THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF HEALTH

HUMAN RESOURCES FOR HEALTH

TANZANIA MAINLAND COUNTRY PROFILE

Strengthening Health Systems- Improving Services

ISBN No: 978-9987-737-05-7

September, 2023

Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

BMC	Bugando Medical Centre
CDC	Center for Diseases Control
CHMTs	Council Health Management Teams
eCPDs	electronic Continue Professional Developments
FGD	Focus Group Discussion
HCWs	Health Care Workers
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
HLPC	Health Laboratory Practitioner's Council
HRH	Human Resources for Health
HRHIS	Human Resources for Health Information System
HRP	Human Resources Planning
KCMC	Kilimanjaro Christian Medical Centre
MCT	Medical Council of Tanganyika
MDAs	Ministry, Departments and Agencies
MOH	Ministry of Health Community Development Gender Elderly and Children
MMAM	Mpango wa Maendeleo ya Afya ya Msingi (PHSDP)
MZRH	Mbeya Zonal Referal Hospital
NACTE	National Accreditation for Council Technical Education
NBS	National Bureau of Statistics
NTA	National Technical Award
PC	Pharmacy Council
POPSM	President's Office Public Service Management
PHSDP	Primary Health Service Development Program
PORALG	President's Office Regional Administration and Local Government
RHMTs	Regional Health Management Teams
TIIS	Training Institution Information System
TNMC	Tanzania Nurse and Midwifery Council
VETA	Vocation Education Training Authority

FOREWORD

Tanzania has and still is addressing the aspect of improving access to and equity of quality essential health care services and to ensure that the health sector plays its role in the realization of Vision 2025, Health care Policy and the Sustainable Development Goals. The likelihood of attaining these ambitious health milestones that have been set will almost be difficulty, especially the achievement of Sustainable Development Goals if the quality, quantity and distribution of the health workforce is not enhanced. The inadequate numbers of skilled human resource have had a negative impact on efforts to expand access and improve the quality of health services. This situation has been aggravated by the continued high prevalence of HIV/ AIDS, tuberculosis, non-communicable diseases and malaria, which still make the highest toll as leading killer diseases in the country.

Tanzania Mainland's health sector acknowledges that, human resources for health constraints are a critical hindrance in the health sector planning, service delivery and ultimately national health outcomes. With this background, the sector has taken on the task of defining long-term strategies through its human resources for health strategic plan (2022-2026) of addressing the constraints to human resource planning, development and management so as to effectively improve health service delivery. Therefore, this country profile presents an analysis of the current human resources for health situation in the country, the contextual factors, and some of the influences, key issues and constraints across the sector.

The overall purpose of the HRH assessment was to collect and process data on the stock, characteristics and distribution of the public and private health workforce in Tanzania Mainland and produce a sector-wide HRH profile that could be used to develop a health workforce plan and projections as well as inform strategies and approaches for the overall management and development of the health workforce.

It is my hope that, health workers and stakeholders will find this document a valuable and useful tool in the planning, management and development of Human Resources for Health.

Dr. John A.K. Jingu
Permanent Secretary

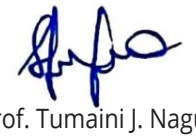
ACKNOWLEDGEMENT

The process of developing Human Resources for Health Country Profile involved efforts by different actors. I would like to thank all individuals within and outside health sector for willingly offering assistance in different ways. Their input has greatly contributed to the production of this HRH Country Profile for Tanzania Mainland.

The Ministry of Health acknowledges the support of Centre for Diseases Control in Tanzania Main land through Mzumbe University particulary Mr. Peter Mbago for their financial support and technical assistance in undertaking the task of collecting information from different Institutions located within and outside the Ministry. These Institutions include Service delivery facilities, Training Institutions, Employing authorities in the Regions and Districts.

A special recognition goes to the Core Team led by the Director of Human Resource Development Dr. Loishooki Saitore Laizer. The writers' team within the Ministry are; Technical Officers within the Department of Human Resource Development; Assistant Director Mr. Martin S. Mapunda, Ms. Sarah Hussein and Mr. Jumanne Mabruk from PO-RALG. Dr. Fadhili Lyimo (Assistant Director), Dr. Ndimila Mabula, Mr.Nassania Shango, Mr. Mr. Issa Mmbaga, Dr. Haruna Hussein, Dr. Robert Rweyemamu, Ms. Asnath Mpelo, Mr. Ibrahim Mdoe, Mr. Joseph Bura and Ms. Elina Kihiyo for their tireless effort to compile the required statistics and finally the HRP Section in aligning the document as well as rationalization and validation of both the text and statistics.

The Ministry expresses gratitude to the Health Workers and various Stakeholders who spent their valuable time providing creative facts, comments and insight basing on their experience without biases. Their contribution has made a very significant step towards development of this National HRH Country Profile.



Prof. Tumaini J. Nagu
Chief Medical Officer

EXECUTIVE SUMMARY

INTRODUCTION

The availability of adequate numbers of skilled human resources is the most critical constraint for achieving the international, national and other health indicators and targets. In 2021, Tanzania Mainland Ministry of Health developed and endorsed its Human Resources for Health (HRH) Strategic Plan (2021–2026) and Health Sector Strategic Plan V (2021–2026). The development of these plans was challenged by a lack of accurate and up-to-date information on the number, characteristics and distribution of health workforce. In 2009, the Ministry of Health (MoH) in collaboration with Japanese International Cooperation Agency (JICA), undertook the development of Human Resources for Health Information System (HRHIS) and Training Institution Information System (TIIS) for the purpose of HRH assessment to enable the development of HRH profile. A core technical team from MoH, JICA, University of Dar es Salaam (UDSM) and EnterSoft Co. Ltd supported the development of HRHIS and TIIS. This Human Resources for Health Country Profile is based on data collected in Tanzania Mainland's health workforce at all public and private sector institutions. Information was also gathered from health training institutions, HMIS and other sources.

FINDINGS

The health workers — The assessment identified 119,678 health workers across the public and private health sectors where as public sector had 79,623 and 40,055 were private sector. The medical specialist group (2,469) was the smallest group followed by health management and support staff group (4,577). Medical Officers made up 50.29% (3,370) of the private health sector workforce, 49.71% (3,331) of the public health workforce and 5.60% (6,701) of the total. The largest group was nursing professionals (46,156) equivalent to 38.57 %.

Ratio of selected HRH to 10,000 population — The health sector was found to have 1 doctor per 8,882 population and 1 nurse per 1,289 population. This represents 10,171 doctors and nurses per 10,000 population, which is significantly less than the WHO recommendation of 439 (22.8) doctors, nurses and midwives per 10,000 population. Likewise, Health Laboratory staff represents 10,000 and Pharmacy staff 8,130 per 10,000 population.

Health worker registration — In spite of the Tanganyika Medical Council registering over 1,000 doctors per year, Nurses and Midwives Council 3,000 per year, continuing shortages of doctors, specialists and nurses are reported in the public sector. The identified gap between annual registrations and the numbers employed suggests that a significant number may be jobless, working outside the health sector or in the diaspora.

Gender distribution by health occupation/cadre — 51% of the workforce in the public and private sectors were female and 49% were male. Twenty nine percent (29.23%) of all female were health assistants followed by Enrolled nurses (22.14%). In all other remaining groups, the majority (70.4%)of the workforces were male .

Age distribution by occupation/cadre — Only 3.26% of the health workforce available were 24 years and below. A high proportion (29.00%) of the workforce was 25-34 years and unknown group's years accounted for 28.73%. Twenty percent (20%) were 45 years and above which means they are approaching retirement age in the coming few years. The low number of younger nursing professional associates and paramedical practitioners is of concern as they provide services at the levels closest to the rural communities which have a significantly large population.

Distribution by cadre and region — The health workforce was normally distributed across the ten regions, except for the higher proportion (16.21%) in the Dar es Salaam region. This is due to the presence of large number of higher-level hospitals. Geita 1.21), Simiyu (1.78), Katavi (0.96), Ruvuma (2.8), Manyara (2.33), Kigoma (3.132), and Singida (2.49) regions had relatively fewer health workers.

Distribution of health workers by facility — Dispensary level had the largest number of health workers at 30,625 (30%), followed by the Health Centers and District Council level which had 25,354 (37%) and 29,409 (24%) respectively. Of all cadres, 55,705 (46.55%) health workforce were found in rural setting and 63,973 (53.45%) were in Urban setting. Of all doctors, 71.50% (4,791) were located in urban area and 28.50% (1,910) in rural. However, nursing professionals located in rural areas were 22,841 (49.49%) and those in urban areas were 23,315 (50.51%).

HRH production — Two hundred and nineteen (219) training institutions were providing middle level training courses for health workers. Only 21.9% of the health training institutions were owned by the government. A large number of the paramedical (83% of courses) and nurse (67%) training courses were provided by not-for-profit institutions. Tanzania Mainland's health training institutions are producing a large number of health workers annually with approximately 24,254 graduating each year.

INTRODUCTION

Human resources represent the most critical constraint for achieving the international and national goals for health and other national health indicators and targets. Therefore, health planners and decision-makers must be able to understand and analyze the stock, distribution and characteristics of the health workforce. This information can then be used for:

- Workforce planning;
- Human resources management (e.g., recruitment, deployment, and performance management);
- Human resource development (e.g., education, in-service training and professional development); and
- To support the implementation and monitoring of human resource polices and plans.

In 2021 the health sector in Tanzania Mainland developed the 2021–2026 HRH Strategic Plan. This plan aims:
"To ensure the equitable distribution of appropriately skilled human resources for health (HRH) to support the achievement of health outcomes in Tanzania Mainland and in particular the implementation of the Health Sector Strategic Plan V."

The HRH Strategic Plan (2021-2026) contains a range of strategies and activities to achieve this aim and the following are planned outputs:

- Appropriate supply of health workers for labor market needs;
- Equitable distribution of health workers;
- Improved health worker performance; and
- Effective and coordinated human resource planning, management and development across the health sector.

1.1 Background

Over many years, the development of the HRH Strategic Plans and other sector documents were challenged by a lack of accurate and up-to-date information on the number, characteristics and distribution of the health workforce in both the public and private health sectors. Following this challenge, data sources were developed namely Human Resources for Health Information System (HRHIS) and Training Institutions Information System (TIIS). Before HRHIS and TIIS, the data available was inconsistent, incomplete, fragmented and not suitable for establishing a profile for the health workforce that could be used as a basis for workforce planning and for improving the management and development of the health workforce. Additionally, the lack of standardized job classifications and health worker categorizations made it difficult to plan and monitor staffing levels and trends over time. At that time, the MOH acknowledged that more comprehensive human resource data was needed for workforce planning to inform human resource policy and plans and to enable the monitoring and implementation of the strategic plan.

