PEN-PLUS website.	PEN Plus website was established	Existence of PEN Plus website	#	Website	Annual	0	0	1	1	1	1	1	1

Key Result Area(s)	Strategic Objectives (s) (Outcome area)	Proposed Intervention(s)/ Activities	Expected Out-puts	Key Per-formance Indicators	% or #	Source of data	Periodicity	Baseline Data 2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
	Strengthen and enhance social mobilization for PEN Plus at all levels in Kenya.	Identify and build the capacity of PEN Plus champions in the political space and among civil society organizations. Hold community engagement for special interest groups such as religious leaders, opinion leaders, youths and women to educate on PEN-Plus strategy.	PEN Plus champions identified and trained	Number of Champions	#	Workshop report	Annual	0	0	5	5	5	5	5
		Community engagement for special interest groups conducted	Community engagement for special interest groups conducted	Number of engagements	#	Reports	Annual	0	0	1	1	1	1	1
		Sensitize community health promoters on the PEN Plus strategy to create awareness on Severe NCD and the availability of health care services.	Community health promoters sensitized on the PEN Plus strategy	Number of CHPs sensitized	#	Workshop report	Annual	0	0	550	550	550	550	550

7. Surveillance and Research

Key Result Area(s)	Strategic Objective(s) (Outcome area)	Proposed Intervention(s)/Activities	Expected Outputs	Key Performance Indicators	% or #	Source of data	Periodicity	Baseline FY 2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31		
Surveillance and Research	To integrate and strengthen information systems for surveillance of severe NCDs	Review data collection tools for severe NCDs	Tools Reviewed	No. of reviews conducted	#	Workshop reports	biennial	-	1	0	1	0	1	1		
		Disseminate reviewed data collection tools for severe NCDs	Reviewed tools disseminated	Number of facilities with reviewed data collection tools	#	monthly reports	monthly	2	8	13	19	24	30	35		
		Integrate severe NCD indicators into existing relevant EMRs	Severe NCD indicators added to the existing EMRs	No. of facilities with EMRs that track severe NCD indicators integrated	#	EMR integration workshop reports Integration report from ICT	annual	2	8	13	19	24	30	35		
		Integrate severe NCD indicators into the existing dashboard for NCDs (KHIS)	Severe NCD indicators integrated into existing NCD dashboard	No. of severe NCD indicators integrated into the existing dashboard	#	KHIS NCD dashboard in KHIS	annual	0	10	13	19	24	30	35		
		Conduct regular data quality audits.	Data Quality audits conducted	No. of DOAs conducted at the facility level	#	Minutes DOA reports	quarterly	8	8	8	8	8	8	8	8	
		Develop severe NCDs research agenda	Research agenda developed and circulated	A research agenda in existence	#	Meeting minutes and workshop reports	Twice	0	0	1	1	1	1	1	1	
		Develop a severe NCD research implementation plan	Research implementation plan developed and circulated	An approved plan with a budget The number of stakeholders reached	#	minutes and works for the meeting	Twice	0	0	1	1	1	1	1	1	

Key Result Area(s)	Strategic Objectives (s) (Outcome area)	Proposed Intervention(s)/Activities	Expected Outputs	Key Performance Indicators	% or #	Source of data	Periodicity	Baseline FY 2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
		Conduct operational/implementation research on severe NCDs with partners	Operational/implementation research conducted	Number of research proposals approved Number of research studies completed	#	Approved proposals Research reports	Annually	0	0	1	1	1	1	1
		Disseminate research findings in various forums/platforms-seminars, workshops, conferences.	Dissemination fora held	Number of research dissemination held No of fora held	#	Research articles presented in workshops and seminars	Annually	0	0	1	1	1	1	1



CHAPTER 6: RESOURCE REQUIREMENTS

6.1 Resource Requirements for PEN-Plus Implementation

This section provides a comprehensive account of the resource needs for the PEN Plus implementation period, outlining the available resources and the financial gaps between anticipated and required resources. These estimates will not only inform annual planning but also prepare the country to facilitate resource mobilization.

The cost data presented here offers a comprehensive understanding of the financial resources needed for PEN Plus implementation, facilitating efficient resource allocation and budgeting. Additionally, it helps identify potential funding gaps and challenges, enabling the development of proactive solutions. Furthermore, the cost data supports the prioritization of interventions by ensuring that resources are allocated to activities with the most significant impact. This information on resource requirement is expected to assist stakeholders in developing realistic annual health budgets, which are essential for designing and implementing more effective annual operational plans. The cost data will also aid health program implementers, policymakers, and funders in generating evidence to support advocacy efforts, as well as resource mobilization, planning, and budgeting for NCDs.

6.2 Costing methodology

6.2.1 Activity-based Costing

Costing involves quantifying the monetary value of inputs necessary to produce a specific output, estimating the quantity of inputs required by an activity or program. The PEN Plus plan was costed using Activity-Based Costing (ABC), a method that allocates costs to products and services based on each intervention and activity, with the aim of achieving specific goals and results. ABC emphasizes a bottom-up approach and is commonly used as a tool for planning. In this method, all costs of activities are traced to the product or service for which the activities are performed.

Within ABC, each activity requires inputs, such as labor and the use of conference halls, in specific quantities and frequencies. The total input cost is determined by the sum of the product of the unit cost, the quantity, and the frequency of the input. The unit cost represents the value of resources needed to provide a service to one unit/person (client or patient). All the components required to provide a service to one person are clearly defined in activity-based costing, including the quantity of each input and its cost per unit.

ABC is significant in performance budgeting for two main reasons:

- **Improved Expenditure Prioritization:** ABC facilitates improved program budgeting by offering a structured process to decide how to distribute scarce resources to the most suitable activities, thereby enabling the attainment of desired outcomes and the enhancement of expenditure quality.
- **Enhanced Alignment between Planned Outputs and Funding:** ABC aids in establishing the input costs associated with the activities required to produce the intended outcomes, thus forging a stronger connection between planned outputs and financial resources.

6.3 Process of Costing the PEN-Plus Implementation Plan

The collaborative effort of a multidisciplinary team; drawing members from the Ministry of Health and NCD-AK, was integral in the development of cost estimates for PEN Plus plan. The team provided essential guidance, data, and strategic input throughout the process. Costing was conducted through a consultative and iterative approach, involving various stages from formulating objectives, data collection, target setting, and quality assurance to guarantee the accuracy and reliability of the cost estimates. These comprehensive measures were implemented to ensure that the financial projections PEN Plus were well-informed, transparent, and aligned with the intended PEN Plus strategic objectives.



6.4 Total Resource requirements for PEN Plus implementation 2024/25-2030/31

This section provides an overview of the annual resource requirements for implementing PEN Plus. The table below presents summarized cost estimates for intervention areas and health systems. From the costing, KES 1.8 billion is required to fund the strategy throughout the planned period. See Figure 1 below.



Figure 1: Total Resource Requirement (KES, Million)

6.5 Resource requirement by Pillar

From the costing, the majority of resources required are attributed to Health Products and Technologies, accounting for 47.3% of the total budget. Service Delivery follows closely behind, comprising 28.9% of the resource requirements. The remaining pillars (23.8%) is broken down as follows: Leadership and Governance at 4.8%, Human Resources for Health at 7%, Health Financing at 3.2%, Advocacy, Communication and Social Mobilization at 3.2%, and Surveillance and Research at 5.6%. See figure 2 below and table 9.

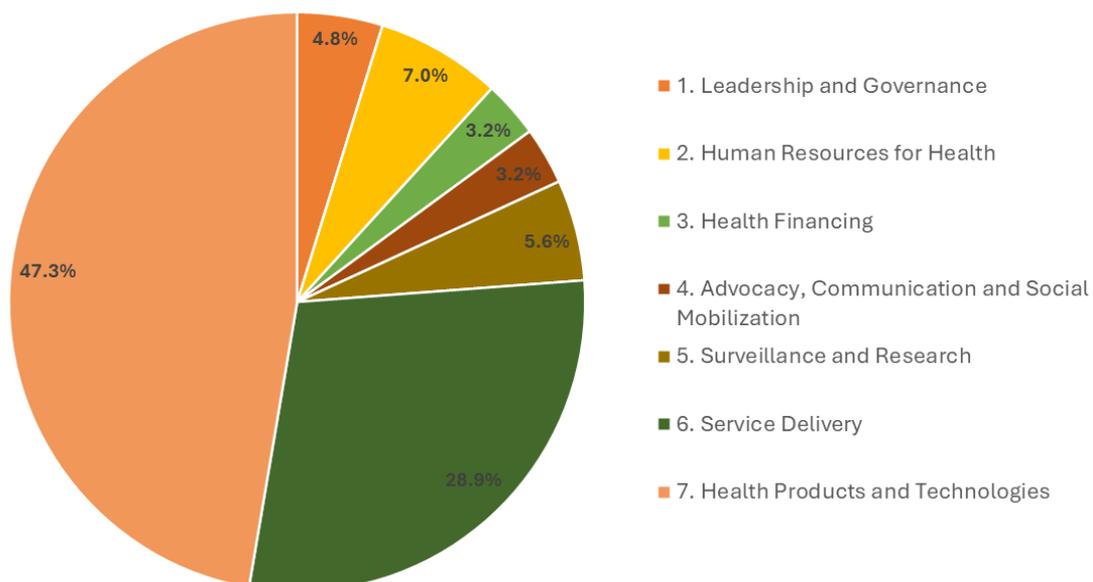


Figure 2: Resource requirement by Pillar

Table 9: Total Resource Requirement by Pillar (KES)

Pillar	Cost Y1	Cost Y2	Cost Y3	Cost Y4	Cost Y5	Cost Y6	Cost Y7	Total cost
1. Leadership and Governance	16,062,000	13,943,705	11,251,505	14,472,658	10,871,500	10,871,500	10,871,500	88,344,368
2. Human Resources for Health	59,504,000	20,643,510	12,747,317	8,493,223	10,734,000	6,198,000	10,734,000	129,054,050
3. Health Financing	3,048,000	10,467,275	11,019,090	11,983,983	7,224,500	7,224,500	7,224,500	58,191,848
4. Advocacy, Communication and Social Mobilization	22,124,500	8,323,530	7,078,917	7,699,395	4,583,000	4,583,000	4,583,000	58,975,342
5. Surveillance and Research	879,000	16,148,975	31,855,125	27,293,958	7,079,447	12,666,733	7,785,639	103,708,877
6. Service Delivery	66,709,700	88,547,529	69,220,311	100,888,049	57,299,700	88,524,208	60,459,700	531,649,196
7. Health Products and Technologies	94,115,925	181,948,490	102,163,921	117,172,822	116,869,573	125,238,393	133,758,330	871,267,454
Grand Total	262,443,125	340,023,014	245,336,185	288,004,088	214,661,719	255,306,333	235,416,669	1,841,191,135

6.6 Resource requirement by strategy

The table below shows costs by the different strategies.

