# ZAMBIA NATIONAL HEALTH STRATEGIC PLAN 2017 – 2021

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# Foreword

Despite progress made in reducing maternal and child mortality rates, Zambia remains a country with a high disease burden which is under significant pressure to improve the health status of the people. This plan identifies strategies to significantly reduce the disease burden and accelerate the attainment of the Sustainable Development Goals. The plan is a major departure from the past strategic plans. While the plan recognizes that all health care interventions are important and should continue to receive support; it also recognizes that interventions must be prioritized due to the constraints on available resources and capabilities. The plan therefore focuses on Primary Health Care as the main vehicle of service delivery; resolving the human resource crisis; addressing public health problems and ensuring that priority systems and services receive the necessary support.

This National Health Strategic Plan (NHSP) supports the National Vision 2030 which expresses the Zambian people's aspiration "to become a prosperous middle-income nation by 2030." This plan envisions a prosperous country where all Zambians have access to quality health services. As a government, we are committed to sustaining the gains made in the past five years, and to expanding the coverage and improving the quality of health services provided to our people.

This plan identifies strategies and programs which will ensure that people of Zambia are healthy and able to contribute to economic development as articulated in the National Vision 2030 and the Seventh National Development Plan which prioritize health as a key economic investment that will drive our socio-economic development agenda.

The National Health Strategic Plan 2017-2021 has a transformative agenda which focuses on building robust and resilient health systems. The plan focuses on delivering quality health services across the continuum of care which includes promotive, preventive, curative, rehabilitative and palliative care. provided as close to the family settings as possible. The attainment of the universal health coverage will be made possible through primary health care with a focus on community health.

Through the integrated community and primary health care approach, the country will achieve reduction in maternal and child mortality rates, malaria elimination and reduction in the incidence of HIV among other key health outcomes. We acknowledge that good health is a function of not only health care services, but also other socioeconomic factors which include education, agriculture, housing, water and sanitation. Therefore this document emphasizes strong multi-sectoral collaboration to address all the social determinants of health.

It is my considered view that – with appropriate levels of commitment and support from the Government, Cooperating Partners, health workers and other key stakeholders – this plan will significantly improve the health status of Zambians and significantly contribute to national development. I therefore, urge all the people involved in the implementation of this plan to fully dedicate themselves to this important national assignment. My Ministry is committed to ensuring the successful implementation of this plan.

Hon. Dr. Chitalu Chilufya, MP
MINISTER OF HEALTH

# Acknowledgments

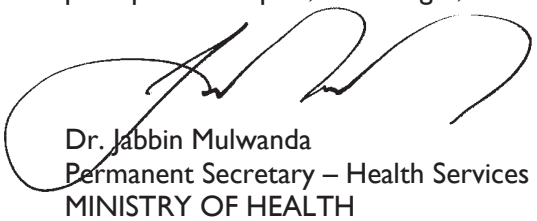
I would like to acknowledge the all-inclusive and widespread consultative processes that have facilitated the development of this National Health Strategic Plan 2017–2021. The consultative process entailed engaging with varied stakeholders at the various levels of the health and support system in order to ensure that the outcome reflected the wishes and aspirations of all. The stakeholders committed material, financial, and technical expertise to the process, which is highly commended.

First and foremost, I wish to express my sincere gratitude to the late Mr. John Moyo, Permanent Secretary-Administration, who until his untimely death had dedicated himself to the completion of this document; May His Soul Rest in Peace.

My gratitude also goes to our various partners and colleagues who encouraged and supported the development of this Strategic Plan through their various forms of support. Special thanks go to the United States Agency for International Development through the Systems for Better Health Project, and the European Commission for supporting us with consultants, and the Government of Sweden for supporting us with the consultative process. Special thanks also go to other Cooperating Partners, international non-governmental organizations, and academic institutions namely Japan International Cooperation Agency, World Health Organisation, United Nations Children's Fund, United Nations Population Fund, Department For International Development, World Bank, Clinton Health Access Initiative, Churches Health Association of Zambia, and the University of Zambia, Department of Economics. They were highly critical and committed to bring in their experience from programmes, projects, and pilots.

I wish to pay special tribute to the core planning team at the MOH headquarters for their leadership and steady commitment in the process of formulating this Strategic Plan. The Core team included: the Director Health Policy and Health Services Planning, Dr. Maximillian Bweupe; the Deputy Director, Mr. Henry Kansembe; the Chief Planner, Planning and Budgeting, Mr. Patrick Banda; the Coordinators – Mr. Amadeus Mukobe, Chief Planner, Development Cooperation; Ms. Maudy Kaoma, Principal Planner, Planning and Budgeting; Mr. Terence Siansalama, Principal Planner, Bilateral and Multilateral Cooperation; Mr. Wesley Mwambazi, Principal Planner – Health Systems; Mr. Melvin Sikazwe, Senior Planner, Planning and Budgeting; Mr. Mannix Ngabwe, Senior Planner, Planning and Budgeting; Mr. Alex Kaba, Senior Planner, Sector-wide Approach. We would like to thank Mr. Davies Makasa Chimfwembe, the former Director, Policy and Planning, and Mr. Mubita Luwabelwa, the former Deputy Director, Planning and Budgeting, who initially mooted the process for the development of this strategic plan. Finally, but not least, I thank the consultants Dr. Victor Mukonka and Dr. Jolly Kamwanga, and Ms. Emily Moonze, Senior Manager Health System Strengthening (SBH) for their tireless and hard work in putting the document together.

It is my hope that this Strategic Plan will fulfil the people's expectations with regard to primary health care as the focus of the plan. It is anticipated that other stakeholders will buy into the plan and support the Ministry in order to achieve all its objectives in line with our agreed upon principle of one plan, one budget, and one monitoring framework.



Dr. Jabbin Mulwanda
Permanent Secretary – Health Services
MINISTRY OF HEALTH

# Acronyms

| | |
|---|---|
| **ABC** | Activity-Based Costing |
| **ADH** | Adolescent Health |
| **AfSBT** | Africa Society for Blood Transfusion |
| **AIDS** | Acquired Immune Deficiency Syndrome |
| **AMR** | Anti-Microbial Resistance |
| **ANC** | Antenatal Care |
| **ART** | Antiretroviral Therapy |
| **ARV** | Antiretroviral Drugs |
| **BSIS** | Blood Safety Information System |
| **CBOH** | Central Board of Health |
| **CDH** | Cancer Disease Hospital |
| **CHAs** | Community Health Assistants |
| **CHAZ** | Churches Health Association of Zambia |
| **CHW** | Community Health Workers |
| **CPs** | Cooperating Partners |
| **CSO** | Central Statistical Office |
| **CT** | Computed Tomography |
| **CVDs** | Cardiovascular Diseases |
| **DHIS2** | District Health Information System |
| **DHO** | District Health Office |
| **DHS** | Demographic and Health Survey |
| **EH** | Environmental Health |
| **EID** | Early Infant Diagnosis |
| **EmONC** | Emergency Obstetric and Newborn Care |
| **EMTCT** | Elimination of Mother-to-Child Transmission |
| **ENC** | Essential Newborn Care |
| **ENT** | Ear, Nose, and Throat |
| **EPI** | Expanded Programme on Immunization |
| **ETAT** | Emergency Triage Assessment and Treatment |
| **FANC** | Focused Antenatal Care |
| **FFP** | Fresh Frozen Plasma |
| **FP** | Family Planning |
| **GDP** | Gross Domestic Product |

| | |
|---|---|
| **GFATM** | Global Fund to Fight AIDS, Tuberculosis, and Malaria |
| **GHE** | Government Health Expenditure |
| **GMP** | Growth Monitoring Programme |
| **GNC** | General Nursing Council |
| **GRZ** | Government of the Republic of Zambia |
| **HFCA** | Health Facility Catchment Area |
| **HiAP** | Health in All Policies |
| **HIV** | Human Immunodeficiency Virus |
| **HMIS** | Health Management Information System |
| **HPCZ** | Health Professional Council of Zambia |
| **HPV** | Human Papiloma Virus |
| **HRH** | Human Resources for Health |
| **HRIS** | Human Resource Information System |
| **iCCM** | Integrated Community Case Management |
| **ICT** | Information Communication Technology |
| **ICU** | Intensive Care Unit |
| **IDSR** | Integrated Disease Surveillance and Response |
| **IEC** | Information Education and Communication |
| **IFMIS** | Integrated Financial Management Information System |
| **IHP+** | International Health Partnerships |
| **IHR** | International Health Regulation |
| **IMAM** | Integrated Management of Acute Malnutrition |
| **IMCI** | Integrated Management of Childhood Illnesses |
| **IMR** | Infant Mortality Rate |
| **IPTp** | Intermittent Preventive Treatment during Pregnancy |
| **IRS** | Indoor Residual Spraying |
| **ITN** | Insecticide Treated Net |
| **JAR** | Joint Annual Review |
| **LARC** | Long-Acting Reversible Contraceptives |
| **LCMS** | Living Conditions and Monitoring Survey |
| **LLITN** | Long-Lasting Insecticide-Treated Net |
| **LMIS** | Logistics Management Information System |
| **M&E** | Monitoring & Evaluation |
| **MC** | Male Circumcision |
| **MDA** | Mass Drug Administration |
| **MDG** | Millennium Development Goal |
| **MDR-TB** | Multi-Drug Resistant Tuberculosis |

| | |
|---|---|
| **MDSR** | Maternal Death Surveillance Review |
| **MMR** | Maternal Mortality Ratio |
| **MNCH** | Maternal, Newborn and Child Health |
| **MOF** | Ministry of Finance |
| **MOGE** | Ministry of General Education |
| **MOH** | Ministry of Health |
| **MSL** | Medical Stores Limited |
| **MTEF** | Medium Term Expenditure Framework |
| **MTR** | Mid-Term Review |
| **NAC** | National AIDS Council |
| **NCDs** | Non-Communicable Diseases |
| **NDQCL** | National Drug Quality Control Laboratory |
| **NFNC** | National Food and Nutrition Commission |
| **NGOs** | Non-Governmental Organizations |
| **NHA** | National Health Accounts |
| **NHC** | Neighborhood Health Committee |
| **NHCP** | National Health Care Package |
| **NHSP** | National Health Strategic Plan |
| **NTDs** | Neglected Tropical Diseases |
| **NTOP** | National Training Operating Plan |
| **NTP** | National Tuberculosis Programme |
| **PHC** | Primary Health Care |
| **PHO** | Provincial Health Office |
| **PLHIV** | People Living with HIV |
| **PMDT** | Programmatic Management of Drug-Resistant Tuberculosis |
| **PPP** | Public Private Partnership |
| **QA** | Quality Assurance |
| **QC** | Quality Control |
| **QI** | Quality Improvement |
| **RAF** | Resource Allocation Formula |
| **RCC** | Regional Collaborating Centre |
| **RED/C** | Reach Every District and Every Child |
| **RH** | Reproductive Health |
| **RHC** | Rural Health Centre |
| **7NDP** | Seventh National Development Plan |
| **SBCC** | Social and Behavior Change Communication |
| **SDG** | Sustainable Development Goal |

| | |
|---|---|
| **SGBV** | Sexual Gender Based Violence |
| **SHI** | Social Health Insurance |
| **SMAG** | Safe Motherhood Action Group |
| **SOP** | Standard Operating Procedure |
| **SRH** | Sexual and Reproductive Health |
| **STI** | Sexually Transmitted Infection |
| **SWAp** | Sector Wide Approach |
| **TB** | Tuberculosis |
| **TDRC** | Tropical Disease Research Centre |
| **THE** | Total Health Expenditure |
| **TWG** | Technical Working Group |
| **UNAIDS** | United Nations AIDS |
| **UNFPA** | United Nations Population Fund |
| **UNICEF** | United Nations Children's Fund |
| **UTH** | University Teaching Hospital |
| **VMMC** | Voluntary Medical Male Circumcision |
| **WHO** | World Health Organisation |
| **ZAMPHIA** | Zambia Population HIV Impact Assessment |
| **ZDHS** | Zambia Demographic and Health Survey |
| **ZFDS** | Zambia Flying Doctors Services |
| **ZNBTS** | Zambia National Blood Transfusion Service |
| **ZNPHI** | Zambia National Public Health Institute |

# 1. Executive Summary

## 1.1 Introduction

The successful attainment of Zambia's goal of being a prosperous, middle-income country by 2030 as stipulated in its Vision 2030 begins with transforming the country into a nation of healthy and productive people. Therefore, the Government of the Republic of Zambia (GRZ) through the Ministry of Health (MOH) has continued to prioritize health service provision as a pathway to achieving this.

The MOH's focus is the provision of a continuum of care with particular emphasis placed on strengthening health systems and services using the primary health care (PHC) approach. The 2017-2021 National Health Sector Strategic Plan (NHSP) covering five-years provides guidance on all health interventions in the health sector. The plan details the direction the health sector will take, the achievements and outcomes that will be attained, and the interventions that will be undertaken to make sure these targets are met. It also specifies the roles and responsibilities that all actors involved in the health sector will have to perform, the implementation challenges that have to be overcome, the monitoring and evaluation required, and the financial resources needed to enable the plan to be successfully implemented.

## 1.2 Health Sector Performance

### 1.2.1 Health Service Delivery

Zambia still experiences a high disease burden despite making tremendous progress in some selected indicators. According to the recent Zambia Demographic Health Survey (ZDHS) 2013-14 report, the maternal mortality ratio (MMR) and infant mortality rate (IMR) have declined from 591 per 100,000 live births to 398 per 100,000 live births and from 70 per 1,000 live births to 45 per 1,000 live births. Furthermore, under-five mortality also declined from 119 per 1,000 live births to 75 per 1,000 live births. According to the Health Management Information System (HMIS), hospital malaria fatalities decreased from 24.6 per 1,000 admissions in 2014 to 19 per 1,000 admissions in 2016.

Human immunodeficiency virus (HIV) prevalence in Zambia continued to decline. The recent Zambia Population HIV Impact Assessment (ZAMPHIA) survey shows a reduction of about 1.7 percentage points from 13.3% in 2014 to 11.6% in 2016. The health sector has also recorded remarkable progress on antiretroviral treatment (ART) coverage, which stands at 72% of the eligible people against the United Nations AIDS (UNAIDS) global target of 90%. The country's national tuberculosis (TB) notification rate also declined from 321 cases per 100,000 population in 2012 to 314 cases per 100,000 population.

In addressing the management of cervical cancer, the Ministry opened 11 clinics in general and central hospitals and completed the construction of the Regional Cancer Disease Hospital, which has been upgraded to become an oncology regional state-of-the-art centre for cancers.

### 1.2.2 Human Resources for Heath

With regard to Human Resources for Health (HRH), the Ministry as of December 2016 had an approved establishment of 63,057 positions, but only 42,515 were filled, representing 67% of the approved establishment. Worth to note is that during 2016, the Ministry recruited a total of 2,071 health workers against the targeted 2,500 health workers.

### 1.2.3 Infrastructure Development

Positive strides were also made in infrastructure upgrade and construction. As of December 2016, 275 out of 650 health posts were built and are now operational. Furthermore, 36 district hospitals were under construction, while Matero and Chilenje Health Facilities have been upgraded. The University Teaching Hospital (UTH) and provincial hospitals were undergoing modernization with the installation of computerized tomography (CT) scans, mammography equipment. Intensive care units (ICU) in some selected general hospitals had also been installed.

The construction of the National Health Training Institute with a 3,000 student capacity is nearing completion, with 70% of construction work done. Construction of 240 in-patient bed capacity at the Cancer Disease Hospital (CDH) was completed and is now operational.

### 1.2.4 Drugs and Medical Supplies

To ensure commodity (drugs and medical supplies) security in the country, significant investment has been made to upgrade Medical Stores Limited (MSL) infrastructure and to establish regional hubs such as Mongu, Choma, Chipata, and Ndola, which are now all operational.

### 1.2.5 Health Care Financing

In order to improve health care financing, a Health Care Financing Strategy to address issues of resource mobilization, allocation, reimbursement mechanisms, resource tracking, and fund holder management is nearing completion and will be implemented going forward. The Social Health Insurance (SHI) scheme, which is a strategy under health care financing, is regarded by the Ministry as a major priority. It is envisaged that the SHI will increase the resource envelope for health and enhance Universal Health Coverage.

### 1.2.6 Health Information

Efforts have also been made to enhance information to guide planning and decision making at district and hospital levels countrywide. This has also been extended to the community level through the introduction of community health information systems.

## 1.3 Strategic Direction

The strategic plan's vision is having 'A Nation of Healthy and Productive People', while the mission is 'To provide equitable access to cost effective, quality health services as close to the family as possible'. In pursuance of the overall goal, which is 'To improve the health status of people in Zambia in order to contribute to increased productivity and socio-economic development', this strategic plan was developed in line with the National Transformative Agenda, which recognizes the importance of the health sector in improving national productivity.

The health service model embedded within this strategic plan will therefore be re-engineered with emphasis in this particular order: health promotion, disease prevention, and curative and rehabilitative services in close-to-client settings. The first rung on the ladder of the health services will be community-based prevention health services rather than curative services.

Additional direction for this strategic plan was further provided through key international and national policies and goals, which include the Sustainable Development Goals (SDGs), Abuja Declaration, Zambia Vision 2030, Seventh National Development Plan (7NDP), and National Health Policy. The outcomes and targets in this plan are consistent with the targets and goals in these policies. In particular, the NHSP specifically includes strategies and high impact interventions that aim to speed up the achievement of the health-related SDGs.

The implementation of this strategic plan has guided prioritization of strategic interventions aimed at attaining the specific objectives within various programmes under the *Health Service Delivery System and the Integrated Health Service Support Systems*.

## 1.4 Strategic Framework

The critical factors for the success of this strategic plan have been identified as: strong political leadership and commitment from the central government and MOH; better planning, management, and monitoring and evaluation at all levels of the health sector; sustainable and equitable financing mechanisms; improved geographical access for the entire population; the availability of sufficient numbers of quality human resources; the availability and rational use of drugs and medical supplies; community participation in health activities; continued and enhanced partnerships between Government and CP; timely provision of adequate funds; strengthening of referral systems and specialised services; development of strong research capabilities; and ensuring good quality of service and delivery at all levels of care.

The NHSP 2017-2021 builds on the success of the NHSP 2011-2016 with greater prominence placed on selected areas as well as other new initiatives being introduced based on emerging needs in the health sector. In this plan, primary health care has been given greater emphasis and more funds will be directed to these programmes to ensure that outlined targets are met. More attention will be paid to preventing and treating non-communicable diseases, health promotion, social determinants of health, disease surveillance, and enhancing good governance. New initiatives will be introduced to mobilise additional resources to implement this plan, such as Social Insurance Schemes. Increased community health interventions to bring services closer to the people through revitalisation of Neighbourhood Health Committees (NHCs) will be encouraged.

## 1.5 Implementation Framework

The implementation of this plan will require harmonized and integrated actions by the MOH and other line ministries, local government, provinces, districts, Cooperating Partners (CPs), and local communities. The MOH will provide leadership in implementing the plan, but will do so based on the principles of partnership and collaboration embodied in the Sector Wide Approach (SWAp).

The 2017-2021 NHSP will be implemented through national annual work plans developed jointly by the MOH and all CPs within the structure of the Medium Term Expenditure Framework (MTEF). At the decentralised level, District Health Offices (DHOs) under the Councils will produce annual, costed, action plans in collaboration with the MOH.

The major risks to successful implementation have been identified as: the health sector's dependence on donor financing; the Government not increasing the percentage of the general budget spent on health; and CPs not committing funds in line with global declarations. However, continuous efforts will be made throughout the lifetime of the NHSP to ensure these potential challenges are overcome.

## 1.6 Monitoring and Evaluation (M&E)

The NHSP 2017-2021 interventions, which are aimed at reaching desired outcomes and targets, will be measured using a set of annual and periodic indicators that have been developed through consultations with all stakeholders. These indicators, which are important for measuring the sector's performance, are consistent with 7NDP indicators and have been informed by the country's long-term vision and strategic direction (Vision 2030 and SDGs). These indicators will also form the basis of M&E of the NHSP 2017-2021.

Joint Health Sector Annual Review (JAR) will be undertaken to look at annual and periodic performance indicators as well as process indicators. Furthermore, the 2017-2021 NHSP will be

evaluated at mid-term (in 2019) and adjusted accordingly. A final assessment of the NHSP will be conducted in 2021 in order to inform the development of the 2022-2026 strategic plan.

## 1.7 Required Financial Resources

The NHSP 2017-2021 has been costed using an Activity-Based Costing Approach (ABC). The total cost of this strategic plan for all five years is estimated at US$14.3 billion (ZMK 139.8 billion). The major cost drivers are HRH at an estimated US$3.2 billion (22.6% of the total). Next is infrastructure at an estimated US$2.4 billion (17.1% of the total). Pharmaceuticals and supply chain management--composed of essential drugs, commodities, and supplies—comes in third at an estimated US$2.2 (15.8% of the total). HIV/acquired immune deficiency syndrome (AIDS) at an estimated US$ 1.0 billion (7% of the total) comes in fourth, and malaria is fifth with an estimated US$0.9 billion (6.5% of the total).

# 2. Introduction

## 2.1 Country Background

Zambia is a landlocked country in Southern Africa and covers a total area of 752,612 square kilometres. As a lower middle-income country with a population of about 13.1 million[1] people and a population growth rate of about 3% per annum, the country has been implementing the Vision 2030 Long-Term Plan since 2006; this is aimed at transforming Zambia into a prosperous middle-income nation by 2030[2].

*Economy:* Zambia's economy is primarily driven by the mining, agriculture, construction, transport, and communications sectors. The country has undertaken policy reforms aimed at creating an enabling economic environment, which enhances private-sector participation and ultimately achieves economic growth. Against the backdrop of these policy reforms, the country has achieved consistent positive gross domestic product (GDP) growth over the past decade. The GDP was estimated to have grown by 7.2% in 2005 and 10.3% in 2010 before declining to 5% in 2013 and 2014 and declining further to 2.9% in 2015.

*Poverty:* The 2015 Living Conditions and Monitoring Survey (LCMS) results show that the majority of the population is affected by poverty. In 1996, the headcount ratio of the population living below the poverty line was 69 per cent, declining to 61 per cent in 2010 and 54.4 in 2015. Poverty is a predominantly rural phenomenon, with the ratio of the population living below the poverty line in rural areas estimated at 76.6 percent, compared with 23.4% in urban regions. Further, the survey showed that 40.8% of the population were extremely poor (60.8% in rural areas and 12.8% in urban areas).

*Unemployment:* The current unemployment rate[3] is estimated at 7.8% (Central Statistical Office [CSO], 2012), and this is higher than the global average of 6% (International Labour Organisation, 2013). The problem of unemployment is more prevalent in urban areas and among youth, women, and people with disabilities.

## 2.2 Achievements and Challenges of the Health Sector Strategic Plan

The health sector has been implementing reforms aimed at improving service delivery. At the core of the reforms was decentralization, under which health delivery was devolved to the district level. In part owing to the reforms that were implemented and cooperation from the international community, the health sector made some remarkable achievements. This was amply demonstrated by the performance of health related Millennium Development Goals (MDGs) indicators. The ZDHS data shows that HIV prevalence declined from 14% in 2007 to 13.3% in 2014. Maternal mortality, which was estimated at 649 per 100,000 live births in 1996, declined to 591 deaths per 100,000 live births in 2007. The 2013-14 ZDHS indicates a further decline to 398 deaths per 100,000 live births. The IMR per 1,000 live births was 109, 95, 70 and 45 in 1996, 2001-02, 2007, and 2013-14 ZDHSs, respectively. Child mortality has declined by 61% since 1996. The mortality rate of children under five dropped from 197 deaths per 1,000 live

[1]Central Statistical Office. Census. Lusaka, Zambia: 2010
[2]Central Statistical Office. National Accounts Statistics. Lusaka, Zambia: 2010.
[3]This is defined as the ratio of the unemployed population to the labour force in a given period of time (CSO, 2013).

births in 1996 to 75 per 1,000 live births in 2013-14. The 2013-14 figure is the baseline for the NHSP 2017-2021 indicator.

The concerted efforts to implement effective programmes by the Government and with support from the CPs accounted for the noted improvements in the health indicators. For instance, the reduction in child mortality was facilitated by the rise in immunization coverage, exclusive breast-feeding, vitamin and mineral supplementation, and malaria prevention and treatment. The decline in maternal mortality is benefited from interventions such as improved use of contraception for birth spacing, prevention of early marriages, improved referral systems, provision of and access to emergency obstetric care, and the improved use of more trained midwives and birth attendants. International cooperation in the fight against HIV and AIDS, for instance, has been hailed for the corresponding decline in prevalence and incidence; elimination of mother-to-child transmission, male circumcision, voluntary HIV counselling and testing, and treatment have proved to be effective interventions.

**Table 2.1: Zambia: NHSP 2017-2021 Key Performance Indicators**

| Indicator | | Baseline | NHSP Targets | Data Sources | Targets | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 2017 | 2018 | 2019 | 2020 | 2021 |
| Under 5 Mortality Rate | Per 1000 live birth | 75 | 35/1000 | ZDHS | 67 | | | | 35 |
| IMR | Per 1000 live birth | 45 | 15 | ZDHS | | 30 | | | 15 |
| MMR | Per 100,000 live birth | 398 | 100 | ZDHS | 350 | 250 | 200 | 150 | 100 |
| Adult Mortality Rate | Per 1000 popu-lation | 24 | 12 | ZDHS | 21 | 18 | 16 | 14 | 12 |
| HIV Prevalence in adults aged 15-49 years | % | 13.3% | 5% | ZDHS | | 8% | | | 5% |
| TB Cure rate | % | 85 | 87 | HMIS | 85.5 | 86 | 86.5 | 86.8 | 87 |
| Malaria Incidence Rate | Per 1000 popu-lation | 394 | 0 | HMIS | | 168 | 101 | 15 | 0 |

The positive outcomes of the NHSP 2011-2016 notwithstanding, the health sector still faces challenges. During the Plan period, financial irregularities were unveiled in the sector, which highlighted the governance and accountability constraints. Regional inequities in the health services also persisted. Moving forward, there will be need to revisit national level indicators so that indicators are disaggregated to the level where these inequities are shown. The 2017-2012 Plan will build on the success of the predecessor Plan through enhanced interventions on:

1. Building on the success of improving human resources for health, additional efforts are required to enhance service delivery

2. In the light of the decentralisation policy, interventions for enhancing district level decision-making capacities will be enhanced so as to improved local-level decision making

3. While acknowledging the contribution of CPS in the health sector, financing challenges are still pervasive. To this end, the 2017-2021 Strategic Plan will expedite the implementation of the SHI scheme

4. Enhance the achievement made in infant mortality reduction by ensuring that more children are put on ART; ART uptake could be improved through close monitoring of mothers enrolled in the Prevention of Mother-to-Child Transmission (PMTCT) programme

5. Delivering further reductions in maternal mortality will entail addressing the deep-rooted gender inequalities that manifest in early marriages, adolescent pregnancy, and inadequate access to sexual and reproductive health services

## 2.3 Disease Burden

The 2015 Mid-Term Review report showed that Zambia's epidemiological profile was characterized by the high prevalence and impact of preventable and treatable communicable diseases, particularly malaria, HIV and AIDs, sexually transmitted infections (STIs) and TB. Further, there was a growing burden of non-communicable disease (NCD), including mental health problems, cancer diseases, trauma, sickle cell anemia, diabetes mellitus, hypertension, and cardiovascular diseases (CVDs), chronic respiratory disorders, blindness and eye refractive defects, oral health problems, and maternal and child health problems.

Analysis of disease trends from 2011 to 2015 indicates that malaria remained the leading cause of morbidity and mortality in the country. With an HIV prevalence estimated at 13.3%, Zambia is one of the most affected countries in the world (CSO, ZDHS 2013-14). Different diseases have varying disease burdens: some diseases cause premature death, while chronic conditions may cause long-time disability and impose a great emotional and monetary toll for patients, family members, and society. Tables 2.2 and 2.3 below show the top ten causes of morbidity and mortality in health facilities.

**Table 2.2 Show Top Ten Causes of Mortality in Health Institutions Over a Period of Five Years for All Ages (Source: HMIS)**

| Disease Name | 2011 | 2012 | 2013 | 2014 | 2015 | Average |
|---|---|---|---|---|---|---|
| Malaria | 4593 | 4029 | 3564 | 3225 | 2360 | 3554.2 |
| ARI/Pneumonia | 2999 | 2520 | 2239 | 2012 | 1890 | 2332 |
| Trauma | 911 | 1012 | 682 | 859 | 969 | 886.6 |
| Diarrhoea (Non-Bloody) | 1770 | 1954 | 1428 | 1467 | 1281 | 1580 |
| Anaemia | 2760 | 2152 | 1805 | 1754 | 1493 | 1992.8 |
| Non-infectious digestive system | 634 | 595 | 509 | 604 | 640 | 596.4 |
| Hypertension | 632 | 680 | 811 | 692 | 739 | 710.8 |
| TB | 2175 | 1992 | 1646 | 1677 | 1576 | 1813.2 |
| Cardiovascular | 1012 | 1195 | 1217 | 1296 | 1268 | 1197.6 |
| Severe malnutrition new case | 1763 | 1314 | 996 | 886 | 792 | 1150.2 |

**Table 2.3: Top ten causes of morbidity (Incidence per 100 pop - All Ages)**

| 2011 | | 2012 | | 2013 | | 2014 | | 2015 | |
|---|---|---|---|---|---|---|---|---|---|
| Malaria | 344 | Malaria | 339 | Respiratory Infection: non-pneumonia | 382 | Malaria | 394 | Respiratory Infection: non-pneumonia | 388 |

| 2011 | | 2012 | | 2013 | | 2014 | | 2015 | |
|---|---|---|---|---|---|---|---|---|---|
| Respiratory Infection-non Pneumonia | 309 | Respiratory Infection-non Pneumonia | 310 | Malaria | 370 | Respiratory Infection: non-pneumonia | 376 | Malaria | 316 |
| Diarrhoea non-bloody | 86 | Diarrhoea non-bloody | 85 | Diarrhoea (non-bloody) | 96 | Diarrhoea (non-bloody) | 97 | Diarrhoea (non-bloody) | 97 |
| Muscular Skeletal & Connective Tissue non Trauma | 54 | Muscular Skeletal & Connective Tissue non Trauma | 62 | Muscular skeletal and connective tissue (not trauma) | 66 | Muscular skeletal and connective tissue (not trauma) | 67 | Muscular skeletal and connective tissue (not trauma) | 67 |
| Trauma other Injuries wounds | 38 | Trauma other Injuries wounds | 39 | Digestive system: (not infectious) | 45 | Digestive system: (not infectious) | 46 | Digestive system: (not infectious) | 46 |
| Digestive system non-infectious | 37 | Digestive system non-infectious | 39 | Trauma: Other Injuries, wounds | 39 | Trauma: Other Injuries, wounds | 40 | Trauma: Other Injuries, wounds | 38 |
| Respiratory infection-Pneumonia | 36 | Respiratory infection-Pneumonia | 33 | Respiratory Infection: pneumonia | 36 | Respiratory Infection: pneumonia | 32 | Respiratory Infection: pneumonia | 30 |
| Eye disease Infectious | 27 | Eye disease Infectious | 26 | Skin Diseases (not infectious) | 26 | Skin Diseases (not infectious) | 26 | Sickle Cell Anaemia | 30 |
| Skin diseases non-infectious | 23 | Skin diseases non-infectious | 25 | Eye diseases (infectious) | 26 | Eye diseases (infectious) | 25 | Dental Carries | 24 |
| Dental Carries | 22 | Dental Carries | 24 | Dental Carries | 25 | Dental Carries | 25 | Skin Diseases (not infectious) | 24 |

## 2.4 Health Sector Strategic Programmed Approach

The GRZ has prioritized health as a key economic investment to spur the country to become a prosperous middle-income country by 2030. The NHSP (2017-2021) is anchored on a National Transformation Agenda, which recognizes the importance of the health sector in improving

national productivity. Investments in the health sector will be treated as inputs toward raising overall productivity and hence contributing to economic growth. The focus for the NHSP shall be on attaining Universal Health Coverage using the primary health care approach. Underpinning the approach is health system strengthening across the continuum of care and spanning promotive, preventive, curative, rehabilitative, and palliative health services. The investment in the health sector shall be informed by key pillars of a functional health care system, namely service delivery, human resource for health, health management information and research, medical products, vaccines, supplies, health infrastructure, equipment, transport, financing, leadership, and governance.