1.2 Purpose of the Assessment

The overall purpose of the HRH assessment was to collect and process data on the stock, characteristics and distribution of the public and private health workforce in Tanzania Mainland and produce a sector-wide HRH profile that could be used as a tool to develop a health workforce plan and projections as well as inform strategies and approaches for the overall management and development of the health workforce.

1.3 Methodology

1.3.1 Sampling

The MOH decided to have as large sample as possible. The following samples were used to identify the public and private health workforces:

- Data for all public sector hospitals and Ministry Departments and Agencies,
- All primary health care facilities (Councils Hospitals, health centers and dispensaries) ,
- All data for private hospitals and non-governmental organization (NGO) hospitals and facilities, including private pharmacies, laboratories and clinics in close proximity to the facilities

- Data from all Health training institutions both private and public.

1.3.2 Data sources

One potential data source - HRHIS (which obtains the primary data from other systems like HCMIS, HFR, NACTVET, TCU and respective Professional Councils) was used as reliable sources of human resource data on the health workforce. HMIS and NBS data was used for diseases diagnosis, population and number of functioning health facilities available

1.3.3 Data collection instruments

Three sets of tools were used for the following purposes:

1. To generate an inventory of health service delivery facilities and training/teaching institutions across the public and private sectors.
2. To assess the current stock, distribution and characteristics of the public and private health workforce and collect the following details of each health worker:

- Name
- Date of birth
- Sex
- Job details: cadre, job title, grade, level
- Date of joining the service and start date in the facility
- Name and location of workplace and duration of employment
- Type of employment — permanent/sanctioned, contract, deputed
- Workplace by facility type and location, district and region.

3. HRH training and production information from the institutions producing health workers.

FINDINGS

2.1 Introduction

The collected information identified approximately 119,678 health workers across the country, with 79,623 (67%) in the public sector and 40,055 (33%) in the private sector. This information was collected from public and private sector facilities at central, regional, zonal, district levels and training institutions. In addition, data on the private sector workforce was collected from 4,219 private facilities, of which 892 (21%) were private-for-profit and 3,327 (79%) were private not-for-profit, across 26 regions in Tanzania Mainland.

2.2 The Stock of Health Workers

The HRH data analysis revealed that across the public and private sectors, the largest group was nursing professionals that contributed 46,154 (38.57%), while medical specialists was the smallest group with the contribution of 2,469 (2.1%) of the available health workforce across the country.

2.2.1 Public sector workforce

The HRH analysis identified a total of 79,623 public health sector workers. The nursing professional's group was the largest group in the public health sector 30,768 (38.64%) followed by Health Assistant group constitutes 16,422 (20.62%). On the other hand, the non- medical and support staff group made up the smallest proportion of public health workers 2,787 (3.50%). The medical doctors contributed 3,331 (4.18%) in the public workforce.

2.2.2 Private sector workforce

A total of 40,055 health workers were documented in the private health sector. The largest group was the nursing professionals 15,388 (38.42%) followed by health assistant 9,381 (23.4%).The Medical doctors contributed 3,370 (8.41%) and management and support staff was the smallest group 1,790 (4.5%).

COUNTRY CONTEXT

3.1 Geography and Demography

Tanganyika and Zanzibar achieved independence in the early 1960's and thereafter united to form the nation of The United Republic of Tanzania in 1964. The Ministry of Health is a non-Union whereas Zanzibar also has its own Ministry responsible for health of its population. This Human Resource for Health Country Profile relates to the Tanzania mainland.

Tanzania borders the Indian Ocean, between Kenya and Mozambique and has a total area of 947,300 sq km (885,800 sq km of land and 61,500 sq km of water), including the islands of Mafia, Pemba, and Zanzibar. It shares land boundaries with Burundi 451 km, Democratic Republic of the Congo 459 km, Kenya 769 km, Malawi 475 km, Mozambique 756 km, Rwanda 217 km, Uganda 396 km, Zambia 338 km.

Climate varies from tropical along the coast to low temperate in highlands and the land terrain also varies from plains along the coast; central plateau; and highlands in the north and south. Tanzania boasts the highest mountain in Africa (Kilimanjaro) and three of the largest lakes on the continent: Lake Victoria (the world's second-largest freshwater lake) in the north, Lake Tanganyika (the world's second deepest) in the west, and Lake Nyasa (Lake Malawi) in the southwest.

The population of Tanzania Mainland was estimated to be 59.5 million in 2022 (Table 1). It is young with a median age of only 17.6 years (male: 17.3 years and female: 17.9 years) characterized by high birth rate: 36 births/1,000 population and the death rate stands at 7.8 deaths/1,000 population (104th place in world comparison).

The total population increased by 44% in 2022 as compared to 2002. However, the absolute number across all the age groups increased over the period. The dependency ratio is 6.2.

Table 1: Percent Population Distribution by Age Group and Year

	2002		2011		2016		2022	
Age Group	Total	%	Total	%	Total	%	Total	%
0-14	14,803,723	44.2	17,952,213	42	23,123,057	44.1	25,637,786	43.1
15-64	17,340,189	51.8	23,547,672	55.1	27,788,102	53	32,157,786	54.0
65 and over	1,317,937	3.9	1,246,735	2.9	1,571,567	2.9	1,722,182	2.9
Total	33,461,849	100	42,746,620	100	52,482,726	100	59,517,754	100

Source: Tanzania Mainland NBS 2022

As with many other countries, women live longer than men. The total life expectancy is 62.2 years of which for male and female is 60.8 years and 63.6 years respectively. The overall sex ratio is 0.96 (Males/Females) see Table 2

Table 2: Population Distributions by Sex

Year	Total	Male	Female	Male/Female	Growth Rate (%)
2002	33,461,849	16,349,015	17,112,834	0.95	2.85
2012	43,625,354	21,239,313	22,386,041	0.95	2.02
2022	59,517,754	29,192,247	30,325,507	0.96	3.1

Source: Tanzania Mainland NBS 2022

The urban population is increasing faster than the total population growth: it increased from 13.3% in 1978 to 18.0%, 22.6%, 26.0% and 31.6% of the total population in 1988, 2002, 2010 and 2015 respectively.

3.2 Economic Context

Tanzania is among the countries with a poor economy in the world in terms of per capital income. The economy depends heavily on agriculture, which accounts for more than 40% of GDP, provides 85% of exports, and employs about 80% of the work force. The government has increased spending on agriculture to 7% of its budget. Continued donor assistance and solid macroeconomic policies supported a positive growth rate, despite the world recession. The GDP growth averaged 7% per year between 2000 and 2008 and in 2009/10 it was 6% per year due to high gold prices and increased production as compared to 5.3% in the year 2023.

The estimated GDP composition by sector for 2010 was agriculture at 28.4%, industry at 24% and services at 47.6%. Only about a half of the population constitutes the active labor force (estimated as 23.39 million in 2010) with the majority in agriculture. In a country with the majority of people being rural and depending on agriculture, it is difficult to estimate unemployment. However, it was estimated that in 2005, unemployment among youths aged 15-24 was at 8.8%.

In the 2002 national census, 69.4% of the population aged 15 and above could read and write Kiswahili (Swahili), English, or Arabic. This probably reflects the limited education expenditures which was 6.8% of GDP for the year 2008. This was only slightly higher than that on health which was 5.1% of GDP for the year 2009. In 2010/2011 the per capita health budget reached US$18.8 (up from $10.7 in 2006-2007 and compared with US$54 recommended by WHO). Other services are equally limited. For example, only 54% of the population have improved drinking water sources and only 24% have access to improved sanitation facilities.

Table 3: Health Financing Indicators

Key Indicators	Year 2017/18	Year 2018/19	Year 2019/20	Year 2020/21	Year 2021/22	Bench Mark
Total Health Expenditure (Trillions)	5,577	4,868	5,385	6.9	6.7	NA
Per capita Health Spending ($)	47	39	42	55	49	86
Share of Government Health Expenditure to General Government Expenditure	8%	6%	5%	10.9%	16.5%	15%
Share of Domestic Resources Total Health Expenditure	66%	73%	67%	52%	77%	86%
Health Insurance Coverage	25%	33%	14.70%	15	15.3	50%
Share of Out of Pocket Health Spending to Total Health Spending	28%	33%	31%	32	27	22%

3.3 Political Context

Administrative divisions

Tanzania is divided into regions, district, wards and villages. Currently there are 26 regions namely Arusha, Dar es Salaam, Dodoma, Iringa, Kagera, Kigoma, Kilimanjaro, Lindi, Manyara, Mara, Mbeya, Morogoro, Mtwara, Mwanza, Pwani, Rukwa, Ruvuma, Shinyanga, Singida, Tabora, Tanga, Katavi, Simiyu, Songwe, Geita and Njombe. These regions have a total of 164 districts and 185 Local authorities, 767 wards and 11,243 villages.

Executive branch
The President is both Chief of State and Head of Government. Zanzibar elects a President who is the Head of Government for matters exclusive to Zanzibar. The President and Vice President are elected on the same ballot by popular vote for five-year terms (eligible for a second term). The Prime Minister and other Ministers (the cabinet) is appointed by the President from among the members of the National Assembly.

Legislative branch
National Assembly or Bunge (357 seats; 239 members elected by popular vote) serve five-year terms. In addition to enacting laws that apply to the entire United Republic of Tanzania, the Assembly enacts laws that apply only to the mainland; Zanzibar has its own House of Representatives with jurisdiction exclusive to Zanzibar (the Zanzibar House of Representatives has 50 seats; members elected by universal suffrage to serve five-year terms).

Judicial branch
The legal system is based on the English common law and judicial review of legislative acts limited to matters of interpretation. This branch of government consists of a Permanent Commission of Enquiry as the official ombudsman; a Court of Appeal (consists of a chief justice and four judges); High Court (consists of a Principal Judge and 29 judges appointed by the president; holds regular sessions in all regions); District Courts; Primary Courts (limited jurisdiction and appeals can be made to the higher courts)

Vision 2025
Tanzania Development Vision 2025 is a wider government official roadmap. The main objective is to achieve high quality livelihood for all Tanzanians including:

a) Access to quality primary health care for all
b) Access to quality reproductive health service for all individuals of appropriate ages
c) Reduction in infant and maternal mortality rates by three quarters of current levels.

Local Government Reform
Local government reform denotes devolution of powers and establishment of a holistic local government system. Within this context, primary health services are also managed and administered by Local Government authorities. The Primary Health Services Development Programme (PHSDP) which aims at strengthening Primary Health Care Services is being implemented within the Local Government Reform.

1.4 Health Status
Provision of key health services to a given population could generally be assessed through evaluation of key health status of the population indicators. This section describes the status of morbidity and mortality of the Tanzanian population, as well as Maternal and Child Health, sanitation and access to improved water in the society.