Table 10: Resource requirement by strategy (KES. Million)

Strategies	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	Total
1. Leadership and Governance	16.1	13.9	11.3	14.5	10.9	10.9	10.9	88.3
To strengthen leadership and governance at all levels (National, County and health facility levels)	16.1	13.9	11.3	14.5	10.9	10.9	10.9	88.3
2. Human Resources for Health	59.5	20.6	12.7	8.5	10.7	6.2	10.7	129.1
Establish human resource needs for PENPlus across all levels of care.	6.0	1.9	2.1	2.2	1.8	1.8	1.8	17.7
Establish retention mechanisms for PENPlus trained staff	0.8	0.9	0.9	1.0	0.8	0.8	0.8	6.1
Mainstream task sharing strategies to enhance PENPlus service delivery.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Strengthen capacity of service providers to meet demand for PENPlus service delivery.	52.6	17.8	9.7	5.2	8.1	3.5	8.1	104.9
3. Health Financing	3.0	10.5	11.0	12.0	7.2	7.2	7.2	58.2
a) Strengthen multisectoral collaboration for PENPlus financing in Kenya	3.0	4.5	4.8	5.2	4.2	4.2	4.2	30.3
b) Strengthen efficiency in resource allocation and use for PENPlus interventions.	-	5.9	6.2	6.8	3.0	3.0	3.0	27.9
4. Advocacy, Communication and Social Mobilization	22.1	8.3	7.1	7.7	4.6	4.6	4.6	59.0
1. Enhance and sustain advocacy for PEN Plus at all levels in Kenya by 2030	20.5	3.4	3.4	3.7	3.0	3.0	3.0	39.9

Strategies	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	Total
Enhance and decentralise communication strategies for PEN Plus to communities and other stakeholders in Kenya	1.6	3.2	3.7	1.9	1.6	1.6	1.6	15.1
Strengthen and enhance social mobilisation for PEN Plus at all levels in Kenya	-	1.8	-	2.1	-	-	-	3.9
5. Surveillance and Research	0.9	16.1	31.9	27.3	7.1	12.7	7.8	103.7
To integrate and strengthen information systems for surveillance of severe NCDs	0.9	10.1	12.7	17.8	4.8	10.4	5.5	62.1
To promote research on severe NCDs and knowledge translation	-	6.0	19.2	9.5	2.3	2.3	2.3	41.6
6. Service Delivery	66.7	88.5	69.2	100.9	57.3	88.5	60.5	531.6
Designing a comprehensive PEN Plus care package for severe NCDs.	57.5	73.3	55.1	83.5	48.1	74.3	48.1	439.8
Strengthen case identification mechanisms for those suspected of living with severe NCDs.	9.2	15.2	14.2	17.4	9.2	14.2	12.4	91.8
7. Health Products and Technologies	94.1	181.9	102.2	117.2	116.9	125.2	133.8	871.3
Enhance accurate forecasting and quantification at the facility, County and National levels for HPTs for severe NCDs.	90.4	100.7	101.6	113.9	116.2	124.5	133.0	780.2
Enhance collaboration with manufacturers and/or distributors to ensure pooling and cost reduction	2.7	2.9	0.6	3.3	0.7	0.7	0.8	11.7
Strengthen case identification mechanisms for those suspected of living with severe NCDs.	-	75.9	-	-	-	-	-	75.9
Strengthen pharmacovigilance and post-market Surveillance for PEN plus HPTs	-	0.2	-	-	-	-	-	0.2
Strengthen reporting of HPTs for PEN plus	1.0	2.3	-	-	-	-	-	3.3
Grand Total	262.4	340.0	245.3	288.0	214.7	255.3	235.4	1,841.2

6.7 Available Resources

The analysis of available resources over a seven-year period reveals a breakdown of funding from government sources and the NCDI-Poverty Network. Government funding allocated to Human Resources starts at 3.4 million in Year 1 and progressively increases to reach 63 million in Year 7, totaling 224 million over the seven years. Conversely, the NCDI-Poverty Network contributes significantly more, with funding starting at KSh 23 million in Year 1 and steadily rising to KSh183 million in Year 6, totaling to KSh 901 million over the seven-year period. The combined subtotals show a progressive increase in available resources each year, reaching a total of KSh1.1 billion by the end of the seven-year timeframe, indicating a substantial projected commitment to PEN-Plus implementation.

Table 11 shows the total available resources by year and source to support the implementation of the PEN Plus over the short-term.

Table 11: Estimated and projected financial resources available by source (KES)

Available resources	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total
Government -Human Resources	3,360,000	10,483,200	20,966,400	31,449,600	41,932,800	52,416,000	62,899,200	223,507,200
NCDI-Pover- ty Network	23,202,021	113,763,078	125,139,386	137,653,324	151,418,657	166,560,522	183,216,575	900,953,563
Sub Totals	26,562,021	124,246,278	146,105,786	169,102,924	193,351,457	218,976,522	246,115,775	1,124,460,763

6.8 Financial Gap Analysis

The funding gap provides a measure of the gap in funding which exists if full implementation is not done. The Financing gap was computed as the difference between the resource requirements and the available resources. The identification of the funding gap provides an opportunity for potential stakeholders to see when additional resources is most useful. The health sector requires KSh 912 million to bridge the financing gap for the implementation of the PEN Plus action plan. Table 12 summarizes the available resources and costs from the previous sections, to provide an estimate of the PEN Plus funding gap by year.

Table 12: Financial gap analysis for the health sector (KES)

Metric	Cost Y1	Cost Y2	Cost Y3	Cost Y4	Cost Y5	Cost Y6	Cost Y7	Total
Total Requirement	262,443,125	340,023,014	245,336,185	288,004,088	214,661,719	255,306,333	235,416,669	1,841,191,135
Total Available	26,562,021	124,246,278	134,729,478	145,212,678	155,695,878	166,179,078	176,662,278	929,287,689
Funding Gap	235,881,104	215,776,736	110,606,707	142,791,410	58,965,841	89,127,255	58,754,391	911,903,446

6.9 Strategies to ensure available resources are sustained.

Closing the funding gap is crucial to guarantee that the execution of the strategic interventions in this plan is not hindered by resource shortages. It is essential to develop inventive approaches to generate and maintain funding, including from non-traditional sources. Advocacy and lobbying efforts will be made to secure greater budget allocations. The following partners and stakeholders will be located, assessed, and consistently involved to garner their support for the implementation of this strategy. See Table 13 below.

Table 13: Strategies to ensure available resources are sustained

	Stakeholder	Area of Interest	Strategy
1	The National Treasury	Annual Budget	Development of strategic concept/Proposals Active participate and in MTEF processes Active participation in the annual budget estimate processes Regular advocacy meeting
2	National & County Assembly	Budgetary Allocation process SHIF	Lobbying for increased budgetary allocation to NCDs Lobbying for adequate allocation of sin tax to NCDs Enact Social Health Insurance which will be responsible for reimbursement of drugs
3	County Governments		Lobbying for a legislative framework in the county assembly for resource mobilization and allocation

	Stakeholder	Area of Interest	Strategy
4	Development Partners (World bank, UN bodies, Bilateral donors)	Advancing health agenda by providing funding	Joint round table funding opportunity meetings Identification of potential donors both bilateral and multi-lateral Drafting and submission responsive concepts and proposals for funding
5	Private Sector	Corporate responsibilities, collaboration, and commercial value addition	Engagement through public private partnerships Hold regular meetings Put in place efficient procurement systems Establishment of sound Lease and Concession contracts Efficient Procurement processes
6	International Non-Governmental Organizations (INGOs), NGOs, CSOs, FBOs	Funding, provision of services, Capacity building, Social Accountability	Hold continuous dialogue meetings Drafting and submitting responsive proposals Sharing information for support areas of interest
7	Community	Lobbying for increased funding at constituency and county level	Identification, appointment, and accreditation of eminent persons in the community as resource mobilization good will ambassador

6.10 Scenario Analysis for one PENPlus facility

The costing that has been previously presented describes a status quo where the interventions assume the current operations of the PEN-Plus facilities. In this scenario, the costs for equipping and Human resource have been considered. The assumption is that the PEN-Plus clinic is established within an existing and functioning health facility. Also, the human resource component is covered by government. The only costs to be incurred are for equipping and running the clinic.

In this section we further describe three more scenarios where we estimate the cost of construction of a PEN plus facility by modeling three distinct scenarios: -

- **Scenario 1**, the assumption was made that there would be no facility or equipment, but human resources (HR) would be available. The costs factored into this scenario encompassed expenses related to the facility, equipment, and operations.
- **Scenario 2**, envisioned a situation where there would be no facility or equipment, and no HR present. In this case, the cost analysis included considerations for the facility, equipment, HR, and operations.
- **Scenario 3**, we assumed that the facility underwent renovation. The costs associated with this scenario included refurbishment and renovation expenses, the purchase of new equipment, the cost of conducting a facility assessment, and expenses related to county and sub-county governance. Additionally, training for healthcare workers (HCWs) was planned, consisting of at least three workshops lasting five days each for 25 participants. There was also a training session for community health promoters (CHPs), which involved at least one workshop lasting five days for 50 participants.

6.10.1 Cost Requirements for Scenario 1

In Scenario 1, Year 1 the projected construction costs is approximately KSh 6.86 million, while equipment costs are expected to peak in Year 5 at KSh 18.8 million. This anticipated increase in Year 5 is attributed to the need for replacing equipment that will reach the end of its useful life, typically estimated at five years. Consequently, substantial investments will be required to ensure the facility remains operational and efficient. Overhead expenses are projected to rise



consistently each year, starting at KSh 1.86 million in Year 1 and reaching KSh 3.62 million by Year 7. The total projected costs for Scenario 1 will show a notable spike in Year 5, amounting to around KSh 21.9 million, reflecting the culmination of these major investments. See Table 14 below.