The NHSP uses a model that incorporates underlying socio-economic factors impacting health behaviours. The socio-economic determinants model postulates that poor social and economic factors impact health throughout an individual's life; these factors could be isolated at the personal, societal, and physical environment levels.

## 2.5 Socio-economic Determinants of Health

### Personal Health Practices

Personal character and commitment to health seeking behaviours, including prevention of disease, promotion of healthy practices and early seeking of appropriate treatment and care, are important for enhancing health status. In Zambia, there are attempts to promote these practices and skills through strengthening of health promotion and education. However, this area of health is not adequately developed and requires significant strengthening to meet the required levels of health awareness and education.

### Societal Level Factors

***Demographic Profile:*** The absolute size, rate of growth, spatial distribution of the population, and age structure are important determinants of health. The population of Zambia has more than doubled from 5.7 million in 1980 to about 13.1 million in 2010[4]. The population is likely to grow to about 17.9 million by 2020 and reach 26.9 million by 2035[5]. This rapid population growth places an increasing burden on the national economy, particularly the country's health delivery capacity.

***Income and Economic Status:*** The country currently has a high level of unemployment, meaning many people are not in gainful employment, making them vulnerable to illness and thereby imposing a heavy burden on the health delivery system. The level of formal sector employment is even lower, resulting in a narrow tax base. The low level of formal sector employment has implications for effectiveness of the proposed SHI scheme.

***Nutrition Status:*** Undernutrition is endemic in many parts of the country. It is responsible for 52% of all deaths occurring in children below the age of five (United Nations Children's Fund [UNICEF] 2008; Department for International Development 2011). Micronutrient deficiency remains high and is a major contributor to childhood morbidity and mortality. It is estimated that 54% of children under the age of five and 13% of women of child bearing age are vitamin A deficient (National Food and Nutrition Commission [NFNC], 2003), and about 38% of the population is at risk of low zinc intake (IZiNCG, 2004).

***Education and Literacy:*** Citizens with low literacy levels are more likely to be unemployed and experience poor health status. According to the 2015 LCMS, school attendance rates for the primary school-age population (7-13 years) was 83.1%, while that of the secondary school-age population (14-18 years) was 75.7 percent. According to UNICEF, 64% of Zambia's young people

[4] Zambia in Figures 1964 - 2014
[5] Zambia Census Projection 2011 - 2035

(aged between 15 and 24 years old) are literate, with 47% of children dropping out of school before completing primary education.

***Socio-cultural Attributes:*** Zambia is a multi-cultural society, characterized by different racial and ethnic groups and religious and traditional groupings. The country is also characterized by a high level of urbanization and increasing access to the internet and other sources of information. These have significant potential for promoting good health. However, there are some social, cultural, and religious beliefs and practices that negatively affect health. These include practices such as sexual cleansing of surviving spouses, unsafe traditional male circumcision procedures, early marriages for the girl child, and negative patriarchal traits that perpetuate the low status of women.

***The Family and Community:*** Families and communities have an important role in shaping the character and behaviours of people. Social pressure could produce both negative and positive outcomes. For instance, peer pressure among the youth has been associated with increased risky sex behaviour that exposes young people to HIV and other STIs, trauma, teenage pregnancies, and mental illnesses. On the positive side, social pressure could also be used to mobilize communities to support health programmes.

***Gender Attributes:*** Gender considerations are important for both health service delivery and also for assessing the health sector outcomes. Some of the pernicious manifestations of gender inequality in Zambia include the disproportionately high ratio of educated men to women and low representation of women in politics and formal employment. In addressing issues of gender and health, the NHSP in the next five years will stress the inclusion of gender mainstreaming in planning, design, and M&E of health programmes and policies.

### Physical Environment

***Water and Sanitation:*** The 2015 LCMS indicates that about 67.7% of households had access to safe water sources. Furthermore, 51.6% of households in rural areas had access to safe water while 89.2% of households in urban areas had access to safe water. Limited access to safe water and sanitation facilities accompanied by poor hygiene is associated with skin diseases, acute respiratory infections, and diarrheal disease, which is the leading preventable disease (ZDHS] 2013-14).

***Climate Change:*** Climate change is a global threat to health and is becoming a major problem for Zambia. The 2005 Zambia National Policy on Environment recognizes the need to harmonize the different sectoral development strategic plans through a National Climate Change Response Strategy.

***Housing:*** Traditional housing is the most common type of dwelling in Zambia. Slightly more than half (52.9%) of households in rural areas live in traditional huts. Further, about 30% live in improved traditional huts, and 14.2% live in detached houses. It should be noted that affordable, stable housing in well-designed communities helps families have better access to health and other supportive services.

## 2.6 The National Health System

### Sector Coordination and Organization

The NHSP outlined strategic programmes for service delivery and support systems. The strategic plan provides a framework to guide collaboration in the implementation of health programmes. The strategic plans are accompanied by a memorandum of understanding signed by all collaboration partners. The GRZ has expressly indicated the basket approach as the preferable mode for support to the sector. However, there is still a considerable amount of external funds that are channelled to discrete projects. The health sector in Zambia requires that all partners

buy into the One Plan, One Budget, One Report system and one monitoring and evaluation framework. The sector will institutionalise the compact during the 2017–2021 NHSP. This will entail mobilising all partners to support the sector through a pooled rather than project-funding approach.

## Health Care Delivery System

Zambia is divided into 10 administrative provinces and 105 districts. Health management is done through provincial health offices (PHOs) (10), DHOs (105), and statutory bodies. The country has eight third-level hospitals, 34 second-level hospitals, 99 first-level hospitals, 1,839 health centres, and 953 health posts. All third-level hospitals are Government owned. Of the second-level hospitals, 26 are Government-owned, and eight are owned by the Churches Health Associations of Zambia (CHAZ).

The health services in Zambia are provided by four main players, namely the Government, faith-based (not-for-profit) providers, the mines, and private (for-profit) providers. The public sector is the biggest health provider; 90% of patients seek care in facilities owned and run by the Government (Masiye et al., 2010). The national level is responsible for overall coordination and management, policy formulation, strategic planning, and resource mobilisation.

The health service delivery system mirrors the political administrative structure. The PHO is the link between the national and district level and is charged with backstopping provincial and district health services. The provincial is also tasked with the provision of second-level referral services (through general hospitals).

The district is responsible for implementation of health promotion, preventive, curative, and rehabilitative services. Administratively, the district health office is responsible for coordinating service delivery at that level. Each district has a district hospital, which provides first-level referral services.

Below the district there are health centres, which provide both static and outreach activities. These are staffed by a clinical officer, midwife, nurse, and environmental officer. The main activities at health centre level are predominantly health promotion and disease prevention. There are some limited curative services provided, too, with complicated cases being referred to first-level district hospitals. Each health centre is responsible for running key health programmes, which include maternal, newborn and child health, communicable and non-communicable diseases, environmental, water and sanitation, school health and nutrition, and epidemic preparedness (NHSP, 2012).

The NHSP is operationalized through the processes and systems of the Government's MTEF and the annual budgets and plans. These action plans are jointly developed and implemented by the MOH and its CPs. All the structures from the central level, provinces, hospitals, statutory bodies, districts, and training schools have annual action plans, which are independently implemented.

The MOH and its CPs increasingly use health sector indicators for performance M&E. This M&E of sector performance takes place at different levels. The sector uses the SWAp model, which is operationalised through technical working groups (TWGs), policy meetings, sector advisory group meetings and, annual consultative meetings. The review of sector performance takes place on an annual basis through the JARs. Further assessments are undertaken through mid-term reviews and final evaluations.

Zambia's health system has been decentralized to district and hospital levels. The Provincial Medical Office, second- and third-level hospitals and central hospitals, DHOs, and training schools receive funds directly from Ministry of Finance (MOF). The GRZ has in its new constitution added decentralisation as one of the ways to develop the local levels. Decentralisation will be by devolution where local government authorities will be responsible for delivering public services in local health, primary education, agriculture extension and livestock, water supply, and local road maintenance.

The MOH will retain such functions as policy formulation and guidance; monitoring and evaluation; and donor coordination. At the district level, the MOH will provide technical guidance on quality of care, planning, health facility management, good governance, human resources, and rational use of drugs. The central level will also play the role of provision of standards in construction and renovation of health infrastructure and in-service training of health workers. The districts are responsible for administrative supervision of health facilities and data compilation, which will be shared with the MOH.

# 3. Vision, Mission, Overall Goal, Principles and Priorities

## Vision

A Nation of Healthy and Productive People

## Mission Statement

To provide equitable access to cost effective, quality health services as close to the family as possible

## Overall goal

To improve the health status of people in Zambia in order to contribute to increased productivity and socio-economic development

## Key Principles

PHC

Equity of access

Affordability

Cost-effectiveness

Accountability

Partnerships

Decentralization and leadership

Health systems strengthening

**Table 3.1 National Health Priority Areas**

| Public Health Priorities | Health System Priorities |
|---|---|
| • Primary health care<br>• Maternal, neonatal and child health, youth and adolescent health<br>• Communicable diseases, especially malaria, HIV and AIDS, STIs and TB<br>• NCDs<br>• Disease outbreaks and epidemic control, public health surveillance<br>• Environmental health and food safety<br>• Health service referral systems<br>• Health promotion and education<br>• Community health<br>• Social determinants of health | • HRH<br>• Essential drugs and medical supplies<br>• Infrastructure and equipment<br>• Health information<br>• Health care financing<br>• Leadership and governance |

# 4. Health Service Delivery System

## 4.1 Primary Health Care and Community Health

### Situation Analysis

PHC refers to 'essential health care' that is based on scientifically sound and socially acceptable methods and technologies that make universal health care accessible to all individuals and families in a community. This is achieved through full community participation at a cost that both the community and the country at large can afford in the spirit of self-reliance and self-determination. It is an approach to health beyond the traditional health care system, which focusses on equitable distribution of health services to achieve improved health outcomes. A continuing effort is required to secure meaningful community participation in the planning, design, and implementation, as well as monitoring and evaluation, of health service delivery. This is anchored on the principle of inter-sectoral coordination facilitating the interest of communities from all related sectors and factors that impact on health and well-being. Key to this approach is the use of appropriate technology that is acceptable and within the reach of communities.

Community health extends the principles of PHC down to the household level within communities through proactive promotion of good health, disease prevention and control, curative services, rehabilitation, and palliative care. Further, community health concerns itself with the health of specific groups of people, including the actions and conditions that promote, protect, and preserve their health. It draws from other disciplines and includes social determinants of health, which enables the isolation of physical environment, socio-economic status, and cultural factors that have a bearing on health outcomes.

Mobilizing community resources is an important aspect of community health. Communities are therefore vital resources and form part of a network of relationships and support on which people rely when seeking health services. Community health increases the utilization and coverage of health services provided at the household level through expanded access to basic health services, and thus supports the eight essential components of PHC. Community health complements PHC by incorporating the element of strengthened referrals between health services and community health services.

Health promotion is one of the major components of primary health care and community health. Health promotion enables individuals, families, households, and communities to realize the highest level of health and development irrespective of age, race, income, geographical location, or education level. Health promotion also calls for integration of activities across sectors and encourages multi-sectoral collaboration.

Most chronic health conditions are caused by social and environmental determinants of health, which are outside the control of the health sector. In order to meaningfully address these external factors in the planning process, the health system should be re-oriented so that it is more responsive to community needs, especially the poor and vulnerable groups. Health promotion interventions seek to promote healthy behaviours and empower individuals, families, households, and communities to take necessary actions aimed at improving their health status.

In Zambia, primary health care services are provided through outreach posts, health posts, health centres, and district hospitals. These are linked to the communities through health centres and NHCs.

The Government has embarked on a massive health infrastructure development project aimed at improving the equitable distribution of primary health care. This has, however, been limited by

the non-availability of a community health strategy, which has since been developed alongside this NHSP. Further, the HRH challenges and the high drop-out rate of community-based volunteers have compounded the problem. Interventions for improving the availability of community health workers include the introduction of an incentives scheme and development of two training schools targeting community health workers. However, by 2016, only 1,577 community health assistants graduated against the targeted 5,000.

A weak referral system has adversely affected service delivery at the community level. Further, the Neighbourhood Health and Health Centre Committees do not have a supportive legal or regulatory framework. While the NHCs exist in 84% of the health zones, their functionality varies within and across districts. The weak inter-sectoral collaboration at the district level has also limited the effectiveness of community health interventions.

## Strategic Interventions

This NHSP aims to promote and ensure harmonized and strengthened inter-sectoral action on health using a Whole Government and Whole Society approach within the Health in All Policies framework. This shall be achieved through organizational structures and coordination mechanisms that support regular interaction for comprehensive community health. This is in line with the Ouagadougou Declaration (2008), the key values of which are equity, solidarity, social justice, principles of multi-sectoral action, community participation, and unconditional enjoyment of health as a human right by all. It also fosters the adoption of healthier lifestyles.

The Plan emphasizes facilitation and creation of an environment that enables individuals and families to maintain and improve their own health. It aims at the development of Community Health, which includes supportive mechanisms for community participation in organization, coordination, and financing. In order to ensure effective implementation of community health, the recruitment of CHAs and volunteers shall be enhanced. Further, community nurses, nutritionists, and health promotion and surveillance officers will be deployed in the communities. The community-based health services will be linked to strengthened clinical services. Supported by community-based workers, health facilities shall cooperate in their outreach work. These will be supported by strengthened NHCs.

| **Goal:** To have empowered communities taking responsibility for improving their own health status through community health interventions in line with the principles of PHC by 2021 | |
|---|---|
| **Objectives** | **Strategies** |
| To formalise community health structures in line with the decentralization policy | Facilitate the inclusion of community health structures in existing and emerging regulatory frameworks such as the Public Health Act and National Health Services Act |
| | Develop and implement community health strategy implementation framework |
| | Establish national, district, and community support structures |
| | Facilitate technical skills development of community health workers |
| | Strengthen multi-sectoral collaboration, community linkages, and coordination in line with the decentralization policy to address Social Determinants of Health and within the Health in All Policies framework |

| **Goal:** To have empowered communities taking responsibility for improving their own health status through community health interventions in line with the principles of PHC by 2021 | |
|---|---|
| **Objectives** | **Strategies** |
| | Revive the use of NHC/HCC guidelines in community health |
| | Design and implement standardized management including incentive schemes for community based volunteers |
| | Strengthen community participation in planning, coordination, implementation, monitoring, and evaluation at the facility and community levels |
| | Create an enabling environment for the participation of traditional, civic, political, and faith-based organisations, media, and academia in executing an all-inclusive gender-sensitive community health system |
| To strengthen health promotion and education at the community level | Strengthen the integration of health promotion and disease prevention, control, and surveillance in all community-level programmes |
| | Strengthen comprehensive e-learning institutions, school health and nutrition, and comprehensive sexual health education programmes |
| | Promote inter-sectoral collaboration (including private-public collaboration) at the community level |
| | Enhance demand creation for gender-sensitive community health services |
| | Scale up the recruitment and retention of community-based volunteers |
| | Scale up standardized capacity building for health promotion and education at district, facility, and community levels |
| To improve the capacity of districts, hospitals, and health centres to deliver health services at the community level | Revise the PHC package to focus on health promotion, disease prevention, basic health care, and multi-sector collaboration for community health |
| | Develop a framework for the delineation of the roles and functions as well as standard operating procedures to support community health and technical skills at each level |
| | Revitalize the referral and feedback systems between health facilities and communities |
| | Strengthen PHC facilities with appropriate staff, equipment and supplies, and essential medicines and commodities |

| **Goal:** To have empowered communities taking responsibility for improving their own health status through community health interventions in line with the principles of PHC by 2021 | |
|---|---|
| **Objectives** | **Strategies** |
| To mobilize adequate financial and other resources to strengthen community health | Ensure equitable resource allocation considering demographics/geography, disease burden, and gender |
| | Develop mechanisms for ensuring that 10% of DHO is reserved for community health activities |
| | Introduce community financing schemes |
| | Strengthen community-based HMIS, and link to all the levels of the health delivery system |
| | Develop/enhance skills for utilizing community-based HMIS data for decision making |
| To provide and maintain quality and appropriate essential infrastructure to support community health services | Develop an infrastructure development plan to support community health |
| | Strengthen maintenance and rehabilitation of infrastructure and equipment |
| To enhance resilience and empowerment of the community in health emergencies, public health effects, and consequences of disasters and climate change impacts | Develop guidelines for community health adaptation in public health emergency situation including climate change and related disasters |
| | Establish and sustain health-related emergency and disaster management and response systems at the community level |
| To establish a community-friendly platform for innovations | Develop a framework of innovations for enhancing gender-sensitive community health systems and service delivery models |
| | Roll out community health system innovations throughout the country |
| To strengthen healthy public policies | Create a platform for multi-sectoral collaboration |
| | Build capacity for the MOH to assume leadership for Health in All Policies (HiAP) |
| | Collaborate with key stakeholders to implement (HiAP) |
| To strengthen community action and personal skills development for health | Engage community, civic, civil society organizations, and public and private care providers in promoting health |
| | Create health literacy in the population |
| | Build capacities for health promotion and community health |

| **Goal:** To have empowered communities taking responsibility for improving their own health status through community health interventions in line with the principles of PHC by 2021 | |
|---|---|
| **Objectives** | **Strategies** |
| | Advocate for health-promoting work environments |
| | Enhance health-promoting schools |
| | Advocate for policies that promote health |
| | Advocate for healthy city and community concept |
| To create a health system responsive to health promotion, disease prevention, and rehabilitation | Reorient the current health service delivery model towards health promotion and disease prevention |
| | Advocate for holistic health services |
| | Enhance curriculum of all health cadres by promoting health promotion, diseases prevention, and rehabilitative services |

## 4.2 Reproductive, Maternal, Child, and Adolescent Health and Nutrition

### 4.2.1 Reproductive and Maternal Health

#### Situation Analysis

Remarkable improvements have been achieved in reducing the MMR from 591 deaths per 100,000 live births in 2007 to 398 deaths per 100,000 live births in 2014.[6] Despite the decrease, maternal mortality is still high in absolute terms, and Zambia was not able to achieve the MDG target of 162 deaths per 100,000 live births at the end of 2015.

There has been significant progress in the provision of family planning services, with the contraceptive prevalence rate for modern family planning methods having been estimated to have increased from 33% to 45% and unmet need reducing from 27% to 21% in 2007 and 2013, respectively. Despite the nearly universal knowledge of family planning, the total fertility rate is still high (5.3), with rural areas reporting a higher rate of 6.6 than urban areas at 3.7. The ZDHS 2013-14 statistics show that although 96% of pregnant women attend ante-natal care (ANC) services at least once during pregnancy, only 24% initiated ANC in the first trimester and 25% made a minimum of four visits during their pregnancy.

According to the 2013-14 ZDHS, the proportion of deliveries in health facilities stood at 67%, with skilled birth attendance at 64%. A National Emergency Obstetric and Newborn Care (EmONC) Assessment conducted in 2013-14 revealed that only 18% of the designated EmONC facilities were fully functional. This contributed to the unmet need for EmONC services; the caesarean section rate, which was estimated at 3.6%, is below the globally acceptable standard of 5.5%.

[6] DHIS

According to ZDHS 2013-14, the uptake of postnatal services within 48 hours stood at 63%, and uptake within six days was estimated at 65.7%; both of which fall below the World Health Organisation (WHO) acceptable levels.

The country has made significant progress in institutionalizing maternal death surveillance reviews (MDSRs) using the WHO Guidelines, with all provinces having started to conduct maternal death reviews and perinatal death surveillance. However, there are weaknesses in surveillance and response mechanisms to address the identified challenges. The 2014 MDSR report indicates that 84% of maternal deaths occur in health facilities; most of the deaths occur at first-level and tertiary-level hospitals. The report also revealed that maternal death was less likely if referral was made from lower- to higher-level facilities, as opposed to referral to a facility of the same level (MOH, United Nations Population Fund [UNFPA], 2014 MDSR Report).

One of the major reproductive health challenges facing the MOH is the issue of obstetric fistula. The MOH has conducted close to 2,000 fistulae surgical repairs in the past 10 years. A recent tracking report for 638 women treated for fistula revealed that 64.9% were completely healed at the time of the study (MOH, UNFPA, 2015). Most of the surgical operations are done through 'fistula repair camps' because there is limited institutional capacity in all provinces; there are limited fistula surgeons and support staff. In addition, there is limited data on the magnitude of obstetric fistula cases in Zambia, making it difficult to design management interventions.

One of the contributing factors to maternal morbidity and mortality is sexual and gender-based violence (SGBV). The 2013–14 ZDHS shows that 47% of all married women aged 15–49 reported ever having experienced physical, sexual, and/or emotional violence from their current or most recent husband or partner. Further, the survey revealed domestic violence as one of the reasons for poor health, insecurity, and inadequate social mobilization among women; this negatively affects the uptake of reproductive and maternal health services. In an effort to address this problem, the GRZ has developed an SGBV policy. The MOH is part of a multi-sectoral response and mechanism established to address SGBV cases.

Cancer has rapidly become a major factor in the local and global burden of disease, especially among women. As of 2010, Zambia reported having 3.21 million females aged 15 years and older (CSO 2010) who were at risk of developing cancer of the cervix. Cervical cancer is the most frequent cancer among females in Zambia, and it is the second most frequent cancer among females between 15 and 44 years of age, followed by cancer of the breast. Cervical cancer is highly preventable and treatable, but requires knowledge and practice of prevention, early detection, and treatment.

Key challenges with regard to reproductive and maternal health remain and include the following:

- Inequities in the distribution of services between urban and rural areas
- Low ratio of skilled providers to the population
- Inadequate infrastructure for delivery of services
- Inadequate equipment, transport, and communication facilities
- Weaknesses in RMNCAH commodities and supply chain systems
- Inadequate community involvement for RMNCAH
- Weak quality assurance systems for RMNCAH
- Inadequate health sector response for SGBV

## Strategic Interventions

| **Goal:** To reduce MMR from 398/100,000 live births in 2014 to 162/100,000 live births by 2021 | |
|---|---|
| **Objectives** | **Strategies** |
| To create demand for sexual and reproductive health services (women of reproductive age, men, elderly people, and marginalized populations) | Support the development and implementation of social and behaviour change communications (SBCC) interventions for women of reproductive age, men, elderly people, and marginalized populations |
| | Support the development and implementation of a comprehensive SBCC strategy for sexual and reproductive health services |
| To increase the availability and utilization of high-impact sexual and reproductive health services (youth-friendly, family planning, SGBV, and cancer screening services) | Enhance community mobilization for improved uptake of reproductive health services. |
| | Improve micronutrient supplementation in pre-pregnancy by integrating with family planning and other sexual and reproductive health (SRH) services |
| | Scale up family planning services with a focus on community-based distribution, long-acting reversible contraceptives (LARC), and post-partum family planning; and with particular focus on underserved areas |
| | Scale up cervical cancer screening (using visual inspection with acetic acid [VIA]), management, and vaccination for human papiloma virus (HPV) |
| | Scale up integrated management of SGBV survivors in the health sector |
| | Strengthen male involvement in sexual and reproductive health services |
| To increase the availability and utilization of quality focused antenatal care (FANC) services | Strengthen community (church, Safe Motherhood Action Groups [SMAGs], traditional counsellors, Community-Based Distributors [CBDs], and ward councillors) engagement that focusses on improving ANC attendance in the first trimester |
| | Strengthen the service package for FANC |
| | Enhance capacities of health workers in the delivery of FANC services |
| | Realign the structures of the SMAGs |
| | Enhance service delivery capacity through implementation of health cooperatives |
| To increase access to skilled attendance at birth including EmONC | Strengthen the referral system, including scaling up of maternity waiting shelters |
| | Scale up EmONC coverage according to national standards |
| | Strengthen health care provider skills (pre and in-service) for delivery of quality EmONC services with a focus on mentorship systems |
| | Strengthen monitoring of the EmONC programme at all levels |
| | Strengthen respectful maternity care |

| **Goal:** To reduce MMR from 398/100,000 live births in 2014 to 162/100,000 live births by 2021 | |
|---|---|
| **Objectives** | **Strategies** |
| | Enhance the MDSR process by strengthening systems for accountabilities of health workers and the health system in response to maternal deaths |
| To improve access to postnatal services | Strengthen postnatal services (six hours, 48 hours, six days, and six weeks) including domiciliary visits by midwives and community health workers (CHWs) |
| | Strengthen institutional capacity for fistula management |
| To strengthen the enabling environment for RMNCAH | Strengthen multi-sectoral collaboration for improved RMNCAH services including SGBV and menopausal services |
| | Strengthen knowledge management for RMNCAH (policies, guidelines, research) |
| | Introduce health worker cooperatives |
| | Institutionalize approaches for equity analysis for monitoring RMNCAHN service coverage at district level as a tool to guide programme delivery planning |
| | Enhance comprehensive infrastructure for quality service delivery (delivery facilities, Outreach Posts) |
| | Implement Quality Management System at all levels of RMNCAH services (quality assurance [QA]/quality improvement [QI]) |
| | Strengthen supply chain systems for RMNCAH commodities and equipment |
| To improve maternal/neonatal/perinatal death surveillance and response | Enhance capacity building in oversight functions |
| | Strengthen the HMIS component that deals with MDSR (data collection, data management and data use, and improving oversight) in the utilization of data in informed decision making |

### 4.2.2 Child Health

#### Situation Analysis

Steady progress has been made in child health in Zambia; this is exemplified by the reductions in the morbidity and mortality. Mortality under age five and infant mortality reduced from 168 to 75 per 1,000 live births and from 95 to 45 per 1,000, respectively, between 2002 and 2014. The neonatal mortality rate was estimated at 24 per 1,000 live births in 2014, constituting approximately half the number of all infant deaths. Although the Neonatal Mortality Rate has declined from 34 per 1,000 live births in 2007 to 24 per 1,000 live births in 2014, it remains unacceptably high. This is unsurprising when seen in the light of the high maternal mortality ratio of 398 per 100,000 live births currently prevailing in Zambia. While children are surviving fairly well in Zambia, there are no effective interventions that could foster child development beyond survival. Children need to survive and thrive. Seen in the context of the high rates of chronic malnutrition, limited skills in play, and communication, interventions that support thriving become imperative.

The progress made in improved child survival is premised on the proven interventions. These include the introduction of three new vaccines (rota, pneumococcal conjugate vaccine, and

measles second dose including switch from trivalent oral polio vaccine to bivalent oral polio vaccine) and vaccine cold chain expansion; sustained polio-free status; and newborn care interventions and strengthened Expanded Programme on Immunization (EPI), integrated management of childhood illnesses (IMCI), and newborn care in pre-service nursing curricula. The impressive immunisation coverage, averaging 80% for the past 10 years, has also contributed to this positive picture. Other interventions include vitamin A supplementation, infant and young child feeding, sustained coverage of traditional and new vaccine immunizations, and improved management of common childhood illnesses, including IMCI and integrated community case management (iCCM).

While noting the positive strides made in improved child health, there are persistent constraints that need to be addressed. These include:

- Ineffective coordination of partners under the child health programme
- Inequities in the distribution of staff, which disadvantage rural areas; scarcities of staff to provide newborn care and child health interventions
- Inadequate transport and infrastructure to conduct outreach services
- Lack of a system and skills to forecast and timely procure child health programme supplies, commodities, and equipment
- Lack of ownership of child health services at the community level
- Weak programming around community participation and engagement to increase demand for and utilisation of newborn care and child health services
- Weak systems to collect, collate, analyse, and use community- and facility-level data for programme management especially at the point of data collection
- Low coverage and lack of quality newborn care and child health services
- Skewed emphasis on child survival and limited attention to thrive interventions such as early child development and rehabilitation programmes

These and many other factors have continued to constrain improvements in child health services. In this plan, emphasis will continue to be placed on implementing/scaling up: the EPI; care for the sick child and emergency triage assessment and treatment (ETAT); IMCI; iCCM; and care for early child development, essential newborn care (ENC), RED/C, and nutrition interventions. Further efforts will be made to empower communities to improve community newborn care and child health care practices, support the continuum of care and emphasize the importance of immunizations.

## Strategic Interventions

| **Goal:** To reduce the under-five mortality rate from 75 (ZDHS, 2013-14) to 56 deaths per 1,000 live births by 2021 | |
|---|---|
| **Objectives** | **Strategies** |
| To scale up high-impact child survival interventions | Increase immunization coverage through routine, child health days and outreach services; care for the sick child; and emergency triage assessment and treatment. |
| | Expand, strengthen, and enforce the use of all components of IMCI strategy |
| | Scale up integrated community case management, IMCI, iCCM, Care for Early Child Development, ETAT, ENC, and RED/C interventions |

| **Goal:** To reduce the under-five mortality rate from 75 (ZDHS, 2013-14) to 56 deaths per 1,000 live births by 2021 | |
|---|---|
| **Objectives** | **Strategies** |
| | Empower communities to improve community newborn and child health care practices and support continuum of care, and engage them on benefits of immunizations to create demand |
| | Strengthen community involvement in maternal newborn and child health (MNCH) and nutrition services |
| | Strengthen referral services at all levels particularly from community to facility level |
| | Increase availability, access, and utilization of quality newborn and perinatal health care at all levels |
| | Strengthen promotion of breastfeeding (early initiation and exclusive breastfeeding) |
| | Strengthen the School Health and Nutrition Programme |
| | Scale up infant and young child feeding services, including promotion of breastfeeding and complementary feeding after six months up to two years. |
| To improve coordination and health systems to support delivery of child health services | Strengthen inter-sectoral coordination in the provision of child health services at all levels |
| | Improve supply chain management practices for child health programmes |
| | Integrate and strengthen outreach services particularly for hard-to-reach areas |
| | Increase the availability of essential drugs, vaccines, and immunization supplies including cold chain equipment |
| | Strengthen data quality management with particular emphasis at lower levels |
| | Support research and development of innovations and technologies for newborn, child health, and nutrition interventions |

### 4.2.3 Nutrition

#### Situation Analysis

Poor nutrition affects the entire population. However, women and children are especially vulnerable because of their unique physiologic and socio-economic characteristics. Adequate nutrition is critical to children's growth and development. The period from birth to age two is especially important for optimal physical and cognitive growth and development. A woman's nutritional status has important implications for her health as well as for the health of her children. Malnutrition results in reduced productivity, increased susceptibility to infections, slowed recovery from illness, and a heightened risk of adverse pregnancy outcomes. A woman who is underweight, with short stature, anemia, or other micronutrient deficiencies has a greater risk of intrauterine growth restriction, intrauterine foetal death, and obstructed labour. Other risks include, low birthweight babies, death from postpartum haemorrhage and increased morbidity for herself and her baby.