Selected Demographic Indicators, Tanzania Mainland
The top leading morbidity among under five for the two consecutive years, 2021 and 2022 were Upper Respiratory Infections, Malaria and Urinary Tract Infections as shown in table number 4

Table 4: Top Ten causes of Morbidity among Under Five Years; 2021-2022

Rank	Diagnosis	2021	%	Diagnosis	2022	%
1	Upper Respiratory Infections	4,534,847	34.73	Upper Respiratory Infections	4,734,303	36.43
2	Malaria (BS +Ve, mRDT +Ve & Clinical)	1,960,022	15.01	Malaria (BS +Ve, mRDT +Ve & Clinical)	1,574,628	12.12
3	Urinary Tract Infections	1,134,379	8.69	Urinary Tract Infections	1,101,890	8.48
4	Pneumonia, Severe & Non-Severe	1,029,581	7.88	Diarrhea With No Dehydration	1,024,580	7.88
5	Diarrhea With No Dehydration	944,490	7.23	Pneumonia, Severe & Non-Severe	988,510	7.61
6	Skin Infection, Non-Fungal	465,931	3.57	Skin Infection, Non-Fungal	473,269	3.64
7	Other Non-Infectious GIT Diseases	394,103	3.02	Other Non-Infectious GIT Diseases	448,652	3.45
8	Intestinal Worms	386,889	2.96	Intestinal Worms	386,892	2.98
9	Skin Infection - Fungal	274,454	2.1	Skin Infection - Fungal	280,397	2.16
10	Diarrhea With Some Dehydration	249,472	1.91	Diarrhea With Some Dehydration	272,675	2.1

Source: DHIS2 2022

Likewise the top leading morbidity among age of five years and above for the two consecutive years, 2021 and 2022 were Upper Respiratory Infections, Urinary Tract Infections and Malaria as indicated in table 5

Table 5: Top Ten causes of Morbidity among Five Years and above; 2021-2022

SN	Diagnosis	2021	%	Diagnosis	2022	%
1	Upper Respiratory Infections	5,090,517	19.8	Upper Respiratory Infections	4,815,451	18.9
2	Urinary Tract Infections	4,005,121	15.5	Urinary Tract Infections	4,088,584	16
3	Malaria (BS +Ve, mRDT +Ve & Clinical) ical)	2,447,237	9.5	Malaria (BS +Ve, mRDT +Ve & Clinical)	1,902,885	7.5
4	Hypertension	1,340,365	5.2	Hypertension	1,389,946	5.4
5	Pneumonia, Severe & Non Severe	891,682	3.5	Peptic Ulcers	853,127	3.3
6	Peptic Ulcers	810,829	3.2	Pneumonia, Severe & Non Severe	766,471	3
7	Other Non-Infectious GIT Diseases	724,091	2.8	Other Non-Infectious GIT Diseases	764,143	3.0
8	Intestinal Worms	666,869	2.6	Diabetes Mellitus	671,496	2.6
9	Diabetes Mellitus	633,542	2.5	Intestinal Worms	646,514	2.5
10	Other Surgical Condition	555,894	2.2	Other Surgical Condition	544,209	2.1

Source: DHIS2 2022

The leading causes of death among children under five years were Neonatal Asphyxia and Stillbirth in two consecutively years from 2021 to 2022 as per table 6

Table 6: Top Ten underlying causes of death for both genders among under five years; 2021-2022

Rank	Underlying Cause of Death - 2021	M	%	Underlying Cause of Death - 2021	F	%	Underlying Cause of Death- 2022	M	%	Underlying Cause of Death - 2022	F	%
1	P21 - Neonatal Asphyxia	1230	21.4	P21 - Neonatal Asphyxia	1015	19.8	P21 - Neonatal Asphyxia	1050	18.0	P21 - Neonatal Asphyxia	795	15.3
2	P95 - Stillbirth (macerated)	634	11.0	P95 - Stillbirth (macerated)	614	12.0	P95 - Stillbirth (macerated)	803	13.7	P95 - Stillbirth (macerated)	777	15.0
3	J18 - Pneumonia	495	8.6	J18 - Pneumonia	438	8.5	P95 - Stillbirth (fresh)	530	9.1	J18 - Pneumonia	449	8.7
4	P95 - Stillbirth (fresh)	384	6.7	P95 - Stillbirth (fresh)	390	7.6	J18 - Pneumonia	449	7.7	P95 - Stillbirth (fresh)	442	8.5
5	B53 - Malaria, parasitologically confirmed	346	6.0	B53 - Malaria, parasitologically confirmed	314	6.1	P22 - Respiratory distress	337	5.8	P22 - Respiratory distress	291	5.6
6	P22 - Respiratory distress	281	4.9	P22 - Respiratory distress	267	5.2	P07 - Disorders relating to short gest on and low birth weight [prematurity]	310	5.3	B53 - Malaria, parasitologically confirmed	278	5.4
7	P07 - Disorders relating to short gest on and low birth weight [prematurity]	268	4.7	P02 - Fetus and newborn affected by complications of placenta, cord and membranes	232	4.5	B53 - Malaria, parasitologically confirmed	283	4.8	P07 - Disorders relating to short gest on and low birth weight [prematurity]	250	4.8
8	P02 - Fetus and newborn affected by complications of placenta, cord and membranes	223	3.9	P07 - Disorders relating to short gest on and low birth weight [prematurity]	222	4.3	P02 - Fetus and newborn affected by complications of placenta, cord and membranes	220	3.8	P05 - Low birth weight	227	4.4
9	P36 - Neonatal Septicaemia	170	3.0	P05 - Low birth weight	158	3.1	P05 - Low birth weight	195	3.3	P02 - Fetus and newborn affected by complications of placenta, cord and membranes	193	3.7
10	P05 - Low birth weight	158	2.8	P03 - Fetus and newborn affected by other complications of labour and delivery	145	2.8	P03 - Fetus and newborn affected by other complications of labour and delivery	168	2.9	P03 - Fetus and newborn affected by other complications of labour and delivery	140	2.7

Source: DHIS2 2022

The leading causes of death among children under five years were Neonatal Asphyxia and Stillbirth in two consecutively years from 2021 to 2022 as per table 6

Table 7: Top Ten underlying causes of death for both gender among Five years and above; 2021-2022

Rank	Underlying cause of death-2021	M	%	Underlying causes of death - 2021	F	%	Underlying cause of death - 2022	Fe	%	Underlying cause of death - 2022	M	%
1	J18 - Pneumonia	3262	25.0	J18 - Pneumonia	2431	21.7	J18 - Pneumonia	1113	10.8	J18 - Pneumonia	1371	12.2
2	B53 - Malaria, parasitologically confirmed	571	4.4	I11 - Hypertensive heart diseases	604	5.4	B22 - HIV disease resulting in other specified diseases	601	5.9	R57 - Shock [cardiogenic, hypovolemic and sep	527	4.7
3	I11 - Hypertensive heart diseases	508	3.9	B53 - Malaria, parasitologically confirmed	497	4.4	I11 - Hypertensive heart diseases	581	5.7	I11 - Hypertensive heart diseases	525	4.7
4	R57 - Shock [cardiogenic, hypovolemic and sep	465	3.6	B22 - HIV disease resulting in other specified diseases	494	4.4	R57 - Shock [cardiogenic, hypovolemic and sep	415	4.0	B53 - Malaria, parasitologically confirmed	449	4.0
5	B22 - HIV disease resulting in other specified diseases	446	3.4	I10 - Essential (primary) hypertension	390	3.5	I10 - Essential (primary) hypertension	398	3.9	B22 - HIV disease resulting in other specified diseases	425	3.8
6	E11 - Type 2 diabetes mellitus	413	3.2	R57 - Shock [cardiogenic, hypovolemic and sep	380	3.4	B53 - Malaria, parasitologically confirmed	366	3.6	I10 - Essential (primary) hypertension	361	3.2
7	A15 - Respiratory tuberculosis - confirmed	337	2.6	O72 - Postpartum haemorrhage	317	2.8	O72 - Postpartum haemorrhage	351	3.4	A15 - Respiratory tuberculosis - confirmed	334	3.0

Rank	Underlying cause of death-2021	M	%	Underlying causes of death - 2021	F	%	Underlying cause of death - 2022	Fe	%	Underlying cause of death - 2022	M	%
8	I10 - Essential (primary) hypertension	321	2.5	E11 - Type 2 diabetes mellitus	307	2.7	I64 - Stroke, not specified as haemorrhage or infarction	305	3.0	I64 - Stroke, not specified as haemorrhage or infarction	266	2.4
9	R99 - Other ill-defined and unspecified causes of mortality (unknown causes of mortality)	268	2.1	I64 - Stroke, not specified as haemorrhage or infarction	249	2.2	B24 - Other and unspecified HIV disease	234	2.3	E11 - Type 2 diabetes mellitus	264	2.3
10	I64 - Stroke, not specified as haemorrhage or infarction	226	1.7	I42 - Cardiomyopathy	241	2.2	E11 - Type 2 diabetes mellitus	225	2.2	K74 - Liver cirrhosis	215	1.9

COUNTRY HEALTH SERVICES

4.1 Governance

Health services at the levels of dispensaries, health centers and district hospitals (described below) constitute primary health care services and are all managed by district councils. The services can be provided by public or private facilities. The primary care services and regional services operate under the President's Office, Regional Administration and Local Government as part of the government decentralization of services except for regional referral hospitals which are under the mandate of the Ministry of Health. The Ministry of Health under the central government provides overall policy (National Health Policy) and strategy (5-Year Health Strategic Plans), all guided by the National Vision 2025 and the National Strategy for Growth and Reduction of Poverty.

Private practice is regulated by a Private Practitioners Act (e.g., Health Laboratory Practitioners Act, 2007) and traditional medicine by a Traditional Medicine Practice Act, 2002. All the other practitioners (medical, nursing, laboratory, radiology, etc are regulated by related legislation enforced by related semi-autonomous regulatory professional councils.

The Government, parastatals, voluntary and religious organizations, private practitioners and traditional healers all provide health services in Tanzania, guided by a National Health Policy which aims at provision of quality, equitable and affordable services to all Tanzanians. The policy encourages community participation through construction of health facilities and cost-sharing or health insurance to meet service costs. Maternal and child health services including those related to vaccinations and some few diseases (diabetes, HIV/AIDS, sickle cell, psychiatry and the elderly) are exempted.