Table 14: Total cost of constructing and furnishing a PENPlus facility: Scenario 1

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Construction	6,855,296	-	-	-	-	-	-
Equipment	13,301,116	8,556	1,210,554	2,325,534	18,874,881	12,527	1,772,372
Overheads	1,860,000	2,250,600	2,475,660	2,723,226	2,995,549	3,295,103	3,624,614
Total Scenario 1	22,016,412	2,259,156	3,686,214	5,048,760	21,870,429	3,307,630	5,396,986

6.10.2 Cost Requirements for Scenario 2

In Scenario 2, Year 1, the projected construction costs are approximately KSh 6.86 million. Equipment costs are expected to peak in Year 5 at KSh 18.9 million due to the need for replacing equipment that will reach the end of its useful life. Overhead expenses are projected to rise consistently each year, starting at KSh 1.86 million in Year 1 and reaching KSh 3.62 million by Year 7. See Table 15 below

Table 15: Total cost of constructing and furnishing a PENPlus facility: Scenario 2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Construction	6,855,296	-	-	-	-	-	-
Equipment	13,301,116	8,556	1,210,554	2,325,534	18,874,881	12,527	1,772,372
Overheads	1,860,000	2,250,600	2,475,660	2,723,226	2,995,549	3,295,103	3,624,614
HR	3,600,000	4,356,000	4,791,600	5,270,760	5,797,836	6,377,620	7,015,382
Total Scenario 2	25,616,412	6,615,156	8,477,814	10,319,520	27,668,265	9,685,250	12,412,367

6.10.3 Cost Requirements for Scenario 3

In Scenario 3, the projected costs over seven years start with a total of KSh 29.58M in Year 1, driven by major expenditures for renovations (KSh 2.43M), equipment (KSh 13.3M), and training for healthcare workers and CHPs. Year 2 sees costs drop to KSh 2.26M, with equipment expenses and overheads. Year 3 increases to KSh 6.93M, fueled overheads and training costs. Year 4 totals KSh 5.05M while in Year 5, costs surge to KSh 25.9M, largely due to significant equipment investment. Year 6 decreases to KSh 3.31M, while Year 7 rises to KSh 10.15M, largely driven by training and overhead costs. See Table 16 below.

Table 16: Total cost of renovating and furnishing a PENPlus facility: Scenario 3

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Renovation	2,431,220	-	-	-	-	-	-
Equipment	13,301,116	8,556	1,210,554	2,325,534	19,035,932	12,527	1,772,372
Overheads	1,860,000	2,250,600	2,475,660	2,723,226	2,995,549	3,295,103	3,624,614
Development of Materials	3,652,000	-	-	-	-	-	-
Training HCWs	6,294,000	-	532,400	-	644,204	-	779,487
Training CHPs	2,039,000	-	2,713,909	-	3,283,830	-	3,973,434
Total Scenario 3	29,577,336	2,259,156	6,932,523	5,048,760	25,959,514	3,307,630	10,149,907

6.10.4 Scenario Analysis

When comparing the projected costs across the three scenarios over the seven-year period, notable trends emerge. In Year 1, Scenario 3 has the highest total cost at KSh 29.6M, significantly above Scenario 2's KSh 25.6M and Scenario 1's KSh 22.01M. This initial expenditure in Scenario 3 is largely driven by substantial investments in trainings and equipment. In Year 2, both Scenario 1 and Scenario 3 share the same cost of KSh 2.26M, while Scenario 2 sees a notable increase to KSh 6.62M which is majorly driven by HR costs. Likewise, in year 3 in Scenario 2 remains the most expensive. In Year 4, scenario 1 and Scenario 3 costs KSh 5.05M while scenario 2 increases to KSh 10.32M mainly due to HR costs. The divergence becomes pronounced in Year 5, where Scenario 2 peaks at KSh 27.67M, while Scenario 3 follows at KSh 25.96M and Scenario 1 significantly lags at KSh 21.87M. The high costs for the three scenarios are largely driven by equipment costs. In Year 6, both Scenarios 1 and 3 drop to KSh 3.31M, while Scenario 2 sees a notable rise to KSh 9.69M due to the HR costs. Finally, Year 7 shows Scenario 2 continuing to lead with KSh 12.41M, followed by Scenario 3 at KSh 10.15M and Scenario 1 at KSh 5.40M. See Table 17 and Figure 3 below.

Table 17: Scenario Analysis

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Total Scenario 1	22,016,412	2,259,156	3,686,214	5,048,760	21,870,429	3,307,630	5,396,986
Total Scenario 2	25,616,412	6,615,156	8,477,814	10,319,520	27,668,265	9,685,250	12,412,367
Total Scenario 3	29,577,336	2,259,156	6,932,523	5,048,760	25,959,514	3,307,630	10,149,907

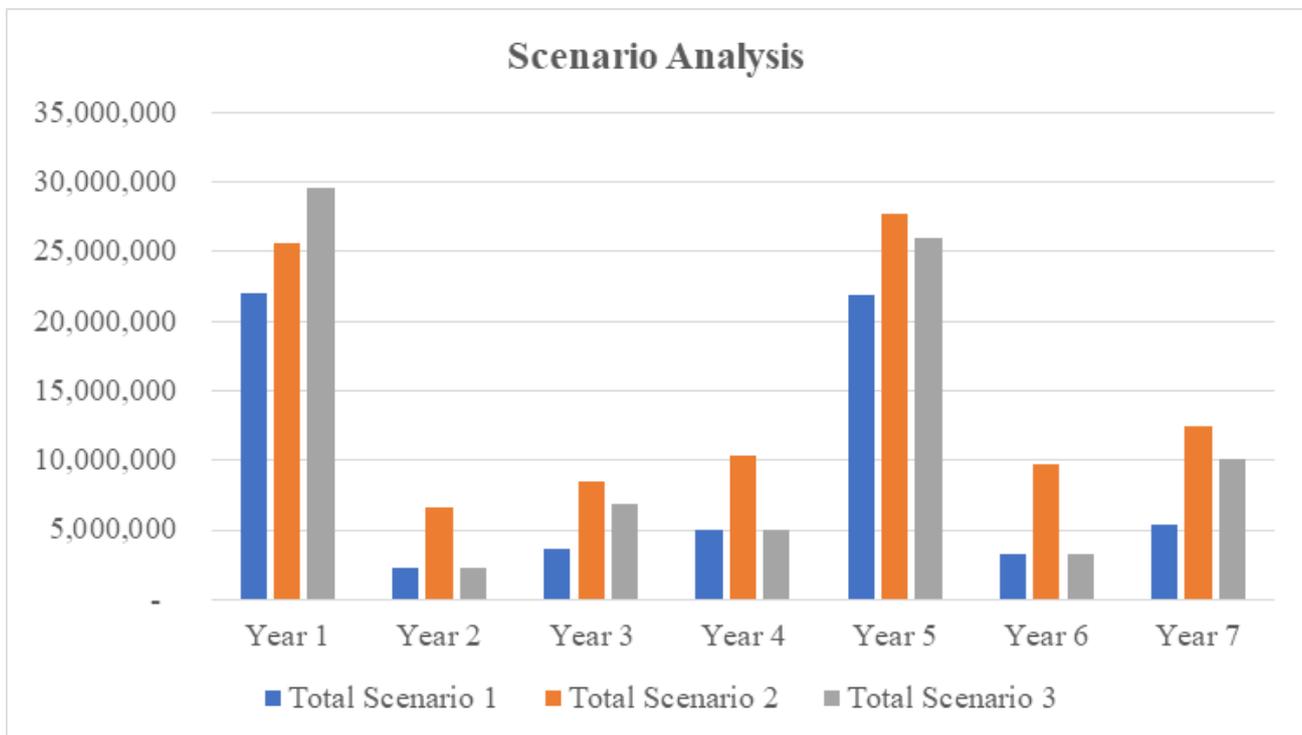


Figure 3: Scenario Analysis

Detailed scenario analysis is shown in the table 18, 19 and 20 below

Table 18: Scenario One Costing

Dimension	Input items	Quantity	Frequency	Unit Cost	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
FACILITY CONSTRUCTION	ELEMENT NO. 1: SUBSTRUCTURE	1	1	1,029,950	1,029,950	One off cost	-	-	-	-	-	-
	ELEMENT NO.2 STRUCTURAL WORKS	1	1	279,250	279,250	One off cost	-	-	-	-	-	-
	ELEMENT NO. 3 WALLING	1	1	488,500	488,500	One off cost	-	-	-	-	-	-
	ELEMENT NO 4-ROOFING	1	1	666,400	666,400	One off cost	-	-	-	-	-	-
	ELEMENT NO 5-DOORS	1	1	210,740	210,740	One off cost	-	-	-	-	-	-
	ELEMENT NO 6-WINDOWS	1	1	150,500	150,500	One off cost	-	-	-	-	-	-
	ELEMENT NO. 7-FINISHES	1	1	1,225,750	1,225,750	One off cost	-	-	-	-	-	-
	ELECTRICAL INSTALLATION WORKS FOR NCD CLINIC	1	1	345,550	345,550	One off cost	-	-	-	-	-	-
	CONTINGENCIES	1	1	150,000	150,000	One off cost	-	-	-	-	-	-
	PROJECT MANAGEMENT	1	1	200,000	200,000	One off cost	-	-	-	-	-	-
Labour costs	PLUMBING AND DRAINAGE WORKS	1	1	100,000	100,000	One off cost	-	-	-	-	-	-
	APPROVAL OF DRAWINGS	1	1	50,000	50,000	One off cost	-	-	-	-	-	-
	30% of Total Construction Cost	1	1	1,468,992.0	1,468,992	One off cost	-	-	-	-	-	-
	10% of Total Construction Cost	1	1	489,664	489,664	One off cost	-	-	-	-	-	-
	Autoclave machines	2	1	40,000	80,000	Year 1	-	-	-	-	Year 5	-
	Tape measure	2	1	450	900	Year 1	-	-	-	-	Year 5	-
	Weighing scale	2	1	10,000	20,000	Year 1	-	-	-	-	Year 5	-
	Heightometer	2	1	9,800	19,600	Year 1	-	-	-	-	Year 5	-
	Microflament and 128Hz tuning fork	2	1	18,000	36,000	Year 1	-	-	-	-	Year 5	-
	Glucometer	2	1	6,500	13,000	Year 1	-	-	-	-	Year 5	-
Contingency Equipment	HbA1c testing equipment	2	1	140,000	280,000	Year 1	-	-	-	Year 5	-	-
	Visual acuity chart	2	1	55,000	110,000	Year 1	-	-	-	Year 5	-	-
	Ophthalmoscope	1	1	990,000	990,000	Year 1	-	-	-	Year 5	-	-
	Laser equipment	1	1	155,000	155,000	Year 1	-	-	-	Year 5	-	-
	Retina photography	1	1	85,000	85,000	Year 1	-	-	-	Year 5	-	-
	Harris marts	2	1	30,000	60,000	Year 1	-	Year 3	-	Year 5	-	Year 7
	Hand held doppler	2	1	80,000	160,000	Year 1	-	-	-	Year 5	-	-
	Podiatry chair	2	1	180,000	360,000	Year 1	-	-	-	Year 5	-	-
	Slit lamp biomicroscopy	1	1	800,000	800,000	Year 1	-	-	-	Year 5	-	-
	Stethoscope	2	1	600	1,200	Year 1	-	-	Year 3	-	-	-