According to the 2013–14 ZDHS, 40% of children under age five were stunted (chronic malnutrition); 15% were underweight, and 6% were wasted. Some 10% of women aged 15–49 were underweight (BMI cutoff of 18.5). The percentage of women who were overweight or obese increased steadily over the last decade from 19% to 23%.

In the area of clinical nutrition and dietetics, nutrition care is essential in the clinical management of patients. It enhances patient outcomes, improves response to treatment, reduces length of hospitalisation, and contributes to reduced morbidity and mortality. To support nutrition clinical management of patients requires availability of skilled manpower, appropriate equipment, protocols, and nutrition commodities. Clinical nutrition and dietetics is essential in tackling current and emerging health conditions.

Currently, there is inadequate clinical nutrition capacity in the health sector to effectively contribute towards acceptable nutrition therapy and practice. Specialized clinical nutrition care services are limited in the management of different health conditions at the health facility level. This is compounded by the limited numbers of qualified dieticians/clinical nutritionists to provide comprehensive nutrition therapy. Furthermore, there is limited available equipment, guidelines and protocols, supplies, and commodities to provide specialized nutrition services.

While acknowledging the challenges, the sector has made some positive strides, such as reduction in stunting levels among children aged less than five years and achieving an almost three-quarters (73 percent) level of exclusive breastfeeding. Further, the sector has implemented high-impact nutrition-specific interventions and strengthened linkages with other sectors implementing nutrition-sensitive interventions. The acute malnutrition database was operationalised, and provincial and frontline staff were trained in nutritional packages.

The programme has, however, faced the following constraints:

- Limited positions for nutrition and dieticians staff in the establishment
- Inadequate nutrition supplies, commodities, materials, and equipment
- Poor M&E data collection, analysis, and utilisation of nutritional data
- Inadequate incorporation of nutrition activities in community programmes
- Inadequate coordination of various nutrition stakeholders
- Limited space for managing and implementing nutrition interventions in health facilities
- Inadequate financial and HR allocation to address all forms of malnutrition effectively

In this NHSP, focus will be placed on improving nutrition in the lifecycle. The main thrust will be on scaling up high-impact nutrition-specific interventions to cover at least 80% of the target population. Key interventions will focus on promotion of appropriate nutrition practices; creation of awareness and empowering communities to adopt and sustain recommended nutrition practices; strengthening multi-sectoral collaboration; and mainstreaming and integrating nutrition programmes into other health programmes. Other focus areas are strengthening the capacity of the nutrition workforce at all levels; improving nutrition supply chain management, and strengthening the legal framework for nutrition interventions.

## Strategic Interventions

| **Goal:** To reduce under and over nutrition and improve clinical nutrition by 2021 | |
|---|---|
| **Objectives** | **Strategies** |
| To increase access and utilisation of high-impact nutrition-specific interventions | Strengthen provision of an updated package of high-impact nutrition-direct interventions, such as maternal, infant adolescent, and young child nutrition; integrated management of acute malnutrition (IMAM); Growth Monitoring Programme (GMP); micronutrient deficiency control; nutrition in HIV; and clinical nutrition and dietetics |
| | Strengthen integration of nutrition in other key health sector interventions, such as maternal and adolescent health, HIV care, TB, IMCI, and NCDs |
| | Strengthen community partnerships |
| | Strengthen SBCC for effective adoption and practice of good nutrition |
| | Provide appropriate shelters to facilitate delivery of a minimum package of high-impact nutrition interventions at facility and community zones |
| To improve coordination and systems that support delivery of nutrition services | Strengthen mechanisms for multi-sectoral collaboration and coordination at all levels including national, district, and sub-district levels |
| | Increase and strengthen capacity for nutrition workforce for effective service delivery |
| | Improve nutrition supply chain management |
| To promote generation and use of evidence for improved nutrition programming | Support research and development of innovations and technologies that enhance implementation of child health and nutrition interventions |
| | Strengthen M&E of nutrition interventions for decision making |
| | Strengthen nutrition operational research, data management analysis, and utilization |
| To strengthen the legal, regulatory, and policy framework for nutrition programmes | Integrate in the Nutrition Act to support clinical nutrition and dietetics in health facilities |
| | Increase funding for nutrition care services in health facilities |
| | Incorporate clinical nutrition and dietetics in the food and nutrition policy |
| To strengthen capacity for clinical nutrition care services at the health facility level | Establish positions for clinical nutritionists and dieticians for provision of nutrition care services in health facilities |
| | Develop protocols for nutrition care services for health facilities |
| | Improve nutrition supply chain management and availability of supplies and commodities |
| | Support research and development of innovations in nutrition therapy |
| | Support professional development opportunities for clinical nutritionists and dieticians |

### 4.2.4 Adolescent Health

#### Situation Analysis

Zambia has the fifth-highest adolescent birth rate in Sub-Saharan Africa, which in turn has the highest rate in the world. About 29% of adolescent girls become pregnant by the age of 19 years (ZDHS 2013-14). Teenage pregnancies reported among girls in grades 1–12 increased five times (from 3,663 in 2002 to 15,125 in 2015) according to the Ministry of General Education (MOGE Statistical Bulletin, 2015). However, ZDHS statistics show that the adolescent fertility rate has slowly been declining, from 146 births in 2007 to 141 births per 1,000 adolescent girls in 2014, with teenage pregnancies in rural areas standing at 36% and urban areas at 20% of all pregnancies (ZDHS, 2013-14). About 32% of adolescents aged 15–17 and 60% of those aged 18–19 are sexually active in Zambia, and therefore face risks to HIV and other STIs, especially as only 40% of them report regular condom use. A related fact is that 42% of women aged 20–24 in Zambia report having been married by age 18.

Contraceptive prevalence rate for modern family planning methods among adolescent girls aged 15–19 was 10.2%, despite the rate having been estimated to have increased from 33% to 45% in the general population (ZDHS 2013-14).

Adolescents also experience other health problems that include mental health, trauma, physical and sexual violence, non-communicable diseases, and alcohol and substance abuse.

Key challenges are the following:

- Inadequate implementation of ADH strategies at lower levels
- Inadequate knowledge among adolescents of the existing health services
- Inadequate knowledge among health care workers of key adolescent health issues
- Inadequate HIV/SRH outreach services for adolescents
- Lack of ADH-specific indicators in the current HMIS

#### Strategic Interventions

| **Goal:** To improve the health status of adolescents by 2021 | |
|---|---|
| **Objectives** | **Strategies** |
| To provide a minimum adolescent health service platform in all districts of Zambia by 2021 | Health Service Delivery Strengthening |
| | Prioritize the delivery of comprehensive and integrated adolescent-responsive health services at all levels of service delivery (prioritize allocation of physical space/room and commodities) |
| | Scale up pre-service and in-service adolescent health training of health workers |
| | Scale up training of peer educators and their deployment to adolescent-friendly spaces at health facilities and communities |
| | Strengthen and scale up school health programmes |
| To increase adolescents' awareness of the available health services from 13.5% (average) to 60% to promote healthy living | Health Promotion and Demand Creation |
| | Design and implement targeted innovative SBCC campaigns with adolescents to promote the use of preventative health services |
| | Achieve cultural and value shifts through changes in social norms and behaviours, such as SGBV, child marriage, alcohol and substance abuse, etc. |
| | Increase demand and utilization of relevant health services |

| **Goal:** To improve the health status of adolescents by 2021 | |
|---|---|
| **Objectives** | **Strategies** |
| | through peer education and outreach |
| To strengthen the leadership and governance of an adolescent-responsive health system in 60% of the districts by 2021 | Leadership and Governance |
| | Strengthen the policy and regulatory framework for provision and access of adolescent health services, including clear policies and guidelines on age of consent to key SRH and HIV services<br>Roll out an adaptive leadership approach targeting key stakeholders, and strengthen organization and multi-sectoral coordination for an efficient and effective harmonized response to delivering adolescent-responsive health services<br>Strengthen management of key commodities, health infrastructure, equipment, and transport logistics<br>Roll out and implement the collection and analysis of age and gender disaggregated HMIS data<br>Strengthen management, supervision, organization, and coordination of the ADH activities at all levels |

## 4.3 Communicable Diseases

### 4.3.1 General Introduction

A communicable disease is defined as an illness that arises from transmission of an infectious agent or its toxic product from an infected person, animal, or reservoir to a susceptible host, either directly or indirectly through an intermediate plant or animal host, vector, or environment. Communicable diseases have remained a major cause of morbidity and mortality in Zambia. There are three main infectious diseases of public health interest in Zambia: malaria, HIV/AIDS, and TB. The MOH has put in place a disease surveillance system in order to promptly, effectively, and efficiently prevent unnecessary disabilities or deaths. In this regard, the NHSP 2017–2021 will continue to reduce recurrences in communicable diseases through a strengthened surveillance system and programme. The MOH will implement health promotion interventions aimed at empowering members of the public to develop personal skills and knowledge for increased control over predisposing factors to communicable diseases.

### 4.3.2 Malaria

#### Situation Analysis

Malaria is a major public health concern in Zambia. Eliminating malaria is a national priority that requires an evidence-based focused, comprehensive, and sustained strategic approach. The entire population of Zambia is at risk of malaria, although the prevalence varies widely across and within districts. Children under the age of five years, pregnant women, the chronically ill, and immuno-compromised persons, such as those living with HIV and AIDS, are considered to be among the highest risk groups for malaria infection in Zambia (World Malaria Report 2016, WHO).

Malaria transmission is prevented through two main primary vector control methods; namely, (1) the use of long-lasting insecticide-treated nets (LLITNs) and (2) indoor residual spraying (IRS) complemented by larval source management. Where cases occur, these should be diagnosed or confirmed promptly within 24 hours of symptom onset and treated with safe and efficacious medicines. These efforts to control malaria are complemented by specific interventions for pregnant women—namely, the provision of intermittent preventive treatment (IPTp) with sulfadoxine-pyrimethamine during pregnancy. In addition, each of the malaria interventions requires supportive facilities, including procurement, supply, distribution, and logistics management of commodities; HRH at all levels; communication for social behaviour change among communities and health care providers, quality assurance, surveillance, monitoring, evaluation, and operational research.

Much progress has been made to increase the coverage of primary malaria interventions in Zambia in the past decade. Ownership of at least one insecticide-treated net (ITN) per household has increased from 68% in 2012 to 77% in 2015. Likewise, in the same period, households with insecticide-treated bed nets or that had their dwellings sprayed increased from 73% to 81%, while the proportion of women receiving IPTp during pregnancy increased from 72% to 78%. Access to malaria diagnosis and treatment also increased, particularly at the community level, with 25% of the population accessing the services through CHWs (HMIS 2015). These interventions have led to reductions in malaria morbidity and mortality. As a result, the malaria epidemiological classification has noted marked transmission zones, ranging from low transmission with incidence of about 30 cases per 1,000 to incidence above 400 (HMIS 2016).

While noting the progress made in combating malaria, there is need to continue scaling up interventions aimed at eliminating the disease. The key challenges facing a malaria elimination programme include:

- Inadequate surveillance and weak information systems to provide real-time disaggregated malaria data from the points of its generation including the community level
- Unpredictable and inadequate funds, which negatively affect timely procurement, logistic and stock management, and storage of malaria commodities
- Low community involvement in the malaria elimination agenda, compounded by negative community practices and misconceptions that perpetuate the transmission of malaria
- Low community uptake of preventive and curative malaria interventions or services
- Weak quality assurance or control systems for malaria interventions (such as IRS), commodities (such as diagnostic tools), and services (such as treatment practices and data management)

## Strategic Interventions

The NHSP 2017–2021 will give priority to achieving universal access to malaria prevention and treatment services with core interventions (LLITNs, IRS, diagnosis and treatment at all levels). Further, the Plan will use additional approaches such as mass drug administration and larval source management where appropriate; enhance community ownership of malaria interventions; ensure quality of malaria interventions; and enhance cross-border collaboration. The surveillance, research, and M&E systems will be strengthened in order to ensure timely availability of quality, consistent, and relevant data to guide policy and decision making. Implementation of interventions will be informed by the malaria transmission intensity or epidemiological patterns/levels, in order to ensure appropriate interventions and impact. The following principles will guide the malaria elimination agenda:

- The unit of elimination and of intervention implementation will be the health facility catchment area

- Malaria incidence thresholds will guide the intervention package toward the goal of malaria elimination
- Epidemiologic and entomological information (clarified using data reviews and verification procedures) will be critical in directing action and tracking progress

The malaria elimination intervention packages for different regions will depend on transmission intensity levels as explained below:

Level 0: Zero cases and no local transmission:

- High-quality surveillance and vigilance
- Core vector control and case management
- Case investigation capacity maintained
- Chemoprophylaxis

Level 1: Very low malaria transmission (1–49 cases per 1,000 populations/yr; range <1% parasite prevalence)

- High-quality surveillance
- Vector control (possibly enhanced)
- Community- and facility-based case management
- Case and foci investigation
- Mass drug administration (under certain circumstances)

Level 2: Low malaria transmission (50–199 case per 1,000 populations/yr; range 0.5% to <5% parasite prevalence)

- Build high-quality surveillance
- Vector control (possibly enhanced)
- Community- and facility-based case management
- Establish case and foci investigation capacity
- Mass drug administration

Level 3: Moderate malaria transmission (200–499 cases per 1,000 populations/yr; range 5% to <15% parasite prevalence)

- Improve quality of surveillance
- Vector control (possibly enhanced)
- Facility-based case management, build community case management and outreach
- Establish case and foci instigation capacity
- Mass drug administration (may be considered for specific areas with case investigation capacity)
- Enhanced vector control, if relevant

Level 4: High malaria transmission (>500 cases per 1,000 populations/yr; range >15% parasite prevalence)

- Build quality surveillance
- Vector control at high coverage (100% coverage of IRS and sustained high coverage of ITNs)

- Facility-based case management begins to build community case management and outreach
- Prepare for case and foci and investigation
- Prepare for mass drug administration (MDA) and conduct where logistics and feasibility considerations are met, especially at lower Level 4 thresholds
- Enhanced vector control, if relevant

| **Goal:** To eliminate local malaria infection and disease in Zambia by 2021 | |
|---|---|
| **Objectives** | **Strategies** |
| To increase the malaria-free health facility catchment areas (HFCAs) from 0.5% in 2015 to 100% in 2021 | Prevent the re-emergence of malaria transmission due to importation in HFCAs where it had been eliminated |
| | Enhance surveillance, monitoring, and evaluation systems |
| To reduce malaria incidence from 336 cases per 1,000 populations per year in 2015 to less than 5 cases per 1,000 populations by 2021 | Enhance IRS |
| | Enhance the distribution of ITNs |
| | Enhance larval source management |
| | Expand use of emerging tools and strategies, such as spatial repellents and baited traps |
| To reduce malaria deaths from 15.2 deaths per 100,000 population per year in 2015 to less than 5 deaths per 100,000 populations by 2021 | Undertake MDA |
| | Reactive case investigation |
| | Enhance focal drug administration |
| | Strengthen diagnosis, treatment, integrated community case management |

### 4.3.3 HIV/AIDS

#### Situation Analysis

Zambia has an estimated adult (15–49 years) HIV prevalence of 12.3% (ZAMPHIA 2016) and 1.3% among children (0–14 years). HIV prevalence is higher in the urban areas at 18.2% compared with rural areas at 9.1% (DHS 2013–14). HIV incidence is estimated at 0.7% among adults (ZAMPHIA 2016). HIV prevalence is lowest among those aged 15–19 and peaks among those aged 40–44 for both males and females (ZDHS 2013–14). Adolescents comprise 23% of the total Zambian population, with 4.8% of females and 4.1% of males currently living with HIV. Based on recent estimates and projections from Spectrum, Zambia had 1.2 million people living with HIV in 2015, and this number is expected to increase to 1.3 million people in 2020.

The country has made progress in scaling up high-impact HIV preventive interventions. There has been a marked improvement in male circumcision (MC) rates among men in the group aged 15–49 from 13% in 2007 to 22% in 2014 (ZDHS 2013-14). Close to 1.2 million men have been circumcised from programme inception to December 2015, with up to 17,000 new infections averted (Voluntary Medical Male Circumcision [VMMC] Impact Evaluation Report 2016). The uptake for HIV testing services has risen from 14% in 2001 to 37% in 2013 among men aged 15–49, and from 9% in 2001 to 46% in 2013 among women aged 15–49. The number of people living with HIV accessing ART has also increased from 3% in 2004 to 62% (758,646) in 2015. The survival and retention of people on ART at 12 months increased from 65% in 2010 to 81% in 2013. The mortality attributable to AIDS has reduced from an estimated 65,000 in 2000 to 20,000 in 2015 among adults.

According to the 2015 Zambia Spectrum projections, the estimated number of children living with HIV has dropped from 92,000 in 2000 to 89,000 in 2015. New HIV infections among children dropped from 23,000 in 2000 to 8,900 in 2015. The estimated number of children living with HIV and receiving ART increased from 5,400 in 2005 to 51,903 (59%) at the end of December 2015. The estimated number of deaths among children attributed to AIDS dropped from 12,000 in 2000 to 4,300 in 2015.

The proportion of pregnant women living with HIV who accessed antiretroviral drugs (ARVs) for prophylaxis to prevent HIV transmission to infants increased from 20% in 2004 to 86% in 2015. The need for elimination of mother-to-child transmission (EMTCT) has been increasing steadily, from an estimated 59,000 in 2005 to 72,000 in 2014. The EMTCT rate at six weeks in 2005 was estimated at 15% and rapidly declined to 5% in 2015.

The key service delivery challenges for EMTCT include the following:

- Low rates of retesting, quality of testing of clients and partners, and delayed return of results (e.g., DNA-PCR, CD4, viral load)
- Suboptimal time frame from time of positive HIV test result to initiation of ART
- Suboptimal ARV adherence/retention and mother-infant pair follow-up (cohort monitoring) and effective transition to chronic services
- Suboptimal compliance for ART and enhanced infant prophylaxis
- Poor infant outcomes and suboptimal HIV prevention services and care of pregnant adolescents

## Strategic Interventions

The goal of the HIV programme over the next five years is to reduce new HIV infections and AIDS-related mortality by 75% and reduce HIV-related stigma and discrimination to zero within the context of ensuring healthy lives and promoting well-being across all ages.

In order to accelerate progress towards ending the epidemic, bold and ambitious targets have been set. These targets aim to transform the vision of zero new HIV infections, zero discrimination, and zero AIDS-related deaths into concrete milestones and end-points. These aim at ensuring 90% of people living with HIV know their HIV status, 90% of people who know their status receive life treatment, and 90% of people on HIV treatment having a suppressed viral load so that their immune system remains strong, and to increase to 95% for each target by 2030 (UNAIDS 2016).

| **Goal:** To reduce the incidence and prevalence of HIV | |
|---|---|
| **Objectives** | **Strategies** |
| To reduce the number of new HIV infections | Eliminate vertical transmission of HIV |
| | Optimise timely initiation, repeat testing in ANC and post-natal care, compliance with infant prophylaxis |
| | Open up new spaces to roll out comprehensive sexuality education |
| | Targeted behaviour change communication including comprehensive condom programming |
| | Scale up MC services including neonatal circumcision |
| | Early diagnosis and treatment of STIs |
| | Enhance provision of post-exposure prophylaxis and pre-exposure prophylaxis for priority populations |

| **Goal:** To reduce the incidence and prevalence of HIV | |
|---|---|
| **Objectives** | **Strategies** |
| To ensure that 90% of the population know their status | Encourage and promote universal HIV testing and counselling |
| | Targeted provider-initiated HIV testing and counselling across services such as EPI, ANC, VMMC, family planning (FP), in-patient, out-patient, TB, STI |
| | Improve logistics and supply chain management for HIV testing reagents and other laboratory consumables and supplies |
| To ensure that 90% of people living with HIV receive lifelong ART | 100% of identified HIV positive people are linked to care and treatment services |
| | Implementation and scaling up of test and start |
| | 90% of people living with HIV on ART are retained in care 12 months after initiation |
| | Early diagnosis and treatment of opportunistic infections |
| | Intensify identification and ART initiation for HIV positive children |
| | Enhance implementation of the three Is and TB/HIV collaborative services |
| To ensure that 90% of people living with HIV on ART have suppressed viral loads | Improve supply chain management for laboratory consumables |
| | Use of point of care machines |
| | Enhanced follow-up and adherence counselling |

### 4.3.4 Sexually Transmitted Infections

#### Situation Analysis

As in many other Sub-Saharan African countries, curable STIs continue to represent a large burden of disease in Zambia, accounting for about 10% of out-patient department attendances. The actual incidence must be much higher considering that many STI clients seek care with private clinics and traditional healers where they feel more assured of privacy and confidentiality. In addition, asymptomatic infections remain high in the population and among high-risk groups. Studies by Corridors of Hope (2006) estimated the rapid plasma reagin positive rate in the 15–49 age group to be 7% for women and 8% for men (ZDHS 2001–2002), while prevalence rates of gonorrhoea, chlamydia, trichomoniasis, and syphilis among female sex workers were 10.4%, 6.8%, 38.8%, and 23.3%, respectively.

The synergy between STIs and HIV is underscored by a significantly higher HIV prevalence among STI clients (36%) (UTH 2007–2008) compared with a national prevalence rate of 14.3% (ZDHS 2007). Controlling STIs is therefore a high priority for the country and is one of the main strategies for HIV control advocated by the MOH.

The key service delivery challenges for STIs include:

- Inadequate strategies to reach the vulnerable and most-at-risk populations
- Mismatch between increased burden of STIs and the allocated financial and human resources
- Inadequate levels of appropriate training, limited quality assurance, supervision, and feedback among STI service providers
- Inadequate surveillance, monitoring, and evaluation system, which has limited programming for STIs

- Inadequate coordination and collaboration with other programmes and weak regulation of the private sector involved in STI management

## Strategic Interventions

| **Goal:** To halt and begin to reverse the spread of HIV/AIDS and STIs by increasing access to quality HIV/AIDS and STI interventions | |
|---|---|
| **Objectives** | **Strategies** |
| To reduce the incidence of STIs | Ensure treatment algorithms remain reliable and valid |
| | Ensure an uninterrupted supply of STI drugs and commodities |
| | Improve STI management at the community level |
| | Improve capacity for laboratory diagnosis of STIs at the provincial and district hospital levels to complement syndromic management |
| | Achieve greater integration of STI services in other health delivery services |
| | Improve STI services for special and most at risk populations |
| | Improve standards of STI care and reporting in private practice by entrenching syndromic management |
| | Strengthen STI surveillance at all levels |
| | Integrate STI into cervical cancer and MC |

### 4.3.5 TB

## Situation Analysis

According to the WHO, Zambia is one of the 30 countries in the world with high TB and TB-HIV burden. Since 2000, Zambia has successfully implemented three national TB strategic plans. The 2014–2016 NSP, which was modelled on the Global Stop TB Strategy, focused on scaling up intensified TB case finding, TB-HIV collaborative services, and building the structure for implementing Programmatic Management of Drug-Resistant Tuberculosis (PMDT). Within this period, Zambia successfully conducted the first ever national Tuberculosis Prevalence Survey. It is now known that the country has a higher and unevenly distributed TB burden than previously estimated. The prevalence of bacteriologically confirmed TB is 638 (502–774) cases per 100,000 populations. The TB prevalence for all ages and all forms of TB is 455 cases per 100,000 populations (Zambia TB Prevalence Survey 2014).

Based on the Global End TB Strategy and the NHSP, the MOH has started the process of developing its post-2015 End TB National Tuberculosis Strategic Plan. The plan will mark the beginning of efforts towards ending the TB epidemic by 2035.

The key challenges for the TB programme include:

- Decreasing TB notifications in both adults and children
- Inadequate human resources and weak capacity especially on multi-drug resistant TB
- Weak M&E and TB data management system
- Limited involvement of private providers such as pharmacies and private hospitals in TB programmes
- Inadequate cross-border strategies to address issues of increased rates of lost-to-follow TB cases
- Inadequate diagnostic capacity especially at the implementation level

- Inadequate skills and diagnostic tools for childhood TB
- Slow roll-out of PMDT activities

## Strategic Interventions

| **Goal:** To reduce the number of TB deaths in the population by 40% in 2021 compared with 2015 | |
|---|---|
| **Objectives** | **Strategies** |
| To increase the number of notified cases of new TB episodes from 36,700 in 2015 to at least 59,000 in 2021 | Improve case detection though expanding case finding to all clinical settings and using data from the National TB Prevalence Survey |
| | Involve all care providers practicing outside the National Tuberculosis Programme (NTP) network in TB case detection and management |
| | Strengthen TB services for high-risk groups and vulnerable populations |
| | Improve the technical platform for TB diagnostic procedures |
| To increase the treatment success rate for TB from 87% to at least 90% from 2018 onwards | Improve and reinforce TB services in high TB burden spot areas |
| | Strengthen TB diagnostic capacity through expanding and enhancing the laboratory network |
| | Ensure appropriate TB treatment for all detected patients |
| | Implement early TB case detection, treatment of latent TB infection, and treatment among key affected populations (persons living with HIV, children, prisoners, miners, diabetics) |
| | Introduce and implement sensitive TB diagnostic algorithm and roll-out of rapid TB diagnostic tools (Xpert MTB/RIF; loop-mediated isothermal amplification [TB-LAMP]) |
| To increase the treatment success rate for multi-drug resistant (MDR) TB patients to 80% by the year 2021 | Scale up clinical and diagnostic capacity to detect MDR TB |
| | Improve active contact investigation of MDR TB patients |
| | Expand and strengthen the capacity for treatment of MDR |
| | Improve Social Welfare for MDR TB patients |
| | Improve and strengthen M&E for MDR TB including operational research |
| | Scale up MDR TB management to all the provinces and districts, and introduce MDR-TB shorter regimen |
| To achieve 100% HIV testing of notified TB patients by 2018 | Strengthen TB/HIV collaboration at all levels |
| | Intensify HIV screening in presumptive and confirmed TB patients and offer quality patient-centred HIV care for HIV-infected TB patients |
| To achieve ARV therapy for 100% of TB/HIV patients by 2018 | Reduce the burden of TB in people living with HIV (PLHIV) and people at high risk of HIV infection |
| | Strengthen TB infection control in health services dealing with PLHIV |
| To improve and strengthen the managerial and technical capacities of the national TB/leprosy control programme | Develop and reinforce the technical and managerial capacities at central and sub-national levels |
| | Strengthen coordination between the NTP and collaborating partners |
| | Ensure resource mobilization |
| | Ensure quality services through technical support and supervision |

| **Goal:** To reduce the number of TB deaths in the population by 40% in 2021 compared with 2015 | |
|---|---|
| **Objectives** | **Strategies** |
| | Improve the TB monitoring and evaluation system |

## 4.3.6 Viral Hepatitis

### Situation Analysis

Viral hepatitis infection is widely spread, affecting more than 10 times the number of people infected with HIV. Globally, about 1.4 million people die each year from hepatitis. It is estimated that only 5% of people with chronic hepatitis know of their infection, and less than 1% have access to treatment.

Hepatitis is fully preventable and treatable: there are effective vaccines and treatments for hepatitis B and more than 90% of people with hepatitis C can be cured with treatment. The vision of eliminating hepatitis as a public health threat by 2030 can be achieved, if people have access to adequate prevention and treatment services.

### Strategic Interventions

| **Goal:** To reduce the impact of viral hepatitis on people, society and the economy | |
|---|---|
| **Objectives** | **Strategies** |
| To raise awareness of viral hepatitis | Increase knowledge in the general population and protect key populations at risk of viral hepatitis |
| | Increase awareness of health care providers in screening high-risk populations |
| | Reduce stigma and discrimination associated with hepatitis |
| To monitor the health sector response to viral hepatitis | Estimate the national burden of viral hepatitis |
| | Monitor trends of viral hepatitis |
| To reduce new viral hepatitis infections | Stop mother-to-child transmission of hepatitis B |
| | Prevent health care-related transmission of hepatitis B and C |
| | Reduce the number of people susceptible to hepatitis infection |
| | Decrease hepatitis C virus (HCV) incidence among injection drug users |
| To reduce deaths due to viral hepatitis | Increase the proportion of people diagnosed with viral hepatitis |
| | Ensure adequate follow-up of and management of people diagnosed with viral hepatitis |

## 4.3.7 Neglected Tropical Diseases

### Situation Analysis

Neglected Tropical Diseases (NTDs) are a group of infectious diseases that affect poor people in the tropics. They are disabling and cause severe morbidity and suffering in the poorest communities in the country. They present one of the largest economic and health burdens on the population; because of their debilitating nature, they perpetuate poverty. The endemic NTDs include lymphatic filariasis (elephantiasis), schistosomiasis (bilharziasis), soil-transmitted helminthiasis, trachoma, trypanosomiasis, leprosy, and taeniasis.

In line with the WHO resolution on NTDs as agreed during the World Health Assembly in 2012, Zambia is committed to control and eliminate these diseases. This will be achieved through the implementation of both community- and school-based interventions.

Zambia has commenced an NTD control and elimination programme in an effort to achieve the targets set out by the WHO for the African region by the year 2020. Successful MDA campaigns commenced for the NTDs amenable to preventative chemotherapy. These include lymphatic filariasis (lf), schistosomiasis, soil-transmitted helminthiasis (STH), and trachoma. The MDA campaigns were rapidly scaled up in 2016 with the view of achieving 100% coverage by the year 2017.

The NTD control programme challenges include:

- Inadequate coordination in management of the NTD programme starting at the national level
- Inadequate trained focal point persons at the district level
- Inadequate set targets and indicators of NTDs in NHSP 2011–2015
- Inadequate data on prevalence and incidence of NTDs
- Inadequate funds for advocacy and partnership
- Limited capacity for distribution of drugs

The strategic interventions to be scaled up include adequate management of cases of NTDs including parasitic diseases and improving the ability to detect and respond to epidemics and emergencies.

## Strategic Interventions

| **Goal:** To have a Zambia free of NTDs | |
|---|---|
| **Objectives** | **Strategies** |
| To eliminate NTDs in Zambia by 2020 | Scale up MDA campaigns for preventive chemotherapy for amenable NTDs |
| | Enhance surveillance of NTDs and improve management so that all cases are promptly treated |
| | Formulate health (sanitation and hygiene) promotion programmes that are aimed at preventing and reducing NTDs |
| | Sustain the elimination status of leprosy in Zambia through enhanced surveillance |
| | Implement treatment guidelines and protocols for all CM NTDs in line with WHO |
| | Strengthen coordination between stakeholders involved in NTD control and elimination |
| | Integrate the NTD control activities into the primary health care services |
| | Strengthen advocacy for resource mobilization for NTD control programmes |
| | Produce data capturing tools for NTDs to be incorporated in the existing HMIS |
| | Include the control of NTDs in the curricula for health care professionals |

## 4.4 Public Health Surveillance and Disease Intelligence

### Situation Analysis

Public health surveillance is the continuous, systematic collection, analysis, and interpretation of health-related data needed for the planning, implementation, and evaluation of public health practice. Such surveillance serves as an early warning system for impending public health emergencies; documents the impact of an intervention; tracks progress toward specified goals; and monitors and clarifies the epidemiology of health problems to allow priorities to be set and to inform public health policy and strategies. (WHO Public Health Surveillance). Public Health Surveillance is an essential need more now than ever before as there are now more challenges of a public health nature that require timely monitoring and evaluation to ensure public health security. Issues of climate change, bioterrorism, and technological advances in industry and agriculture have created a paradigm shift in public health surveillance (WHO).