The government of Tanzania embraces a policy of decentralization by devolution. In the health sector this translates to the following:

a) Local Government Authorities (LGAs) are responsible for implementation of health services, and regions are responsible for supervision. The central level provides leadership and stewardship in the health sector.
b) District councils take full responsibility for executive tasks in health and social welfare, applying LGA and PO-RALG administrative procedures, with technical support from the MOH.
c) Regional Health Management Teams concentrate on technical support to all public and private health service providers to improve quality of the Council health services, without taking over operational responsibilities.
d) The MOH headquarter creates an enabling environment for the health services, leaving executive functions to the appropriate stakeholders (in MDAs, LGAs and private sector). The Ministry will decentralize more executive functions to agencies and institutions under its mandate.
e) Public Private Partnership creates a level playing field for all health service providers, based on added value of stakeholders and (where appropriate) competition on quality. Making better use of the distinct competencies of private (non-state) partners will contribute to improvement of health of the population.
f) Service agreements between Councils and private (non-state) providers in health and social welfare will ensure availability of quality services to the population. Private providers with a service agreement will be given access to public resources, to funding through health programmes and access to purchase medicines from MSD when value for money can be achieved. Private investments in health services are being encouraged.
g) Collaboration between public and private providers will be stimulated to make optimal use of human resources.
h) The MOH will stimulate coordination mechanisms that attract new public and private partners willing to contribute to the improvement of the nation's health status. It will lead the Public Private Partnership forum for joint planning and action.

4.2 Service Provision

The health system and especially the Government's referral system assume a pyramidal pattern starting from village health services and dispensaries to consultant/specialist hospitals. The structure of health services at various levels in the country is as

follows:

a)Village Health Service

This is the lowest level of health care delivery in the country. It includes preventive services which can be offered at homes and it consists of two community health workers preferably chosen by the village government amongst the villagers to undertake training before they start providing services. Their point of referral is the Dispensary.

b)Dispensary Services

This is the second stage of health services. A dispensary caters for between 6,000 and 10,000 people and supervises all the village health posts in its area. The current plan is to have a dispensary for each village in the country. Services are headed by a clinical officer and they are all outpatient except for child deliveries. This level will provide supervision of the village health services offered by community health workers.

c)Health Centre Services

A health centre is expected to cater for 50,000 people which is approximately the population of one administrative division known as a ward. The intention is to have one health centre for each Ward. The services are headed by a medical officer or an Assistant Medical Officer and include a sixteen-bed inpatient services, emergency obstetric care and minor surgeries.

d)District Hospitals

There is one public hospital for each district. For districts without a public hospital, a voluntary hospital is designated at the district hospital and gets subsidy from the government so as to function as district hospital. The Staff establishment 2014-2019 dictates to have a minimum of 198 and maximum 310 health workers of skill mix of which at least 8 and at most 23 are to be graduate doctors per district hospital: a public health specialist to serve as the district medical officer.

e***)Regional Hospitals***

According to the Primary Health Care Development Programme (2007–2017), there should be one public regional hospital for each region. The Staff Establishment 2014-2019 dictates to have a minimum of 474 and maximum 680 health workers of skill mix of which at least 8 specialists for internal medicine, pediatrics and child health, obstetrics and gynecology, Anaesthesiology, Radiology, surgery, Dental and public health: a public health specialist to serve as the Regional medical officer.

f)Zonal Hospitals

The country has six operating zones; KCMC (Northern), Benjamin Mkapa Hospital (Central), The Southern zone referal hospital - Mtwara (Southern), MZRH (Southern Highlands), BMC and Chato (Lake).

g)National and Specialized Hospitals

These include Muhimbili National Hospital, Muhimbili Orthopedic Institute, Ocean Road Cancer Institute, Mirembe Mental Health Hospital, Kibong'oto Infectious Disease Hospital, and Jakaya Kikwete Cardiac Institute.

h)Referral Abroad

For services not available in Tanzania, patients are referred abroad on government subsidy. The government is actively developing capacity for such services in Tanzania including open heart surgery, Bone marrow transplants, Cochlear implants, dialysis services etc.

4.3 Health Care Financing

After independence in 1960, the government provided free medical services to all citizens and private-for-profit medical practice was banned in 1977. However, the financial situation in the 1980s necessitated the introduction of regulated private practice in 1991, user fees in public facilities in the form of cost-sharing in 1993, intramural private practice within public facilities in 1999, a national health insurance for civil servants in 1999 and community health funds in 2001

To allow private participation in health delivery and improve health care, private providers are encouraged to provide public services under a Public/Private Service Agreement with the appropriate public authority and reimbursement from public funds.

Intramural private practice was introduced to encourage public practitioner to remain at their facility, at the same time generating income to subsidize the public services as well as increase the remuneration of the providers. In the National Health Insurance, public servants contribute 3% of their salary which is matched by the same amount by the government.

Services include both out and inpatients and all types of providers (except traditional) are eligible for service provision under the scheme. A Community Health Funds (CHF) is being encouraged whereby members contribute an agreed amount once a year and then receive agreed services from their community facility at no additional costs. Partly, to encourage participation, the community contribution is matched by a similar amount from the government.

Apart from the public funds referred above and several private-for-profit insurance schemes, there are also other health insurance initiatives including TIKKA (the urban equivalent to CHF), UMASITA (Tanzania Informal Sector Community Health Fund), VIBINDO (Association of small industries and small business owners), and the Social Health Insurance Benefit offered by the National Social Security Fund for its members.

According to the Health Sector Public Expenditure Review Update 2015/16, in nominal terms, public health budget allocations per capita increased from TZS 28,845 (USD 18.26) in 2012/13 to TZS 38,092 (USD 22.02) in 2015/16 while actual nominal per capita health spending increased from TZS 23,959 (USD 15.17) in 2012/13 to TZS 30,242 (USD 17.48) in 2015/16. In real terms, there is an upward trend for both budget and actual expenditure – increase from TZS 16,228 (USD 10.27) in 2012/13 to TZS 18,315 (USD 10.59) in 2015/16 and TZS 13,480 (USD 8.53) in 2012/13 to TZS 14,540 (USD 8.41) in 2015/16 respectively.

Because of domestic inflation and depreciation of the shilling, the estimated per capita health expenditures in real terms have consistently remained below USD 10 throughout the review period which is shot of USD 54 recommended by the World Health Organization (WHO). In terms of actual health spending, it increased from TZS 1.055 trillion in 2012/13 to TZS 1.446 trillion in 2015/16 which is a 37.1% increase, while actual public health spending in real terms increased by 17% - an increase from TZS 594 billion in 2012/13 to TZS 695 billion in 2015/16.

Health service funds (from cost-sharing) contributed only 3% of health expenditure by the LGAs in 2009/10. In the same year, the National Health Insurance Fund premium contribution was more than the contribution by development partners to the health basket fund. However, its expenditure was only about 50%. Contribution to the Community Health Fund remains low.
The government contribution to health expenditure was only 64%, the rest being external assistance. This proportion was down to 54% in the 2010/11 budget, raising concerns on sustainability of health interventions in the event of reduced funding from development partners.

4.4 Health Information System

The Ministry's current policy on the health information system advocates for one main system which links with sub systems in form of module within the main system. For many years now, the Ministry has implemented a Health Management Information System (HMIS) or (MTUHA in Swahili) for reporting health related data from health facilities. Data was manually summarized by each facility and sent to the district level where they enter each facility data through DHIS2 platform which is web based, with the possibility of using mobile phones to send data from the facility direct to a central database. The update also includes Human Resources for Health Information System (HRHIS) and a Training Institutions Information System (TIIS) both of which allow authorized users to update individual information.

4.5 Health Facilities by Level and Ownership

Tanzania Mainland has 10,954 health facilities covering all the districts and regions for all Public, Faith Based Organizations and Private Health facilities. Details of the level of facility and ownership are indicated in Table 2 below

Table 8: Number of Functioning Health Facilities by level of Care

Health Facility				
Type of Facility	2023			
	Public	Faith-Based	Private	Total
Hospital	207	112	85	404
Health Centre	879	150	127	1156
Dispensary	5639	622	3133	7189
Grad Total	**6,725**	**884**	**3,345**	**10,954**

Source: MOH-HFR, as of December 2022

5. THE STOCK OF HEALTH WORKERS

This section presents the health workforce in the country and trends of its evolution during the recent past. These data concern the health workers in all sectors (public, private for profit and private not-for-profit including faith-based organizations).

Since 2009, the MOH introduced HRHIS and TIIS all over the country, the roll out was financed by JICA-Human Resource for Health Development Project. The objective of these systems was to collect, record, analyze and use the HRH data generated from complete, reliable and accurate way. Results of the HRH information for the year 2022/23 are discussed in this section as follow:

5.1 Staffing in the Government and Private Health Facilities

5.1.2 Requirement and Availability of Health Workforce

Tanzania like any other developing countries faces a critical shortage of Human Resources for Health. According to the new Staffing level guideline and for the Financial Year 2022/23, the minimum number of health workers required to provide services in the health sector was 348,923. The actual number of health workers available in health service delivery facilities is 119,678 which is 34% of the requirement. The status of HRH is shown in the table below:

Table 9: Requirement and Availability of Health Workforce

SN	Cadre	HRH Required	HRH Available	HRH Gap
1	Addiction Specialist	157	0	157
2	Anaesthesiologist	184	67	117
3	Arthroplasty specialist	25	3	22
4	Cardiologist	257	37	220
5	Cardiothoracic Surgeon	34	8	26
6	Dental Specialist	140	70	70
7	Dermatologist	70	36	34
8	Emergency Medicine Specialist	123	51	72
9	Endocrinologist	34	6	28
10	ENT Specialist	168	84	84
11	Gastroenterologist	41	11	30
12	General Surgeon	571	272	299
13	Geriatricist	61	0	61
14	Hand Surgeon	10	1	9
15	Haematologist	38	19	19
16	Maxillofacial / Oral Surgeon	38	19	19
17	Microbiology and Immunologist	14	7	7
18	Neonatologist	30	5	25
19	Nephrologist	40	18	22
20	Neurosurgeon	104	28	76
21	Nuclear Medicine Physician	30	7	23
22	Obstetrician & Gynaecologists	582	474	108
23	Oncologists	165	35	130