Dimension	Input items	Quantity	Frequency	Unit Cost	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
	Thermometer	2	1	500	1,000	Year 1	-	Year 3	-	Year 5	-	Year 7
	ECG machine	1	1	742,277	742,277	Year 1	-	-	-	Year 5	-	-
	Echo machine (high specification)	1	1	1000000	1000000	Year 1	-	-	-	Year 5	-	-
	Ambulatory BP 24 hr Holter machine	1	1	13,200	13,200	Year 1	-	-	-	Year 5	-	-
	Hemoglobin solubility test	2	1	300,000	600,000	Year 1	-	Year 3	-	Year 5	-	Year 7
	Sickling test equipment	2	1	480,000	960,000	Year 1	-	-	-	Year 5	-	-
	Transcranial Doppler (TCD) machine	1	1	385,000	385,000	Year 1	-	-	-	Year 5	-	-
	HPLC (High -Performance Liquid Chromatography)	2	1	330,000	660,000	Year 1	-	-	-	Year 5	-	-
	Hb electrophoresis	2	1	24,200	48,400	Year 1	-	Year 3	-	Year 5	-	Year 7
	Isoelectrophoresis	2	1	64,790	129,580	Year 1	-	Year 3	-	Year 5	-	Year 7
	Weighting scale	2	1	10,000	20,000	Year 1	-	Year 3	-	Year 5	-	Year 7
	Blood pressure machine	2	1	1,800	3,600	Year 1	-	-	-	Year 5	-	-
	Pulse oximetry (PO2)	2	1	200,000	400,000	Year 1	-	-	-	Year 5	-	-
	Ophthalmoscope	1	1	825,000	825,000	Year 1	-	-	-	Year 5	-	-
	Fundal camera	1	1	330,000	330,000	Year 1	-	-	-	Year 5	-	-
	Blood transfusion equipment	2	1	550,000	1,100,000	Year 1	-	-	-	Year 5	-	-
	Peak flow meter	1	1	4,256	4,256	Year 1	-	Year 3	-	Year 5	-	Year 7
	Spirometer	1	1	1,500	1,500	Year 1	-	-	-	Year 5	-	-
	Spacers for inhalers	1	1	3,000	3,000	Year 1	-	Year 3	-	Year 5	-	Year 7
	Chemistry machine	1	1	313,200	313,200	Year 1	-	-	-	Year 5	-	-
	C-peptide machine / A1C	1	1	2,032	2,032	Year 1	-	-	-	Year 5	-	-
	Ultrasound machine with cardiac, abdominal, and linear probes	1	1	320,000	320,000	Year 1	-	-	-	Year 5	-	-
	Nebulizer	1	1	35,000	35,000	Year 1	-	Year 3	-	Year 5	-	Year 7
	Hematology	1	1	580,000	580,000	Year 1	-	-	-	Year 5	-	-
	INR machine	1	1	65,000	65,000	Year 1	-	-	-	Year 5	-	-
	Sickle cell rapid screening tests	1	1	6,621	6,621	Annual cost						
	Measurement tape	1	1	450	450	Annual cost						
	Chairs	1	1	2,500	2,500	Year 1	-	-	Year 4	-	-	-
	Tables	2	1	25,000	50,000	Year 1	-	-	Year 4	-	-	-
	Cabinets	3	1	50,000	150,000	Year 1	-	-	Year 4	-	-	-
	Desktops	2	1	60,000	120,000	Year 1	-	-	Year 4	-	-	-
	Printers	2	1	55,000	110,000	Year 1	-	-	Year 4	-	-	-



Dimension	Input items	Quantity	Frequency	Unit Cost	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	
Overhead costs (Monthly spending)	Airport chairs	4	1	20,000	80,000	Year 1	-	-	Year 4	-	-	-	
	Computers	2	1	60,000	120,000	Year 1	-	-	Year 4	-	-	-	
	Scanners	2	1	20,000	40,000	Year 1	-	-	Year 4	-	-	-	
	Stretchers	10	1	26,680	266,800	Year 1	-	-	Year 4	-	-	-	
	Examination couch	4	1	38,000	152,000	Year 1	-	-	Year 4	-	-	-	
	Dressing trolleys	10	1	15,000	150,000	Year 1	-	-	Year 4	-	-	-	
	Drip stands	10	1	20,000	200,000	Year 1	-	-	Year 4	-	-	-	
	Refrigerator	1	1	70,000	70,000	Year 1	-	-	Year 4	-	-	-	
	Televisions	1	1	70,000	70,000	Year 1	-	-	Year 4	-	-	-	
	Casuals	5	12	15,000	900,000	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost
	Electricity	1	12	40,000	480,000	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost
	Water	1	12	20,000	240,000	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost
	Printing and production costs	1	12	20,000	240,000	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost
Total				2,259,156	2,259,156	2,259,156	3,686,214	5,048,760	21,870,429	3,307,630	5,396,986	22,016,412	



Table 19: Scenario Two Costing

Dimension	Input items	Quantity	Frequency	Unit Cost	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
FACILITY CONSTRUCTION	ELEMENT NO. 1: SUBSTRUCTURE	1	1	1,029,950	1,029,950	One off cost	-	-	-	-	-	-
	ELEMENT NO.2 STRUCTURAL WORKS	1	1	279,250	279,250	One off cost	-	-	-	-	-	-
	ELEMENT NO. 3 WALLING	1	1	488,500	488,500	One off cost	-	-	-	-	-	-
	ELEMENT NO 4-ROOFING	1	1	666,400	666,400	One off cost	-	-	-	-	-	-
	ELEMENT NO 5-DOORS	1	1	210,740	210,740	One off cost	-	-	-	-	-	-
	ELEMENT NO 6-WINDOWS	1	1	150,500	150,500	One off cost	-	-	-	-	-	-
	ELEMENT NO. 7-FINISHES	1	1	1,225,750	1,225,750	One off cost	-	-	-	-	-	-
	ELECTRICAL INSTALLATION WORKS FOR NCD CLINIC	1	1	345,550	345,550	One off cost	-	-	-	-	-	-
	CONTINGENCIES	1	1	150,000	150,000	One off cost	-	-	-	-	-	-
	PROJECT MANAGEMENT	1	1	200,000	200,000	One off cost	-	-	-	-	-	-
	PLUMBING AND DRAINAGE WORKS	1	1	100,000	100,000	One off cost	-	-	-	-	-	-
	APPROVAL OF DRAWINGS	1	1	50,000	50,000	One off cost	-	-	-	-	-	-
	30% of Total Construction Cost	1	1	1,468,992.0	1,468,992	One off cost	-	-	-	-	-	-
	10% of Total Construction Cost	1	1	489,664	489,664	One off cost	-	-	-	-	-	-
Equipment	Autoclave machines	2	1	40,000	80,000	Year 1	-	-	-	Year 5	-	-
	Tape measure	2	1	450	900	Year 1	-	-	-	Year 5	-	-
	Weighing scale	2	1	10,000	20,000	Year 1	-	-	-	Year 5	-	-
	Heightometer	2	1	9,800	19,600	Year 1	-	-	-	Year 5	-	-
	Microfilament and 128Hz tuning fork	2	1	18,000	36,000	Year 1	-	-	-	Year 5	-	-
	Glucometer	2	1	6,500	13,000	Year 1	-	-	-	Year 5	-	-
	HbA1c testing equipment	2	1	140,000	280,000	Year 1	-	-	-	Year 5	-	-
	Visual acuity chart	2	1	55,000	110,000	Year 1	-	-	-	Year 5	-	-
	Ophthalmoscope	1	1	990,000	990,000	Year 1	-	-	-	Year 5	-	-
	Laser equipment	1	1	155,000	155,000	Year 1	-	-	-	Year 5	-	-
	Retina photography	1	1	85,000	85,000	Year 1	-	-	-	Year 5	-	-
	Harris marts	2	1	30,000	60,000	Year 1	-	Year 3	-	Year 5	-	Year 7
	Hand held doppler	2	1	80,000	160,000	Year 1	-	-	-	Year 5	-	-
	Podiatry chair	2	1	180,000	360,000	Year 1	-	-	-	Year 5	-	-
Slit lamp biomicroscopy	1	1	800,000	800,000	Year 1	-	-	-	Year 5	-	-	
Stethoscope	2	1	600	1,200	Year 1	-	-	Year 3	-	-	-	



Dimension	Input items	Quantity	Frequency	Unit Cost	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
	Thermometer	2	1	500	1,000	Year 1	-	Year 3	-	Year 5	-	Year 7
	ECG machine	1	1	742,277	742,277	Year 1	-	-	-	Year 5	-	-
	Echo machine (high specification)	1	1	1000000	1000000	Year 1	-	-	-	Year 5	-	-
	Ambulatory BP 24 hr Holter machine	1	1	13,200	13,200	Year 1	-	-	-	Year 5	-	-
	Hemoglobin solubility test	2	1	300,000	600,000	Year 1	-	Year 3	-	Year 5	-	Year 7
	Sickling test equipment	2	1	480,000	960,000	Year 1	-	-	-	Year 5	-	-
	Transcranial Doppler (TCD) machine	1	1	385,000	385,000	Year 1	-	-	-	Year 5	-	-
	HPLC (High -Performance Liquid Chromatography)	2	1	330,000	660,000	Year 1	-	-	-	Year 5	-	-
	Hb electrophoresis	2	1	24,200	48,400	Year 1	-	Year 3	-	Year 5	-	Year 7
	Isoelectrophoresis	2	1	64,790	129,580	Year 1	-	Year 3	-	Year 5	-	Year 7
	Weighting scale	2	1	10,000	20,000	Year 1	-	Year 3	-	Year 5	-	Year 7
	Blood pressure machine	2	1	1,800	3,600	Year 1	-	-	-	Year 5	-	-
	Pulse oximetry (PO2)	2	1	200,000	400,000	Year 1	-	-	-	Year 5	-	-
	Ophthalmoscope	1	1	825,000	825,000	Year 1	-	-	-	Year 5	-	-
	Fundal camera	1	1	330,000	330,000	Year 1	-	-	-	Year 5	-	-
	Blood transfusion equipment	2	1	550,000	1,100,000	Year 1	-	-	-	Year 5	-	-
	Peak flow meter	1	1	4,256	4,256	Year 1	-	Year 3	-	Year 5	-	Year 7
	Spirometer	1	1	1,500	1,500	Year 1	-	-	-	Year 5	-	-
	Spacers for inhalers	1	1	3,000	3,000	Year 1	-	Year 3	-	Year 5	-	Year 7
	Chemistry machine	1	1	313,200	313,200	Year 1	-	-	-	Year 5	-	-
	C-peptide machine / A1C	1	1	2,032	2,032	Year 1	-	-	-	Year 5	-	-
	Ultrasound machine with cardiac, abdominal, and linear probes	1	1	320,000	320,000	Year 1	-	-	-	Year 5	-	-
	Nebulizer	1	1	35,000	35,000	Year 1	-	Year 3	-	Year 5	-	Year 7
	Hematology	1	1	580,000	580,000	Year 1	-	-	-	Year 5	-	-
	INR machine	1	1	65,000	65,000	Year 1	-	-	-	Year 5	-	-
	Sickle cell rapid screening tests	1	1	6,621	6,621	Annual cost						
	Measurement tape	1	1	450	450	Annual cost						
	Chairs	1	1	2,500	2,500	Year 1	-	-	Year 4	-	-	-
	Tables	2	1	25,000	50,000	Year 1	-	-	Year 4	-	-	-
	Cabinets	3	1	50,000	150,000	Year 1	-	-	Year 4	-	-	-
	Desktops	2	1	60,000	120,000	Year 1	-	-	Year 4	-	-	-