Zambia's public health system functions through the activity of different ministerial directorates and external partners. This creates gaps in its national capacity to carry out essential public health functions, establish informed public health policies, inform its citizenry and health fraternity, and protect the health of its population. Structures for public health surveillance exist, but not fairly supported with technical competences, system, and supportive public health informatics technologies. As such, collection and collation of surveillance data from the various sources have had challenges of completeness, timeliness, and validity and oftentimes are disjointed.

A strengthened public health system would enable the MOH to better collect, analyse, and use routine disease surveillance data to systematically inform public health decisions. Further, Zambia lacks a public health laboratory system. Currently, Public Health Laboratory functions are conducted within clinical laboratories.

Zambia adopted the WHO-recommended Integrated Disease Surveillance and Response (IDSR) as a strategy for early detection and efficacious response to priority communicable and notifiable diseases. The IDSR Technical Guidelines were adapted in 2002 and were revised in August 2011. Since 2007, training of health workers using the IDSR Training Guidelines has been conducted at national, provincial, and district levels. The programme, though commanding a national representation, falls far short of the required national representation. This is on account that training in IDSR has concentrated at the national, provincial, and district levels, leaving out the implementation levels (health facilities and the community).

It is against the above mentioned and unmentioned challenges that Zambia took a policy decision to establish the National Public Health Institute, the function of which is to provide a defined coordination mechanism that will turn around the many challenges currently faced into opportunities for a successful public health surveillance system. The Zambia National Public Health Institute (ZNPHI) serves as a specialized institution, the main mandate of which is to support districts in improving the health of the people through prevention of infection; surveillance and response to emergencies including outbreaks, man-made and natural disasters, and public health events; and capacity building in reducing disease burden in the country.

The main mandate for the Institute is to serve as a credible authority for the development of well-informed public health priorities, guidelines, policies, and programmes by effectively translating public health data into action; coordinate priority public health functions and speak as one voice for Zambia's public health system; actively protect the health and safety of the nation; and build capacities in the country to detect and respond quickly and effectively to disease threats and outbreaks based on science, policy, and data-driven interventions and programmes.

Zambia has also been designated as the Southern Africa Development Community Regional Collaborating Centre (RCC) to coordinate the southern region of Africa under the Africa Centre for Disease Control established by the Heads of State and Government during the 24th Ordinary

General Assembly held in Addis Ababa, Ethiopia, in January 2015. As RCC, the main function will be providing technical support to member states in the southern region to ensure that the core capacities in surveillance, laboratory systems and networks, information systems, emergency preparedness and response, and public health research are implemented and strengthened.

## Strategic Interventions

| **Goal:** To strengthen routine, community-based, and facility-based surveillance systems for improved public health decision making and action by 2021 | |
|---|---|
| **Objectives** | **Strategies** |
| To strengthen and scale up national disease surveillance systems (district and community) | Assess health cluster performance every six months against the protocols of the United Nations Inter-Agency Standing Committee's transformative agenda, using the cluster performance monitoring too, and take remedial measures where necessary |
| | Ensure adequate reporting on implementation of the International Health Regulations (2005) |
| To strengthen and equip the national surveillance system to generate timely, high-quality data on all national notifiable and priority diseases, conditions, and events to inform policy and programmes | Build capacity at all levels, and monitor and supervise surveillance sites |
| | Support development of the epidemiology and surveillance workforce at the district and provincial levels through a field epidemiology training programme |
| | Carry out surveillance data quality assessments |
| | Support analysis of existing data and biobank |
| | Prepare and provide policy briefs to MOH, and disseminate data for usage through a regular epidemiological bulletin |
| | Enhance communication at all levels |
| To establish a National Public Health Laboratory and strengthen the existing laboratory network at the provincial and district levels to carry out basic public health laboratory functions | Develop a national public health laboratory system and network |
| | Establish a National Public Health Laboratory |
| | Conduct assessments and mapping of lab capacity in the country to carry out public health functions |
| | Build regional capacity to carry out public health lab functions and strengthen the lab quality management system |
| | Conduct a national anti-microbial resistance (AMR) situation analysis and develop a national action plan for AMR |
| To strengthen public health research | Provide technical input on the national public health research agenda |
| | Conduct high-quality public health research and programme evaluations |
| | Build capacity nationwide by providing mentorship and training and sponsoring research projects |
| | Establish a national repository for public health research |

| **Goal:** To strengthen routine, community-based, and facility-based surveillance systems for improved public health decision making and action by 2021 | |
|---|---|
| **Objectives** | **Strategies** |
| To strengthen the information system | Develop an electronic IDSR component on the District Health Information System (DHIS2) platform that will ensure timely and accurate generation of health information for surveillance systems |
| | Strengthen the Health Press–Zambia capacity to inform policy makers, public health practitioners, and the general public on health matters to include surveillance data, outbreak investigation reports, medical reviews, policy briefs, and morbidity and mortality data |
| | Strengthen the platform for health promotion, and develop a communication strategy and tools for timely and accurate dissemination of information |

## 4.5 Epidemic Preparedness and Response, and Emerging Issues

### Situation Analysis

Zambia like other countries is challenged by recurrent disease outbreaks and other health emergencies. Although most of these outbreaks and health emergencies are preventable, they result in unacceptably high morbidity, mortality, disability, and socio-economic disruptions. The high frequency of these outbreaks reflects weak health systems.

The WHO has guided member states to use of the 'all-hazards approach', defined as 'an integrated hazard management strategy that incorporates planning for and consideration of all potential natural and technological hazards'. In Zambia, there are established structures for disease outbreak investigation and response at the national, province, and district levels. Epidemic preparedness and response committees exist at the national, province, and district levels. These bodies coordinate the responses at the various levels. In addition, response capacity is being built for emerging and re-emerging diseases causing epidemics, such as Ebola and Zika. The presence of antimicrobial resistance in the country threatens the effective prevention and treatment of an increasing range of infections caused by bacteria, parasites, viruses, and fungi.

The country has adopted mechanisms for dealing with epidemics and other disease outbreaks. For the country to enhance its preparedness, the following challenges need to be addressed:

- Currently, the responses are limited to disease outbreaks and are not extended to other sudden disturbances
- Public threats such as floods, droughts, and environmental pollution are not included in the programme
- The level of preparedness at all levels (including human resources, health products, and technology) is currently limited
- There is limited involvement of communities in preparedness programmes

The NHSP 2017–2021 will aim at reducing morbidity, mortality, disability, and socioeconomic disruptions due to outbreaks and other health emergencies. In a bid to address these challenges, Zambia through the ZNPHI will build capacities to detect and respond quickly and effectively to disease threats and outbreaks based on science, policy, and data-driven interventions and programmes.

## Strategic Interventions

| **Goal:** To strengthen capacities to effectively and efficiently implement preparedness and response to emergencies | |
|---|---|
| **Objectives** | **Strategies** |
| To strengthen and sustain the capacity to prepare for and prevent health emergencies | Formulate national legislation and policies to prioritize disaster risk management, health security, and international health regulation (IHR) |
| | Develop mechanisms for monitoring AMR |
| | Develop systems for ensuring access to quality essential antibiotics, and regulating and promoting the rational use of antibiotics in humans and animals |
| | Develop and implement operational frameworks for zoonotic diseases, emerging and reemerging infectious diseases, and environmental risk factors using the 'One Health approach'. |
| To strengthen the capacity to promptly detect, report, and confirm outbreaks | Establish and sustain the human resources to implement IHR core capacity and domestic resource mobilization strategy requirements; formulate a public health workforce strategy |
| | In collaboration with the EPI and other relevant stakeholders, establish regional vaccine stockpiles |
| | Improve vaccine delivery and implementation systems to facilitate preventive and reactive vaccination against epidemic-prone diseases |
| | Increase investments in preparedness through joint external evaluations of the IHR core capacities, risk analysis, and mapping |
| | Develop and implement a multi-hazard and multi-sectoral national public health emergency preparedness and response plan |
| | Develop a national multi-hazard emergency risk communication plan |
| | Establish and test communication coordination with all partners, and ensure continuous wide-coverage communication |
| | Engage in proactive media outreach guided by risk communication best practices |
| To establish a functioning public health emergency preparedness and response programme and strengthen and sustain the capacity to promptly respond to and recover from the negative effects of outbreaks and health emergencies | Create a public health emergency operations centre with standard operating procedures and trained staff |
| | Develop an incident management systems and maintain multi-sectoral response and recovery capacity |
| | Develop an information system for tracking and assessing outbreaks and emergencies |
| | Conduct incident management system training for public health emergency operations centre staff |
| | Conduct public health emergency operations table top exercises |
| | Strengthen partnerships with both public and private actors in health emergencies |

## 4.6 Non-Communicable Diseases

### Situation Analysis

Most premature deaths from NCDs are mostly preventable by enabling health systems to respond more effectively and equitably to the health care needs of people with NCDs, and by influencing policies in sectors outside health that address risk factors such as tobacco use, unhealthy diet, physical inactivity, and harmful use of alcohol. The Government has committed itself to establish and strengthen multi-sectoral plans and policies and plans for the prevention and control of NCDs.

The burden of NCDs in Zambia is increasing, with significant consequences on morbidity and mortality levels. The most common NCDs in the country include chronic respiratory diseases, CVDs, diabetes mellitus (Type II), cancers, epilepsy, mental illnesses, oral diseases, eye diseases, trauma (mostly due to road traffic accidents and burns), and sickle cell anaemia. In 2016, it was estimated that NCDs caused 23% of all deaths in the country, with nearly one in five people dying prematurely from these conditions. It was further reviewed that 24% of men smoke and more than a third of men had hypertension. Road crashes are the third leading cause of death after malaria and HIV/AIDS, accounting for 2,000 deaths per year, with many thousands being injured each year. Most of these NCDs are associated with lifestyles, such as unhealthy diets, physical inactivity, alcohol and substance abuse, and tobacco use.

Prevention and control of the major communicable diseases in Zambia has received more attention over the past decades compared with NCDs. There has been a lot of focus on treatment and care of communicable diseases with little attention to community sensitisation and health promotion in order to reduce risk factors. Careful identification of the priority interventions is required in order to promote good health and to prevent, control, and manage non-communicable diseases. This would also facilitate the allocation of the required resources for effective interventions. There is need for risk factor stratification at the community level so that it forms the basis of incidence and prevalence data, which are currently inadequate. Diagnosis and case management of non-communicable diseases is an important aspect of health service delivery for the country to successfully reduce the associated disease burden. Further, hospital information systems need to be revised to allow for collection of data to show morbidity data that is segregated into uncomplicated and complicated NCDs.

In the light of the increasing NCDs, the health sector will put up measures to forestall this trend. There will be need to undertake routine assessment of prevalence and incidence of NCDs; develop policies to guide interventions for NCDs; enhance community education and awareness, prevention, early diagnosis, and treatment; and revise protocols to aid health care workers in prevention, diagnosis, treatment, equipment, drugs, and case management of NCDs. Community-based volunteers should be trained to offer basic advice and care on NCDs and refer people to health facilities, where necessary. Across all levels of the health delivery system, special focus should be placed on preventing the rapid rise in NCDs, as this will help reduce future treatment costs to the health sector.

A key shift in strategy will be to ensure that nutrition interventions are embedded in the overall plan that addresses diet-related NCDs. Nutrition interventions are a cost-effective way of promoting good health. Maintaining optimal nutritional status at any age is important and can contribute to preventing some chronic diseases, reducing frequent episodes of illness, shortening hospital stays, reducing complications, and ensuring higher survival rates. Dietary adjustments influence present health and may determine whether or not an individual will develop NCDs much later in life.

The Government has continued its commitment to increase specialized human resources for NCD control in line with the Human Resource Development Strategic Plan. Nevertheless, the human resources required to support the country's NCD needs are inadequate at all levels. Skills

and knowledge for the prevention, screening, and treatment of NCDs need to be strengthened and scaled up through a multi-sectoral approach.

The MOH has made tremendous progress in ensuring the availability of medicines and medical supplies for the management and control of NCDs by including NCD medicines and supplies on the essential medicine list for Zambia. However, the essential medicine list does not exhaustively provide for all NCDs and conditions. In order to provide guidance to the fight against NCDs, the Government developed the NCD Strategic Plan 2011–2016, the National Cancer Control Strategic Plan 2016–2021, oral health standards of practice, and NCDs standard treatment guidelines. Notable achievements include establishment and expansion of the Cancer Diseases Hospital; establishment of a national cervical cancer screening programme; finalisation of the mental health and tobacco products control bill; initiation of the HPV vaccination programme for prevention of cervical cancer and accompanying scale-up plan; the commissioning of the cardiac catheterisation laboratory; and implementation of the Rheumatic Heart Disease study. Furthermore, national NCD risk factor surveys will be conducted in 2017 to establish baseline data.

Despite these achievements, key challenges remain and include:

- Policy and legal frameworks not clearly supporting reductions in NCDs
- Uncoordinated multidisciplinary approach in control of NCD
- Inadequate human, financial, and material resources for NCD prevention and control
- Low level of public awareness of NCDs
- Lack of a communication strategy on NCDs
- Inadequate NCD diagnostic capacity at various levels of health care
- Erratic supply of NCD medicines and medical supplies

## Strategic Interventions

| **Goal:** To reduce the morbidity and mortality due to non-communicable diseases by 2021 | |
|---|---|
| **Objectives** | **Strategies** |
| To improve the policy/legal framework for NCDs | Strengthen legislation/regulation that supports prevention and control of NCDs |
| | Strengthen policies/legislation targeted at mental health, alcohol, tobacco use, and healthy diets |
| To reduce the incidence and prevalence of NCDs through enhanced health promotion | Scale up health promotion and education on the risk factors and prevention of NCDs, at all levels, using a multi-sectoral approach |
| | Scale up health promotion on healthy diets among the population, including exclusive breastfeeding |
| | Scale up promotion and support of physical activity among the population, including in schools, workplaces, and communities |
| To strengthen and orient health systems to address the prevention and control of NCDs and the underlying social determinants through people-centred primary health care and Universal Health Coverage | Introduce vaccines that are effective in preventing NCDs |
| | Strengthen and promote active screening for NCDs at all levels, including within health facilities, schools, and communities, so as to generate demand for such services |
| | Implement the STEPwise approach to surveillance (STEPS) survey to better understand the current situation and allow for prioritization of interventions, including innovative screening and surveillance protocols |
| | Introduce new screening techniques and surveillance for NCDs |
| To strengthen and scale up the treatment, rehabilitation, care, and support for people suffering from NCDs, in order to reduce | Scale up early diagnosis of NCDs at primary, secondary, and tertiary levels |
| | Strengthen case management of NCDs |
| | Strengthen gender-responsive rehabilitation, care, and support |

| **Goal:** To reduce the morbidity and mortality due to non-communicable diseases by 2021 | |
|---|---|
| **Objectives** | **Strategies** |
| morbidity and mortality and improve quality of life | systems and services for people suffering from NCDs at all levels of care, including community and household levels |
| | Scale up the production of appropriately skilled health workers, by prioritising NCDs in the curricula for training of all health workers, in health training institutions, at different levels |
| | Strengthen skills and capacities of health workers in the prevention, management, and care for NCDs, both at the health facility and community levels |
| | Strengthen NCD services, by integration and prioritization of NCDs in the existing health services including outreach |
| To ensure availability of essential infrastructure, medical supplies, equipment, and technologies | Strengthen quantification and increased procurement of essential drugs and diagnostic supplies for NCDs |
| | Strengthen the infrastructure, medical equipment, and technologies for the prevention and management of NCDs in health facilities and communities |
| | Encourage public-private partnerships and other stakeholders in improving access to and affordability of medicines for NCDs |
| | Strengthen the infrastructure, medical equipment and technologies for the prevention and management of NCDs in health facilities and communities |
| Enhance leadership and governance for the social determinants and risk factors for NCDs | Establish a national NCD coordinating committee (or equivalent) with membership by all ministries |
| | Develop a national multi-sectoral NCD Action Plan, with full participation of non-health ministries and non-state actors |
| | Strengthen leadership for enforcing existing legislation and regulations |
| To scale up promotion strategies for cancer awareness | Develop and distribute information education and communication (IEC) materials for the various cancers |
| | Strengthen the cancer awareness strategies in the national communication strategy |
| | Commemorate cancer-related national events |
| To reduce the number of cancer cases | Promote healthy living strategies |
| | Implement an HPV vaccination programme |
| | Implement and scale up cervical cancer screening services |
| | Strengthen diagnostic capacities at all levels of care |
| | Provide training and mentorship in cancer management |
| Decentralize chemo-radiotherapy centres | Implement phase three expansion programme |
| | Upgrade CDH with advanced diagnostic and treatment equipment |
| To improve palliative care services at all levels of care | Develop national palliative care policy |

## 4.7 Hospital Services

### Situation Analysis

A fair distribution of hospital services is essential in order to ensure an effectively functioning health delivery system. Currently, there is an uneven distribution of hospital facilities, with urban areas being disproportionately favoured compared with rural areas. The hospitals were either set up by missionaries wherever they settled or constructed by mining companies in the case of the Copperbelt.

Challenges for hospital services include:

- Inadequate funding to the hospitals
- Inadequate competencies, infrastructure, and equipment
- Breakdown of referral system, which imposes pressure on hospitals
- Erratic supply of medicines and medical supplies
- Weak health information management systems for the hospitals
- Limited availability of guidelines and protocols

In the NHSP 2017–2021, the focus will be placed on ensuring that hospitals have all the necessary competencies to ensure that they operate according to their level. In addition, investment in health systems strengthening is required.

## Strategic Interventions

| **Goal:** Achieving Universal Health Coverage through safe, affordable, accessible, and timely hospital services by 2021 | |
|---|---|
| **Objectives** | **Strategies** |
| To strengthen and expand clinical disciplines at all levels of hospital care | Reorganize the clinical units, (surgery, medicine, paediatrics, obstetrics and gynaecology) to respond to 80% of first-level health needs of a district |
| | Extend outreach services to district- or council-operated health centres |
| | Have specialists in all four major disciplines at Level 2 hospitals |
| | Promote mentorship and outreach programmes between Level 2 and Level 1 hospitals |
| | Create one internship site per province |
| | Upgrade one general hospital to a central hospital per province |
| To enhance the efficiency of patient care at all levels | Creation of e-patient record management systems (EMS) |
| | Strengthen referral system and feedback mechanism by formulating guidelines and policies |
| | Develop and roll out treatment protocols and treatment guidelines |
| To build the capacity of service providers in order to improve service delivery | Enhance professional skills through mentorship, continuous professional development, and long-term training |
| | Extend implementation of tele-consultation services |
| | Create a National Clinical Centre Of Excellence (NCCE) |
| To increase access for patients in need of advanced medical care | Train super specialists for all cadres in Level 3 hospitals |
| | Create centres of excellence for HIV and AIDS and other infectious diseases, renal and eye services, cancer, orthopaedic and rehabilitative services, cardiac, dietetics and clinical nutrition, and any other areas of need |
| | Streamline the referral system |
| Improve quality of clinical services in hospitals | Implement standard treatment protocols |
| | Implement infection prevention activities |
| | Conduct regular clinical audits and QA/QI interventions |

## 4.7.1 Surgical, Obstetric, and Anesthesia Services

### Situation Analysis

Surgery and anaesthesia have traditionally been neglected sectors of health care in low- and middle-income countries. In order to redress the situation, there have been concerted efforts to improve the provision of surgical, obstetric, and anaesthesia services in Zambia. Surgery, obstetrics, and anaesthesia are all integral parts of health care and contribute significantly to the reduction of maternal and trauma mortality, prevention of HIV, and screening and treatment of cervical cancer.

It is estimated that 74% of Zambians do not have access to safe, affordable, and timely surgical, obstetric, and anaesthesia care. Only 26% of Zambians are able to access hospitals that can perform a caesarean delivery, laparotomy, and stabilization of open fracture. The National Surgical, Obstetric, and Anaesthesia Strategic Plan 2017–2021 was therefore developed to fulfil this unmet need.

In the 2011–2016 NHSP, very little was achieved in surgical service delivery, as this was not prioritised. For the NHSP 2017–2021 Plan, focus shall be on several key priorities to ensure equitable access of surgical, obstetric, and anaesthesia services. The Plan will focus on increasing the surgical capacity to meet at least 80% of the surgical needs, from the current 26%. Additionally, the Plan will target to increase the number of surgical, obstetric, and anaesthesia providers to at least three per 100,000 populations, as compared with the current situation of 1.1 per 100,000 populations. The aim is also to increase the safety of surgery and decrease all preventable deaths.

The NHSP 2017–2021 aims to address the many surgical, obstetric, and anaesthesia challenges, which are caused mainly by trauma, cancer, and complications of pregnancy. The Plan will address these challenges through a strategic framework that seeks to strengthen service provision with a focus at the district level through skill upgrading and infrastructure expansion. Efforts will also be expended in building high-quality surgical, obstetric, and anaesthesia systems through strengthening health management information systems and research capabilities.

At Level 1 hospitals, the following interventions will be implemented:

- Establish and strengthen the provision of quality essential and emergency surgical services
- Strengthen the provision of quality essential and emergency obstetric and gynaecologic services
- Establish and strengthen the provision of quality essential and emergency anaesthesia services
- Strengthen mentorship in surgery, obstetrics, and anaesthesia

At Level 2 and Level 3 hospitals, the interventions to be implemented include:

- Establishing and strengthening the provision of quality, comprehensive, highly specialized, and complex surgical care
- Establishing and strengthening the provision of quality, comprehensive, highly specialized, and complex obstetric and gynaecologic care
- Establishing and strengthening the provision of quality, comprehensive, highly specialized, and complex anaesthesia care

## Strategic Interventions

| **Goal:** Achieving Universal Health Coverage through safe, affordable, and timely surgery, obstetrics, and anaesthesia by 2021 | |
|---|---|
| **Objectives** | **Strategies** |
| To provide all Zambians with safe, equitable, and timely surgical, obstetric, and anaesthesia services | Strengthen provision of essential and emergency care at the district level |
| | Strengthen provision of comprehensive care at the secondary level |
| | Strengthen provision of highly specialized and complex care at the third and fourth levels |
| To provide adequate, appropriate, and well-maintained functional surgical, obstetric, and anaesthesia equipment in accordance with the set standards at each level | Ensure all levels of facilities have standard and functional equipment to provide safe and timely essential and surgical, obstetric, and anaesthesia services |
| | Strengthen equipment maintenance services at all levels of facilities by conducting preventive maintenance of equipment for surgical, obstetric, and anaesthesia services |
| To provide quality, safe, and affordable essential supplies to improve palliative care services at all levels of care | Ensure that all levels of facilities have adequate stocks of essential medical and surgical supplies (commodity security) in order to provide safe and essential surgical, obstetric, anaesthesia and palliative care services |

# 4.7.2 Eye Health Services

## Situation Analysis

Eye health services are available mainly at provincial and tertiary centres. The existing eye health outreach programmes are inadequate and confined to selected parts of the country. The current state of University Teaching Hospital–Eye Hospital infrastructure is not adequate, hence there is critical need for construction and modernization to enhance service delivery and coordination of eye health services across the country.

MSL in Lusaka does not stock most medicines and surgical consumables required in eye units. Although much has been done in procuring and distributing ophthalmic equipment, there are still gaps around the equipment provision, and the newly established eye hospital needs to be equipped. The shortage of human resources for eye health has seriously affected the efforts towards the prevention of avoidable blindness.

Cataract accounts for 55% of the causes of avoidable blindness. Other causes include glaucoma, refractive errors, trauma, corneal opacities, trachoma, and diabetes mellitus. The cataract surgical rate (CSR), which is a measure of the availability of cataract services, is 732 cataract operations per year per million populations.

## Strategic Interventions

| **Goal:** To eliminate causes of preventable or avoidable blindness by 2021 | |
|---|---|
| **Objective** | **Strategies** |
| To construct a modern state-of-the-art eye hospital at UTH to become a national eye care referral hospital | Mobilise required funds for the construction of a modern state-of-the-art eye hospital at UTH |

| **Goal:** To eliminate causes of preventable or avoidable blindness by 2021 | |
|---|---|
| **Objective** | **Strategies** |
| To establish and construct eye hospitals in five provincial hospitals | Mobilise and increase required funds for the establishment and equipping of eye care hospitals in Luapula, Eastern, Muchinga, Southern, North Western, and Northern provinces |
| To promote good eye health and prevention of eye diseases by 100% | Orientation of school teachers and community leaders on how to identify students and community members who have eye ailments and to refer them to relevant health facilities |
| To increase the cataract surgical rate by 100% | Provide comprehensive static and outreach cataract surgical services in all 105 districts |
| | Introduce phacoemulsification surgery to address cataract surgery backlog at the UTH-Eye Hospital |
| To establish vitreous and retina services at the UTH-Eye Hospital | Train specialists in management of DR and related retina diseases |

### 4.7.3 Paediatric Services

#### Situation Analysis

The Zambian population is predominantly young, with about 53% being below 18 years of age, 50% aged 0–14 years, and 18% below the age of 5 years. The country has a fast-growing population, estimated at 13.5 million in 2010 and projected to increase to 16 million in 2016. Further, a very large proportion of Zambia's population is children, including adolescents; as such, the scope of care is wide and varied, from newborns to adolescents. This poses a challenge as the different age groups that encompass the field of paediatrics have their own unique needs.

The overall staffing challenges in the health sector have not spared paediatrics programmes, and there is need for scaled training that is tailored towards addressing the gap. This is especially essential in view of the established sub-specialties at the University Teaching Hospitals–Children's Hospital: cardiology, haematology, endocrinology, rheumatology, infectious disease, neurology, neonatology, clinical nutrition, emergency care, and nephrology. Funds will be made available for staff training in these specializations in order to build capacity and formally create the required departments.

The key planning issues for paediatric services are:

- Develop adequately equipped health facilities to facilitate improved paediatric service delivery
- Improving the locally driven operational research for common paediatric conditions
- Dysfunctional referral systems for paediatric cases
- Ineffective information flow among the different levels of health care to allow for informed decision making
- Inadequate human resources at all levels of service delivery
- Limited quaternary-level services for children countrywide

## Strategic Interventions

| **Goal:** To improve the health status of children in Zambia in order to contribute to socio-economic development | |
|---|---|
| **Objectives** | **Strategies** |
| To develop adequately equipped health facilities to enable health care workers to make objective decisions in paediatric and child care | Design a basic health care package for equipment appropriate for different levels of care |
| | Procure basic equipment and required skills that could be used in evaluation, treatment, or transfer of patients in health facilities |
| | Implement preventive maintenance of medical and surgical equipment |
| | Regularly monitor and evaluate the appropriate use of the equipment |
| To develop adequate locally driven operational research for paediatric conditions | Enhance capacity to engage with ethics committees in institutional research in Level 2 and 3 facilities |
| | Strengthen capacity building on research methodologies amongst staff in these institutions |
| | Identify local and international sources of funding to assist in developing and strengthening research methodologies in these institutions |
| To develop adequate and well-equipped transportation of paediatric patients within the health referral system through different levels of care | Procure child-friendly transportation equipment and services for timely patient movement |
| | Provide life support package training during patient care |
| To develop adequate information generation from Level 1 to Level 3 to capture data at all levels in the continuum of care | Operationalize the e-Governance system for in-patient management and data capture |
| | Actualize the medical record registers to assist in quantifying disease burden in terms of morbidity and mortality |
| To operate an effective, nationwide quality assurance system for improving the standard of care of children | Institute performance assessment tailored for paediatrics and child health |
| | Rationalize the referral system from Level 1 to Level 3 |

# 4.7.4 Renal Health Services

## Situation Analysis

The country has fully functional national renal services, which are currently being decentralized to the provinces. There are currently five renal units countrywide, which are based at the University Teaching Hospital, Kitwe Central Hospital, Ndola Teaching Hospital, Livingstone Central Hospital, and Maina Soko Military Hospital.

The demand for renal services has been increasing over the years and poses a challenge to service provision, which has been compounded by the high cost of providing the services. Currently, the unit cost per treatment is estimated between K900 and K1000. Each chronic kidney disease patient needs three treatments per week for life or until they receive a kidney transplant.

The UTH currently has 21 machines; it treats 40 new patients per month and has 66 patients that need permanent dialysis. Ndola Central Hospital has on average eight new patients per month and 15 patients on permanent dialysis. Kitwe Hospital has eight to 12 new patients per month and has 20 patients on permanent dialysis. Livingstone has four new patients per month and has 16 patients on permanent dialysis. These numbers are underestimates, as most kidney disease patients die before they are referred to the renal units. In addition to the financial barriers, people may also not access on account of the limited number of renal units and distance.

The burden of kidney disease is further illustrated in the HIV population, with an estimated 8% prevalence of kidney disease among patients receiving combination ART for one year. This is a very high number when the number of patients on combination ART in the country (748,000 at the end of 2016) is taken into account.

### Strategic Interventions

| **Goal:** To establish renal centres and ensure availability of adequate supplies of renal consumables and medical supplies to all renal patients in Zambia | |
|---|---|
| **Objectives** | **Strategies** |
| To expand availability of adequate renal consumables, infrastructure, equipment, and commodities | Increase number of supplies and equipment for renal services |
| | Create or build more infrastructure for renal services |
| To establish a renal transplant unit | Create a renal transplant unit at UTH–Adult Hospital |
| To build capacity of renal staff | Enhance the skills of renal staff |
| | Develop renal protocols for the assessment and management of renal diseases |
| Strengthen monitoring and evaluation of renal services | Develop performance indicators for all renal services |
| | Develop reporting tools for renal services |

## 4.8 Emergency and Mobile Health Services

### Situation Analysis

Mobile health services are a complementary service delivery mode to people in hard-to-reach and remote parts of Zambia, with the exception of Lusaka, Central, and Copperbelt provinces. Mobile health services provide second-level hospital services and accord an opportunity for mentorship of health local staff. From the inception of the programme in 2011, a total of 642,056 clients were attended to and 31,196 operations were conducted through December 2016. There is demand for increased primary health care and strengthening of existing services such as cervical, breast, and prostate cancer screening as well as health promotion activities.

Emergency health services include ambulance, critical care, accident and emergency (A&E), and aero medical services. The current emergency health services are not very effective. In order to build capacity among health professionals, more than 1,000 health professionals were trained in basic life and support/trauma management. Further, 16 paramedics were trained abroad. Construction of the first A&E Centre in Zambia was completed at Kabwe General Hospital. All provincial hospitals have functional ICUs.