SN	Cadre	HRH Required	HRH Available	HRH Gap
24	Ophthamologist	280	116	164
25	Orthopaedic Surgeon	121	117	4
26	Paediatricians	434	368	66
27	Pathologists	47	31	16
28	Physician	594	369	225
29	Psychiatrist	157	42	115
30	Radiologist	728	93	635
31	Rheumatologist	15	1	14
32	Spine Surgeon	14	4	10
33	Urologist	115	63	52
34	Plastic and Reconstructive Surgeon	14	2	12
35	Respiratory and Critical Care Specialist	23	5	18
36	Assistant Dental Officer	2,941	181	2760
37	Assistant Environmental Health Officer	9,948	2,313	7635
38	Assistant Medical Officer	10,023	3,374	6649
39	Assistant Nursing Officer	55,620	19,643	35977
40	Biomedical Engineer	154	96	58
41	Biomedical Technician	827	132	695
42	Clinical Assistant	7,189	2,131	5058
43	Clinical Officer	21,686	8,687	12999
44	Dental Laboratory Technologist	433	61	372
45	Dental Surgeon	975	379	596
46	Dental Therapist	1,950	569	1381
47	Enrolled Nurse	32,155	22,801	9354
48	Environmental Health Officer	1,139	667	472
53	Health Assistant	43,596	25,803	17793
55	Health Record Technician	2,098	724	1374
52	Health Secretary	1,992	787	1205
49	Health Laboratory Scientist	2,352	1,198	1154
50	Health Laboratory Technologist	7,528	3,479	4049
51	Health Laboratory Technologist Assistant	18,448	1,264	17184
54	Medical Officer	14,774	6,701	8073
56	Nursing Officer	26,878	3,712	23166
57	Nutritionist	2,924	148	2776
58	Occupational Therapist	2,751	76	2675
59	Optometric Technologist	2,751	201	2550
61	Pharmaceutical Technologist	5,218	4,596	622
62	Pharmaceutical Technologist Assistant	8,300	987	7313
63	Pharmacist	3,507	1,746	1761
64	Physiotherapist	2,751	396	2355
65	Orthortist & Prosthetist	2,046	25	2021
66	Radiographer Technologist	4,223	471	3752
67	Radiology Technologist	4,223	69	4154
68	Speech Therapist	742	2	740
69	Support Staff	41,323	3,790	37533
	Grand Total	**348,923**	**119,678**	**229,245**
	%		**34**	**66**

5.1.3 Gender Consideration

The health sector has different cadres which include medical and non-medical personnel. Table 10 shows human resources classification by gender. Most cadres are dominated by men except nursing professionals and health assistants as shown in the table below. In total there are 60,485 females and 59,193 males. However, there are 5,025 male medical doctors against 1,676 females, 1,412 male pharmacists against 334 females and 4,147 male health laboratory technologists compared to 1,719 female. The majority of specialist medical practitioners are male (1,725) as compared to female (744). However, there are more female enrolled nurses and midwives (13,391) compared to male (9,410).

Table 10: Health Workforce by Gender

Cadre	Sex				Total
	Female		Male		
	Available	%	Available	%	
Addiction Specialist	-	-	-	-	-
Anaesthesiologist	22	0.04	45	0.08	67
Arnthroplasty Specialist	-	-	3	0.01	3
Cardiologist	4	0.01	33	0.06	37
Cardiothoracic Surgeon	1	0.00	7	0.01	8
Dental Specialist	23	0.04	47	0.08	70
Dermatologist	19	0.03	17	0.03	36
Emergency Medicine Specialist	11	0.02	40	0.07	51
Endocrinologist	2	0.00	4	0.01	6
ENT Specialist	26	0.04	58	0.10	84
Gastroentrologist	-	-	11	0.02	11
General Surgeon	60	0.10	212	0.36	272
Geriatricist	-	-	-	-	-
Hand Surgeon		-	1	0.00	1
Haematologist	4	0.01	15	0.03	19
Maxillofacial / Oral Surgeon	4	0.01	15	0.03	19
Microbiology and Immunologist	1	0.00	6	0.01	7
Neonatologist	1	0.00	4	0.01	5
Nephrologist	5	0.01	13	0.02	18
Neurosurgeon	6	0.01	22	0.04	28
Nuclear Medicine Physician	2	0.00	5	0.01	7
Obstetrician & Gynaecologists	141	0.23	333	0.56	474
Oncologists	18	0.03	17	0.03	35
Ophthamologist	5	0.01	111	0.19	116
Orthopaedic Surgeon	17	0.03	100	0.17	117
Paediatricians	241	0.40	127	0.21	368
Pathologists	9	0.01	22	0.04	31
Physician	72	0.12	297	0.50	369

Cadre	Sex				Total
	Female		Male		
	Available	%	Available	%	
Psychiatrist	10	0.02	32	0.05	42
Radiologist	32	0.05	61	0.10	93
Rheumatologist	1	0.00	-	-	1
Spine Surgeon	-	-	4	0.01	4
Urologist	7	0.01	56	0.09	63
Plastic and Reconstructive Surgeon	-	-	2	0.00	2
Respiratory and Critical Care Specialist	0	-	5	0.01	5
Assistant Dental Officer	22	0.04	159	0.27	181
Assistant Environment Health Officer	736	1.22	1,577	2.66	2,313
Assistant Medical Officer	1,016	1.68	2,358	3.98	3,374
Assistant Nursing Officer	12,022	19.88	7,621	12.87	19,643
Biomedical Engineer	26	0.04	70	0.12	96
Biomedical Technician	54	0.09	78	0.13	132
Clinical Assistant	621	1.03	1,510	2.55	2,131
Clinical Officer	3,034	5.02	5,653	9.55	8,687
Dental Laboratory Technologist	10	0.02	51	0.09	61
Dental Surgeon	116	0.19	263	0.44	379
Dental Therapist	171	0.28	398	0.67	569
Enrolled Nurse	13,391	22.14	9,410	15.90	22,801
Environmental Health Officer	185	0.31	482	0.81	667
Health Assistant	17,682	29.23	8,121	13.72	25,803
Health Record Technician	397	0.66	327	0.55	724
Health Secretary	401	0.66	386	0.65	787
Laboratory Scientist	392	0.65	806	1.36	1,198
Laboratory Technologist	1,072	1.77	2,407	4.07	3,479
Laboratory Technologist Assistant	330	0.55	934	1.58	1,264
Medical Officer	1,676	2.77	5,025	8.49	6,701
Nursing Officer	2,055	3.40	1,657	2.80	3,712
Nutritionist	128	0.21	20	0.03	148
Occupational Therapist	29	0.05	47	0.08	76
Optometric Technologist	71	0.12	130	0.22	201
Pharmaceutical Technologist	1,446	2.39	3,150	5.32	4,596
Pharmaceutical Technologist Assistant	386	0.64	601	1.02	987
Pharmacist	334	0.55	1,412	2.39	1,746
Physiotherapist	135	0.22	261	0.44	396
Orthotest&Prosthest	3	0.00	22	0.04	25
Radiographer Technologist	99	0.16	372	0.63	471
Radiology Technologist	13	0.02	56	0.09	69
Speech Therapist	1	0.00	1	0.00	2
Support Staff	1,687	2.79	2,103	3.55	3,790
Grand Total	**60,485**	**100**	**59,193**	**100**	**119,678**
Total Percent	**51**		**49**		

5.1.4 Health Workforce by Region

Table 11: Health Workforce by Region

Cadre	Arusha	Dar es Salaam	Dodoma	Geita	Iringa	Kagera	Katavi	Kigoma	Kilimanjaro	Lindi	Manyara	Mara	Mbeya	Morogoro	Mtwara	Mwanza	Njombe	Pwani	Rukwa	Ruvuma	Shinyanga	Simiyu	Singida	Songwe	Tabora	Tanga	Total
Addiction Specialist																											0
Anaesthesiologist	7	34		1	3				1	1			6	1		6		2				2			2	1	67
Arthroplasty Specicialist		3																									3
Cardiologist		21	4				1				2		4			4										1	37
Cardiothoracic Surgeon		8																									8
Dental Specialist	5	23	4	3	1	3			4	1		1	4	2	1	4			1	2	2	1	2		2	4	70
Dermatologist	3	12	1		2				2				6		3	7											36
Emergence Medicine Specialist	6	15	6						7		1		10	1		3		1								1	51
Endocrinologist		6																									6
ENT Specialist	11	29	6		2	8	1		3		1		5	2		15		1									84
Gastroentrologist	2	4			2				2							1											11
General Surgeon	35	55	15	3	6	8	1	4	19	3	11	7	14	12	11	23	9	11		6	3		2	1	4	9	272
Geriatricist																											0
Hand Surgeon		1																									1
Haematologist		9	4										4			2											19
Maxillofacial / Oral Surgeon		11	2						3				2			1											19
Microbiology and Immunologist			5										2														7
Neonatologist		4											1														5
Nephrologist	2	8	2																	3					1	2	18

Cadre	Arusha	Dar es Salaam	Dodoma	Geita	Iringa	Kagera	Katavi	Kigoma	Kilimanjaro	Lindi	Manyara	Mara	Mbeya	Morogoro	Mtwara	Mwanza	Njombe	Pwani	Rukwa	Ruvuma	Shinyanga	Simiyu	Singida	Songwe	Tabora	Tanga	Total
Neurosurgeon	2	18	2						2				1			1	2										28
Nuclear Medicine Physician		5							1							1											7
Obstetrician & Gynaecologists	30	186	15	9	9	8	1	3	19	2	10	5	55	15	8	33	4	4	4	7	10		2	3	12	20	474
Oncologists	2	18							3				1	2		7					2						35
Ophthamologist	16	54	3	2		5			10		2		9	4		5		2		2						2	116
Orthopaedic Surgeon	6	45	3	1			1	1	8		2	1	4	1	2	10	2	10		5	4			2	1	8	117
Paediatricians	15	188	10	1	6	2	2	2	10		5	2	23	6	5	47	3	9	2	4	6		3	2	5	10	368
Pathologists		13	1						4			1	3	5		4										31	31
Physician	26	120	10	4	7	5		4	16	4	7	13	13	15	13	47	8	12	4	13	5		5	2	6	10	369
Psychiatrist		18	10	1					3				7			3											42
Radiologist	4	47	5		1				10	1	1		9	1		8		3								3	93
Rheumatologist		1																									1
Spine Surgeon		4																									4
Urologist	4	23	5						4				3	2		15	3	2						2			63
Plastic and Reconstructive Surgeon		2																									2
Respiratory and Critical Care		5																									5
Assistant Dental Officer	15	55	5	2	1	5		6	15	10	1	3	10	9	3	16	6	7	1		1		1	2	2	5	181
Assistant Environment Health Officer	107	257	293	9	44	106	45	85	103	42	54	68	106	118	110	164	20	90	54	72	71	39	55	46	60	95	2313
Assistant Medical Officer	127	672	174	17	52	214	59	54	166	32	24	53	89	119	77	252	31	107	98	109	124	76	160	82	145	261	3374
Assistant Nursing Officer	1005	3951	1357	354	432	815	182	426	1164	322	417	469	931	922	849	1646	209	583	208	462	671	305	488	302	562	611	19643