Dimension	Input items	Quantity	Frequency	Unit Cost	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
	Printers	2	1	55,000	110,000	Year 1	-	-	Year 4	-	-	-
	Airport chairs	4	1	20,000	80,000	Year 1	-	-	Year 4	-	-	-
	Computers	2	1	60,000	120,000	Year 1	-	-	Year 4	-	-	-
	Scanners	2	1	20,000	40,000	Year 1	-	-	Year 4	-	-	-
	Stretchers	10	1	26,680	266,800	Year 1	-	-	Year 4	-	-	-
	Examination couch	4	1	38,000	152,000	Year 1	-	-	Year 4	-	-	-
	Dressing trolleys	10	1	15,000	150,000	Year 1	-	-	Year 4	-	-	-
	Drip stands	10	1	20,000	200,000	Year 1	-	-	Year 4	-	-	-
	Refrigerator	1	1	70,000	70,000	Year 1	-	-	Year 4	-	-	-
	Televisions	1	1	70,000	70,000	Year 1	-	-	Year 4	-	-	-
Overhead costs (Monthly spending)	Casuals	5	12	15,000	900,000	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost
	Electricity	1	12	40,000	480,000	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost
	Water	1	12	20,000	240,000	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost
	Printing and production costs	1	12	20,000	240,000	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost
Personnel (Monthly spending)	Clinical Officer	1	12	120,000	1,440,000	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost
	Nursing Officer	1	12	120,000	1,440,000	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost
	Health Records and Information Officer	1	12	60,000	720,000	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost	Annual cost
Total				25,616,412	25,616,412	6,615,156	8,477,814	10,319,520	27,668,265	9,685,250	12,412,367	



Table 20: Scenario Three Costing

Dimension	Input items	Quantity	Frequency	Unit cost	Total Cost	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Demolition and alteration work	Unfixing aluminium roof covering (200 square meters)	1	1	20,000	20,000	One off cost	-	-	-	-	-	-
	Unfixing damaged roof trusses (200 square meters)	1	1	15,000	15,000	One off cost	-	-	-	-	-	-
	Scape off peeled painting on surfaces of rendered walls	1	1	15,000	15,000	One off cost	-	-	-	-	-	-
	Remove existing but damaged ceiling (200 square meters)	1	1	20,000	20,000	One off cost	-	-	-	-	-	-
	Hack off existing but damaged floor tiles complete with associated screeding	1	1	20,000	20,000	One off cost	-	-	-	-	-	-
	Unfix flush/metal doors complete with frame	1	1	18,000	18,000	One off cost	-	-	-	-	-	-
	Remove hand wash basin	1	1	3,000	3,000	One off cost	-	-	-	-	-	-
	Remove damaged sockets	1	1	3,000	3,000	One off cost	-	-	-	-	-	-
	Remove mounted lighting fixings	1	1	3,000	3,000	One off cost	-	-	-	-	-	-
	Blue gum 4 X2	1560 ft	1	25	39,000	One off cost	-	-	-	-	-	-
Blue gum 3 X2	600 ft	1	24	14,400	One off cost	-	-	-	-	-	-	
Blue gum 2X2	1750 ft	1	35	61,250	One off cost	-	-	-	-	-	-	
Fascia board	225 ft	1	90	20,250	One off cost	-	-	-	-	-	-	
Nails	38	1	200	7,600	One off cost	-	-	-	-	-	-	
Roofing Nails	30	1	300	9,000	One off cost	-	-	-	-	-	-	
Ridges caps	32	1	800	25,600	One off cost	-	-	-	-	-	-	
Installation of a new alluminium roof (versatile iron sheet)	100	1	4,170	417,000	One off cost	-	-	-	-	-	-	
Windows reconstruction	Steel casement windows and frame complete with bulgrar proofing in 20x20x1.25mm SHS, 60x40x1.25mm main door members, 1.25mm metal sheet	4	1	15,000	60,000	One off cost	-	-	-	-	-	-
Doors reconstruction	Install high quality steel doors	2	1	25,000	50,000	One off cost	-	-	-	-	-	-
Wall finishings	Prepare and apply POP screeding finish on rendered wall	1	1	60,000	60,000	One off cost	-	-	-	-	-	-
	Apply undercoat and two finishing coats	1	1	100,000	100,000	One off cost	-	-	-	Year 5	-	-
Floor finishings	Floor tiling	200	1	2,000	400,000	One off cost	-	-	-	-	-	-
Ceiling finishings	Gypsum ceiling	1	1	100,000	100,000	One off cost	-	-	-	-	-	-



Dimension	Input items	Quantity	Frequency	Unit cost	Total Cost	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Mechanical/Plumbing installations	Pedestal Wash Hand Basin 18" by 12" White 309	1	1	4,000	4,000	One off cost	-	-	-	-	-	-
	25 Kgs Dry Powder Fire Extinguisher. DCP trolley	1	1	25,000	25,000	One off cost	-	-	-	-	-	-
Electrical installations	Supply and fixation of economic bulb with fitting and accessories	3	1	4,500	13,500	One off cost	-	-	-	-	-	-
	Supply and fixation of fluorescent tube of good quality with fitting and accessories	3	1	13,900	41,700	One off cost	-	-	-	-	-	-
	Supply and fixation electrical switches of good quality with fitting and accessories	10	1	3,500	35,000	One off cost	-	-	-	-	-	-
	Supply and fixation of socket outlet of good quality and fitting and accessories	10	1	3,200	32,000	One off cost	-	-	-	-	-	-
	Supply and installation of gate lamps with fitting and acceries and all requirement	2	1	15,000	30,000	One off cost	-	-	-	-	-	-
	Permits, licenses, and regulatory compliance fees	1	1	100,000	100,000	One off cost	-	-	-	-	-	-
Labour costs	30% of Total Renovation Cost	1	1	501,690	501,690	One off cost	-	-	-	-	-	-
Contingency	10% of Total Renovation Cost	1	1	167,230	167,230	One off cost	-	-	-	-	-	-
	Autoclave machines	2	1	40,000	80,000	Year 1	-	-	-	-	Year 5	-
Equipment	Tape measure	2	1	450	900	Year 1	-	-	-	-	Year 5	-
	Weighing scale	2	1	10,000	20,000	Year 1	-	-	-	-	Year 5	-
	Heightometer	2	1	9,800	19,600	Year 1	-	-	-	-	Year 5	-
	Microflament and 128Hz tuning fork	2	1	18,000	36,000	Year 1	-	-	-	-	Year 5	-
	Glucometer	2	1	6,500	13,000	Year 1	-	-	-	-	Year 5	-
	HbA1c testing equipment	2	1	140,000	280,000	Year 1	-	-	-	-	Year 5	-
	Visual acuity chart	2	1	55,000	110,000	Year 1	-	-	-	-	Year 5	-
	Ophthalmoscope	1	1	990,000	990,000	Year 1	-	-	-	-	Year 5	-
	Laser equipment	1	1	155,000	155,000	Year 1	-	-	-	-	Year 5	-
	Retina photography	1	1	85,000	85,000	Year 1	-	-	-	-	Year 5	-
	Harris marts	2	1	30,000	60,000	Year 1	-	-	Year 3	-	Year 5	Year 7
	Hand held doppler	2	1	80,000	160,000	Year 1	-	-	-	-	Year 5	-
	Podiatry chair	2	1	180,000	360,000	Year 1	-	-	-	-	Year 5	-
Slit lamp biomicroscopy	1	1	800,000	800,000	Year 1	-	-	-	-	Year 5	-	
Stethoscope	2	1	600	1,200	Year 1	-	-	Year 3	-	Year 5	Year 7	