Despite these achievements, the key constraints and challenges include:

- Inadequate infrastructure and skilled personnel for emergency health services
- Constant breakdown of equipment in the mobile health units, particularly laboratory and x-ray equipment
- Poor emergency communication system
- Inadequate resources for local air evacuations
-

### Strategic Interventions

| **Goal:** To provide adequate emergency and mobile health service in a timely manner | |
|---|---|
| **Objectives** | **Strategies** |
| To provide mobile health services as a complementary service delivery mode to people in hard-to-reach rural and remote parts of Zambia | Conduct mobile outreach services |
| | Provide mentorship to local health staff |
| | Conduct specialist outreach in all provincial hospitals and general hospitals |
| | Strengthen cervical cancer screening and introduce HPV screening |
| | Introduce mobile clinics for PHC outreach services |
| To coordinate and evaluate emergency health services in Zambia | Construct emergency centres |
| | Procure equipment for emergency health services |
| | Formulate the Ambulance Services Act |
| | Incorporate a framework on emergency services into the National Health Service Bill |
| | Construct and operationalize the national emergency communication centre |

## 4.9 Diagnostic Services

### Situation Analysis

Laboratory, medical imaging, and blood transfusion services are important determinants of health service delivery. They play a critical role in supporting decision making in diagnosis and patient management, disease prevention, disease surveillance, outbreak investigation, research, and quality assurance. They enhance cost-effective health interventions. These services will assume an even more important role with the scaling up of core interventions such as EmOC, TB, malaria, and HIV services in interventions.

Zambia has a five-tier laboratory services system: starting at the health post and health centre through level 1, 2, and 3 hospitals. In addition, there are also mobile health services provided for distance locations. For each level, minimum standard requirements for test profiles, equipment, reagents, and consumables have been defined. Ideally, investigations that cannot be effectively

carried at one level are supposed to be referred to higher levels. However, challenges with the referral system have militated against this.

The provision of laboratory services is marred by numerous challenges: unclear management systems at the provincial and district levels; limited human resource capacities; unclear management systems at the district level; and lack of coordination among participants in Laboratory services. Further, the current laboratory organizational structure is outdated and needs to be revised.

Zambia adopted the 2008 Maputo Declaration on standardization of laboratory equipment based on the level of care. To this end, haematology, chemistry, CD4, viral load, and early infant diagnosis have been standardized by level of care. While there has been an increase in equipment availability in the last five years, not all 395 laboratories are fully equipped. The laboratory capacities have further been adversely impacted by the lack of timely preventive maintenance, which has led to frequent breakdowns and long equipment downtimes. To date, the country has not procured any maintenance systems for laboratory equipment. This plan therefore seeks to provide equipment to all laboratories and put in place sustainable maintenance mechanisms.

While there has been an increase in laboratory services, here has been no corresponding increase of space. To date, Zambia has only four laboratories that are able to provide pathology services, due to limitations in both infrastructure and specialists required in the area. This plan therefore seeks to address these limitations.

Quality laboratory results are critical to informed decision making and effective patient management. The development of a laboratory quality assurance policy is long overdue and needs to be completed. In a quest to improve quality, Zambia enrolled 17 laboratories into the WHO/ African Society for Laboratory Management quality improvement process; two were assessed and granted a two-star rating. To achieve international accreditation, Zambia needs to develop and implement a national laboratory quality assurance programme, with a dedicated secretariat.

The key planning issues in this sub-theme include:

- Weak supply chain management of laboratory logistics and commodities, resulting in shortages and expiries of reagents and consumables
- Weak monitoring and evaluation of laboratory services
- Inadequate equipment and equipment breakdowns
- Critical shortage of human resources including biomedical specialist positions
- Weak systems for implementing quality management systems and regulation of laboratory equipment and commodities
- Poor infrastructure for expanded testing and weak systems for sample referral
- Lack of a national laboratory quality assurance system
- Ineffective coordination and supervision of laboratory services at all levels

## Strategic Interventions

| **Goal:** To contribute to the improvement of the health status of the people of Zambia by providing safe, efficient, and sustainable diagnostic services able to meet the needs of the health care system | |
|---|---|
| **Objectives** | **Strategies** |
| To improve institutional and management framework for the provision of laboratory services in Zambia | Revise the organization structure in order to enhance laboratory services |
| | Strengthen internal and external coordination and collaboration in order to harmonize service provision in the health sector |

| **Goal:** To contribute to the improvement of the health status of the people of Zambia by providing safe, efficient, and sustainable diagnostic services able to meet the needs of the health care system | |
|---|---|
| **Objectives** | **Strategies** |
| | Strengthen lab management capacity in order to increase institutional effectiveness |
| | Develop and review relevant policy and legal framework in order to guide the provision of laboratory services in Zambia |
| To strengthen the provision of laboratory services appropriate for each level of care to support the National Health Care Package (NHCP) implementation | Provide appropriate equipment |
| | Ensure that all laboratories are well staffed and managed by qualified laboratory personnel |
| | Provide test profiles at each level of care to support the Basic Health Care Package |
| | Strengthen laboratories to provide referral services |
| | Provide appropriate transportation packaging materials |
| | Establish a courier system for specimen referrals |
| To establish a sustainable laboratory supplies system as part of the essential medicines and supplies management, that will ensure steady availability of laboratory equipment, reagents, and supplies at all levels | Conduct a needs assessment and develop a consolidated plan for laboratory infrastructure and equipment to allow for the necessary testing at each level |
| | Develop mechanisms for procurement of standard equipment |
| | Build capacity for laboratory reagents and consumables quantification, procurement, and management at all levels |
| | Establish a Laboratory Management Information System, both electronic and paper based |
| To consolidate and strengthen the National Laboratory Quality Assurance system and establish laboratory linkages so as to ensure an effective, sustainable laboratory referral system | Develop and implement a national quality assurance programme for all levels of service |
| | Develop external quality assurance schemes for all tests |
| | Complete Chainama to house the National Laboratory Quality Assurance programme with dedicated staff |
| | Strengthen and support laboratories to acquire international accreditation |
| To promote research and development in laboratory sciences in order to improve the quality of health in the communities | Develop a research and development programme relevant to laboratory sciences |
| | Monitor and evaluate implementation of the National Laboratory Strategic Plan |
| To improve laboratory infrastructure and safety in order to contribute to quality service provision | Develop and implement an investment plan for laboratory infrastructure |
| | Promote health and ensure safety standards in laboratories whilst protecting the community and environment |
| | Support implementation of the Laboratory Diagnostics Regulatory Authority |

## 4.10 Imaging Services

### Situation Analysis

Medical imaging is essential not only for initial diagnosis, but for monitoring disease response to treatment and deciding when to stop or adjust a treatment plan. The demand for medical imaging services has increased as a result of changes in the disease profile, with communicable diseases such as HIV/AIDS and TB and non-communicable diseases such as cancer, diabetes, and cardiac conditions becoming more prominent. To this effect, the MOH has prioritized strengthening of medical imaging services.

The prioritization of imaging services has, however, not been accompanied by the requisite expansion of human resource capacities. According to 2016 updated imaging staff information, there were approximately 400 imaging staff unevenly distributed among more than 100 Imaging facilities. Critical positions for radiographers, radiologists, sonographers, and medical physicists do not exist in 80% of imaging facilities, while about 30 newly constructed hospitals will need a minimum of four positions each. This plan will ensure that all first-level hospitals are headed by a radiographer, second-level hospitals by a senior radiographer, and third-level hospitals by a chief radiographer. Radiologists and medical physicist positions shall be a priority at all second and third levels of care.

There is need to strengthen the coordination of imaging services at the provincial and district levels. The medical imaging organizational structure from central to district level needs to be revised, while the positions need to be established and filled, leadership and management skills enhanced, and proper management systems established.

Medical imaging services such as film x-ray, contrast-aided imaging and ultrasound, magnetic resonance imaging, CT, nuclear medicine, and interventional imaging are currently available at all hospital levels. This is complemented by mobile facilities that offer x-ray and ultrasound.

Portable and battery-operated ultrasound for monitoring and management of emergencies in pregnant mothers who develop complications in areas far from hospitals is one of the gaps that has been identified.

There are 99 first-level, 34 second-level, and eight third-level hospitals offering Imaging services and equipped with various imaging equipment. There are currently health facility construction and modernization projects that require corresponding diagnostic capacities.

It is expected that all second- and third-level facilities be equipped with CT scanning services. Currently, six out of eight third-level hospitals and two out of 34 second-level hospitals provide CT scans.

Although the country has made efforts to strengthen imaging services, the provision of services at the facility level has not been improved. Some 60% of the equipment is old and obsolete. Additionally, lack of routine servicing has compounded the situation. Further, the supply chain management system for imaging consumables is weak, leading to occasional inappropriate procurements and frequent stock outages of specialized imaging supplies. The lack of an electronic system for managing data has compounded the problem. This plan will endeavour to address the problems of imaging equipment servicing, data management, and supply chain management.

Comprehensive QA/quality control (QC) in medical imaging and radiotherapy is cardinal. QA/QC ensures that the diagnostic and radiotherapy services offered are of high quality and safe to clients undergoing radiological exposures. Currently, QA/QC is being implemented without a framework that guarantees systematic implementation across the country. It is therefore critical that the framework is put in place in order for the QA/QC to be fully implemented.

The following gaps have been identified:

- Inadequate imaging equipment to cover all third- and second-level hospitals
- Lack of portable ultrasound to address maternal health
- Shortages of specialized imaging supplies
- Critical shortage of radiologists, radiographers, and medical physicists
- Non-existent structure at provincial and district levels for management and coordination of imaging services
- Lack of digital imaging equipment to full implementation of tele-radiology
- Lack of national medical imaging quality assurance system
- Training of end users in health facilities
- Maintenance of imaging equipment

In view of the above, it is critical that the modern equipment is procured and the proper structures are put in place.

## Strategic Interventions

| **Goal:** To contribute to the improvement of the health status of the people of Zambia by providing safe, efficient, and sustainable medical imaging diagnostic services able to meet the needs of the health care system | |
|---|---|
| **Objectives** | **Strategies** |
| To improve institutional and management frameworks for the provision of services in Zambia | Revise the organization structure in order to enhance Imaging services |
| | Strengthen management capacity in order to increase institutional effectiveness |
| | Develop and review relevant policy and legal frameworks in order to guide the provision of imaging services in Zambia |
| To strengthen the provision of Imaging services appropriate for each level of care to support the NHCP implementation | Provide appropriate equipment |
| | Ensure that all departments are well staffed and managed by qualified imaging personnel |
| | Train and build capacity in all medical imaging categories |
| To significantly improve on the availability and condition of medical imaging and radiotherapy equipment to ensure efficient and effective service delivery at all levels | Conduct a needs assessment and develop a consolidated plan for imaging infrastructure and equipment at each level |
| | Develop mechanisms for procurement of standard equipment |
| | Strengthen capacity for management and maintenance of medical imaging and radiotherapy equipment |
| To provide adequate imaging and radiotherapy supplies through an efficient and effective logistics management system | Build capacity for imaging supplies quantification, procurement, and management at all levels |
| | Establish Radiology Information System |
| To consolidate and strengthen the national quality assurance scheme | Develop and implement a national medical imaging quality assurance programme for all levels of service |
| | Establish a national QA committee |
| | Strengthen coordination of QA activities (clinical and equipment) among end users, biomedical engineers, and medical physicists |
| | Train staff in QA |

| **Goal:** To contribute to the improvement of the health status of the people of Zambia by providing safe, efficient, and sustainable medical imaging diagnostic services able to meet the needs of the health care system | |
|---|---|
| **Objectives** | **Strategies** |
| To improve the availability and distribution of qualified medical imaging and radiotherapy staff in identified categories and levels of practice in the facilities throughout country | Increase the number of skilled workforce in imaging and radiotherapy by category and levels of practice/care |
| | Facilitate for the expansion of imaging and radiotherapy |
| | Revise the organisation structure in order to enhance imaging and radiotherapy services |
| To facilitate consultation among medical imaging and radiotherapy professionals through tele-radiology and tele-oncology | Establish a framework for coordination of tele-radiology and tele-oncology services |
| | Set up tele-radiology and tele-oncology infrastructure |
| | Train practitioners (medical imaging and radiotherapy) in the application of tele-radiology and tele-oncology |
| | Sensitise health facilities on tele-radiology and tele-oncology |
| To promote research and development in imaging in order to improve the quality of health in the communities | Establish mechanisms to coordinate research activities conducted in imaging and radiotherapy |
| | Build capacity in imaging and radiotherapy research methodologies and bioethics |

## 4.11 Blood Transfusion Services

### Situation Analysis

The National Blood Transfusion Service is fully operational with efficient central coordination, but sufficiently decentralized to render services to all regions of the country. Each regional blood transfusion centre has the capability and capacity to test all donated blood for transfusion transmissible infections including HIV, hepatitis B, hepatitis C and syphilis.

There is no upward trend in the number of blood units collected per annum from 2011 to 2015. On average, there about 107,000 blood units collected per annum, with a crude discard rate of around 10% (3.0% attributable to HIV, 5.4% to HBV, 0.9% to HCV, and 0.6% to syphilis). In 2015, some 100,110 units were collected against the national requirement of 150,000 units; the unmet need for blood and blood products is well over 30%.

A key strategy to reduce the discard rate is to expand the pool of repeat donors, where the discard rate is significantly lower compared with first-time donors. The proportion of repeat donors has declined from 56% in 2012 to 47% in 2015. Strengthening donor retention can reverse this negative trend and lead to a significant reduction of the discard rate.

Failure to meet the national targets is attributable to many factors. Firstly, the operational budget for donor refreshments, fuel, and allowances has not been adequate to support scaling up donor recruitments and retention. In addition, the Blood Transfusion Service does not have adequate transport and human resources required for optimal operations; every regional blood transfusion centre needs a minimum of three operational vehicles, but most provinces have just one vehicle. There is also need to strengthen the donor sensitisation programme, as well as social mobilisation and marketing. Strengthening the counselling programme has potential to increase the number of HIV-negative donors coming back to donate, while at the same time facilitating the referral of HIV-positive donors for continued care and treatment.

As the country adopts newer medical procedures such as open heart surgery, cancer treatments and tissue transplants, demand for blood, blood products and plasma-derived medicinal products is likely to grow. Currently, demand for fresh frozen plasma (FFP) at UTH stands at 30% of the total requests; currently, only 5% of the demand is met. If the country introduces more modern technologies, such as individual donation nucleic acid amplification testing (ID-NAT), then procedures such as apheresis, the harvest of blood components and production of plasma products will significantly improve. Currently, only five regional centres have the capacity (in terms of equipment) to do blood component production.

The key planning issues for blood transfusion services are:

- Donor sensitisation, social mobilisation, and marketing
- Donor retention, which can help in reducing the discard rate
- Lack of apheresis procedures
- Lack of ID-NAT testing procedures
- Inadequate transport and inadequate equipment for transportation of blood
- Inadequate equipment for storage of blood and blood products
- Inadequate number of lab technologists
- Donor counselling and referral system
- Lack of cost recovery or reimbursement system

During the life of this plan, the Zambia National Blood Transfusion Service (ZNBTS) shall operate as a nationally coordinated institution with sufficient capacity to meet the blood transfusion needs of the country. The National Blood Transfusion Policy shall be enacted within the framework of the Health Sector Policy and supported by appropriate legislation. With the national requirements expected to rise to 180,000 units per annum by 2015, there will be need to ensure availability of the critical inputs, including human resources, equipment, and supplies.

## Strategic Interventions

| **Goal**: To ensure availability of adequate supplies of safe blood and blood products to all patients in Zambia | |
|---|---|
| **Objectives** | **Strategies** |
| To increase the annual blood collection to meet the national blood and blood products requirements | Create donor retention schemes to expand the pool of repeat donors |
| | Increase social mobilisation and marketing activities |
| | Strengthen capacity for blood collection through expansion of staffing and procurement of blood collection vehicles |
| | Increase outreach counselling programmes to reach all donors in the communities |
| | Expand capacity for blood products production in all provinces |
| To develop the National Apheresis, Tissue Transplantation, and Human Genetics Centre | Set up the National Apheresis, Tissue Transplantation, and Human Genetics Centre at the Lusaka Provincial Blood Centre |
| | Build management and technical skills related to the Tissue Transplantation and Human Genetics Centre |

| **Goal**: To ensure availability of adequate supplies of safe blood and blood products to all patients in Zambia | |
|---|---|
| **Objectives** | **Strategies** |
| To develop and implement ICT solutions to improve the management of the blood transfusion processes | Roll out the Blood Safety Information System (BSIS) |
| | Roll out the ICT stock management system |
| | Develop reliable and secure ICT systems to enhance data security |
| To improve the clinical interphase in the blood transfusion chain | Create and operationalise hospital transfusion committees |
| | Review guidelines on rational use of blood and blood components |
| To operate an effective, nationwide quality assurance programme that ensures security of the entire blood transfusion process | Review and re-align the current ZNBTS quality systems with reference to Africa Society For Blood Transfusion (AfSBT) standards |
| | Prepare ZNBTS and apply for step-wise AfSBT accreditation |
| To strengthen monitoring and evaluation function of ZNBTS | Develop performance indicators for ZNBTS provincial centres |
| | Develop reporting tools for transfusion outlets |
| | Formalise registration of transfusion outlets |
| To provide adequate blood transfusion infrastructure, equipment, and commodities | Ensure uninterrupted supply of critical reagents and consumables |
| | Ensure buildings at the provincial blood transfusion centres are GMP compliant |
| To strengthen the institutional and regulatory capacity of ZNBTS | Complete the ZNBTS restructuring process |
| | Finalise the blood transfusion bill |

## 4.12 Ear, Nose, and Throat (ENT) Services

### Situation Analysis

The burden of ENT diseases continues to be high. Every third patient seeking medical treatment at any health facility presents with an ENT health-related condition. The prevalence of disabling hearing impairment is estimated at 4-6%. Half of this could be prevented if dealt with sufficiently at the primary health care level. Although many of the patients are attended to at first-level facilities, most of them cannot access higher-level services and/or are not managed appropriately. This is due to the limited number of trained ENT personnel at all levels. This is further complicated by the challenges in the referral system. Due to limited ENT health services, there is late diagnosis and treatment of ENT conditions such as chronic suppurative otitis media and head and neck neoplasms, which have increased morbidity and mortality among ENT patients.

Furthermore, the inadequacy of ENT health service awareness in the community limits services accessibility. As a result, people in the communities are unable to receive treatment and rehabilitation for ENT diseases. People with hearing impairment face stigma and considerable challenges in finding ways to sustain themselves and their families, limiting their potential to contribute to the development of the nation.

## Strategic Interventions

| **Goal:** To provide comprehensive ENT services in an equitable manner | |
|---|---|
| **Objective** | **Strategies** |
| To increase infrastructure and equipment for ENT services at first-, second-, third-, and fourth-level hospitals | Identify first-, second-, third-, and fourth-level hospitals in the country where ENT units will be developed |
| | Equip these identified centres with ENT diagnostic sets and ENT equipment |
| | Ensure the establishment of a sustainable procurement system (maintenance costs, consumables) |
| To train ENT health personnel and strengthen existing health personnel to provide excellent ENT care at all levels | Source scholarships for ENT MMed, audiology, and speech therapist postgraduate training |
| | Establish an advanced ENT diploma training programme for clinical officers |
| | Conduct refresher courses for different cadres working in the field of ENT |
| | Establish ENT and audiology MMed programme |
| To sensitise the public on ENT conditions | Promote ENT health by running promotional campaigns in communities |
| | Participate in international events such as the International Ear and Hearing Care Day |
| To strengthen the ENT information system in Zambia | Establish baseline statistics of ENT diseases in Zambia |
| | Participate in ENT-related tele-health and e-learning programmes |
| To create an ENT society | Engage stakeholders and seek guidance from relevant regulatory bodies |

# 4.13 Nursing and Midwifery Services

## Situation Analysis

Nurses and midwives are the largest workforce in the health sector in Zambia. They provide a 24-hour critical continuum of care, which includes health promotion, prevention, curative, rehabilitative, and palliative services, in line with what is contained in the Nurses and Midwives Act No. 31 of 1997. The developments in nursing and midwifery are changing rapidly, with increasing client or patient expectations and service needs. Over time, nursing and midwifery services have been hampered by a number of challenges. These include rapid population growth, increased disease burden from communicable diseases and NCDs, and shortage of nurses, midwives, and lecturers, leading to increased workload in both the clinical and training areas. This is exacerbated by inadequate equipment and supplies needed to provide quality care. In order to tackle this ever-increasing demand and dynamism of nursing and midwifery, there is need for pragmatic shift towards innovation, productivity, and improved efficiency.

The strategic interventions for nursing and midwifery services in the next five years will focus in the following areas: nursing and specialized services; midwifery; nursing and midwifery education; strong and effective partnership; nursing research and development; nursing and midwifery workforce; policy and legal framework; and finance and logistics management.

## Strategic Interventions

| **Goal:** To improve the quality of nursing and midwifery education and practice standards at all levels of care | |
|---|---|
| **Objectives** | **Strategies** |
| To provide safe, acceptable, equitable, and timely nursing services to clients at all levels of care in order to improve health outcomes | Strengthen respectful nursing care to all clients |
| | Enhance professionalism in nursing services |
| | Improve documentation of nursing care |
| | Improve adherence to nursing procedures |
| | Strengthen and expand availability of medical, surgical, and other specialised nursing services at all levels of health service delivery |
| | Strengthen provision of public health nursing services |
| | Review nursing protocols every two years to contribute to improvement of nursing services |
| | Strengthen clinical nursing and audits |
| | Encourage nurses to participate in inter-professional and nursing clinical rounds to improve their knowledge |
| | Strengthen mentorship for qualified nurses |
| To provide integrated quality reproductive, maternal, neonatal, child, and adolescent services in order to contribute to the reduction in maternal, neonatal, and child morbidity and mortality | Strengthen respectful midwifery care to all clients |
| | Enhance professionalism in midwifery services |
| | Improve documentation of midwifery care |
| | Strengthen provision of quality maternal, neonatal, child, and adolescent health services at all levels of health care |
| | Strengthen provision of quality reproductive and maternal health services |
| | Strengthen provision of essential and emergency obstetrics and gynaecology services |
| | Strengthen e-MTCT services to all women of reproductive age in order to eliminate MTCT |
| | Strengthen neonatal and child health nursing services at all levels of care |
| | Strengthen adolescent health services at all levels of care |
| To produce an educated, competent, and motivated nursing and midwifery workforce able to meet the health needs of the public | Develop and review existing curricula in order to respond to current and emerging health needs |
| | Strengthen the programme for the provision of learning and training materials and library services |
| | Strengthen students' clinical experience |
| | Strengthen management of computer laboratory services in the training institutions |
| | Strengthen the functionality of skills laboratories |
| | Develop new a National Training Operational Plan in order to give clear direction to the development of nursing and midwifery education in Zambia by 2021 |

| **Goal:** To improve the quality of nursing and midwifery education and practice standards at all levels of care | |
|---|---|
| **Objectives** | **Strategies** |
| To strengthen partnerships and collaboration with stakeholders in the health sector in order to foster linkages and synergies in the delivery of nursing and midwifery services | Strengthen stakeholder engagement at all levels of care |
| | Enhancing mobilisation of technical and financial support for nursing and midwifery services |
| | Advocate for resources for nursing and midwifery services |
| | Implement a strategy that ensures smooth coordination of partners and ensures continued support to nursing and midwifery services |
| To promote research in nursing and midwifery in order to generate evidence for informed education, practice, policy, and decision making | Build capacity for nurses and midwives in research and proposal writing |
| | Establish database for nursing and midwifery research |
| To effectively manage and develop the nursing and midwifery workforce in order to enhance individual and organizational performance | Review the organograms and establishment in public, faith-based, and private sectors for nurses and midwives to increase the numbers and provide streamlined career progression and specialisation |
| | Strengthen human resource policies and systems for nursing and midwifery |
| | Strengthen preceptorship and mentorship for students, nurses, and midwives |
| | Strengthen intra- and inter-professional collaboration among public and private health facilities and training institutions |
| | Advocate to training institutions to offer courses in leadership and management for nurses and midwives |
| To formulate and review policies and legislation in order to provide appropriate policy and legal framework for the delivery of quality nursing and midwifery services | Hold two validation meetings on the Nurses and Midwives Repeal Bill |
| | Hold provincial dissemination meetings on the Nurses and Midwives Act |
| | Hold a five-day workshop to draft regulations to operationalise the Nurses and Midwives Act |
| To effectively manage financial, administrative, and logistical support services for nurses and midwives in order to improve operations and promote accountability in utilization of public resources | Advocate for dedicated and improved funding for nursing and midwifery services at all levels |
| | Equip nurses and midwives with skills in financial management |
| | Advocate for the provision of adequate and appropriate infrastructure and equipment |
| | Strengthen corporate governance and management systems for nurses and midwives |

## 4.14 Pharmaceuticals and Medical Supplies

### Situation Analysis

The Medicines and Allied Substances Act (3) 2013, the National Medicines Policy, and the Public Health Act Zambia provide the policy and regulatory framework for the pharmaceutical sub-

sector; traditional and herbal medicines are not effectively covered. The framework allows coordinated selection, forecasting and quantification, procurement, storage and distribution, rational use, quality control, and regulation of medicines and medical supplies.

The current challenges include irregular post-marketing surveillance on all medicines and weak enforcement of standards of practice, which leads to irrational use of medicines in both private and public facilities. In addition, there is inadequacy of specialized equipment and capacities at the National Drug Quality Control Laboratory (NDQCL). The NDQCL is not yet WHO prequalified; the Zambia Medicines Regulatory Authority (ZAMRA) is working on getting it prequalified.

The human resource challenges also impact the sub-sector; there are inadequate pharmaceutical personnel at service delivery points, resulting in pharmaceutical, Logistics Management Information System (LMIS), and supply chain functions being performed by nursing or clinical staff. This necessitates the development of a human resource workforce plan for supply chain specialists, clinical pharmacists, and pharmaceutical public pharmacists.

Over the past five years, Government and CPs have increased the drug budget support by more than 100%, leading to about 78% availability of essential medicines and medical supplies in the public sector (MTR 2014 Main Report). Zambia has identified essential medicines that have been designated as tracer drugs and are used as the basis for determining the availability of medicines in health facilities. To ensure national commodity security of essential medicines, the national supply chain coordination committee should be strengthened; collaboration structures in procurement planning, selection, and quantification should be enhanced.

The MOH has continued to review and update the essential medicines list that guides product selection and availability. In order to improve the effectiveness of procurement services, the Government has initiated the transfer of the procurement functions from the MOH to MSL. Zambia has inadequate local pharmaceuticals manufacturing capacities, leading to overreliance on imports, which often have lengthy delivery times. Zambia's continued membership in World Trade Organisation Trade-Related Intellectual Property Rights (WTO TRIPS), which protects inventions (including medicines), contributed toward improved local production of drugs.

The Government of Zambia is implementing the National Supply Chain strategy in order to strengthen forecasting and quantification, procurement, coordination, and distribution of medicines and medical supplies. The level of procurement coordination mechanisms and procedures between the national authorities and CPs still requires strengthening in order to optimize the implementation of the supply chain management and procurement plans.

The management of the supply chains for vaccines and for nutrition products are parallel systems to the central-level supply plan under the Child Health and Nutrition units, respectively. There is need to integrate the Child Health and Nutrition supply chain systems into a national logistics management system.

MSL's mandates on supply chain include distribution of health commodities to all hospitals and health centres down to the last mile; procurement of essential medicines and medical supplies, and the coordination of commodity quantification activities. With increased volumes of orders, distribution of drugs and medical supplies is being implemented through establishment of regional hub strategy in the provinces. So far, four regional hubs have been established in four provinces.

MSL challenges include an inadequate fleet of vehicles to service all routes and inadequate storage space (only 7,200 m2 instead of the ideal 22,000 m2). The inadequate storage space is a threat to a well-functioning supply chain at both MSL and health facilities. In order to increase the storage space at the central and provincial levels, MSL has developed an infrastructure improvement master plan. Further, there is need to invest in storage capacity at the district level through the concept of storage in a box (SIB).

The ICT infrastructure supporting the collection of data for health supplies needs to be strengthened further to ensure effective and efficient collection and sharing of information. While noting the achievements made in the medicines and medical supplies sub-sector, further interventions are required in order to achieve timely availability of safe and efficacious medicines and supplies at all the points.

The key planning issues for the pharmaceutical and medical supplies sub-sector are:

- Weak coordination mechanisms and accountability in supply chain management
- Inadequate quality management system for data in the supply chain
- Insufficient integration of the logistics information system (e.g., ART, VMMC, nutrition, vaccines)
- Limited scale of implementation of electronic LMIS
- Limited specialized human resource capacity in supply chain management and regulation
- Limited storage and distribution capacity at central, provincial, district, and health facility levels
- Limited supervision and mentorship of staff in the supply chain
- Ineffective Medicines and Therapeutic Committees (MTCs) at all levels
- Insufficient capacity of local pharmaceutical manufacturing industry

## Strategic Interventions

| **Goal:** To ensure availability of safe, adequate, quality, efficacious, and affordable essential medicines and medical supplies at all levels of service delivery, through efficient and effective procurement and logistics management systems | |
|---|---|
| **Objectives** | **Strategies** |
| To provide a policy and legal regulatory framework to facilitate efficient and effective provision of oversight on all medicines to ensure their conformity to set standards | Strengthen mechanisms for enforcing regulations to ensure compliance to the set standards for manufacture, exportation and importation, distribution, sale, and use of medicines and allied substances |
| | Establish and strengthen technical capacity of NDQCL and coordinate the key quality assurance activities among partners. |
| To ensure constant availability and accessibility of essential medicines and medical and nutrition supplies required for the provision of priority core interventions at each level of the health system through a comprehensive, integrated, and harmonized procurement, financing, and logistics systems | Mobilise resources with the MOF and from health partners for increased budgetary allocation to the drug supply budget line and timely disbursement of funds |
| | Develop coordinated procurement planning based on accurate information from nationally agreed upon methodologies of forecasting and quantification |
| To strengthen national LMIS (including storage and distribution) to improve efficiency, data accuracy, and visibility | Improve storage capacity for service delivery points and MSL central warehouse within the period of the NHSP |
| | Scale up implementation of electronic LMIS to all service delivery points |
| | Review the health centre kit (biannually) to reflect the current needs for reproductive, maternal, child health, and nutrition units |
| | Support private sector and non-governmental organizations (NGOs) service delivery initiatives through effective supply |

| **Goal:** To ensure availability of safe, adequate, quality, efficacious, and affordable essential medicines and medical supplies at all levels of service delivery, through efficient and effective procurement and logistics management systems | |
|---|---|
| **Objectives** | **Strategies** |
| | chain systems |
| | Institute use of analytics to harness pipeline, warehouse management system, and service delivery point LMIS to monitor and predict key supply chain events and risks |
| | Foster use of business intelligence systems to improve supply chain data use for strategic decision making |
| | Establish fully functional regional medical stores in the Copperbelt to cover for the northern half of the country and the construction of provincial hubs in Chipata, Choma, Mongu, Mansa, and Mpika and of mini-hubs in Livingstone and Kabompo |
| | Third-party delivery of essential medicines to achieve last mile distribution and increase private sector participation |
| | Review of the National Essential Medicines List to respond to priorities of modernization and NHCP |
| To improve pharmaceutical care at all levels of care and promote use of safe, quality, and efficacious medicines using approved standard treatment guidelines as well as standards of pharmacy practice | Strengthen pharmacovigilance activities and promote rational medicine use |
| | Strengthen Medicines and Therapeutic Committees (MTCs) in all districts and hospitals |
| To establish monitoring and evaluation | Develop and implement M&E tools for supply chain management |
| To ensure the availability of well-trained and adequate pharmaceutical personnel | Restructure and scale up the deployment of supply chain specialists personnel and clinical and public health pharmacists, aligning them with the needs assessment plans for public health, the essential health care package, and supply chain strategy at all levels |

# 5. Integrated Health Service Support Systems

## 5.1 Leadership and Governance

Health systems leadership and governance deals with the interrelationships, roles, and activities of the various agencies in the production, distribution, and consumption of health services. The organizational structures governing these processes are also considered in dealing with leadership and governance issues. IHP+ provides a framework for analysing governance of the health sector by focusing on: strategic vision; participation and consensus orientation; rule of law; transparency; responsiveness of institutions; equity, effectiveness, and efficiency; accountability; intelligence and information; and ethics.