Cadre	Arusha	Dar es Salaam	Dodoma	Geita	Iringa	Kagera	Katavi	Kigoma	Kilimanjaro	Lindi	Manyara	Mara	Mbeya	Morogoro	Mtwara	Mwanza	Njombe	Pwani	Rukwa	Ruvuma	Shinyanga	Simiyu	Singida	Songwe	Tabora	Tanga	Total
Biomedical Engineer		24	33	1	1	1		2		1		2	1	2	3	17	1		1	1			4	1			96
Biomedical Technician	4	5	12	5	7	4	5	7	3	6	2	9	7	5	8	20	1	5	4	1	1	1	1	1	4	4	132
Clinical Assistant	86	65	97	12	71	73	43	126	76	80	5	70	122	121	87	148	5	123	71	143	50	77	68	98	107	107	2131
Clinical Officer	476	1018	501	34	325	360	138	244	461	271	65	322	421	628	305	502	33	456	184	247	331	168	257	172	282	486	8687
Dental Laboratory Technologist	6	30	5		4	2							4	3				3								4	61
Dental Surgeon	31	182	35	3	3	5	3	1	16	1	9	2	17	6	7	18		5	1	3	5		3	6	7	10	379
Dental Therapist	36	60	36	9	23	16	7	21	30	25	3	20	44	45	19	28	11	35	4	15	11	5	10	11	14	31	569
Enrolled Nurse	1080	1994	1489	200	744	1250	307	730	1096	615	222	1039	1436	1325	640	1740	263	852	581	890	736	426	769	512	809	1056	22801
Environmental Health Officer	44	170	120	7	15	13	8	4	19	3	2	9	46	36	17	35	12	26	9	12	11	4	9	5	7	24	667
Health Assistant	821	1604	298	161	238	840	137	1309	1175	1999	1471	1277	818	1570	1440	965	1266	402	1342	802	803	700	492	1326	1462	1085	25803
Health Records Technician	74	206	103	21	11	7	2	4	72			4	23	24	13	32	20	23	12	5	23	3	4	4	3	31	724
Health Secretary	22	79	121	6	19	25	14	27	41	13	7	34	41	50	27	42	3	42	11	27	16	14	22	21	26	37	787
Laboratory Scientist	36	451	138	23	27	23	4	4	103	13	33	13	50	35	21	95	2	23	8	16	14		9	17	11	29	1198
Laboratory Technologist	165	991	351	86	72	83	17	31	144	20	64	31	183	151	115	334	39	97	26	72	110	26	108	28	40	95	3479
Laboratory Technologist Assistant	72	132	94	27	43	48	17	28	86	20	29	34	88	70	29	65	9	53	24	45	48	23	58	17	58	47	1264
Medical Officer	370	1626	715	168	196	97	39	125	314	141	106	166	551	352	220	500	72	319	47	85	79	42	103	54	80	134	6701
Nursing Officer	182	1372	314	71	80	79	21	66	257	30	45	74	209	175	70	242	47	105	21	38	36	18	63	36	24	37	3712
Nutritionist	12	27	9	4	2	1			7	6	5	7	8	9	4	8	4	5	3	6	1		5	1	6	8	148
Occupational Therapist	3	24	13	2	2			1	12	1			4	1	2	2		2		1			2	1	1	2	76
Optometry Technologist	5	36	3	1	2	3	2	2	14	1	5	2	17	24	12	20	6	1	2	12	10	1	6	3	3	8	201

Cadre	Arusha	Dar es Salaam	Dodoma	Geita	Iringa	Kagera	Katavi	Kigoma	Kilimanjaro	Lindi	Manyara	Mara	Mbeya	Morogoro	Mtwara	Mwanza	Njombe	Pwani	Rukwa	Ruvuma	Shinyanga	Simiyu	Singida	Songwe	Tabora	Tanga	Total
Pharmaceutical Technologist	236	1045	251	56	167	199	57	128	165	94	31	136	250	189	106	401	26	187	57	130	155	71	104	63	138	154	4596
Pharmaceutical Technologist Assistant	60	27	126	6	53	9	1	88	35	55	7	92	85	104	52	65	1	97	1	5	2	1	3	4	6	2	987
Pharmacist	72	616	194	19	28	42	5	21	84	14	14	25	106	67	29	191	8	44	7	22	26	10	29	16	43	14	1746
Physiotherapist	27	56	27	5	6	6	4	6	43	8	12	8	26	11	13	59	2	17	6	7	12	2	5	6	8	14	396
Prosthest & Orthotest	2	9	2		2	1		2					1			2		1		2						1	25
Radiographer Technologist	35	123	18	13	10	14	5	8	30	7	10	6	39	7	11	46	7	21	4	3	15	6	5	7	13	8	471
Radiology Technologist	6	27	4		2	2			6			2	6	6				3		3						2	69
Speech Therapist		2																									2
Support Staff	305	602	345	97	155	431	17	157	108	43	101	165	140	130	105	98	136	80	59	70	82	68	70	67	79	80	3790
Grand Total	5,608	18,52	7,396	1,444	2,876	4,813	1,146	3,727	5,076	3,895	2,786	4,172	6,065	6,383	4,437	8,000	2,271	3,871	2,857	3,348	3,476	2,089	2,927	2,921	4,033	4,553	119,6
Cadre	**Arusha**	**Dar es Salaam**	**Dodoma**	**Geita**	**Iringa**	**Kagera**	**Katavi**	**Kigoma**	**Kilimanjaro**	**Lindi**	**Manyara**	**Mara**	**Mbeya**	**Morogoro**	**Mtwara**	**Mwanza**	**Njombe**	**Pwani**	**Rukwa**	**Ruvuma**	**Shinyanga**	**Simiyu**	**Singida**	**Songwe**	**Tabora**	**Tanga**	**Total**
%	4.82	16.21	6.40	1.21	2.41	4.03	0.96	3.12	5.08	3.26	2.33	3.50	5.11	5.36	3.74	6.84	1.90	3.25	2.40	2.82	2.92	1.78	2.49	2.45	3.39	3.82	100.0 0

5.1.5 Health workforce by ownership

The majority of health workforce countrywide tends to be concentrated affluent public sector rather than private sector. Public sector has 79,623 health workforce and 40,055 are in private sector.

Table 12: Health workforce by ownership

Table 12: Health workforce by ownership

Cadre	Ownership		
	Public Sector	Private Sector	Total
Addiction Specialist	-	-	-
Anesthesiologist	52	15	67
Arthroplasty Specicialist	3	-	3
Cardiologist	34	3	37
Cardiothoracic Surgeon	8	-	8
Dental Specialist	59	11	70
Dermatologist	30	6	36
Emergence Medicine Specialist	31	20	51
Endocrinologist	6	-	6
ENT Specialist	70	14	84
Gastroentrologist	11	-	11
General Surgeon	197	75	272
Geriatricist	-	-	-
Hand Surgeon	1	-	1
Haematologist	19	-	19
Maxillofacial / Oral Surgeon	19	-	19
Microbiology and Immunologist	7	-	7
Neonatologist	5	-	5
Nephrologist	18	-	18
Neurosurgeon	28	-	28
Nuclear Medicine Physician	7	-	7
Obstetrician & Gynaecologists	404	70	474
Oncologists	31	4	35
Ophthalmologist	96	20	116
Orthopaedic Surgeon	97	20	117
Paediatricians	324	44	368
Pathologists	29	2	31
Physician	320	49	369
Psychiatrist	42	-	42
Radiologist	76	17	93
Rheumatologist	1	-	1
Spine Surgeon	4	-	4
Urologist	62	1	63
Plastic and Reconstructive Surgeon	2	-	2
Respiratory and Critical Care	5	-	5

Cadre	Ownership		
	Public Sector	Private Sector	Total
Assistant Dental Officer	132	49	181
Assistant Environment Health Officer	2,246	67	2,313
Assistant Medical Officer	2,269	1,105	3,374
Assistant Nursing Officer	11,421	8,222	19,643
Biomedical Engineer	80	16	96
Biomedical Technician	120	12	132
Clinical Assistant	1,889	242	2,131
Clinical Officer	6,702	1,985	8,687
Dental Laboratory Technologist	61	-	61
Dental Surgeon	257	122	379
Dental Therapist	356	213	569
Enrolled Nurse	17,305	5,496	22,801
Environmental Health Officer	630	37	667
Health Assistant	16,422	9,381	25,803
Health Records Technician	669	55	724
Health Secretary	667	120	787
Laboratory Scientist	700	498	1,198
Laboratory Technologist	2,474	1,005	3,479
Laboratory Technologist Assistant	633	631	1,264
Medical Officer	3,331	3,370	6,701
Nursing Officer	2,042	1,670	3,712
Nutritionist	123	25	148
Occupational Therapist	51	25	76
Optometry Technologist	141	60	201
Pharmaceutical Technologist	2,523	2,073	4,596
Pharmaceutical Technologist Assistant	870	117	987
Pharmacist	534	1,212	1,746
Physiotherapist	309	87	396
Prosthest & Orthotest	18	7	25
Radiographer Technologist	365	106	471
Radiology Technologist	63	6	69
Speech Therapist	2	-	2
Support Staff	2,120	1,670	3,790
Grand Total	**79,623**	**40,055**	**119,678**

5.1.6 Number of staff by level of care

The findings show that, the dispensary level had the largest contribution of number of available health workers at 30,625 followed by District Council level and the Health Centers which had 29,409 and 25,354 respectively. However, the district council level and dispensaries are facing the highest shortage of human resources for health at 76% and 70% respectively as compared to other levels of care.

Table 13: Number of staff by level of care

Level of Care	Requirement	Available	Gap	%Available	% Gap
Dispensaries	100,646	30,625	70,021	30	70
Health Centres	68,204	25,354	42,850	37	63
District Councils	123,624	29,409	94,215	24	76
Regional Referal Hospitals	16,324	11,664	4,660	71	29
National, Specialised and Zonal Hospitals	27,941	18,528	9,413	66	34
Health Training Institutions	2,637	956	1,681	36	64
MDAs/Parastatals	9,547	3,142	6,405	33	67
Grand Total	**348,923**	**119,678**	**229,245**	**34**	**66**

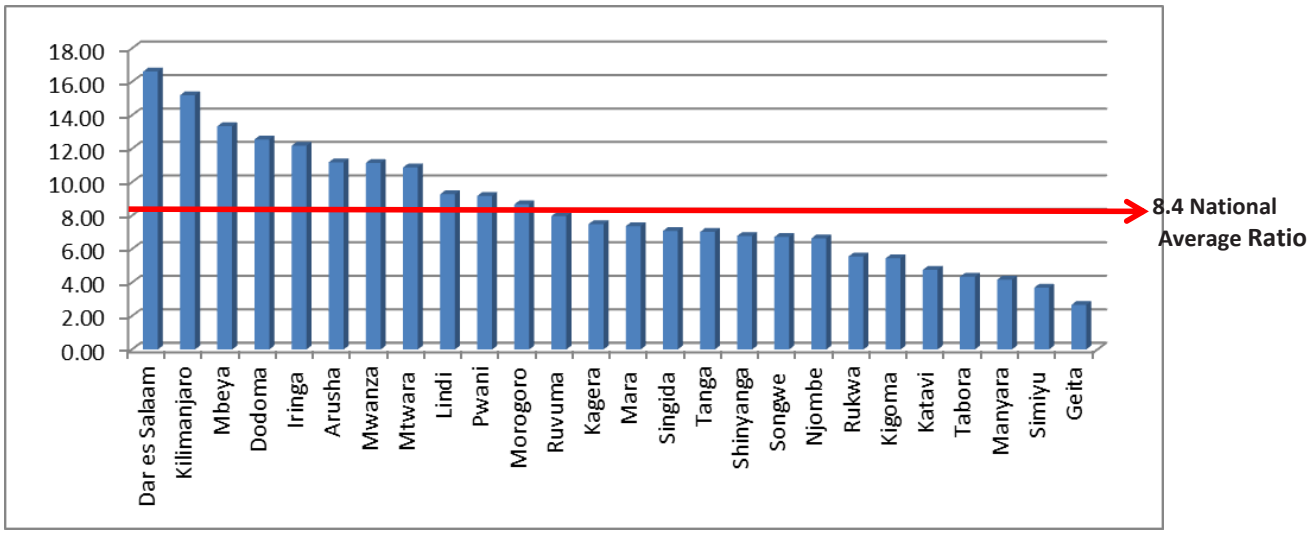
Source: HRHIS

5.1.7 Health Workforce Population Ratios Segregated by Regions

The World Health Organisation has been estimated that countries with fewer than 22.8 physicians, nurses and midwives per 10,000 population generally fail to achieve adequate coverage rates for selected primary health care interventions as prioritized by the SDGs framework. It can be seen that Tanzania is among the countries affected by severe shortage of health workforce.