Dimension	Input items	Quantity	Frequency	Unit cost	Total Cost	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
	Thermometer	2	1	500	1,000	Year 1	-	Year 3	-	Year 5	-	Year 7
	ECG machine	1	1	742,277	742,277	Year 1	-	-	-	Year 5	-	-
	Echo machine (high specification)	1	1	1000000	1000000	Year 1	-	-	-	Year 5	-	-
	Ambulatory BP 24 hr Holter machine	1	1	13,200	13,200	Year 1	-	-	-	Year 5	-	-
	Hemoglobin solubility test	2	1	300,000	600,000	Year 1	-	Year 3	-	Year 5	-	Year 7
	Sickling test equipment	2	1	480,000	960,000	Year 1	-	-	-	Year 5	-	-
	Transcranial Doppler (TCD) machine	1	1	385,000	385,000	Year 1	-	-	-	Year 5	-	-
	HPLC (High -Performance Liquid Chromatography)	2	1	330,000	660,000	Year 1	-	-	-	Year 5	-	-
	Hb electrophoresis	2	1	24,200	48,400	Year 1	-	Year 3	-	Year 5	-	Year 7
	Isoelectrophoresis	2	1	64,790	129,580	Year 1	-	Year 3	-	Year 5	-	Year 7
	Weighting scale	2	1	10,000	20,000	Year 1	-	Year 3	-	Year 5	-	Year 7
	Blood pressure machine	2	1	1,800	3,600	Year 1	-	-	-	Year 5	-	-
	Pulse oximetry (PO2)	2	1	200,000	400,000	Year 1	-	-	-	Year 5	-	-
	Ophthalmoscope	1	1	825,000	825,000	Year 1	-	-	-	Year 5	-	-
	Fundal camera	1	1	330,000	330,000	Year 1	-	-	-	Year 5	-	-
	Blood transfusion equipment	2	1	550,000	1,100,000	Year 1	-	-	-	Year 5	-	-
	Peak flow meter	1	1	4,256	4,256	Year 1	-	Year 3	-	Year 5	-	Year 7
	Spirometer	1	1	1,500	1,500	Year 1	-	-	-	Year 5	-	-
	Spacers for inhalers	1	1	3,000	3,000	Year 1	-	Year 3	-	Year 5	-	Year 7
	Chemistry machine	1	1	313,200	313,200	Year 1	-	-	-	Year 5	-	-
	C-peptide machine / A1C	1	1	2,032	2,032	Year 1	-	-	-	Year 5	-	-
	Ultrasound machine with cardiac, abdominal, and linear probes	1	1	320,000	320,000	Year 1	-	-	-	Year 5	-	-
	Nebulizer	1	1	35,000	35,000	Year 1	-	Year 3	-	Year 5	-	Year 7
	Hematology	1	1	580,000	580,000	Year 1	-	-	-	Year 5	-	-
	INR machine	1	1	65,000	65,000	Year 1	-	-	-	Year 5	-	-
	Sickle cell rapid screening tests	1	1	6,621	6,621	Annual cost						
	Measurement tape	1	1	450	450	Annual cost						
	Chairs	1	1	2,500	2,500	Year 1	-	-	Year 4	-	-	-
	Tables	2	1	25,000	50,000	Year 1	-	-	Year 4	-	-	-
	Cabinets	3	1	50,000	150,000	Year 1	-	-	Year 4	-	-	-
	Desktops	2	1	60,000	120,000	Year 1	-	-	Year 4	-	-	-
	Printers	2	1	55,000	110,000	Year 1	-	-	Year 4	-	-	-
	Airport chairs	4	1	20,000	80,000	Year 1	-	-	Year 4	-	-	-



Dimension	Input items	Quantity	Frequency	Unit cost	Total Cost	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	
	Computers	2	1	60,000	120,000	Year 1	-	-	Year 4	-	-	-	
	Scanners	2	1	20,000	40,000	Year 1	-	-	Year 4	-	-	-	
	Stretchers	10	1	26,680	266,800	Year 1	-	-	Year 4	-	-	-	
	Examination couch	4	1	38,000	152,000	Year 1	-	-	Year 4	-	-	-	
	Dressing trolleys	10	1	15,000	150,000	Year 1	-	-	Year 4	-	-	-	
	Drip stands	10	1	20,000	200,000	Year 1	-	-	Year 4	-	-	-	
	Refrigerator	1	1	70,000	70,000	Year 1	-	-	Year 4	-	-	-	
	Televisions	1	1	70,000	70,000	Year 1	-	-	Year 4	-	-	-	
	Casuals	5	12	15,000	900,000	Annual cost							
	Electricity	1	12	40,000	480,000	Annual cost							
	Water	1	12	20,000	240,000	Annual cost							
	Printing and production costs	1	12	20,000	240,000	Annual cost							
	Conference - Cities	25	15	3,500	1,312,500	Year 1	-	-	-	-	-	-	-
Perdiem - Meetings - Cities	20	15	14,000	4,200,000	Year 1	-	-	-	-	-	-	-	
Facilitator	1	15	7,000	105,000	Year 1	-	-	-	-	-	-	-	
Communication - Airtime-Planning and coordination	2	3	2,000	12,000	Year 1	-	-	-	-	-	-	-	
Conference - Cities	50	5	3,500	875,000	Year 1	-	-	Year 3	-	Year 5	-	Year 7	
Perdiem - Meetings - Cities	45	5	5,000	1,125,000	Year 1	-	-	Year 3	-	Year 5	-	Year 7	
Facilitator	1	5	7,000	35,000	Year 1	-	-	Year 3	-	Year 5	-	Year 7	
Communication - Airtime-Planning and coordination	2	1	2,000	4,000	Year 1	-	-	Year 3	-	Year 5	-	Year 7	
Training of Community Health Promoters (CHPs)-Hold 1 workshop for 5 days, targeting 50 pax outside Nairobi, DSA 45 transport reimbursement for 45, conference package for 50 pax, and airtime for planning and coordination.													

Dimension	Input items	Quantity	Frequency	Unit cost	Total Cost	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
An assessment of the facility and county/sub-county governance (Conference cost for 1 day for 15 participants, and transport cost for 15 participants, DSA for 20 participants, mobilisation - once)	Conference - Cities	15	1	3,500	52,500	Year 1	-	-	-	-	-	-
	Perdiem - Meetings - Cities	15	1	14,000	210,000	Year 1	-	-	-	-	-	-
	Communication - Airtime-Planning and coordination	1	1	2,000	2,000	Year 1	-	-	-	-	-	-
Development of training materials (20 pax outside Nairobi)	Consultant	1	1	1,500,000	1,500,000	Year 1	-	-	-	-	-	-
	Conference - Cities	20	3	3,500	210,000	Year 1	-	-	-	-	-	-
	Perdiem - Meetings - Cities	20	3	14,000	840,000	Year 1	-	-	-	-	-	-
	Communication - Airtime-Planning and coordination	1	3	2,000	6,000	Year 1	-	-	-	-	-	-
	Printing and dissemination	200	1	200	40,000	Year 1	-	-	-	-	-	-
Validation workshop (20 pax outside Nairobi)	Conference - Cities	20	3	3,500	210,000	Year 1	-	-	-	-	-	-
	Perdiem - Meetings - Cities	20	3	14,000	840,000	Year 1	-	-	-	-	-	-
	Communication - Airtime-Planning and coordination	1	3	2,000	6,000	Year 1	-	-	-	-	-	-
On job training for updates (Year)	Transport and refreshment for 100 people for on Job training in year 1, 3, 5 and 7	100	2	2,000	400,000	Year 1	-	Year 3	-	Year 5	-	Year 7
				29,577,336	29,577,336	29,577,336	2,259,156	6,932,523	5,048,760	25,959,514	3,307,630	10,149,907

ANNEX I: RESOURCE REQUIREMENT BY ACTIVITIES

Activities	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	Total
1. Leadership and Governance	16,062,000	13,943,705	11,251,505	14,472,658	10,871,500	10,871,500	10,871,500	88,344,368
Develop and share regular updates on PEN-Plus with stakeholders.	9,480,000	10,143,600	10,853,652	11,613,408	9,480,000	9,480,000	9,480,000	70,530,660
Establish a PEN-Plus program secretariat.	347,500	371,825	397,853	425,702	347,500	347,500	347,500	2,585,380
Establish mechanisms for information sharing on Pen-plus implementation progress within the county and national levels	3,030,500	-	-	2,433,548	1,044,000	1,044,000	1,044,000	8,596,048
Support the NCD-ICC agenda to incorporate the PEN-Plus program	3,204,000	3,428,280	-	-	-	-	-	6,632,280
2. Human Resources for Health	59,504,000	20,643,510	12,747,317	8,493,223	10,734,000	6,198,000	10,734,000	129,054,050
Conduct regular assessment to establish the existing knowledge gap among the healthcare workers who have been trained and those in need of training.	6,020,000	1,947,400	2,083,718	2,229,578	1,820,000	1,820,000	1,820,000	17,740,696
Conduct regular employees' satisfaction survey.	820,000	877,400	938,818	1,004,535	820,000	820,000	820,000	6,100,753
Conduct training for CSFP, CHPs on the identification of severe NCDs and referral	-	2,899,700	1,625,758	1,739,561	-	-	-	6,265,019
Conduct training for identified healthcare workers on PENPlus	50,026,000	3,434,700	6,303,819	2,345,957	5,506,000	970,000	5,506,000	74,092,477
Develop a training curriculum for CHAs and CHPs on PEN-Plus	-	2,289,800	-	-	-	-	-	2,289,800
Develop supportive supervision tool to facilitate unified assessment.	660,000	706,200	755,634	808,528	660,000	660,000	660,000	4,910,362
Implement the mental health wellness workplace policy at the PENPlus facilities.	1,740,000	64,200	68,694	73,503	60,000	60,000	60,000	2,126,397
Link the PENPlus facilities to consultants to facilitate continuous mentorship.	78,000	1,688,460	89,302	95,553	78,000	78,000	78,000	2,185,316
Link the training institutions with PENPlus facilities for trainees attachments.	-	1,744,100	-	-	1,630,000	1,630,000	1,630,000	6,634,100
Participate in the review the of training curriculum and teaching plans to incorporate the PEN-Plus strategy.	-	-	698,389	-	-	-	-	698,389
Provide a conducive working environment in line with occupational safety and health standards.	120,000	128,400	137,388	147,005	120,000	120,000	120,000	892,793
Review and periodically update the PENPlus training curriculum and material.	-	4,820,350	-	-	-	-	-	4,820,350
Sensitize the health administration (County Health Management Teams) and staff on task sharing policy.	40,000	42,800	45,796	49,002	40,000	40,000	40,000	297,598
3. Health Financing	3,048,000	10,467,275	11,019,090	11,983,983	7,224,500	7,224,500	7,224,500	58,191,848
Map potential funders and stakeholders supporting NCDs interventions.	-	1,267,950	1,356,707	1,451,676	1,185,000	1,185,000	1,185,000	7,631,332
Convene biannual coalition funders engagement for resource mobilization and feedback on progress on PENPlus.	3,048,000	3,261,360	3,489,655	3,733,931	3,048,000	3,048,000	3,048,000	22,676,946
Resource tracking for financing for PENPlus	-	5,937,965	3,424,968	6,798,376	2,991,500	2,991,500	2,991,500	25,135,809
Conduct investment case for PENPlus interventions to guide resource mobilization and allocation.	-	-	2,747,760	-	-	-	-	2,747,760