### The National Health Policy

The National Health Policy sets out the guidelines for directing the implementation of national health strategies. The Health Policy is anchored in the devolution of functions to the lower, District level. The overall National Decentralization Policy provides the framework with which the sector policy operates; it specifies devolution of functions and authorities with matching resources to local authority levels. Under the devolved governance system, the central level is expected to provide policy, strategic guidelines, overall coordination, and M&E. The local devolved units are in turn expected to concentrate on programme implementation.

The health policy, which was revised in 2012, provides overall guidance to the sector. The policy emphasizes the importance of decentralization, which is expected to ensure effective participation of communities and hence assure relevance of interventions. The district forms the basic point of reference for the articulation of peoples' power in health care. Through district health management teams, popular representation and technical/professional interests will provide an opportunity to give Zambia a health care system that is responsive to local and national interests and needs. While recognizing the importance of bottom-up planning in the sector, the policy also recognizes the importance of provincial and central level actors in providing technical guidance to the district and other local levels of service delivery.

Further, service delivery has been defined to follow a PHC approach. The definition of PHC in Zambia is action-oriented, focused on promotive, preventive, curative, rehabilitative, and palliative care efforts within and outside the health sector. In a Zambian context, PHC would not merely mean ‘accessibility to health services’ but also peoples' participation in improving their quality of life and gaining power to master their affairs for health improvements. The PHC approach is, therefore, expected to address the main health problems in the community. In doing so, particular attention will be given to people in rural and peri-urban areas, the underserved, high-risk, and vulnerable groups, such as women, children, and the youth.

### Participation and Consensus Orientation

The health sector has diverse partners who provide financial, material, and technical support. The coordination challenges arising from such partnerships necessitate coordination mechanisms. From the inception of health reforms, the MOH adopted the SWAp through which CPs were expected to provide support to the sector. The CPs were expected to align their interventions with the MOH priorities as specified in the NHSP and in line with international obligations such as the IHP+ Principles and Paris and Busan Declarations.

The overall framework for coordination in the sector is in line with the broader framework as detailed in the Joint Assistance Strategy for Zambia and in harmony with the overall national planning framework.

The coordination arrangements in Zambia were generally deemed to have been successful and were used as a model for other countries. Despite most of the CPs buying into the SWAp model, a few still remain outside these arrangements, among them the Global Health Initiatives and the President's Emergency Plan for AIDS Relief, which preferred parallel structures and financing mechanisms. In an effort to address this and to further pursue the agenda on harmonization and alignment from the Paris Declaration, an addendum to the memorandum of understanding (MOU) was drafted in collaboration between partners and within the framework of IHP+.

All the efforts to consolidate the coordination of the CPs have been done through signing of an MOU with partners, which provides a modus operandi between MOH and health partners. In 2009, an attempt was made to sign an IHP+ compact as an addendum to the existing MOU as way of strengthening the SWAp coordination mechanism. Moving forward, it is important that trust between the Government and CPs is sustained and that the structures are further developed to be truly sector wide, including more partners in both planning and implementation of programmes. It would be advisable to improve accountability by broadening the membership of GRZ/CP consultative meetings by inviting other players, such as the civil society and private sector actors. Other opportunities that could be exploited to improve accountability include:

a) The IHP+ process could provide active support and expertise for partners to resolve issues and review mechanisms for the Zambia health SWAp

b) The initiation by the U.S. Government of greater harmonization involving the development of a five-year horizon for a cooperation framework on HIV and AIDS. It is expected that the framework would be fully supportive and aligned with the National Strategic Frameworks and would use existing coordination mechanisms such as the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM) or IHP+ structures.

c) The imminent strategy of using the national planning frameworks for disbursement of the GFATM.

## Regulatory Functions

The sector is currently operating without a legislative framework, and it is expected that a bill to replace the 2005 Health Services Act will be presented during the 2017 Parliamentary session. In addition, there are other on-going legislative activities, such as the Mental Health Bill, Public Health Act, Tropical Diseases Research Act, Flying Doctor Services' Act, Food Safety and Quality Bill, Human Tissue Act, Traditional Health Practitioners' Bill, Zambia Medical Association Bill, Tobacco Control Bill, and SHI Bill. The passing of these bills will improve the legislative environment in the sector.

The MOH has delegated regulatory functions to public statutory bodies, such as the Health Professional Council of Zambia (HPCZ), General Nursing Council (GNC), National Radiation Protection Authority, and NFNC. Other statutory bodies include: ZNBTS, Zambia Flying Doctors Services (ZFDS), National AIDS Council (NAC), MSL, and the Tropical Disease Research Centre (TDRC).

The HPCZ is a statutory regulatory body established under the Health Professions Act No. 24 of 2009 of the Laws of Zambia. HPCZ is mandated to register and regulate all health facilities in Zambia, both public and private, and training institutions teaching health sciences. The GNC is a statutory body established in 1970 under the Nurses and Midwives Act No. 55 of 1970, which was repealed and replaced by the Nurses and Midwives Act No. 31 of 1997. The GNC is responsible for ensuring that members of the public receive the best possible care. The GNC sets, monitors, and evaluates performance standards for nursing and midwifery education, clinical

practice, management, and research. The NFNC is a statutory body that was established in 1967 by an act of Parliament, Chapter 308, No. 41. The NFNC serves under the MOH as an advisory body to the Government on matters concerning food and nutrition. It is mandated to promote and oversee nutrition activities in the country, primarily focusing on vulnerable groups such as children and women. The Zambia Medicines Regulatory Authority, formerly the Pharmaceutical Regulatory Authority, is the statutory national medicines regulatory body for Zambia established under an act of Parliament, the Medicines and Allied Substances Act No. 3 of 2013 of the Laws of Zambia. The act empowers the authority to regulate and control the manufacture, importation, storage distribution, supply, sale, and use of medicines and allied substances.

## Transparency

At the national level, plans and budgets are prepared and discussed in consultative processes. Budget and planning follow a bottom-up approach. Lower levels make proposals, which are taken to the provincial and national levels for consolidation and presentation to the Treasury for allocation. The annual budgets fall within the MTEF.

The Auditor General's office performs audits of expenditures of all MOH agencies once every year and submits such reports to Parliament.

In addition, the MOH has in place an Internal Audit unit, which is aimed at enhancing accountability at all levels of service delivery in the MOH. The roles of Internal Audit, as established under section 11 of the Public Finance Act of 2004, are:

I. To ascertain that the risk management and internal control systems are in place and continually being improved and optimized in response to an ever changing environment

II. To provide reasonable assurance to the Controlling Officer, Sub-Warrant Holders, and the Secretary to the Treasury that internal controls exist and are being complied with as required by the law and other regulations

III. To ascertain, evaluate, and improve on the governance processes put in place by management

## Accountability

At the local level, the recently completed JAR indicates that village health committees are operational and do play a significant role in supporting the local health services, also from a governance perspective. District Health Advisory Committees were not functioning in a number of districts. More information is required on how to make them functional and how they can support management at district level. It is hoped that the decentralization implementation plan will also include this important aspect of health management. Other governance structures available at the district level include procurement committees, financial committees, and audit committees.

At the national level, the Mutual Accountability Framework guided the relationship between the Ministry and its CPs. The Governance Capacity Strengthening plan has been established to enhance accountability systems, namely: procurement, audit, financial management, planning, and budgeting systems. Under this framework, the MOH has put in place a set of indicators for monitoring the capacity strengthening of accountability systems.

## Responsiveness of Institutions

The health services are delivered through Government institutions, NGOs, and the private sector. Services provided by the public sector are free or provided at a nominal charge in urban areas. Apart from provision of some drugs and other commodities free of charge, private health providers are not subsidized. The NGO health providers are dominated by churches, which are concentrated in rural areas, where access to services is difficult for the residents.

At the local level, village health and health facility committees provide an opportunity to capture views and sentiments from the community. However, any mechanisms to capture perceived or actual demand of services are not institutionalized. There are no effective tools for management to capture the views and experiences of communities. There is obvious need for improvement in this regard. A system for capturing this information and using it for management purposes is required.

There have been improvements in the supply of drugs and medical supplies to health facilities. The Government and CPs have increased the drug budget support by more than 100%, leading to about 78% (MTR 2014 main report) availability of essential medicines and medical supplies in the public sector. Zambia has identified essential medicines, which have been designated as tracer drugs and are used as the basis for determining the availability of medicines in health facilities. Further improvements in the availability of essential medicines will require strengthening of the national supply chain management and improved coordination.

The pharmaceutical sub-sector has further been affected by human resource challenges. There are inadequate pharmaceutical personnel at service delivery points, resulting in pharmaceutical, LMIS, and supply chain functions being performed by nursing or clinical staff. This necessitates the development of an HRH workforce plan for supply chain specialists, clinical pharmacists, and public pharmacists.

## Equity

The country has made some commendable achievements in terms of service delivery for all population groups. However, some avoidable gender and socio-economic disparities have persisted. For instance, attended deliveries are more than three times as usual among the highest level of income quintile and among women in urban areas compared with poor women in rural settings. Contraceptive use is generally at a low level in Zambia, and the differences between poor and rich and urban and rural are similar to those for attended deliveries. In terms of malaria, IRS benefits the richer households significantly more than poor households. Further, in terms of HIV testing, people in the richest quintile are two-thirds more likely to be tested than people in the poorest quintile. From a gender perspective, disease prevalence is higher among men, while treatment use is higher among women.

The question of targeting is important for equity-focused interventions. A significant weakness is the poor or insignificant targeting of poor or underprivileged households. Apart from possible targeting of these groups in the performance targets within the health sector, there are some promising initiatives ongoing, such as: (i) the participatory reflection and action methods tested in four districts, and (ii) the Social Cash Transfer Scheme and Public Welfare Assistance Scheme. Particularly the latter more technical approach might be interesting to study in relation to financing of health care.

In trying to address these and other disparities in service delivery, the government has implemented mechanisms aiming at distributing health resources more equitably:

- **The resources allocation criteria for district health grants.** The criteria are based on a material deprivation index. The per capita allocation is varied based on a score derived from a set of deprivation indicators; districts are ranked from the poorest to the richest, with the poorer districts having a higher weight and attracting more resources. The district grant formula only applies to less than 50% of the health ministry budget. There is need to revise the formula.

- **The retention scheme for health workers**. Health workers are given incentives to settle and work in underserved areas. The value of the package varies depending on the deprivation index in the district where staff are posted. Although this has helped bridge the gap in staffing levels between rural and urban areas, it has not completely addressed the staffing deficits of the worst-off districts.
- **CHWs.** As with other low-income countries, Zambia has implemented different kinds of CHW schemes. However, the absence of a corresponding policy in this area has limited the effectiveness of this intervention.

It is clear that Zambia does not have a comprehensive and balanced approach toward equity. The above only presents a number of approaches currently implemented. Other strategies should be considered in order to enhance and entrench equity in health service delivery.

## Effectiveness and Efficiency

The health sector has been implementing wide-ranging policies and strategies aimed at enhancing effectiveness and efficiency. The health reforms of 1992 saw the separation of service provision and supervision functions between the Central Board of Health (CBOH) and MOH. Service provision became the mandate of boards under the CBOH while resource mobilization, policy guidance, regulation, and monitoring remained the mandate of MOH.

In 2004, however, a decision was made to dissolve the CBOH and integrate it into the MOH. This was followed with the repeal of the 2005 Health Service Act under which the CBOH had been established. This is yet to be replaced by a new policy, which is scheduled to be passed during the lifespan of the current NHSP.

In continuing efforts at restructuring the health sector, in 2012 all level one services from the district hospital up to the health post were moved to the Ministry of Community Development, Mother, and Child Health. This decision was reversed in 2015 with the department of Mother and Child Health moving back to MOH. Many officers have been newly recruited into positions at different levels of the systems, which means that a huge exercise is required to build management teams at all levels, and to disseminate the vision, purpose and strategic direction to officers in the health sector.

## Intelligence and Information

Information is gathered through the information systems, but also through the following processes:

- **Performance Assessments.** According to structured questionnaires, performance assessments are made in all health facilities twice a year. The assessments, which follow a Total Quality Management approach, are then followed up by support supervision visits at the sites to address the weaknesses found in the performance assessments. The programme has been operating for some time and is well established.
- **JAR.** The reviews aim at assessing the progress from the previous year in implementing the strategic plan through the operational plans. The JAR is an exercise limited to the national level with national level stakeholders. Although field visits are conducted to the national level, these visits are more to inform the national team than to involve local level stakeholders in the review process.
- **The midterm review and final evaluation of the implementation of the strategic and operational plans.** According to the MOU for the health SWAp, progress in implementing the national strategic plan is to be assessed through a midterm review and a final evaluation. The review and plan evaluation are intended to feed into both plan implementation and the design of the new plan. In practice, however, the sector has regularly done midterm reviews but no final evaluation has ever been done.

- **The annual planning process.** The annual planning process encompasses all levels and requires districts and institutions to develop a three-year rolling plan with a substantial situation analysis every year. The plans from the districts form the basis for the sector submission into the midterm economic framework. The planning framework is thus well established. However, the process could be simplified as the process is very time-consuming and the planning documents developed extremely bulky.

## Strategic Interventions

| **Goal: To develop an accountable, transparent, and equitable health sector that will respond to the needs of the Zambian people by the year 2021.** | |
|---|---|
| **Objective** | **Key Strategies** |
| To strengthen partner coordination in the health sector | Develop a formal agreement that binds partners to IHP+ principles |
| | Uphold and strengthen the SWAp structure mechanisms |
| | Enhance transparency and allocation of funding modalities |
| | Develop an engagement plan with private sector through their associations |
| | Develop a coordination plan for engagement with civil society |
| To implement an efficient and effective decentralized system by devolution of governance by 2021 in all districts | Build capacity of local authorities in planning and budgeting for PHC services and infrastructure |
| | Operationalize the devolution plan for all PHC services at district level to the local authorities |
| | Develop and implement decentralization communication strategy for local authorities |
| | Develop capacity in leadership and governance in the councils to implement PHC services |
| | Strengthen HMIS for decision-making at district level |
| To strengthen and implement transparent and accountable governance systems at all levels of health service delivery in the public health sector by 2021 | Review, update, and implement sector collaboration mechanisms, including governance community participatory structures in the health sector |
| | Review, update, and implement leadership, management, and governance structures |
| | Develop and implement community governance and accountability structures |
| | Strengthen transparency, accountability, and access to information at all levels, especially the community level |
| | Train non-financial managers at the provincial and district level in financial management |
| | Develop and implement harmonized guidelines for the use of locally generated funds from training schools and all health facilities, i.e., school fees and user fees respectively |
| | Roll out a computer-based, integrated financial management system (IFMIS) and automated accounting systems to the provinces, districts, hospitals, and health facilities |

| Goal: To develop an accountable, transparent, and equitable health sector that will respond to the needs of the Zambian people by the year 2021. | |
|---|---|
| **Objective** | **Key Strategies** |
| To strengthen the health legislative and regulatory framework to improve service delivery | Formulate and enact appropriate health-related bills into law, e.g., National Health Services Act, Social Protection Bill, Public Health Bill, Tobacco Bill, Food Safety Bill, Mental Health Bill |
| | Revise and update the overall legal and policy framework for health |
| | Ensure that statutory instruments are in place to implement the approved laws |
| To strengthen the enforcement of regulation in the provision of health service delivery at all levels of health care for both the public and the private sector | Develop and implement a communication strategy for regulation of health services |
| | Disseminate all policy documents and laws to all levels of health care system |
| | Review and update practicing licensing procedure (for practitioners) |
| | Alignment of health care services in the private sector to the NHSP |
| | Establish a patient charter on the rights and responsibilities of the patient and health providers |
| To promote private investments in the health sector | Update specific areas of private sector investment and possible partners |
| | Collaborate with other line ministries, e.g., commerce, foreign affairs, and tourism, to develop a prospectus for potential investors |

## 5.2 HRH

### Situation Analysis

HRH are an essential input into the delivery of health services. An appropriately trained, skilled, and well-motivated workforce is cardinal for the efficient delivery of health services. The MOH will, therefore, continue to prioritize HRH and ensure that there is an adequate number of well-trained workers equitably distributed in health facilities across the country.

A review of the human resource performance showed that significant achievements were made during the period 2011-2016, although human resource deficits remained high as indicated in Table 5.1. The GRZ has demonstrated strong commitment to addressing the country's HRH crisis through development and implementation of the 2013-2016 National Training Operational Plan (NTOP) and the National Human Resources for Health Strategic Plan 2011 – 2015.

In scaling-up the production of health workers, new training institutions (public and private) were opened. This subsequently contributed to the increase in the number of health workers, although the numbers are still too low to meet the required demand. In efforts to augment the number of health workers, new training programmes have been introduced for community health assistants, combined registered nurse midwifery, bachelor of dental surgery, direct entry midwifery, clinical instructor, HIV nurse practitioner, critical care, paediatrics, and master of medicine, bachelor of clinical sciences, and e-learning training of nurses.

The Government has expanded the staff establishment by approving new structures and providing for net recruitments on an annual basis. However, the net recruitment budget allocation is not adequate to absorb all health workers in a given fiscal year.

As a result of improved conditions of service, there has been a significant reduction in attrition among health workers. Information systems have provided the data for improved planning and management of human resources. The MOH has rolled out performance management systems to the provincial level on a 'training of trainers' basis, and the training of staff has been conducted in most facilities. Implementation of individual performance management plans needs to be strengthened for it to yield desired results.

Although there has been a substantial increase in numbers of staff deployed at health centres and hospitals over the past years, these are still inadequate for the effective delivery of the minimum health care package. This is further compounded by the unequal distribution and inappropriate skills-mix. Rural areas continue to face relatively more severe human resource shortages due to challenges in retention. The low population densities of Zambia pose a serious challenge to the optimal distribution and utilization of health workers for efficient delivery of health services.

**Table 5.1: Staffing Levels from 2011 and 2016**

| CATEGORY | 2011 | | | | 2016 | | | |
|---|---|---|---|---|---|---|---|---|
| | ESTABLISHMENT ANALYSIS | | | | ESTABLISHMENT ANALYSIS | | | |
| | Approved Sector Est | Actual Staff | Gap | % | Approved Sector Est | Actual Staff | Gap | % |
| ADMIN | 6,115 | 1,683 | 4,432 | 72.5 | 22,353 | 19,254 | 3,099 | 14 |
| CLINICAL OFFICER | 4,813 | 1,509 | 3,304 | 68.6 | 4,883 | 1,814 | 3,069 | 63 |
| DENTAL | 865 | 278 | 587 | 67.9 | 908 | 312 | 596 | 66 |
| DOCTOR | 2,939 | 1,076 | 1,863 | 63.4 | 3,119 | 1,514 | 1,605 | 51 |
| ENVIRON-MENTAL | 2,063 | 1,367 | 696 | 33.7 | 2,319 | 1,796 | 523 | 23 |
| LAB | 2,023 | 713 | 1,310 | 64.8 | 2,110 | 921 | 1,189 | 56 |
| MIDWIFE | 6,106 | 2,753 | 3,353 | 54.9 | 6,322 | 3,141 | 3,181 | 50 |
| NURSES | 17,497 | 7,996 | 9,501 | 54.3 | 18,484 | 11,666 | 6,818 | 37 |
| NUTRI-TION | 330 | 170 | 160 | 48.5 | 350 | 202 | 148 | 42 |
| PHAR-MACY | 1,108 | 777 | 331 | 29.9 | 1,219 | 1,159 | 60 | 5 |
| PHYSIO-THERAPY | 421 | 297 | 124 | 29.5 | 448 | 432 | 16 | 4 |
| RADIO-GRAPHY | 483 | 276 | 207 | 42.9 | 542 | 419 | 123 | 23 |
| TOTALS | 44,763 | 18,895 | 25,868 | 58 | 63,057 | 42,630 | 20,427 | 32 |

The current number of health workers in the health sector is estimated at 42,630 (against the required establishment of 63,057). The sector faces a deficit of about a third (20,427) of the establishment. As shown in Table 5.1 above, only 68% of the positions provided on the approved establishment are filled, resulting in a continued shortage of health staff. The shortage cuts across all cadres, especially the professional health cadres: clinicians, nurses, pharmacy technologists, laboratory technologists, radiographers, physiotherapists, and environmental health technologists.

A disaggregation of health workers shows that the distribution is skewed toward urban areas. Public facilities in rural and remote areas have the lowest number of health workers compared with urban areas. The situation is so severe that some facilities in the rural areas have insignificant numbers of staff and in the worst scenario are managed by unqualified staff.

## Retention of Health Workers

The Ministry was implementing a health workers retention scheme that was monetary-based in order to attract and retain staff in rural areas. However, the approach was unsustainable, arising from limited budgetary allocation. As a result, the Ministry abolished the scheme effective September 1, 2013.

In order to improve retention and geographical distribution of health personnel across the country, a non-monetary retention strategy and deployment policy should be developed. Incentive packages for health professionals should be scaled-up and adapted as needed, in particular to increase the number of medical doctors and midwives in remote areas.

## Training and Development

Despite improvements in the capacity of public training institutions and the involvement of the private sector in the training of health workers, there are still challenges in meeting human resource needs in the health sector. The establishments for the training institutions are not adequate to meet the demand. There is limited fiscal space in most training institutions to employ teaching and other support staff to allow for increased enrolments. Further, the infrastructure, equipment, and other training requisites need to continue to be expanded in order to improve the quality of training. There is also need to strengthen the monitoring of the training of health workers by the regulatory bodies in order to enhance the quality of training.

## Recruitment

The health sector has made strides in addressing the HRH deficits. Fiscal constraints impose restrictions on the extent of the number of health workers employed annually.

The planning and management capacity for human resources should be improved at all levels based on an effective and a comprehensive human resource information system (HRIS). Incentive structures for health workers will be implemented to improve performance and motivation of health workers. A performance-based management system, making use of 'pay for performance,' will enhance the retention of staff. This will entail effective collaboration with the Public Service Management Department, MOF, and the Ministry of General Education (MOGE).

## Strategic Interventions

| **Goal: To increase availability of trained and motivated staff that are equitably distributed to contribute to the effective delivery of the NHCP.** | |
|---|---|
| **Objectives** | **Strategies** |
| To improve the availability and distribution of qualified health workers in the country | Scale up recruitment of health workers to reach optimum levels in accordance with the approved staff establishment |
| | Introduction of relevant health cadres to support the implementation of PHC |
| | Increase numbers of specialist doctors and other health workers to |

| **Goal: To increase availability of trained and motivated staff that are equitably distributed to contribute to the effective delivery of the NHCP.** | |
|---|---|
| **Objectives** | **Strategies** |
| | provide specialized services in order to strengthen the referral system |
| | Develop and implement appropriate mechanisms for more equitable distribution of health workers, including improved targeting and regulation of staff posting |
| | Carry out a skills gap analysis and based on its findings develop a comprehensive human resources plan |
| | Review and strengthen a system for needs- and priority-based staff posting of health workers |
| | Review the existing establishment to respond to the required health needs |
| | Develop a mechanism to influence an increase in the allocation of net recruitment budget allocation (e.g., buy-in, concept notes, involvement, MOGE) |
| To strengthen human resource management in order to improve efficiency and effectiveness in utilization of existing staff | Enhance the implementation of performance management package and the performance appraisal system. |
| | Transform the HRIS into a reliable HR information system to enhance HR planning and sound decision-making (updated, web-based, HRIS) |
| | Strengthen multi-sectoral collaboration with Government line ministries, faith-based institutions, the private sector, and CPs |
| | Implement the HR reforms/decentralization and efficiently manage HR cases (enhance employee motivation by ensuring quick responses in HR cases/appointments and promotions committees) |
| To significantly increase the annual outputs of the health training institutions to mitigate the critical shortages of qualified health workers | Develop and implement an appropriate plan for production of health workers based on projected HRH needs (at all levels), both in numbers and skills-mix in line with the HRH Strategic Plan 2017-2021 |
| | Develop and implement an appropriate in-service training plan to improve skills levels for existing staff. |
| | Expand capacities at health training facilities and increase training outputs in line with the NTOP 2017-2021. |
| | Collaborate with the MOGE and other stakeholders toward increasing the intakes for health workers in public and private institutions |
| | Strengthen the management of internship programmes for health workers |
| | Scale up the recruitment and retention of teaching staff at health training institutions |
| | Develop a clear career pathway for CHAs and strengthen the curriculum to scale up health promotion interventions at community level |
| | Initiate the introduction of programmes for various cadres to respond to needs and emerging issues |
| | Introduction of new training programmes to support the implementation of primary health care |

| Goal: To increase availability of trained and motivated staff that are equitably distributed to contribute to the effective delivery of the NHCP. | |
|---|---|
| **Objectives** | **Strategies** |
| To promote quality in training and health service delivery. | Strengthen continued professional development for various cadres |
| | Mentorship and supportive supervision |
| | Review/ develop and enforcement of standard operations procedures (SOPs) |
| | Enhance provision of teaching aids/job aids, transport, equipment, and learning materials |
| | Promote operational research |
| | Strengthen the management of internship programmes for health workers |
| | Initiate the introduction of programmes for various cadres to respond to needs and emerging issues |
| | Develop and implement a national policy that addresses recruitment, placement, retention, and progression of specific cadres |

## 5.3 Health Care Financing

### Situation Analysis

Health financing is an important component of the health system as it impacts the production, delivery, and consumption of health services. Further it impacts the coverage of the poor against financial risks and the magnitude of impact on health outcomes and equity. Financing the NHCP for this strategic plan necessitates identification of financing mechanisms that are able to bring forth significant and sustainable amounts of funds in the medium to long term while upholding equity principles.

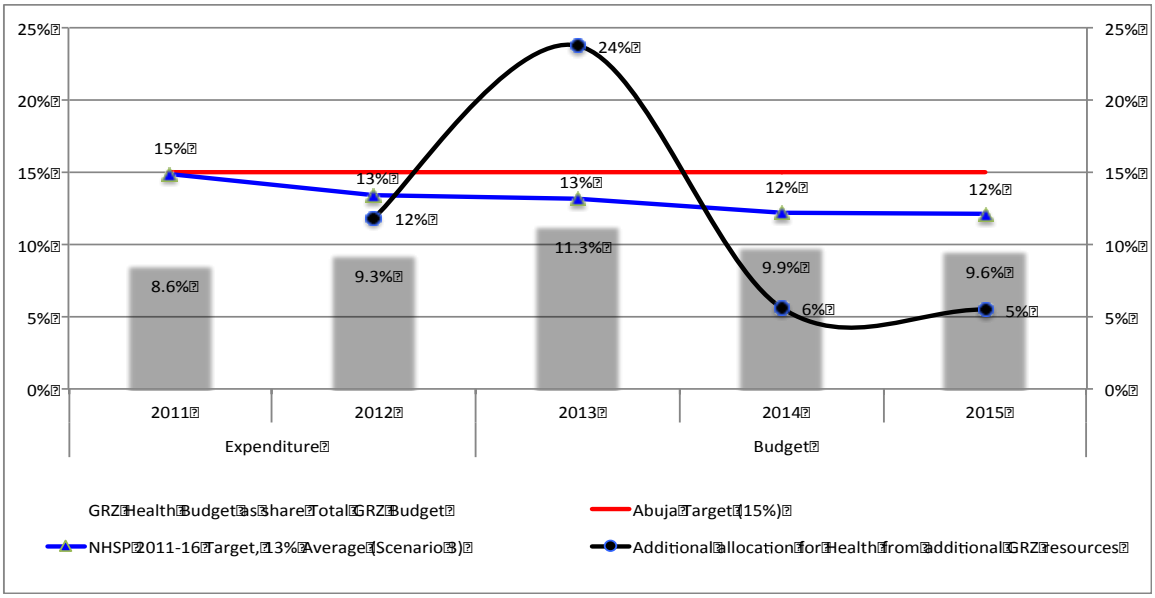
The GRZ has shown commitment to health as demonstrated through a growing health budget in absolute terms and in per capita terms. The Government allocation to the health sector in nominal terms has been increasing even though the share of the health sector budget to national budget has been decreasing over the past five years. The proportion of the MOH budget to the national budget was 9.9% in 2014, 9.6% in 2015 and 8.3% in 2016.

The results of the national health accounts show that total health expenditure (THE) per capita increased to US$73.6 in 2012 from US$51.8 in 2010. The THE per capita has been increasing since 2010. The government contribution within the THE reduced from 50.1% in 2010 to 39.9% in 2011 and 38.1% in 2012 while the donor contribution increased from 39.3% in 2010 to 46.6% in 2011 to 48.0 % in 2012. As a percentage of GDP, THE reduced from 4.2% in 2010 to 3.9% in 2011 and 4.0% in 2012. Government health expenditure (GHE) as a percentage of GDP reduced from 2.1% in 2010 to 1.5% in 2012. Both GHE and THE increased at lower rates than the GDP growth rate.

The increase in the financial resources to the health sector is largely due to additional donor support. A stable number of CPs are committing funds and technical assistance to the health sector. However most of the assistance is still used for vertical programmes (i.e., disease-specific programmes such as malaria and HIV/AIDS) instead of targeting the entire health system, which would in the long run produce a greater impact on mortality and morbidity reduction. In addition, significant amounts of funding provided by NGOs and some CPSs are often not accounted for in the budget. While donor support (estimated at 56% of THE in 2012) augments domestic resources, lower than expected nominal public expenditure levels create sustainability issues. It is

important to note that donor support has little flexibility, making it impossible to fund priorities defined in strategic plans.

**Figure 5.2: Government Budget for Health as a Share of Total Government Budget**




Although the health sector has made important strides in establishing a SWAp to enhance coordination and efficiency and reduce duplication, most of donor funding is still off budget. In 2013 all major CPs signed the MOU. Following the resolution of the fall-out from the 2009 Office of the Auditor General's Audit report, which resulted in some CPs reverting to the project mode, a number of CPs resumed government-to-government funding to support health systems strengthening and core health programmes, especially maternal and child health. Different CPs have adopted different provinces to support in strengthening the Reproductive Maternal Newborn and Child Health programme. An important innovation has been the adoption of results-based financing, which is being in piloted five of the 10 provinces with support from the World Bank.

Despite significant improvements in resource availability for health services, inadequate financing remains the primary constraint inhibiting the development of the health sector in Zambia. Funding a basic package of services in developing countries has been estimated at US$30–$40 per capita, excluding ARVs and the pentavalent vaccine.