The number of staff available is very low compared to international standards of the World Health Organization that is the ratio of the physicians, nurses and midwives and population. The situation is now a national average ratio of 8.4 physicians, nurses and midwives per 10,000 populations, a ratio which is one third of the proposed standards by World Health Organization where the proportion of health workforce is 22.8 per 10,000 populations as indicated in figure 1 below:

Figure 1: Physicians, Nurses and Midwives population ratios by region



The analysis showed also that, eleven regions are above national average of physicians, nurses and midwives in relation to their population i.e Dar es Salaam, Kilimanjaro, Mbeya, Dodoma, Iringa, Arusha, Mwanza, Mtwara, Lindi, Pwani and Morogoro. Two regions are merely at the borderline of national average (8.4) and thirteen regions were found to be below the national average ratio as indicated in the figure 1 above. This gives the interpretation that these regions, which are below the national average of the ratio of experts to the population, have a deficit and the workload pressure is high which compromise the quality of health services as well.

5.1.7 Age Distribution by Occupation/Cadre

A higher proportion (29.00%) of the workforce are 25-34 years followed by unknown group's years (28.73). twenty Percent (20%) of HRH in the health sector were 45 years and above which means they are approaching retirement age in the coming few years. Only 3.26% of the health workforce available are 24 years and below.

Table 14 : Health workforce by cadre and age group in years

Cadre	>60	<25	25-34	35-44	35-45	45-54	55-60	Unkown	Total
Addiction Specialist	-	-	-	-	-	-	-	-	-
Anaesthesiologist	2		6	17		5	2	35	67
Arthroplasty Specicialist				1	2				3
Cardiologist	3			6	1	4	1	22	37
Cardiothoracic Surgeon				2	2	4			8
Dental Specialist	8			8		45	9	-	70
Dermatologist	1		2	8		3		22	36
Emergence Medicine Specialist			18	14	9	10			51
Endocrinologist					2	4			6
ENT Specialist	2		5	28		10	7	32	84
Gastroentrologist				1		2		8	11
General Surgeon	19		11	61	19	34	26	102	272
Geriatricist									-
Hand Surgeon						1			1
Haematologist			2	4	3	3	7		19
Maxillofacial / Oral Surgeon				3	7	2	4	3	19
Microbiology and Immunologist					3	4			7
Neonatologist					2	1	2		5
Nephrologist	1		1	1				15	18
Neurosurgeon	1		2	2	1	5	5	12	28
Nuclear Medicine Physician				2	1	3	1		7
Obstetrician & Gynaecologists	28		17	107	27	59	15	221	474
Oncologists			1	9	2	3		20	35
Ophthamologist	2		5	35		20	3	51	116
Orthopaedic Surgeon	4		6	41	3	13	2	48	117
Paediatricians	38		17	105	22	30	21	135	368
Pathologists	5		3	7		7	4	5	31
Physician	7		25	73	28	35	45	156	369
Psychiatrist	6		3	12		8	9	4	42
Radiologist	3		4	39		11	2	34	93
Rheumatologist							1		1
Spine Surgeon						4			4
Urologist	1		3	22	3	9	1	24	63
Plastic and Reconstructive Surgeon						2			2
Respiratory and Critical Care					2	2	1		5
Assistant Dental Officer			3	11	33	27	45	62	181
Assistant Environment Health Officer		11	710	424	273	485	293	117	2,313

Cadre	>60	<25	25-34	35-44	35-45	45-54	55-60	Unkown	Total
Assistant Medical Officer	2	4	893	535		622	287	1,031	3,374
Assistant Nursing Officer	70	339	7,420	3,614	1	2,139	795	5,265	19,643
Biomedical Engineer	1	3	64	16		8	4		96
Biomedical Technician		24	84	12		6	4	2	132
Clinical Assistant		45	1,357	466		67	54	142	2,131
Clinical Officer		197	3,392	1,423		1,150	560	1,965	8,687
Dental Laboratory Technologist				10	13	25	13		61
Dental Surgeon		1	31	77		18	3	249	379
Dental Therapist		32	188	104		26	6	213	569
Enrolled Nurse	42	1,003	9,697	3,626		3,151	1,661	3,621	22,801
Environmental Health Officer		2	221	143	79	72	87	63	667
Health Assistant	17	2,005	1,765	1,003	5,007	5,008	1,906	9,092	25,803
Health Records Technician		1	108	12	208	115	256	24	724
Health Secretary			262	312	1	88	19	105	787
Laboratory Scientist		1	341	270		91	20	475	1,198
Laboratory Technologist		12	584	276		180	51	2,376	3,479
Laboratory Technologist Assistant			153	265		165	55	626	1,264
Medical Officer	23	6	1,955	1,082		303	54	3,278	6,701
Nursing Officer	9	5	942	702		460	90	1,504	3,712
Nutritionist			12	12	48	3	56	17	148
Occupational Therapist		2	40	18		6	3	7	76
Optometry Technologist		12	18	33	33	14	45	46	201
Pharmaceutical Technologist	12	137	2,236	683		369	86	1,073	4,596
Pharmaceutical Technologist Assistant	9	27	645	173		69	18	46	987
Pharmacist	50	1	566	378		148	27	576	1,746
Physiotherapist		11	181	101		42	20	41	396
Prosthest & Orthotest		1	5	12		7			25
Radiographer Technologist	2	6	95	56		44	12	256	471
Radiology Technologist				26		14	3	26	69
Speech Therapist						2			2
Support Staff	20	14	603	907		782	322	1,142	3,790
Grand Total	**388**	**3,902**	**34,702**	**17,390**	**5,835**	**16,049**	**7,023**	**34,389**	**119,678**
%	**0.32**	**3.26**	**29.00**	**14.53**	**4.88**	**13.41**	**5.87**	**28.73**	**100.00**

5.1.8 Health workforce distribution by Urban/Rural setting

Of all cadres, 55,705 (46.55%) of the health workforce were found in rural setting and 63,973 (53.45%) were in Urban setting. Out of 6,701 medical doctors, 4,791 (71.50%) were located in urban areas and 1,910 (28.50%) in the rural areas. Likewise, nursing professionals located in rural areas were 22,841 (49.49%) and those in urban area were 23,315 (50.51%).

Table 15: Number of Health workforce per urban/rural setting

Cadre	Rural	Urban	Total	Rural %	Urban%
Addiction Specialist	-	-	-	-	-
Anaesthesiologist	6	61	67	0.00	0.10
Arthroplasty Specicialist	-	3	3	-	0.00
Cardiologist	4	33	37	0.00	0.05
Cardiothoracic Surgeon	-	8	8	-	0.01
Dental Specialist	11	59	70	0.00	0.09
Dermatologist	2	34	36	0.00	0.05
Emergence Medicine Specialist	-	51	51	-	0.08
Endocrinologist	-	6	6	-	0.01
ENT Specialist	9	75	84	0.00	0.12
Gastroentrologist	-	11	11	-	0.02
General Surgeon	47	225	272	0.00	0.35
Geriatricist	-	-	-	-	-
Hand Surgeon	-	1	1	-	0.00
Haematologist	-	19	19	-	0.03
Maxillofacial / Oral Surgeon	-	19	19	-	0.03
Microbiology and Immunologist	-	7	7	-	0.01
Neonatologist	-	5	5	-	0.01
Nephrologist	-	18	18	-	0.03
Neurosurgeon	-	28	28	-	0.04
Nuclear Medicine Physician	-	7	7	-	0.01
Obstetrician & Gynaecologists	62	412	474	0.00	0.65
Oncologists	-	35	35	-	0.06
Ophthamologist	9	107	116	0.00	0.17
Orthopaedic Surgeon	12	105	117	0.00	0.17
Paediatricians	79	289	368	0.00	0.46
Pathologists	2	29	31	0.00	0.05
Physician	97	272	369	0.00	0.43
Psychiatrist	1	41	42	0.00	0.06
Radiologist	8	85	93	0.00	0.13
Rheumatologist	-	1	1	-	0.00
Spine Surgeon	-	4	4	-	0.01
Urologist	1	62	63	0.00	0.10
Plastic and Reconstructive Surgeon	-	2	2	-	0.00
Respiratory and Critical Care	-	5	5	-	0.01
Assistant Dental Officer	53	128	181	0.00	0.20
Assistant Environment Health Officer	1,085	1,228	2,313	0.02	1.93
Assistant Medical Officer	1,568	1,806	3,374	0.03	2.84

Cadre	Rural	Urban	Total	Rural %	Urban%
Assistant Nursing Officer	8,059	11,584	19,643	0.14	18.24
Biomedical Engineer	6	90	96	0.00	0.14
Biomedical Technician	64	68	132	0.00	0.11
Clinical Assistant	1,851	280	2,131	0.03	0.44
Clinical Officer	5,644	3,043	8,687	0.10	4.79
Dental Laboratory Technologist	11	50	61	0.00	0.08
Dental Surgeon	43	336	379	0.00	0.53
Dental Therapist	73	496	569	0.00	0.78
Enrolled Nurse	13,869	8,932	22,801	0.25	14.07
Environmental Health Officer	169	498	667	0.00	0.78
Health Assistant	12,553	13,250	25,803	0.23	20.86
Health Record Technician	46	678	724	0.00	1.07
Health Secretary	409	378	787	0.01	0.60
Laboratory Scientist	206	992	1,198	0.00	1.56
Laboratory Technologist	744	2,735	3,479	0.01	4.31
Laboratory Technologist Assistant	616	648	1,264	0.01	1.02
Medical Officer	1,910	4,791	6,701	0.03	7.54
Nursing Officer	913	2,799	3,712	0.02	4.41
Nutritionist	51	97	148	0.00	0.15
Occupational Therapist	11	65	76	0.00	0.10
Optometry Technologist	16	185	201	0.00	0.29
Pharmaceutical Technologist	2,365	2,231	4,596	0.04	3.51
Pharmaceutical Technologist Assistant	737	250	987	0.01	0.39
Pharmacist	519	1,227	1,746	0.01	1.93
Physiotherapist	94	302	396	0.00	0.48
Orthotest /Prosthest	-	25	25	-	0.04
Radiographer Technologist	61	410	471	0.00	0.65
Radiology Technologist	22	47	69	0.00	0.07
Speech Therapist	-	2	2	-	0.00
Support Staff	1,587	2,203	3,790	0.03	3.47
Grand Total	**55,705**	**63,973**	**119,678**	**46.55**	**53.45**

HUMAN RESOURCES FOR HEALTH PRODUCTION

There is a total of 216 midlevel health training institutions, among these, 43 are directly owned by the Ministry of Health, 4 are owned by other Ministries, 53 are owned by FBOs and 116 by private organizations. On the other hand, there are 10 Universities offering medical related courses.