Activities	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	Total
4. Advocacy, Communication and Social Mobilization	22,124,500	8,323,530	7,078,917	7,699,395	4,583,000	4,583,000	4,583,000	58,975,342
To disseminate the PEN-Plus National Action Plan to the Council of Governors, Parliamentary and Senate Health committees.	-	438,700	309,123	330,762	270,000	270,000	270,000	1,888,585
Sensitise the National and county government departments to prioritise the PEN-Plus Action plan in the National NCD strategy, CIDPs and Annual Work Plans in the Counties.	-	1,147,575	1,227,905	1,313,859	1,072,500	1,072,500	1,072,500	6,906,839
Advocate for the integration of the PEN-Plus National Action Plan into the health financing framework (UHC/SHA framework)	433,000	463,310	495,742	530,444	433,000	433,000	433,000	3,221,495
Commemorate World Health Days for Severe NCDs	19,200,000	-	-	-	-	-	-	19,200,000
Develop and disseminate the key messages for PEN-Plus to the communities (Utilising digital tools, media and forums).	1,591,500	1,702,905	3,653,948	1,949,656	1,591,500	1,591,500	1,591,500	13,672,509
Develop and implement a communication and media strategy to develop key messages for PEN-Plus	-	1,448,780	-	-	-	-	-	1,448,780
Hold advocacy and sensitization forums with stakeholders to resource mobilize for the implementation of PEN-Plus.	-	205,440	219,821	235,208	192,000	192,000	192,000	1,236,469
Hold community engagement for special interest groups such as religious leaders, opinion leaders, youths and women to educate on PEN-Plus strategy	-	1,634,960	-	1,871,866	-	-	-	3,506,826
Identify and build capacity of PEN-Plus champions in the media.	-	186,180	-	213,157	-	-	-	399,337
Support persons living with severe NCDs to in the national and county planning and budgeting process levels	900,000	1,095,680	1,172,378	1,254,444	1,024,000	1,024,000	1,024,000	7,494,502
5. Surveillance and Research	879,000	16,148,975	31,855,125	27,293,958	7,079,447	12,666,733	7,785,639	103,708,877
Conduct operational/implementation research on severe NCDs	-	3,550,260	19,150,170	-	-	-	-	22,700,430
Conduct regular data quality audits	4,000	4,280	2,168,441	6,223,218	4,000	544,000	544,000	9,491,939
Develop and review data collection for severe NCDs	875,000	10,122,200	5,144,036	11,588,907	4,764,947	9,812,233	4,931,139	47,238,461
Disseminate research findings in various forums/platforms	-	-	-	9,481,833	-	-	-	9,481,833
Integrate severe NCDs into existing relevant EMRs	-	-	5,392,479	-	-	-	-	5,392,479
Review severe NCDs research agenda	-	2,472,235	-	-	2,310,500	2,310,500	2,310,500	9,403,735
6. Service Delivery	66,709,700	88,547,529	69,220,311	100,888,049	57,299,700	88,524,208	60,459,700	531,649,196
Conduct targeted mobile outreach screening programs in schools.	3,076,300	3,291,641	3,522,056	3,768,600	3,076,300	3,076,300	3,076,300	22,887,497
Conduct assessment to identify gaps for infrastructural improvements	9,410,000	21,218,100	-	24,292,603	-	25,912,557	-	80,833,259
Develop a PEN-Plus package for patient selfcare management for severe NCDs	439,000	897,730	502,611	537,794	439,000	439,000	439,000	3,694,135
Integrate infant screening for sickle cell disease at all Maternal Child Health Clinic	5,015,000	5,366,050	9,359,558	6,143,591	5,015,000	5,015,000	8,175,000	44,089,198
Conduct sensitisation of healthcare workers on PEN-Plus care package in all PEN-Plus clinics	14,784,000	15,818,880	16,926,202	18,111,036	14,784,000	14,784,000	14,784,000	109,992,117
Develop social support assessment tool for persons enrolled at PEN-Plus clinics	2,307,000	2,468,490	2,641,284	2,826,174	2,307,000	2,307,000	2,307,000	17,163,949

Activities	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	Total
c) Integrate screening and cross-linkage of severe NCDs at service delivery points.	1,120,000	6,558,030	1,282,288	7,508,289	1,120,000	6,129,000	1,120,000	24,837,607
d) Implementing the quality improvement framework in PEN-Plus facilities	28,638,400	30,643,088	32,788,104	35,083,271	28,638,400	28,638,400	28,638,400	213,068,064
e) Implement defaulter tracing mechanisms and follow up for linking back to care	1,920,000	2,054,400	2,198,208	2,352,083	1,920,000	1,920,000	1,920,000	14,284,691
e) Sensitise the established support groups on selfcare management and income generating activities.	-	231,120	-	264,609	-	302,951	-	798,680
7. Health Products and Technologies	94,115,925	181,948,490	102,163,921	117,172,822	116,869,573	125,238,393	133,758,330	871,267,454
Review the NCD tracer tool to incorporate PEN-Plus HPTs (FCDRR, Monthly reporting)	-	2,299,430	-	-	-	-	-	2,299,430
Update MOH 647 to include tracer elements for severe NCDs.	-	1,450,920	-	257,259	-	210,000	-	1,918,179
Avail drugs and supplies	88,250,925	94,434,910	101,038,485	108,118,529	115,678,961	123,776,488	132,440,842	763,739,141
d) Strengthen diagnostic capabilities of PEN-Plus conditions.	-	75,852,720	-	-	-	-	-	75,852,720
Develop/ adapt forecasting and quantification tool for Severe NCDs	2,149,000	501,830	536,958	574,545	516,863	530,993	546,112	5,356,301
Integrate PENplus HPTs into KHIS Dashboard or Integrated LMIS	1,004,000	-	-	-	-	-	-	1,004,000
Quantify the essential list of PEN-Plus HPTs	-	4,280,000	-	4,900,172	-	-	-	9,180,172
Strengthen capacity of central procurement of NCDs	2,198,000	2,351,860	-	2,692,645	-	-	-	7,242,505
Engage manufacturers and distributors of essential PEN-Plus HPTs to expand or establish access programs.	514,000	549,980	588,479	629,672	673,749	720,912	771,375	4,448,167
Integrate PENPLUS medicines and technologies into the national pharmacovigilance system (Pharmacy and Poisons Board)	-	226,840	-	-	-	-	-	226,840
Grand Total	262,443,125	340,023,014	245,336,185	288,004,088	214,661,719	255,306,333	235,416,669	1,841,191,135

ANNEX II: IMPLEMENTATION FRAMEWORK

Key Result Area(s)	Strategic Objectives (s) (Outcome area)	Proposed Intervention(s)/Activities	Periodicity	F/Y 2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	
Leadership and Governance	To strengthen sectoral and multi-sectoral coordination and collaboration	Map and review partners and stakeholders	Once	X							
		Hold stakeholder engagement meetings on Pen-plus at the national level.	Biennial	X		X		X			X
		Hold stakeholder engagement meetings on Pen-plus at the county level.	biennial	X		X			X		X
		Incorporate the PEN-Plus program as part of the NCD-ICC agenda	Biannually	X	X	X	X	X	X	X	X
		Establish mechanisms for information sharing on Pen-plus implementation progress within the county and national levels.	biennial	X		X			X		X
	To strengthen private sector partnership engagement	Conduct sensitization of private sector players on PEN-Plus interventions	annually	X	X	X	X	X	X	X	X
		Leverage on existing Kenya Health Public Private Collaboration Strategy on regular private sector engagement	annually	X	X	X	X	X	X	X	X
		Establish a National PEN-Plus program secretariat.	Once								
		Hold sensitization forum leadership on PEN-Plus at National, County, Sub-County, and health facility levels (mentorship, site-exchange visits)	annually	X	X	X	X	X	X	X	X
		Map, establish, and maintain a database for healthcare workers who have been trained and those in need of PENPlus training to facilitate continuous tracking.	Annual	X	X	X	X	X	X	X	X
Human Resource for Health	Establish human resource needs for PENPlus across all levels of care.	Conduct regular assessments to establish the existing knowledge gap among the healthcare workers who have been trained and those in need of training.	Biennial	X		X		X			
		Review and periodically update the PENPlus training curriculum and material.	Once in three years		X			X			
	Strengthen the capacity of service providers to meet demand for PENPlus service.	Disseminate training material and equipment (Job-aids, telehealth, digital platform)			X			X		X	
		Conduct training for identified healthcare workers on PENPlus	Annual	X	X	X	X	X	X	X	X
		Develop a training curriculum for CHAs and CHPs on PEN-Plus	Once		X						
		Conduct training for CSFP, CHA, CHPs on the identification of severe NCDs and referral.	Annual		X	X	X	X	X	X	X
		Develop supportive supervision tools to facilitate standard assessment.	once		1						
		Conduct two supportive supervision visits to PEN-Plus facilities per quarter.	Quarterly	X	X	X	X	X	X	X	X



Key Result Area(s)	Strategic Objectives (s) (Outcome area)	Proposed Intervention(s)/Activities	Periodicity	F/Y 2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
-		Link the PENPlus facilities to consultants to facilitate continuous mentorship.	Signed rota form/facility reports and	X	X	X	X	X	X	X
-		Sensitize the regulatory bodies and training institutions on severe NCDs.	Once	X						
-	Engage with training institutions and regulatory bodies to integrate PENPlus into their training curriculum and teaching plans.	Participate in the review of the training curriculum and teaching plans to incorporate the PEN-Plus strategy.	Annual				X			
-		Link the training institutions with PENPlus facilities for trainees' attachments.	Annual		X	X	X	X	X	X
-	Enhance health workers' safety and wellness to improve staff welfare and productivity.	Advocate for the deployment of adequate numbers of health workers by the national and county governments in line with WHO recommendations.	every 3 years	X	X	X	X	X	X	X
-		Provide necessary work equipment at the PENPlus facilities to facilitate efficiency at the workplace.	Annual	X	X	X	X	X	X	X
-		Sensitize on mental health wellness workplace policy at the PENPlus facilities.	Annual	X	X	X	X	X	X	X
-		Conduct performance management, supervision, and duty roster at the PENPlus facilities.	Annual	X	X	X	X	X	X	X
-		Provide a conducive working environment in line with occupational safety and health standards.	Annual	X	X	X	X	X	X	X
-	Mainstream task-sharing strategies to enhance PENPlus service delivery.	Sensitize the health administration (County Health Management Teams) and staff on task-sharing policy.	Annual	X	X	X	X	X	X	X
-		Conduct regular employee satisfaction surveys.	Annual		X	X	X	X	X	X
-	Establish retention mechanisms for PEN-Plus trained staff.	Advocate for fair remuneration and retention policies in line with labour laws	Every 3 years		X			X		
-		Certify and provide the Continuing Professional Development (CPD) points Certification after the training.	Annual	X	X	X	X	X	X	X
Service Delivery	Strengthen case identification mechanisms for those suspected of living with severe NCDs	Conduct targeted mobile outreach screening programs in schools. b) Integrate infant screening for sickle cell disease at all Maternal Child Health Clinic c) Integrate screening and cross-linkage of severe NCDs at service delivery points. d) Strengthen diagnostic capabilities of PEN-Plus conditions.	Annually annually annually annually	x X x x						
	Designing a comprehensive PEN-Plus care package for severe NCDs.	a) Conduct an annual review and update of the PEN-Plus care package b) Disseminate existing guidelines protocol for severe NCDs to all PEN-Plus clinic	annually annually	x x						