Several notable achievements were reached during the NHSP 2011–2016 period. These achievements will enable greater progress to be made under the NHSP 2017–2021. Government with CPs have continued efforts to strengthen the SWAp governance and accountability mechanisms. Although the implementation of the SHI has been delayed, progress has been made, including development of the draft bill, which has since been submitted to Cabinet. In addition, the resource allocation formula for hospitals has been developed and the process to institutionalize the national health accounts is underway. In the area of financial management, achievements include implementation of IFMIS at MOH headquarters and some provinces, leading to a reduction in audit queries; and strengthened internal controls leading to a reduction in audit queries and strengthening the tracking system for Sector Advisory Group reports and simplification of the presentation format for easy understanding. While noting these achievements, we must acknowledge that some key challenges have persisted:

a. Low and erratic funding to the health sector in relation to allocations and needs, especially in the districts

b. Fragmented and earmarked donor funding to the health sector mainly through project mode funding and channelling of support through NGOs

c. Lack of a health care financing strategy
d. Low level of private participation in healthcare financing
e. Delayed implementation of the SHI scheme
f. Outdated resource allocation formulas for districts, training institutions, and statutory boards
g. Delay in institutionalization of the National Health Accounts (NHA)
h. Non-implementation of IFMIS in some provinces and districts
i. Weak linkage between health financing and performance

To achieve universal health coverage, Zambia is committed to improving the efficiency and effectiveness of health resources in the sector. The MOH will continue to strengthen resource mobilization, allocation, and tracking. Every effort will be made to increase the amount of non-earmarked financial resources available to the health sector by increasing the share of GRZ expenditures on health to 15% of the total national budget, by piloting an SHI programme, and by convincing more CPs to support the SWAp.

Caution will be exercised to ensure that donor project funding and global funding initiatives do not displace GRZ budget money for crucial services and do not suppress overarching objectives of the sector. The different health financing options for the sector and their potential to raise funds for health services will be elaborated on in a comprehensive Health Sector Financing Strategy to be developed by 2017 followed by concerted efforts to implement it.

Allocation of resources in the health sector shall continue to be guided by the principles of efficiency and equity. Currently, the grant to districts is determined by taking into consideration the size of the population, poverty levels, health status of the district, special health needs, and access to other funding sources. It will be important to maintain this needs-based approach. In improving allocative efficiency, it is clear that the sector needs to increase the consumption of services to reach more people and concentrate resources on cost effective activities that tackle the greatest burden of disease. This translates into increasing the proportion of resources allocated to the district health services where the majority of the population lives.

The health sector has decentralized decision-making in respect to budget allocation, with the district political and technical leadership taking more responsibility for apportioning centrally allocated funds. The increased autonomy of districts resulting from this policy change demands stronger and more proactive buy-in by the district authorities to the nationally defined health sector priorities. Money should follow priorities and evidence and therefore the health sector budget will allocate more resources to PHC (including healthy lifestyles and prevention of disease); FP; MNCH; reproductive health (RH); nutrition; and community health. These very cost-effective interventions will have the highest impact on key health indicators. The Ministry will take all necessary steps to sensitize local governments and the district health teams in particular on the process of implementation to ensure that district plans are fully consistent with national priorities for the sector and in line with the principles of the national development plan. Central support for strengthening the capacity of district health management teams to prioritize and negotiate for resources based on sound evidence will receive greater attention during the life of this plan.

Efforts will be expended to ensure that the gap between approved estimates and actual expenditures is minimized and that there is timely flow of funds, which is essential in the continuity of delivery of health services leading to better budget performance. Financial management and accounting at the provincial and district levels will need further strengthening during this plan by implementation of accounting packages such as Navision and IFMIS.

## Strategic Interventions

| **Goal: To raise sufficient financial resources to fund the plan while ensuring equity and efficiency in resource mobilization, allocation, and utilization during the plan period.** | |
|---|---|
| **Objectives** | **Strategies** |
| To reduce the budget gap in the health sector by mobilizing adequate and sustainable financial resources | Finalize and implement the Health Sector Financing Strategy for the health sector |
| | Establishment of the SHI scheme |
| | Promotion of private sector participation, public-private partnerships (PPPs) |
| | And introduction of other innovative financing mechanisms, i.e., fuel subsidies |
| | Increase external funding through direct sector budget support and strengthen partnerships with CPs and civil society |
| | Develop and implement a new MOU with CPs and CSOs. |
| | Implementation of the IHP+ principles in the MOU as the basis for mutual accountability and predictability of financing to the Government rather than other channels |
| | Oversight over decentralization of PHC funding modalities |
| | Comprehensive revision and costing of the NHCP with clear priority-setting criteria properly documented |
| | Develop financial projection of human resource costs with different scenarios to guide resource allocation |
| To ensure effectiveness, efficiency, and equity in resource allocation and utilization | Update and refine evidence-based resource allocation formula (RAF) at district level to take into account epidemiological, geographic, demographic, socioeconomic, and intra-district factors |
| | Update and implement evidence-based RAFs for second- and third-level facilities and training institution. |
| | Develop and implement evidence-based RAF for statutory boards |
| | Evaluate and explore the results-based financing initiatives, including assessing financial sustainability |
| | Strengthen systems and processes for evidence-based planning and budget execution, including profiling |
| | Strengthen the system that incorporates CP budgets into the overall sector budget at various levels |
| To ensure transparency and accountability in resource utilization | Institutionalize the system for NHAs at all levels |
| | Strengthen the system that links budget, disbursement, and expenditure to performance in order to inform planning |
| | Strengthen the system that incorporates CP budgets into the overall sector budget at various levels |
| | Strengthen fiduciary responsibility and ensure timely financial reporting and audits |

## 5.4 Health Information Technology and Research

### Situation Analysis

The health delivery process is hinged on health information, technology, and research, which support evidence-based decision-making. A well-defined health delivery process ensures availability of accurate, timely, and accessible health data according to SOPs. In an age of big data (intelligent data for decision-making), which is the new gold, and informatics, health information around cost per unit of conducting service delivery impacts research and can strengthen linkages of integrated and interoperable health systems to support planning in the whole sector.

The currently available systems collecting data may not yet meet the demand for consolidated decision-making. This has affected the health sector. One example is the many systems in logistics and commodity management, which in 2016 had multiple disjointed electronic systems. This produced information silos and hampered health workers' ability to collect and analyse accurate data for decision-making.

A feedback mechanism from health research conducted in the sector is required at all levels to help improve service delivery. The mechanism should be in a national repository, overseen by Government, stakeholders, donors, CPs, or the private sector. This will ensure no publication of data or information that is not cleared by the Ministry.

During the period under review, significant achievements were made. The community module for Smart Care was developed, and registration of births and deaths using Smart Care was piloted in Livingstone. Ten provincial cancer registries were established as well a population-based cancer registry for Lusaka district with more than 75% coverage. A web-based HRIS for the HPCZ and GNC was developed, and integration into the national human resource system is in progress. The eHealth strategy was developed and disseminated, and the DHIS2 was upgraded to a web-based platform. Hospital HMIS was developed and rolled out, and Smart Care electronic health records were deployed to six hospital outpatient and inpatient departments. In health research, a health research registry was developed and updated, and research ethics guidelines were developed and disseminated. Lastly, a health research priority-setting framework was developed.

There has been limited coverage and under-utilisation of the HMIS in respect to timeliness, completeness of reports, data usage, and accessibility. The scope of the HMIS therefore has to be broadened to facilitate better data visualization to improve decision-making. There is need for only one incorporated and standardized M&E framework across all levels of the health care delivery system and a further need for use of data at all levels of decision-making to facilitate research. There has been a perception of poor data quality from HMIS due to inconsistent primary sources of data.

The inadequately documented health delivery processes and SOPs to meet technological requirements have greatly impacted the implementation of change management in service areas. The inadequate document produces undefined business processes, resulting in a single worker with multiple systems in the same service area and causing a gap in quality data collection.

Furthermore, it has been noted that uncoordinated financing of e-health systems by CPs and various stakeholders has contributed to the mushrooming of parallel and duplicative systems, causing information silos and thus weakening governance and accurate decision-making.

In addition, it has been noted that there are low levels of computer literacy at facility level as there is inadequate incorporation of basic computer skills in the training curricula. The key planning issues are:

- Lack of research positions in the MOH establishment at all levels
- Lack of an electronic health information exchange platform (interoperability layer)
- Inadequate local area networks infrastructure and connectivity

- Limited number of private health facilities reporting into the HMIS
- Health information systems in use that do not conform to MOH health delivery processes
- Limited funding for health research priority areas
- Low compliance with health research ethics and standards by stakeholders
- Inadequate health research infrastructure
- Limited health research capacity in the health sector
- Weak coordination of health research activities

### Strategic Interventions

## 5.5 Infrastructure, Equipment and Transport

### Situation Analysis

Most of the public hospitals are in a state of disrepair owing to long periods of underinvestment. In order to improve the situation, a hospital upgrading programme had been embarked upon. The upgrading programme is expected to improve the delivery of specialist tertiary care. By enhancing the functional capacities of hospitals, it is expected that the referral systems will be improved. Hospitals are important as they provide practising bases for medical training institutions. It is further envisaged that upgrading of hospitals will lead to a reduction in the number of patients referred for specialised care abroad. Specific interventions include the division of the UTH into five hospitals and modernization of second- and third-level hospitals through improvement of emergency and specialized units, renal, cardiac, catheterization lab, ICU, and radiotherapy.

The MOH has embarked on health infrastructure development; 35 district hospitals have been built and will require medical equipment. The Government is also upgrading health facilities from one level to another, which requires appropriate equipment. Owing to obsolete equipment in the most of the health facilities, the MOH was one of the beneficiaries of 2016 Euro bond, which was used to procure medical equipment for central hospitals.

Maintaining an effective transport system is essential for ensuring a functioning and integrated health delivery system. The Ministry continues experiencing transport constraints, which adversely impact operations. For instance, only half of the 105 districts have road-worthy utility vehicles. Basic life support ambulances are unevenly distributed across the provinces. Transport constraints are especially severe for rural-based health facilities; 30% of the health centres use motor bikes for service delivery; and some remote health centres use bicycles.

### Strategic Interventions for Health Infrastructure

| **Goal: To increase access to health services through construction and rehabilitation of health facilities in order to facilitate equity of access to quality health services.** | |
|---|---|
| **Objectives** | **Strategies** |
| To increase access to health services through construction/ rehabilitation of health facilities in order to facilitate equity of access to quality health services | Modernisation of tertiary hospitals (second and third-level, and specialist hospitals) |
| | Creation of new facilities in all districts |
| | Upgrading some of the facilities to higher levels (zonal health centres and district hospitals) |
| | Review, update the Capital Investment Plan |

| Goal: To increase access to health services through construction and rehabilitation of health facilities in order to facilitate equity of access to quality health services. | |
|---|---|
| **Objectives** | **Strategies** |
| To establish management systems for infrastructure and medical equipment at all levels | Strengthen management and maintenance of medical equipment |
| | Create an electronic medical equipment database |
| | Integration of human resource, equipment, and infrastructure planning |
| To provide optimal availability, appropriateness, and distribution of essential medical and non-medical equipment in order to facilitate equity of access to quality health services | Review, update, and implement the equipment investment plan integrating health facilities and training schools to ensure access to appropriate technology |
| | Study and revise the designs of health facilities, at different levels, to address current concerns, e.g. appropriateness of basic services at each level of care. |
| | Promote private sector participation and PPPs. |
| | Maintain an updated database for infrastructure equipment and transport |
| | Strengthen maintenance and rehabilitation of infrastructure, equipment, and transport at all levels |

## Strategic Interventions for Medical Equipment

| Goal: To manage and implement the acquisition, usage, maintenance, and management of medical health care technology in health institutions for the provision of quality health care | |
|---|---|
| **Objectives** | **Strategies** |
| To provide 85% of health facilities in Zambia with medical equipment for treatment and diagnosis by 2021 | Procurement of medical equipment using the GRZ funds |
| | Provisional of medical equipment to facilities by getting donated medical equipment from CPs |
| To have 90% of medical equipment well maintained and managed by 2021 | Procurement of service contract for the high-end equipment |
| | Implement an effective planned preventive maintenance plan for equipment at all levels |
| | Implementation of equipment replacement plan for high end hi-tech equipment |
| | Provisional of technical training for maintenance engineers and technologists to have well-trained in-house personnel<br>Provide user with proper use and care of the equipment for continuity in health care service delivery. |
| | Procurement and provision of test equipment for medical equipment |

| Goal: To manage and implement the acquisition, usage, maintenance, and management of medical health care technology in health institutions for the provision of quality health care | |
|---|---|
| **Objectives** | **Strategies** |
| To provide 95% of hospitals with linen to all facilities | Procurement of hospital linen for all levels of care. |

### Strategic Interventions for Transport

| Goal: To have a well-maintained fleet to ensure mobility for service delivery. | |
|---|---|
| **Objectives** | **Strategies** |
| To facilitate provision of transport in the sector for ease of mobility | Divide zoning districts into four sections for easier use of the available ambulances and utility vehicles |
| | Increase the grants to vehicle service centres for procurement of spares |
| | Train riders of both motorcycles and bicycle ambulances in basic maintenance so that the service can be done at Health centre level |
| | Procure more ambulances and utility vehicles for districts |
| | Procure more motorcycles and bicycle ambulances for the rural health centres (RHCs) for expecting mothers. |
| | Procure boats with smaller engines to ease the problem of higher consumption of fuel as the is the case with the current boats |
| | Procure spare parts for the mini-ambulances to enhance mobility of patients within vast hospitals |

## 5.6 Implementation, Monitoring and Evaluation

### 5.6.1 Legal, Policy and Regulatory Framework

This NHSP is anchored in the Vision 2030, National Health Policy (NHP 2012), and the SDGs. It is also reflected in the 7NDP. Vision 2030 is Zambia's first-ever written long-term plan. It expresses Zambia's aspirations to become a prosperous middle-income nation by 2030. The Vision articulates possible long-term alternative development policy scenarios, which would contribute to the attainment of the desirable socio-economic targets by the year 2030.

Within the sector, the broader vision is to 'ensure equitable access to quality health care by all by 2030'. Zambia envisions a healthy and productive citizenry that can contribute positively to 'a prosperous middle-income nation by 2030'. The Vision 2030 identifies health as one of the priority sectors which is expected to contribute to a healthy and productive citizenry. This is expected to be attained through strategies to ensure realization of the following health service targets:

1. Reduce the under-five mortality rate from the current 168 to 50 per 1,000 live births by 2030
2. Reduce the MMR from the current 398 to 100 per 100,000 live births by 2030

3. Increase the proportion of rural households living within 5km of the nearest health facility from the current 50% to 80% by 2030
4. Reduce the population/doctor ratio from the current 17,589 to 5,000 by 2030
5. Reduce the population/nurse ratio from the current 1,864 to 700 by 2030

This strategic plan is closely linked to the Zambian Constitution, which is the supreme law of the land. The Constitution guarantees the right to life and right to health. It also guarantees other fundamental human, social, and economic rights to the population, which have direct and/or indirect impacts on health. The strategic plan will be backed by the new National Health Services Act to be enacted by Parliament; the new act will replace the National Health Services Act of 2005. In addition, there are various health-related pieces of legislation for addressing specific aspects of health which are expected to be enacted by Parliament. These include: mental health; public health; tropical diseases research; Flying Doctor Services; food safety and quality; human tissue; traditional health practitioners; Zambia Medical Association; tobacco control; and the SHI Act/Bill. The Government will continuously review the needs and gaps for specific health-related legislation and develop appropriate legislation necessary for the enforcement of particular aspects of health.

This NHSP is consistent with the Country's National Planning and Budgeting Policy of 2014. The policy seeks to promote coordination of national planning and budgeting functions and outlines processes and procedures for development planning. It also provides an effective institutional arrangement for the development, implementation, and M&E of development plans and budgets.

This NHSP has taken into account the National Decentralization Policy of 2014, which provides for the strengthening of local government to facilitate more effective citizen participation in the delivery of public services. Under the National Decentralization Policy of 2013, the MOH will devolve responsibility for PHC functions, from the District Medical Office and Health Centre to the lowest level of health service delivery, to the Councils.

The MOH has delegated regulatory functions to public statutory bodies, such as the HPCZ, GNC, National Radiation Protection Authority, and NFNC. Other statutory bodies include: ZNBT, ZFDS, NAC, MSL, and the TDRC.

The HPCZ is a statutory regulatory body established under the Health Professions Act No. 24 of 2009 of the Laws of Zambia. The Council is mandated to register and regulate all private and public health facilities and health training institutions in the country. The GNC is a statutory body established in 1970 under the Nurses and Midwives Act No.55 of 1970. The Act was repealed and replaced by the Nurses and Midwives Act No. 31 of 1997. The GNC is responsible for ensuring that members of the public receive the best possible care. The GNC sets, monitors, and evaluates performance standards for nursing and midwifery education, clinical practice, management, and research. The NFNC is a statutory body that was established in 1967 by an Act of Parliament. It serves as an advisory body to the Government on matters to do with food and nutrition. It is mandated to promote and oversee nutrition activities, primarily focusing on vulnerable groups such as children and women. The Zambia Medicines Regulatory Authority was established under the Medicines and Allied Substances Act No. 3 of 2013 to regulate and control the manufacture, importation, storage distribution, supply, sale, and use of medicines and allied substances.

The service delivery statutory boards responsible for providing specialised support services to core health service delivery facilities include the ZNBTS, ZFDS, NAC, MSL, and TDRC.

### 5.6.2 Institutional Framework

The implementation of the health sector strategic plan is complex and includes several public and private institutions, CPs, and NGOs that operate at central, provincial, and district levels. The MOH has a role to make sure that there is a coordinated governance system. This requires sharing of information at various levels for evidence-based management decisions. The strategic

plan is implemented and coordinated through the existing health sector organisational and management structures, which are explained below.

- **MOH head office and sector coordination:** The MOH headquarters is responsible for the overall leadership of the health sector. The Ministry is responsible for policy development, strategic planning, resource mobilization, and M&E. The Ministry further provides technical guidance to service providers and monitors the quality of health services. Technical guidance is provided by the various directorates, which are based at headquarters.

  The SWAp provides a framework of collaboration among the stakeholders, Government ministries, civil society, the private sector, and CPs. It coordinates financing, planning, and monitoring mechanisms. The aim is to achieve maximum results and in the process reduce transaction costs. The participants under SWAp are bound by a Code of Conduct, which is aimed at increasing transparency and improving predictability for allocation of resources. The SWAp is administered through TWGs, policy meetings, sector advisory group meetings, and the annual consultative meetings. There is also one annual planning meeting and one JAR. Half way in the implementation of the Strategic Plan, a midterm review is conducted in which all stakeholders are involved.

- **PHOs** serve as intermediaries for the implementation of health plans within their provinces. They represent the ministry's functional link to the lower level structures, training institutions, and civil society. PHOs will continue to be responsible for coordinating and supervising the implementation of the NHSP and providing technical support to all health service institutions within their provinces.

- **DHOs and hospitals** will be responsible for implementing the district and hospital plans. Harmonization of district and hospital plans to match the aspirations of the NHSP 2017-2021 will, therefore, be crucial for successful implementation of the NHSP. In the light of the decentralisation policy, all the PHC functions will be devolved to the local authorities except for first-level hospital services, which will remain with the MOH.

- **Health service delivery facilities:** Health posts, health centres and hospitals. Health centres and health posts are the points of service delivery. In the devolved system, all the facilities below the first-level of care will be under the councils.

- **Statutory boards:** There are two types of statutory boards under the MOH structures: regulatory and service statutory boards. The role of the regulatory statutory boards will be to ensure that the relevant laws and regulations are developed and enforced in order to ensure high standards of safety, ethics, and professionalism in the health sector. On the other hand, the role of the service statutory boards will be to provide services to support the core health services.

- Health training institutions will be responsible for the production of appropriately qualified health workers for implementation of the plan.

### 5.6.3 Key Sector Partners

All the key sector partners will play their respective roles in the implementation of this plan. In order to ensure efficient and effective coordination of the partnerships, the MOH will strengthen inter-sector collaboration and coordination mechanisms at all levels. The following are the key partners:

- **Government line ministries and departments:** Several government ministries and departments impact the performance of the health sector. Some actively participate in health service delivery. Others impact the determinants of health. Still others provide support to the health sector. Strong inter-sector coordination mechanisms will be

maintained. The newly introduced cluster approach in the 7NDP will guide the Ministry's coordination work under the human development pillar.

- **The faith-based health sector/CHAZ:** CHAZ represents a large number of faith-based organisations and is the largest partner to the Government in the health sector. CHAZ is also currently the second largest provider of health services to the general public. CHAZ health facilities are fully funded by the Government. CHAZ plays an important role in the implementation of the plan through their network of health facilities, which include hospitals, health centres, and health posts distributed throughout the country. An important aspect to note is the fact that CHAZ has good coverage of rural areas. The MOU with CHAZ will be reviewed, updated, and implemented.
- **Private sector:** In Zambia, private health facilities include for-and not-for- profit facilities owned by private business entities and civil society organisations. Deliberate efforts shall be directed at promoting private sector participation, including PPPs, collaboration in research and development, and strengthening of coordination, harmonisation, and referrals.
- **Civil society:** The civil society, both local and international, will play an important role in the implementation of the plan. Some civil society organisations are involved in health promotion, provision of health services, and training and capacity building, while others are involved in advocacy for health. The MOH will work toward promoting stronger coordination and participation of the civil society in the health sector through the SWAp.
- **Communities:** Much of the progress made in improving the health status of individuals depends on the existence of healthy environments and lifestyles. The government will work toward strengthening health promotion among communities and strengthening community involvement and participation in the planning, management, implementation, and M&E of health services to achieve greater impact. This will be achieved by strengthening the community participation structures and transparency and accountability in the management of health services at community level.
- **CPs:** The CPs are expected to play an important role in the implementation of the plan through provision of financial and technical support to the sector and specific programmes. The Government will work toward strengthening partnerships with the CPs and harmonisation of their support efforts for high impact. This will be structured and agreed upon in the MOU that will be signed between the MOH, CPs, and civil society groups.
- **Traditional and alternative health services:** Traditional health practitioners are organized under the Traditional Health Practitioners of Zambia (THOPAZ). Traditional health practitioners provide herbal and spiritual healing services within the communities. Through implementation of this NHSP 2017-2021, the MOH will strengthen regulation, supervision, research, and coordination of this sector to ensure that they provide safe and evidence-based health services to the communities.

### 5.6.4 Planning, budgeting, and capacity building

The NHSP 2017-2021 will be implemented through the development and implementation of appropriate plans at sector and sub-sector levels. Currently, the planning framework depends on a bottom-up planning process. MOH will work towards advocating for increased funding to the health sector in line with the Abuja declaration target of 15% of the national budget. Further, GRZ/MOH will ensure that all plans, budgets, and expenditures are in line with national policy and the requirements of the National Development Plan, NHSP, and MTEF.

The CPs will be requested to support the health sector by aligning and – to the extent possible – synchronising their interventions with the MOH priorities and timelines as specified in the NHSP.

To support this process, MOH will work toward agreeing with the CPs to implement the IHP+ in Zambia.

For successful programme implementation, MOH in consultation with the sector partners will be developing annual capacity building plans aimed at ensuring adequate capacity building linked to performance. Programmes supported by CPs will work through the structures designated by the MOH in order to build capacity, improve sustainability, and ensure maximum integration with MOH policies and programmes.

# 6. Costing of the NHSP

## 6.1 Overview

The NHSP costing aims to support strategic planning and evidence-based decision-making by estimating the cost of scaling up priority areas/programmes in the health sector. In addition, estimating total resource needs of the NHSP supports domestic and donor resource mobilization and transparent and accountable operationalization of the plan.

While many costing tools for costing strategic plans exist, the bottom line or what is behind any models is the identification of activities (unbundling of strategies or interventions) and finding unit cost (prices) of inputs required to carry them out. In other words, cost is simply summing up the product of quantity and price of each input used in undertaking the activity.

The costing exercise involved estimating the resource requirements for all 33 priority areas, which included: 1) drugs, medical supplies, and commodities, 2) programmatic support activities, e.g., in-service training sessions/workshops, supervision visits, mentoring, coordination meetings, transport, consultancies, supervision, and 3) systems costs, e.g., human resources for health, health financing, infrastructure, and equipment needed to achieve the goals and strategic objectives using the activity-based costing approach. The ingredient approach was used to identify the specific inputs needed to carry out each intervention and the targets sets in consultation with the programme focal point persons.

Costs for drugs, medical supplies, and commodities (including essential drugs and medical supplies, ARV therapy, malaria commodities, RH commodities, and vaccines) were based on MOH pharmaceutical- and supply chain management unit-led quantification exercises, which utilized the ingredient approach and the latest consumption, epidemiological, and pricing data available.

The total cost of the NHSP for all five years is estimated at US$14.3 billion (ZMK 139.8 billion). The priority areas that are major cost drivers are HRH US$3.2 billion (22.6% of the estimated total); infrastructure US$2.4 billion (17.1% of the estimated total); pharmaceuticals and supply chain management (essential drugs, commodities, and supplies) US$2.2 (15.8% of the estimated total); HIV/AIDS US$ 1.0 billion (7% of the estimated total); and malaria US$0.9 billion (6.5% of the estimated total). Table 6.1 below shows the distribution of the estimated costs by Priority Area of the NHSP 2017-2021.

**Table 6.1: Total NHSP Costs by Priority Area per Year**

| | 2017 | 2018 | 2019 | 2020 | 2021 | Total USD | % |
|---|---|---|---|---|---|---|---|
| TOTAL | 2,545,396,089 | 2,727,022,224 | 3,011,244,374 | 3,010,253,352 | 2,972,743,913 | 14,266,358,741 | |
| PRIORITY 1: PHC and community health | 1,065,567 | 1,463,144 | 1,808,396 | 1,708,130 | 708,394 | 6,753,633 | 0.0% |
| PRIORITY 2: Health Promotion | 1,906,339 | 6,772,260 | 9,191,691 | 3,213,831 | 1,397,895 | 22,482,016 | 0.2% |
| PRIORITY 3: Reproductive and Maternal Health | 51,250,600 | 78,655,736 | 79,712,546 | 78,323,996 | 78,238,918 | 366,181,796 | 2.6% |

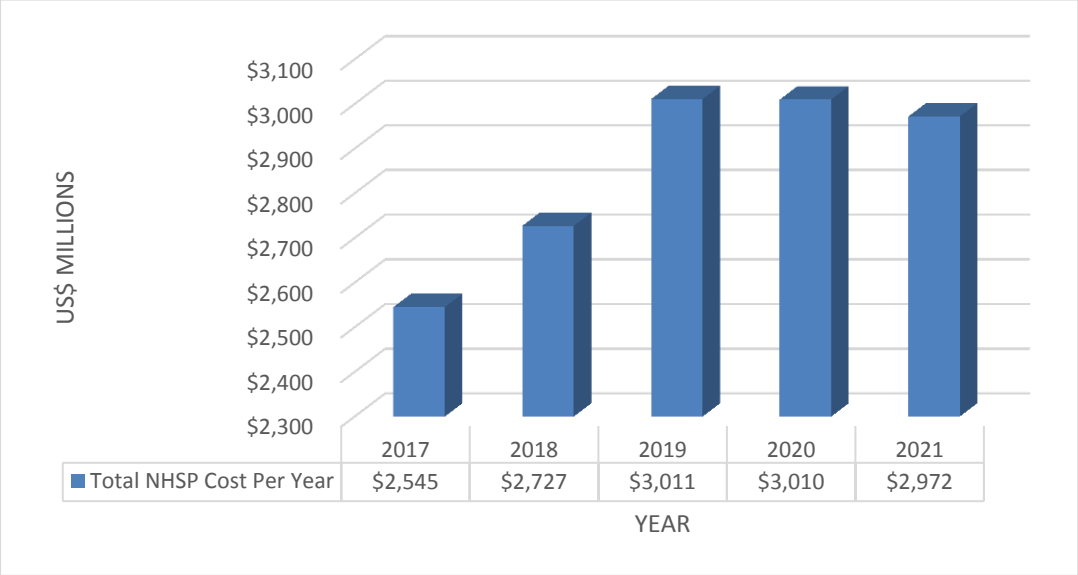
| | 2017 | 2018 | 2019 | 2020 | 2021 | Total USD | % |
|---|---|---|---|---|---|---|---|
| PRIORITY 4: Child Health | 23,363,366 | 19,361,907 | 56,464,747 | 8,437,909 | 10,449,286 | 118,077,215 | 0.8% |
| PRIORITY 5: Nutrition | 49,249,228 | 52,191,352 | 52,225,329 | 51,963,725 | 51,689,255 | 257,318,889 | 1.8% |
| PRIORITY 6: Malaria | 178,793,023 | 127,393,139 | 338,733,586 | 158,005,991 | 127,373,586 | 930,299,326 | 6.5% |
| PRIORITY 7: HIV/AIDS | 169,367,800 | 186,245,400 | 200,998,600 | 215,412,300 | 229,815,200 | 1,001,839,300 | 7.0% |
| PRIORITY 8: TB | 86,123,085 | 58,919,541 | 49,402,319 | 50,290,517 | 57,800,424 | 302,535,886 | 2.1% |
| PRIORITY 9: Viral Hepatitis | 456,003 | 123,677 | 124,327 | 123,677 | 124,327 | 953,522 | 0.0% |
| PRIORITY 10: NTDs | 20,060,713 | 36,106,081 | 18,791,755 | 26,681,586 | 18,123,158 | 119,479,069 | 0.8% |
| PRIRIORITY 11: Public Health Surveillance | 291,486 | 223,600 | 1,507,798 | 156,792 | 156,792 | 2,336,468 | 0.0% |
| PRIORITY 12: Epidemic Preparedness and Response, and Emerging Issues | 941,878 | 5,644,699 | 6,361,490 | 5,361,490 | 5,361,490 | 23,671,048 | 0.2% |
| PRIORITY 13: NCDs | 145,071 | 77,278 | 77,278 | 77,278 | 77,278 | 454,184 | 0.0% |
| PRIORITY 14: Cancer | 1,157,609 | 16,740,937 | 1,213,684 | 1,299,986 | 1,009,111 | 21,421,326 | 0.2% |
| PRIORITY 15: Palliative Care | 86,757 | 105,003 | 86,757 | 105,003 | 86,757 | 470,276 | 0.0% |
| PRIORITY 16: Hospital Services | 42,926 | 12,813 | 12,813 | 12,813 | 12,813 | 94,176 | 0.0% |
| PRIORITY: Padaetrics | 520,882 | 294,815 | 273,115 | 273,115 | 273,115 | 1,635,043 | 0.0% |
| PRIORITY: Eye Health Services | 601,250 | 536,337 | 508,980 | 508,980 | 508,980 | 2,664,526 | 0.0% |
| PRIORITY 17: Surgical, Obstetric and Anaesthesia Services | 1,617,321 | 434,629 | 434,629 | 378,789 | 179,701 | 3,045,069 | 0.0% |
| PRIORITY 18: Rehabilitative Services | 790,976 | 677,068 | 645,854 | 614,640 | 614,640 | 3,343,178 | 0.0% |
| PRIORITY 19: ENT | 6,939,372 | 6,900,127 | 6,923,738 | 6,855,727 | 6,855,727 | 34,474,692 | 0.2% |

| | 2017 | 2018 | 2019 | 2020 | 2021 | Total USD | % |
|---|---|---|---|---|---|---|---|
| PRIORITY 20: Nursing and Midwifery Services | 92,125,765 | 80,655,487 | 19,868,278 | 19,801,041 | 19,764,244 | 232,214,815 | 1.6% |
| PRIORITY 22: Imaging Services | 135,509 | 1,481,219 | 1,971,759 | 916,219 | 841,759 | 5,346,465 | 0.0% |
| PRIORITY 23. Blood Transfusion Services | 2,735,452 | 4,663,037 | 4,333,882 | 4,454,599 | 4,333,882 | 20,520,851 | 0.1% |
| PRIORITY 24: Medical & Non-Medical Equipment | 74,655,359 | 81,952,859 | 89,980,109 | 98,810,084 | 108,523,056 | 453,921,467 | 3.2% |
| PRIORITY 25: Laboratory | 9,183,400 | 9,309,296 | 9,315,826 | 9,275,277 | 9,315,826 | 46,399,624 | 0.3% |
| PRIORITY 26: QA/QI | 4,425,357 | 4,375,624 | 4,344,927 | 4,344,927 | 4,344,927 | 21,835,761 | 0.2% |
| PRIORITY 27: Environmental Health, Food Safety and Occupational Health | 1,304,910 | 1,633,984 | 1,190,101 | 1,473,973 | 947,258 | 6,550,227 | 0.0% |
| PRIORITY 28: Integrated Health Support Systems | 2,310,142 | 3,221,474 | 546,258 | 496,863 | 496,863 | 7,071,598 | 0.0% |
| PRIORITY 29: HRH | 485,442,286 | 549,988,894 | 628,166,931 | 722,194,066 | 834,894,170 | 3,220,667,847 | 22.6% |
| PRIORITY 30: Health Care Financing | 847,131 | 3,736,172 | 1,234,137 | 1,352,374 | 1,123,476 | 8,293,289 | 0.1% |
| PRIORITY 31: Health Information Technology and Research | 13,784,242 | 12,104,218 | 13,424,216 | 8,199,208 | 5,563,016 | 53,074,899 | 0.4% |
| PRIORITY 32: Infrastructure | 475,716,802 | 475,680,272 | 475,680,272 | 538,605,442 | 475,680,272 | 2,441,363,060 | 17.1% |
| PRIORITY 33: Transport | 5,243,711.55 | 10,372,361.55 | 5,973,711.55 | 10,372,361.55 | 5,973,711.55 | 37,935,857.76 | 0.3% |
| PRIORITY 34: Pharmaceuticals and Supply Chain Management | 391,181,800 | 446,505,853 | 465,072,521 | 490,274,865 | 455,258,918 | 2,248,293,957 | 15.8% |

| | 2017 | 2018 | 2019 | 2020 | 2021 | Total USD | % |
|---|---|---|---|---|---|---|---|
| of Drugs and Medical Supplies, ARV Therapy, TB Drugs, Vaccines, RH commodities, Malaria Com-modities, NTDs MDAs, Viral Hepatitis vaccines, and Cancer supplies and Drugs | 390,885,998 | 441,682,938 | 464,017,836 | 489,286,595 | 454,270,648 | 2,240,144,016 | 15.7% |

When the total costs are presented by three major health systems input categories, health systems costs (comprising HRH, health financing, equipment, laboratory, M&E, information communication technology (ICT), research, and governance) are the major cost drivers at an estimated US$6.2 billion (43.7% of the total costs). Programme management costs (which consist of in-service training sessions/workshops, supervision visits, mentoring, coordination meetings, transport, and consultancies, etc.) come in second at an estimated US$5.8 billion (40.6% of the total costs) in five years. Drugs, commodities, and medical supplies come in third at an estimated US$2.2 billion (22.6% of the total costs) in five years.