Key Result Area(s)	Strategic Objectives (s) (Outcome area)	Proposed Intervention(s)/Activities	Periodicity	F/Y 2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31		
Health Financing	<p>Enhance and optimize interventions aimed at facilitating a seamless continuum of care for persons living with severe NCDs for PEN-Plus</p> <p>Establish effective social support mechanisms for patients enrolled in care in the PEN-Plus clinics.</p> <p>Strengthen mechanisms for infrastructural improvement for effective PEN-Plus Service provision and delivery</p> <p>Strengthen Multisectoral collaboration for PENPlus financing</p> <p>Ensure financial protection mechanisms for persons living with severe NCDs under PENPlus.</p>	<p>c) Conduct sensitization to healthcare workers on PEN-Plus care package in all PEN-Plus clinics</p> <p>d) Implementing the quality improvement framework in PEN-Plus facilities</p> <p>e) Implement defaulter tracing mechanisms and follow up for linking back to care</p>	biennially	x		x	x		x	x		
		<p>a) Define the referral networks for all PEN-Plus clinics (up/downward)</p> <p>b) Develop a PEN-Plus package for patient self-care management for severe NCDs</p> <p>c) Develop a social support assessment tool for persons enrolled at PEN-Plus clinics</p>	biennially		x	x	x	x		x	x	
		<p>a) Map persons enrolled at PEN-Plus clinics requiring social support</p> <p>b) Develop social support packages for persons enrolled in the PEN-Plus clinics.</p> <p>c) Establish social support groups for patients and their caregivers (for severe NCDs)</p> <p>e) Sensitise the established support groups on self-care management and income-generating activities.</p> <p>f) Sensitise caregivers of patients with severe NCDs on self-care management and income-generating activities.</p>	Annually	x	x	x	x	x		x	x	
		<p>a) Review minimum infrastructural requirements for the establishment of PEN-Plus service delivery</p> <p>b) Conduct an assessment to identify gaps for infrastructural improvements</p> <p>c) Support infrastructural development/improvements of PEN-Plus Clinics</p>	Annually	x	x	x	x	x		x	x	
		<p>Develop and review a map of potential funders supporting NCD interventions</p> <p>Conduct sensitization of potential funders and stakeholders on the significance of PENPlus.</p> <p>Develop a framework of engagement of funders for PENPlus.</p>	Report	x	x	x	x	x		x	x	
		<p>Map persons living with severe NCDs without SHIF across all levels of care.</p> <p>Sensitize people living with severe NCDs on the new social health insurance schemes and enrollment.</p> <p>Advocate for comprehensive cover for severe NCDs to the social health authority</p>	Once	x								
			Annually	x	x	x	x	x		x	x	x
			Biennial	x								
			Annually	x	x	x	x	x		x	x	x
			Quarterly	x	x	x	x	x		x	x	x
			Annually	x	x	x	x	x		x	x	x

Key Result Area(s)	Strategic Objectives (s) (Outcome area)	Proposed Intervention(s)/Activities	Periodicity	FY 2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	
Health Products and Technologies	Ensure sustained resource mobilization plan for PENPlus.	Mobilize resources to support PENPlus initiatives.	Annually	x	x	x	x	x	x	x	
		Develop proposals for funding PEN-Plus initiatives	Annually	x	x	x	x	x	x	x	
	Strengthen efficiency in resource allocation and use for PENPlus interventions.	Conduct annual needs assessments to guide budgeting for PENPlus activities.	Annually	x	x	x	x	x	x	x	
		Monitor allocation and utilization of resources for the PENPlus initiative.	Annually		x	x	x	x	x	x	
	Enhance accurate forecasting and quantification at the facility, County, and National levels for HPTs for severe NCDs	Conduct investment case for PENPlus interventions to guide resource mobilization and allocation.	Once			1					
		Update the MOH 647 to include tracer items for severe NCDs	Annually	x	x	x	x	x	x	x	x
		Disseminate the updated MOH 647 tool.	Annually		x	x	x	x	x	x	x
		Conduct forecasting and quantification of essential PEN-Plus HPTs				x					
		Advocate for inclusion of PENPLUS commodities in the national essential medicine and diagnostic lists	Every 3 years	x	-	-	x	-	-	-	x
		Develop and review an inter-facility redistribution plan. of essential PEN-Plus HPTs	Annually			x	x	x	x	x	x
Enhance collaboration with manufacturers and/or distributors to ensure pooling and cost reduction	Procure and distribute PEN-Plus HPTs centrally from KEMSA or MEDS to ensure quality.	Quarterly	x	x	x	x	x	x	x	x	
	Engage manufacturers and distributors of essential PEN-Plus HPTs to establish access programs.	Annually	-	x	x	x	x	x	x	x	
	Strengthen the pharmacovigilance system at PPCs for PENPLUS HPTs	MOU	x	x	x	x	x	x	x	x	
	Review the NCD tracer tool to incorporate PEN-Plus HPTs (FCDDR, Monthly reporting)	every 3 years	x			x				x	
Strengthen pharmacovigilance and post-market Surveillance for PEN-Plus HPTs	Integrate PEN-Plus HPTs into KHIS Dashboard and/or Integrated LMIS	annually		x	x	x	x	x	x	x	
	Include PENPlus HPTs in the quarterly Data Quality Audits (DQAs)	quarterly	x	x	x	x	x	x	x	x	
Strengthen reporting of HPTs for PEN-Plus.	Training on supply chain and commodity management for PEN-Plus for County and National staff	Biennially		x			x		x		
	Disseminate the PEN-Plus National Action Plan to the Council of Governors, Parliamentary, and Senate Health committees.	Annually	x	x	x	x	x	x	x	x	
Advocacy, communication and social mobilization	Enhance and sustain advocacy for PEN-Plus at all levels in Kenya by 2030										



Key Result Area(s)	Strategic Objectives (s) (Outcome area)	Proposed Intervention(s)/Activities	Periodicity	F/Y 2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
-		Sensitize the national and county governments to prioritize the PEN-Plus Action plan in the National NCD strategy, CDPs, and Annual Work Plans.	Annually	x	x	x	x	x	x	x
-		Commemorate World Health Days for Severe NCDs	Annually	x	x	x	x	x	x	x
-		Support persons living with severe NCDs to participate in the national and county planning and budgeting process levels	Annually	x	x	x	x	x	x	x
-	Enhance and decentralize communication strategies for PEN-Plus to communities and other stakeholders in Kenya.	Develop and implement a communication and media strategy to develop key messages for PEN-Plus.	Once	x						
		Develop and disseminate the key messages for PEN-Plus to the communities (Utilising digital tools, media, and forums).	Annually	x	x	x	x	x	x	x
		Create a PEN-Plus website	Once		x					
	Strengthen and enhance social mobilization for PEN-Plus at all levels in Kenya.	Identify and build the capacity of PEN-Plus champions in the political space and among civil society organizations.	Biennially		x			x		
		Hold community engagement for special interest groups such as religious leaders, opinion leaders, youths, and women to educate on PEN-Plus strategy.	Annually	x	x	x	x	x	x	x
		Sensitize community health promoters on the PEN-Plus strategy to create awareness on Severe NCD and the availability of health care services.	Annually	x	x	x	x	x	x	x
Surveillance and Research	To integrate and strengthen information systems for surveillance of severe NCDs	Review data collection tools for severe NCDs	Annually	x	x	x	x	x	x	x
		Disseminate reviewed data collection tools for severe NCDs	Annual	x	x	x	x	x	x	x
		Integrate severe NCD indicators into existing relevant EMRs	biennially		x		x			x
		Integrate severe NCD indicators into the existing dashboard for NCDs (KHIS)	biennially		x		x			x
		Conduct regular data quality audits	Quarterly	x	x	x	x	x	x	x
	To promote research on severe NCDs and knowledge translation	Develop severe NCDs research agenda	Annual	x	x	x	x	x	x	x
		Develop a severe NCD research implementation plan	Annually	x	x	x	x	x	x	x
		Conduct operational/implementation research on severe NCDs with partners	biennial		x	x		x		
		Disseminate research findings in various forums/platforms- seminars, workSops, conferences	monthly		x	x	x	x	x	x

ANNEX III: MINIMUM PENPLUS EQUIPMENT

Equipment	Consumables	Quantities per facility
Blood pressure measurement device		5
Weighing Scale		2 (adult + baby)
Peak flow meter		2
Spirometer		1
Spacers for inhalers		5
Glucometer	Blood glucose test strips	5
Urine analyser	Urine test strips	1
Chemistry machine	Reagents for creatinine, urea, electrolytes, liver function tests	1
HbA1c machine	Reagents vs cartridges	1
C-peptide machine / A1C	Reagents vs cartridges	1
Monofilament		
Ultrasound machine with cardiac, abdominal, and linear probes	Ultrasound gel	1
Nebulizer	Masks, tubing	1
Pulse oximeter		2
	Urine microalbuminuria test strips	
Hematology analyzer		1
ECG machine	Paper, ECG leads	1
INR machine	Reagents vs cartridges	1
Stethoscopes		10
Hb electrophoresis		1
Sickle cell rapid screening tests		500
Measurement tape		2

ANNEX IV: LIST OF ESSENTIAL DRUGS

Condition	Essential Medicines
Type 1 Diabetes	Regular Insulin, Insulin NPH, Insulin Glargine, Insulin Detemir, Glucagon.
Sickle Cell Disease	Hydroxyurea, Folic Acid, Penicillin V, Benzathine Penicillin, Proguanil, Potassium Chloride, Arginine, Prednisolone, Paracetamol, Ibuprofen, Diclofenac, Oral Morphine
Asthma / COPD	Salbutamol (Tablets/Inhaler), Ipratropium Bromide (Inhaler)
Rheumatic Heart Disease	Benzathine Penicillin, Amoxicillin
Severe Hypertension / Heart Failure	Amlodipine, Enalapril, Losartan, Hydrochlorothiazide, Spironolactone, Furosemide
Seizure Management	Valproic Acid
Mental Health Comorbidity	Haloperidol, Carbamazepine

Note: The list is subject to review in alignment with revisions to clinical guidelines and the Kenya Essential Medicines List.

ANNEX V: LIST OF CONTRIBUTORS

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