**Figure 6.1: Total NHSP Costs Per Year (US$ Millions)**




## 6.2 Total NHPS Costs by Major Health Systems Input Components

The distribution of costs can be viewed through three major system input components: 1) drugs, commodities, and medical supplies; 2) programme management costs comprising in-service/workshops, supervision/mentoring etc.; and 3) systems costs composed of HRH, health

financing, infrastructure, equipment, M&E, and governance. Systems costs are the major cost drivers at an estimated US$6.2 billion representing 43.7% of the total costs of the NHSP implementation period (See Table 6.2 below). Programme management costs are estimated at US$5.8 billion or 40.6% of the total costs. Drugs, commodities, and medical supplies come in third at an estimated US$2.2 billion representing 15.7% of the total costs. (See Table 6.2 below).

**Table 6.2: Total NHSP Cost per Year by Major System Input Components**

| Component | 2017 | 2018 | 2019 | 2020 | 2021 | Total | % |
|---|---|---|---|---|---|---|---|
| | 2,545,396,089 | 2,727,022,224 | 3,011,244,374 | 3,010,253,352 | 2,972,743,913 | 14,266,659,953 | 100.0% |
| Drugs and Medical supplies costs | 390,885,998 | 441,682,938 | 464,017,836 | 489,286,595 | 454,270,648 | 2,240,144,016 | 15.7% |
| Programme Management Costs | 1,092,570,731 | 1,149,346,102 | 1,328,878,789 | 1,142,033,444 | 1,082,876,586 | 5,795,705,652 | 40.6% |
| Systems costs composed of: | 1,061,939,360 | 1,135,993,184 | 1,218,347,749 | 1,378,933,313 | 1,435,596,678 | 6,230,810,285 | 43.7% |
| HRH | 485,442,286 | 549,988,894 | 628,166,931 | 722,194,066 | 834,894,170 | 3,220,686,347 | 22.6% |
| Health Financing | 847,131 | 3,736,172 | 1,234,137 | 1,352,374 | 1,123,476 | 8,293,289 | 0.1% |
| M&E, Research, and ICT | 13,784,242 | 12,104,218 | 13,424,216 | 8,199,208 | 5,563,016 | 53,074,899 | 0.4% |
| Equipment | 74,655,359 | 81,952,859 | 89,980,109 | 98,810,084 | 108,523,056 | 453,921,467 | 3.2% |
| Governance | 2,310,142 | 3,221,474 | 546,258 | 496,863 | 496,863 | 7,071,598 | 0.0% |
| Infrastructure | 475,716,802 | 475,680,272 | 475,680,272 | 538,605,442 | 475,680,272 | 2,441,363,060 | 17.1% |
| Laboratory | 9,183,400 | 9,309,296 | 9,315,826 | 9,275,277 | 9,315,826 | 46,399,624 | 0.3% |

# 7. Key Performance Indicators

## 7.1 Reproductive, Maternal, Neo-natal, Child Health, Nutrition, and Adolescent Health

**Objective 1:** To create demand for sexual and reproductive health services (adolescents and youths, women of reproductive age, men, elderly people and the marginalized populations).

**Objective 2:** To scale up high-impact child survival interventions

**Objective 3:** To increase access to and utilization of high impact nutrition-specific interventions.

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Outcome** | | | | | | | |
| MMR (per 100,000 live births) | 398 | | 289 | | | 100 | ZDHS |
| Under-five mortality rate | 75/1000 | | 67/1000 | | | 35/1000 | ZDHS |
| IMR | 45/1000 | | 30/1000 | | | 15/1000 | ZDHS |
| Neonatal mortality rate | 24/1000 | | 15/1000 | | | 5/1000 | ZDHS |
| Adolescent birth rate (per 1,000 live births) | 141/1000 | | 131/1000 | | | 121/1000 | ZDHS |
| Exclusive breastfeeding rates up to six months of age | 73% | | 76% | | | 80% | ZDHS |
| % of children aged under five years with stunting | 40% | | 20% | | | 14% | ZDHS |
| % of women of reproductive age with anaemia | 47% | 35% | 22% | 20% | 18% | 16% | MIS/ ZDHS |

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| % of newborns with weight below 2.5kg (low birth weight) | 9% | 9% | 8% | 7% | 6% | 5% | ZDHS |
| % of children aged under five years who are underweight | 15% | | 10% | | | 2% | ZDHS |
| % of children aged under five years who are overweight | 9% | | 7% | | | 4% | ZDHS |
| % of children aged under five years with wasting | 6% | 5% | 4% | 3% | 2% | 1% | HMIS/ ZDHS |
| % of children aged 6-23 months who are fed with minimum acceptable diet | 11% | | 43% | | | 90% | ZDHS |
| Proportion of household consuming adequately iodized salt | 53% | 60% | 68% | 75% | 83% | 90% | ZDHS National IDD Survey |
| Adolescent birth rate (15-19 year old girls) | 141/1000 live births | 136 | 131 | 125 | 122 | 121 | ZDHS |
| % of adolescents accessing integrated SRH services | TBA | 60% | 70% | 80% | 85% | 90% | ZDHS |
| % of adolescents accessing integrated HIV services | TBA | 60% | 70% | 80% | 85% | 90% | ZDHS |
| % of adolescents accessing integrated post-GBV services | TBA | 60% | 70% | 80% | 85% | 90% | ZDHS |

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| % of survivors (M&F) of sexual violence (10-19, 20+ years) who received post-exposure prophylaxis within 72 hrs of sexual assault | 43% | 37% | 34% | 31% | 28% | 25% | ZDHS |
| % of the population age 15-19 with comprehen-sive correct knowledge of HIV/AIDS | F=39%, M=42% | F=50%, M=50% | F=60%, M=60% | F=70%, M=70% | F=80%, M=80% | F=90%, M=90% | ZDHS |
| Prevalence of teenage pregnancy | 29% | 27% | 25% | 21% | 19% | 18% | ZDHS |
| % of women age 15-49 years who received postnatal check-up in first two days after birth | 63% | 68% | 70% | 73% | 75% | 80% | ZDHS/ MOH Reports |
| % of births with a postnatal check in first two days after giving birth | 63% | 68% | 70% | 73% | 75% | 80% | ZDHS/ MOH Report |
| % of children under five with fever for whom advice or treatment was sought from a health facility or provider | 72% | 78% | 84% | 90% | 96% | 100% | MOH Reports |
| **Output** | | | | | | | |
| % of deliveries assisted by skilled personnel | 54% | 64% | 70% | 75% | 80% | 85% | HMIS |

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| % of women attending ANC within the first three months of pregnancy | 24% | 30% | 36% | 42% | 48% | 50% | HMIS |
| Contracep-tive prevalence rate for modern methods | 45% | 50% | 55% | 57% | 59% | 60% | HMIS |
| % of fully immunized children under one | 85% | 86% | 87% | 88% | 90% | 96% | HMIS |
| % of functional EmONC facilities | 18.4% | 36% | 54% | 72% | 90% | 100% | HMIS |
| % of health facilities that offer LARC Services output | 40% | 55% | 65% | 75% | 80% | 85% | RHC Survey |
| % of health centres offering at least five modern types of contracep-tives output | 56% | 62% | 68% | 74% | 78% | 80% | RHCS Survey |
| % of districts with at least one fully functional one-stop centre for care of GBV survivors output | 24% | 30% | 36% | 42% | 48% | 50% | MOH Reports |
| % of institutional deliveries output | 67% | 69% | 71% | 73% | 74% | 75% | HMIS |
| % of antenatal visits in first trimester output | 24.4% | 30% | 36% | 42% | 48% | 50% | HMIS |

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| % of women accessing postnatal care within six days | 63% | 68% | 73% | 78% | 83% | 85% | HMIS |
| % of OTP sites | 15% | 20% | 25% | 27% | 29% | 30% | Nutrition IMAM database |
| % of facilities achieving 90% coverage of vitamin A supplementation children aged 6 to 59 months | 80% | 82% | 84% | 86% | 88% | 90% | Nutrition IMAM |
| % of districts with functional adolescent/ youth-friendly health spaces | 24% | 31% | 39% | 46% | 53% | 60% | MOH-ADH Reports |

## 7.2 Malaria

**Objective 1:** To eliminate local malaria infection and diseases in Zambia by 2021

| Indicators | Baseline | Targets | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Outcome** | | | | | | | |
| Malaria incidence rate (confirmed and clinical cases) per 1,000 persons per year | 336 | - | 168 (50%) | 101 (70%) | 15 (85%) | 0 (100%) | HMIS |
| In-patient malaria deaths (all ages) per 100,000 persons per year | 15.5 | - | 13.3 (14%) | 11.2 (28%) | 4.7 (70%) | 0 (100%) | HMIS |

| Indicators | Baseline | Targets | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| Malaria eliminated in HFCA | TBA | - | 75 (3.1%) | 1,000 (42%) | 2,000 (83%) | 0 (100%) | HMIS |
| Resurgence of malaria is prevented in HFCAs where malaria has been eliminated. | TBA | - | 100% | 100% | 100% | 2,400 (100%) | HMIS |

## 7.3 HIV/AIDS

**Objective 1:** To reduce the incidence and prevalence of HIV

| Indicator | Baseline | | Target | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Outcome** | | | | | | | |
| % of new infections | 0.7% | 0.7% | 0.6% | 0.5% | 0.5% | 0.4% | ZAMPHIA/ Spectrum |
| % of women and men aged 15-49 years who received an HIV and test and know their results | 55% | 67% | 70% | 75% | 85% | 90% | HMIS |
| % of PLHIV women and men aged 15-49 years who know their status and are currently receiving ART | 70.6% | 72.6% | 74.7% | 76.8% | 78.9% | 81% | HMIS |
| % of HIV positive children 0-14 years currently receiving ART | 73.8% | 69.1% | 72.1% | 75% | 78% | 80% | HMIS |

| Indicator | Baseline | | Target | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| % of PLHIV women and men who are virally suppressed, aged 15-49 years | 52% | 60% | 65% | 70% | 80% | 90% | HMIS |
| % of virally suppressed, aged 0-14 years | 52% | 60% | 65% | 70% | 80% | 90% | HMIS |
| % VMMC coverage among HIV negative men, aged 15-29 years | 42% | 47% | 58% | 69% | 90% | 90% | HMIS |
| % of males and females who reported an STI in the past 12 months | 15% | 12% | 9% | 7% | 5% | 2% | HMIS |
| % of HIV-positive pregnant women who receive ART to reduce the risk of mother-to-child transmission | 89% | 89.5% | 91% | 95.4% | 99.4% | 100% | HMIS |
| % of children born with HIV from mothers living with HIV | 5% | 3% | 2% | 2% | 1% | 1% | HMIS |
| % of men and women aged 15-49 years reporting more than one sexual partner in last 12 months, reporting condom use at last sex | F=36.5, M=42.5 | F=45, M=50 | F=55,M =60 | F=68M =70 | F=78M =80 | F=90, M=90 | HMIS |

| Indicator | Baseline | | Target | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Output** | | | | | | | |
| VMMC | 50% (10 – 49 years) | 60% | 70% | 80% | 90% | 90% | HMIS |
| Early infant medical male circumcision | 50% (0-60 days) | 55% | 60% | 70% | 80% | 90% | HMIS |
| % of HIV positive children on ART | 61% | 65% | 70% | 75% | 80% | 90% | HMIS |
| % of adults and children with HIV known to be on treatment 12 months after initiation of ART | 75% | 76% | 78% | 80% | 82% | 85% | HMIS |

## 7.4 Tuberculosis

**Objective 1:** To reduce the number of TB deaths in the population by 40% in 2021 compared to 2015

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2015 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Outcome** | | | | | | | |
| TB incidence rate compared to 2015 % | TBA | 2.8 % | 4.3% | 5.3% | 6.9% | 8% | HMIS/TB Survey |
| TB cure rate | 84% | 85.5% | 86% | 86.5% | 86.8% | 87% | HMIS |
| % of TB directory observed therapy short-course treatment success rate | 85% | >87% | >90% | >90% | >90% | >90% | HMIS |

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2015 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| % of multi-drug resistance TB cases successfully treated | 30% | 50% | 65% | 75% | 80% | 90% | HMIS |
| **Output** | | | | | | | |
| TB/HIV on ART | 76% | 76.5% | 77% | 77.5% | 77.8% | 80% | HMIS |

## 7.5 Neglected Tropical Diseases

**Objective 1:** To eliminate the NTDs in Zambia by 2021.

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Outcome** | | | | | | | |
| Number of trachoma endemic districts with TF<5% and TT<0.1% | 24 (TF) | 20 | 15 | 9 | 5 | 0 | SDG, SAFE Strategy, Implementation Framework Toward the Elimination of NTDs |
| Number of districts endemic to lymphatic filariasis | 85 | 75 | 55 | 35 | 15 | 0 | Zambia's Master Plan toward the elimination of NTDs |
| Number of districts endemic to schistosomiasis | 105 | 100 | 87 | 55 | 13 | 0 | MOH reports |
| Number of districts endemic to soil transmitted helminths | 105 | 98 | 71 | 37 | 17 | 0 | MOH reports |
| **Output** | | | | | | | |
| Number of people receiving prophylactic treatment against trachoma | 1,842,517 | 1,934,643 | 2,031,375 | 2,132,944 | 2,239,590 | 2,351,570 | NTD reports |

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| Number of people receiving prophylactic treatment against schistosomiasis | 4,611,776 | 2,819,688 | 1,5584,58 | 2,766,977 | 1,781,057 | 2,597,203 | NTD reports |

## 7.6 Public Health Surveillance

**Objective 1:** To improve national disease surveillance systems to address the burden of morbidity and mortality due to non- and communicable.

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Output** | | | | | | | |
| Proportion of districts meeting and sustaining International Health Regulations (IHR [2005]) core capacities | 35% | 80% | 85% | 90% | 95% | 100% | IHR Core Capacities Monitoring Tool<br>Routine surveillance and outbreak reports |
| Cluster Performance Monitoring Tool applied annually | 0 | 100% | 100% | 100% | 100% | 100% | IHR Core Capacities Monitoring Tool |
| Results analysed, documented and remedial actions agreed with MOH and partners | 0 | 100% | 100% | 100% | 100% | 100% | IHR Core Capacities Monitoring Tool |
| **Input** | | | | | | | |
| Percentage of districts with equipment for epidemiological data management | 50% | 60% | 70% | 80% | 90% | 100% | MOH Reports |

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| Laboratory capacity to P3 : Number of laboratory staff trained on diagnosis and identification of disease in a P3 laboratory | 30 | 35 | 45 | 70 | 100 | 150 | MOH Reports |

## 7.7 Epidemic Preparedness and Response and Emerging Issues

**Objective 1:** To strengthen capacities to effectively and efficiently implement preparedness and response in emergencies in Zambia

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Outcome** | | | | | | | |
| % of children who have received all basic immunizations by age 12 months (fully immunized) | 89% | 90% | 91% | 92% | 93% | 94% | MIS/ZDHS |
| Proportion of laboratories with capacity to effectively investigate public health threats | 30/150 | 35 | 45 | 75 | 100 | 150/150 | MIS/ZDHS |
| Emergency operation centre in place | 9% (1/11) | 27% (3/11) | 45% (5/11) | 64% (7/11) | 73% (8/11) | 100% (11/11) | MOH report |
| IHR minimum core capacities demonstrated | 50% | 60% | 70% | 80% | 90% | 100% | IHR core capacities monitoring tool |

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| Percentage of districts that demonstrated an adequate response to an emergency from any hazard with a coordinated initial assessment and a health sector response plan within five days of onset | 72/105 | 70/105 | 80/105 | 90/105 | 100/105 | 105/105 | IHR core capacities monitoring tool |
| Early warning systems, including event based surveillance, preparedness, response, risk management, logistics support, health cluster coordination in place | 27/105 | 54/105 | 81/105 | 90/105 | 100/105 | 105/105 | IHR core capacities monitoring tool |
| Emergency Operation Centres and their related functions established/ strengthened | 1/11 | 3/11 | 5/11 | 7/11 | 8/11 | 11/11 | IHR core capacities monitoring tool |
| Number of staff trained in IDSR | 420 | 420 | 500 | 600 | 700 | 800 | MOH training report |

## 7.8 Non-Communicable Diseases

**Objective 1:** To reduce the morbidity and mortality due to non-communicable diseases

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Outcome** | | | | | | | |
| Reduction of premature mortality from NCDs | 23% | 22% | 21% | 20% | 17% | 15% | STEPS Survey, ZNCR, HMIS, DHIS2 |

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| Cancer incidence, by type per 100,000 population | 58/ 100,000 | 56.3/ 100,000 | 55/ 100,000 | 54/ 100,000 | 53/ 100,000 | 52.3/ 100,000 | HMIS |
| Prevalence of childhood obesity: | 23% | 22% | 20% | 19% | 18% | 17% | ZDHS/HMIS |
| Knowledge level in population regarding healthy lifestyle: | 10% | 10% | 15% | 20% | 25% | 30% | ZDHS/MOH Survey |
| **Output** | | | | | | | |
| IEC materials developed for the top 10 cancers | 10% | 20% | 40% | 60% | 80% | 95% | HMIS |
| % of girls received HPV vaccine | 72% | 74% | 76% | 77% | 80% | 80% | HMIS |
| % of regional hospitals with chemo-radiotherapy centres. | 10% | 10% | 10% | 20% | 30% | 40% | HMIS |
| % upgraded diagnostic and treatment equipment at CDH | 60% | 65% | 65% | 70% | 75% | 75% | HMIS |
| % districts conducting cervical cancer screening | 40% | 54% | 65% | 72% | 78% | 80% | HMIS |
| % facilities trained and mentored in cancer management | 14% | 18% | 25% | 30% | 45% | 52% | HMIS |

## 7.9 Hospital Services

**Objective 1:** To ensure that all hospitals meet standards set per level of care as stated in the NHCP by 2021

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Outcome** | | | | | | | |
| Reduced rate of post-operative wound infection | 5-10% | | <1% | | | 0% | MOH Survey |
| **Output** | | | | | | | |
| % of facilities at all levels offering surgical, obstetric and anaesthesia care | 25% | 30% | 50% | 88% | 90% | 100% | HMIS |
| Number of procedures performed in an operating room / 100,000 population | 1,000 | 1,000 | 2,000 | 2,500 | 4,000 | 6,145 | MOH Reports |
| % of facilities using Lifebox, SafeObs, and SafePeds reports | 30% | 30% | 40% | 60% | 80% | 100% | HMIS |
| % of hospitals meeting required standards | 40% | 40% | 60% | 70% | 80% | 100% | PA, HMIS |
| % of facilities that have equipment maintenance plans | 20% | 30% | 40% | 50% | 60% | 80% | HMIS/HFC |
| % of facilities with standard and functional equipment | 40% | 40% | 50% | 60% | 70% | 80% | HMIS |
| % of hospitals using e-patient record management | 40% | 40% | 60% | 80% | 90% | 100% | HMIS |
| Number of comprehensive emergency care units/trauma centres | 2 | 6 | 10 | 14 | 18 | 24 | HMIS |

## 7.10 Eye Health

**Objective 1:** To eliminate causes of avoidable or preventable blindness

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Output** | | | | | | | |
| Number of operational eye hospitals | 1 | 1 | 1 | 1 | 1 | 1 | Report from MOH/UTH Eye Hospital |
| Percentage of eye health promotion programmes | 20% | 20% | 40% | 60% | 80% | 100% | Report from MOH/UTH Eye Hospital |
| Cataract surgical rate | 732 | 732 | 800 | 1,000 | 1,200 | 1,500 | Annual facility reports/ report from MOH/UTH Eye Hospital |
| Number of active vitreous and retina surgeons | 0 | 0 | 1 | 1 | 2 | 3 | Report from MOH/UTH Eye Hospital |

## 7.11 Emergency and Mobile Health Services

**Objective 1:** To provide mobile health services as a complimentary service delivery mode to people in hard to reach rural and remote parts of Zambia

**Objective 2:** To coordinate and evaluate emergency health services in Zambia

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Output** | | | | | | | |
| % mobile outreaches conducted out put | 66% | 70% | 76% | 82% | 84% | 90% | MOH Reports |
| % specialist outreaches conducted output | 40% | 47% | 55% | 62% | 69% | 75% | MOH Reports |
| Number of comprehensive emergency care units/trauma centres | 1 | 2 | 3 | 4 | 5 | 6 | MOH Reports |

## 7.12 Imaging Services

**Objective 1:** To strengthen the provision of imaging services appropriate for each level of car

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Output** | | | | | | | |
| % of imaging departments providing accurate diagnostic results | 66% | 76% | 84% | 86% | 88% | 90% | MOH Reports |
| Number of level 2 and level 3 hospitals with radiologist and medical physicists input | 9 | | | | | 31 | MOH Reports |
| % of districts and provinces with imaging coordinators input | 40% | 50% | 60% | 65% | 70% | 75% | MOH Reports |
| % of imaging departments implementing QI/QA activities towards international accreditation. input | 1 | 2 | 3 | 4 | 4 | 4 | MOH Reports |

## 7.13 Blood Transfusion Services

**Objective 1:** To increase the annual blood collection to meet the national blood and blood products requirements

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Output** | | | | | | | |
| % of discards due to transfusion transmissible infections | 10% | 9% | 5% | 4% | 3% | 1% | ZNBTS records |
| **Output** | | | | | | | |
| Number of units collected per year | 150,000 | 155,000 | 160,000 | 170,000 | 175,000 | 180 000 | ZNBTS records |
| % of repeat voluntary blood donors out of total donors bled | 40% | 45% | 60% | 70% | 75% | 80% | ZNBTS records |

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| Number of plasma units produced under plasmapheresis programme | 0 | 10,000 | 20,000 | 30,000 | 40,000 | 50 000 | ZNBTS records |
| % of units processed into blood components out of total units collected | 30% | 35% | 40% | 45% | 47% | 50% | MOH Reports |
| Number of provincial blood centres using BSIS | 1 | 2 | 6 | 8 | 9 | 10 | MOH Reports |

## 7.14 Laboratory Services

**Objective 1:** To strengthen the provision of laboratory services that are appropriate for each level of care to support the national health care package implementation

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Output** | | | | | | | |
| Number of facilities with functional laboratories according to levels | 389 | 400 | 450 | 470 | 480 | 500 | NLSP |
| Number of laboratories providing molecular testing | 13 | 20 | 25 | 27 | 30 | 33 | MOH Records |
| **Process** | | | | | | | |
| % of laboratories implementing quality management systems (QMS) activities | 17% | 20% | 30% | 40% | 45% | 50 | MOH Reports |
| % of laboratories with planned equipment preventive maintenance contracts process | 0 | 40% | 60% | 80% | 90% | 100% | MOH Reports |

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| National laboratory QA programme established at Chainama with adequate staff process | 0 | 0 | 0 | 0 | 1 | 1 | MOH Reports |
| **Output** | | | | | | | |
| Number of level 2 and level 3 hospitals with biomedical specialists | 0 | 0 | 5 | 10 | 15 | 20 | MOH Reports |
| % laboratories with standard appropriate infrastructure | 42% | 52% | 62% | 65% | 68% | 70% | MOH Reports |
| % of provinces and districts with laboratory coordinators | 0 | 40% | 60% | 80% | 90% | 100% | MOH Reports |
| % of laboratories equipped with automated analyser (chemistry, haematology and CD4) with preventive maintenance systems | 42% | 40% | 60% | 80% | 90% | 100% | MOH Reports |
| Number of laboratory commodities available at full supply input | 278 | 300 | 350 | 400 | 450 | 500 | MOH Reports |

## 7.15 Environmental Health, Food Safety, and Occupational Health

**Objective 1:** To strengthen delivery of sustainable environmental health services.

**Objective 2:** To promote the health of the consumer by ensuring high standards in the production, collection, preparation, processing, storage, sale and consumption of food staff

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Outcome** | | | | | | | |
| Reduction in districts reporting environmental related epidemics outcome | 27 | 22 | 17 | 13 | 12 | 15 | HMIS, epidemic investigation reports |
| **Output** | | | | | | | |
| # of food establishments implementing Hazard analysis and Critical Control Point plan output | None | 5% | 10% | 15% | 20% | 30% | HMIS reports, food register |
| **Inputs** | | | | | | | |
| # of points of entry with established port health services | 8/14 | 8/14 | 10/14 | 11/14 | 12/14 | 14/14 | Reports |
| Proportion of staff recruited in an established structure for port health points of entry | 0/14 | 0/14 | 5/14 | 10/14 | 12/14 | 14/14 | Performance Assessment reports |
| Number of health facilities with appropriate health care waste management system. | 50% | 52% | 60% | 65% | 75% | ≥90% | Environmental Health (EH) reports |
| Number of districts with POTALABS and conducting water quality monitoring | 27 | 35 | 40 | 45 | 48 | 50 | EH reports |

## 7.16 Human Resources

**Objective 1:** To improve the availability of and distribution of qualified health workers in the country

**Objective 2:** To strengthen human resource management, in order to improve efficiency and effectiveness in utilisation of existing staff

**Objective 3:** To significantly increase the annual outputs of the health training institutions, to mitigate the critical shortages of qualified health workers

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Output** | | | | | | | |
| Number of health workers graduating from training institutions annually | 4,000 | 6,000 | 7,000 | 8,000 | 9,000 | 10,000 | Training reports<br>Index registers |
| **Inputs** | | | | | | | |
| % of rural health facilities with at least one qualified health worker | 88% | 88% | 90% | 94% | 96% | 100% | Staff returns |
| % of health facilities with at least 80% filled establishment | 73% | 73% | 80% | 85% | 95<br>% | 100% | Staff returns |

## 7.17 Health Care Financing Strategy

**Objective 1:** To reduce the budget gap in the health sector by mobilizing adequate and sustainable financial resources.

| Indicator | Baseline | Targets | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Input** | | | | | | | |
| GHE/Total government expenditure | 8.3% | 9% | 10% | 12% | 13% | 15% | NHA |
| HHE/THE | 30% | 26% | 24% | 22% | 20% | 18% | NHA |

## 7.18 Health Information Technology and Research

**Objective 1:** To ensure availability of relevant, accurate, timely and accessible health data, to support the planning, coordination, research, and M&E of the health sector to inform evidence-based decision-making

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Output** | | | | | | | |
| % of facilities with functional electronic records process | 2% | 4% | 20% | 30% | 40% | 60% | E-Health Strategy 2017-2021 |
| **Output** | | | | | | | |
| Number of research institutions/sites designated as National Bio Banks | 0 | 0 | 0 | 0 | 1 | 2 | Research registry |

## 7.19 Health Infrastructure

**Objective 1:** To increase access to health services through construction/ rehabilitation of health facilities in order to facilitate equity of access to quality health services

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| **Output** | | | | | | | |
| Number of first-level hospitals completed | 36 | 6 | - | 10 | 10 | (10)36 | Infrastructure Operation Plan reports |
| Number of health posts / centres constructed | 272 | 300 | 100 | 100 | 100 | 600 | Infrastructure Operation Plan reports |
| Number of facilities modernized | 250 | 50 | 50 | 50 | 50 | (50) 250 | Infrastructure Operation Plan reports |
| Number of ongoing construction health posts works commissioned | TBA | | 200 | 100 | 100 | 500 | Infrastructure Operation Plan reports |

| Indicator | Baseline | Target | | | | | |
|---|---|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | Data Source |
| Number of ongoing construction district hospitals commissioned | TBA | 6 | 10 | 10 | 10 | 36 | Infrastructure Operation Plan reports |
| Number planned health centres commissioned | TBA | 56 | 56 | 25 | 25 | 162 | Infrastructure Operation Plan reports |
| Number planned general hospitals commissioned | TBA | | 4 | 2 | 2 | 8 | Infrastructure Operation Plan reports |
| Number planned health specialists hospitals commissioned | TBA | | 1 | 3 | 2 | 6 | Infrastructure Operation Plan reports |
| Proportion of population living within 5 km of health facility | 78.6% | 80% | 85% | 90% | 95% | 100% | Infrastructure Operation Plan reports |
| Number of new first-level hospitals commenced | 36 | 3 | 10 | 10 | 7 | 30 | Infrastructure Operation Plan reports |

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