Pre-service training

Non-degree training program for health professionals registered and accredited by the National Council for Technical and Vocational Education and Training (NACTVET) after approval by the respect professional councils. The accreditation criteria require institutions to have programs and quality assurance systems in place that ensure educational standards and capability of providing the established qualifications.

The entry requirement for pre-service education applicants is a certificate award from secondary school education. In-service training is offered to allow cadres to move up the professional ladder, motivate staff and improve performance. The entry qualifications for in-service requires the applicant to have successfully completed the lower level education. All the final examinations for middle cadre students are administered by the Ministry of Health and registered by their respective professional councils after they have passed. Training at degree level is the responsibility of the Ministry of Education, Science and Technology and is regulated by the Tanzania Commission for Universities (TCU).

Table 16: Number of programs and ownership

Award	Type of ownership			Total
	Public	Private not for profit, FBOs	Private for Profit	
Doctor of Medicine (MD)	3	3	3	9
Radiography (Degree)	1	1	0	2
Clinical Officer	20	27	55	102
Doctor of Dental Surgery (DDS)	2	0	0	2
Dermatovenereology Advanced Diploma	0	1	0	1
Clinical Dentistry Diploma	4	2	2	8
Pharmacy Degree	1	2	1	3
Pharmacy Diploma	5	14	76	95
Nursing &Midwifery Diploma	28	43	26	97
Nursing & Midwifery Degree	2	3	2	7
Health Information Science Degree	1	0	0	1
Health Information Science (Diploma)	2	0	0	2
Health Laboratory Degree	1	2	1	4
Health Laboratory Diploma	9	14	27	50
Diagnostic Radiography Degree	1	1	0	2
Radiography Diploma	2	1	0	3
Physiotherapy Degree	1	1	0	2
Physiotherapy Diploma	3	0	1	4
Orthotics and Prosthetics- Degree	0	1	0	1
Orthotics and Prosthetics Diploma	1	0	0	1
Optometry Diploma	1	1	0	2
Environnement Health Science Degree	1	0	0	1
Environnement Health Science Diploma	5	0	1	6
Dental Labaratory Technologist	1	0	0	1
Medical Heath Record	1	2	0	3
Biomedical Engneers	4	0	0	4
Biomedical Engneering Technician	3	1	0	4
Total number of courses	103	120	195	417

The government supports higher education by providing students (in both public and private higher institutions) with soft loans to cover both tuition fee and living expenses. All degree students in medical colleges are fully sponsored while students in the non-degree courses attending training in public institutions have no access to loans but are charged subsidized fees in the form of cost sharing.

Tanzania has a severe shortage in all cadres of health and health-related professionals. On the other hand, the government works to ensure access to health services to all citizens through ensuring that there is a dispensary in every village, a health center in every ward and a district hospital in every district council in the country. By implementing this strategy, more HRH will be required compounding the existing shortage. To address the HRH challenge, in 2007, the government embarked on a Primary Health Service Development Programme (PHSDP). As part of the programme, the duration of training was reduced for some of the courses, the intake for most of the cadres was increased, the physical infrastructure of several schools were rehabilitated or expanded (classrooms, laboratories, dormitories) and shortage of essential training materials and teaching staff were addressed by reviewing the manning levels of all training institutions.

The Ministry has continued to manage and coordinate the production of professionals from Training institutions who have continued to be an important pillar in the provision of health services. In 2017/2018 the total number of students selected to join studies at middle level health colleges was 10,863 as compared to 25,390 in 2022/2023. In addition, the increase in graduating students has improved from 4,173 in 2017/18 to 11326 in 2021/22 at the middle cadre level.

Table 17: Enrollment and Output of Middle level cadres from 2017/18 to 2021/22

		Enrolled						Graduates					
SN	Program	2017/18	2019	2020	2022	2023	Total	2018	2019	2020	2021	2022	Total
1	Pharmaceutical Sciences	4,438	6,557	8,364	11,055	12,533	42,947	468	1,055	1,964	2,991	1,752	4,743
2	Clinical Medicine	3,257	7,032	6,477	7,916	7,397	32079	951	1,581	2,513	2,436	4,049	6,485
3	Nursing & Midwifery	1,900	3,687	3,402	3,347	3,538	15,874	1,753	2,385	3,117	3,261	4,053	7,314
4	Medical Laboratory Sciences	1,015	1,199	1,070	1,161	1,127	5572	662	871	1,173	1,093	1,075	2,168
5	Clinical Dentistry	49	143	156	178	306	832	59	28	75	92	92	184
6	Environmental Health Sciences	84	150	182	102	119	637	42	127	81	134	133	267
7	Physiotherapy	-	79	113	137	134	463	11	28	52	74	52	126
8	Health Information Sciences	6	64	58	59	77	264	-	-	6	70	51	121
9	Health Records & Information Technology	-	50	80	37	39	206	60	39	25	39	35	74
10	Optometry	-	41	45	63	64	213	11	16	26	33	31	64
11	Radiography	104	156	80	99	48	487	46	52	43	60	-	60
12	District Health Management	-	-	-	3	4	7	-	-	-	-	3	3
13	Health Personnel Education	10	4	3	5	4	26	10	7	4	3	-	3
	TOTAL	**10,863**	**19,162**	**20,030**	**24,162**	**25,390**	**99,607**	**4,073**	**6,189**	**9,079**	**10,286**	**11,326**	**21,612**

Table 18: Number of students enrolled and Output for Undergraduate programs

Sn	DEGREE PROGRAM	Enrolments						Graduates					
		2017	2018	2019	2020	2021	2022	2017	2018	2019	2020	2021	2022
1	Doctor of Medicine	1506	1230	1502	2408	2719	1198	751	1002	1288	2754	1481	1024
2	Doctor of Dental Surgery	32	47	67	69	72	91	21	28	32	35	35	47
3	Bachelor of Medical Laboratory Science	194	207	219	729	756	775	83	79	102	113	253	336
4	Bachelor of Pharmacy	143	162	175	269	271	301	201	245	524	502	324	313
5	Bachelor of Physiotherapy	23	26	29	45	115	122	21	18	22	26	25	29
6	Bachelor of Science in Environmental Health Sciences	45	299	263	271	270	299	179	198	240	269	257	260
7	Bachelor of Science in Nursing, Nurse Anaesthesia and Midwifery	387	402	423	437	559	649	554	592	602	643	810	831
8	Bachelor of Science in Radiation Therapy Technology & BSc Rad	17	19	22	76	79	92	10	15	9	13	17	31
9	Bachelor of Biomedical Engineering	0	34	22	20	34	22	18	32	20	18	32	20
	TOTAL	**2347**	**2426**	**2722**	**4324**	**4875**	**3549**	**1838**	**2209**	**2839**	**4373**	**3234**	**2891**

There is inadequate capacity of health training institutions to absorb all eligible applicants to join training in the health professions. Health training institutions are faced with inadequate classrooms, libraries, dormitories, teaching practicum sites, teaching and learning materials. The teacher to student ratio is also far compromised in most heath training institutions. All these factors, apart from limiting the intake of students, compromise the quality of training and graduates and ultimately resulting into poor health services rendered to the citizens.

In-service and continuing education

Currently, the in-service training is geared towards enabling staff to advance from one level to another. For example, Clinical Assistants (certificate) advance to Clinical Officers (CO, diploma), COs advance to Assistant Medical Officers (AMOs, advanced diploma) and a similar picture pertains for nurses: moving from Trained/ Enrolled Nurse (certificate) to Assistant Nursing Officer (diploma) and Nursing Officer (degree). The degree holders for nurses, doctors and other allied health sciences may still move up the ladder through masters to PhD, provided that they attain the required entry qualifications.

For all the cadres, the main problem may be lack of necessary credits for enrolment into the next higher level. Distance education is being encouraged to enable more staff to enroll. Continuing medical education with the aim of obtaining higher qualification is lacking for most health workers. Medical doctors, Nursing and Midwifery Councils and other councils have introduced re-licensure of their professionals, requiring prior evidence of CME. It is hoped that this will lead to increased CME efforts by individuals hence improved professional knowledge and skills.

For in-service training, public health workers are fully supported and continue to receive their full salary during the training. In-service public schools also enroll health workers from private health facilities, based on the entry qualifications. Various trainings are organized to meet specific needs like HIV/AIDS, new malaria treatment, quality improvement in health care, etc. Given the importance of CME, the MOH has divided the country into eight zones each with a Zonal Health Resource Centre to oversee in-service training in the respective area. The Ministry has established meetings with principals of Health Training Institutions to improve coordination of training functions. The meetings provide forum for discussion on issues pertaining to the training institutions and informs the MOH of the challenges that training institutions are encountering.

Table 19: Number of Health Workers Pursuing Continue Professional Development 2017/18-2022/2023

Professional Council	HCWs Enrolled	HCWs Accessed eCPDs	HCWs Completed eCPDs
MCT	37,776	21,543	17,241
TNMC	44,731	18,992	15,607
HLPC	5,430	3,479	2,918
PC	8,934	4,209	3,008
Total	**96,871**	**48,223**	**38,774**

For the past decade, the Government in collaboration with other stakeholders especially the Medical Universities has gradually increased the enrollment of postgraduate students in various fields of specialties. Six out of ten medical schools are offering postgraduate training and the areas of specialization have also been expanded from the traditional 4 to 25. This is in line with the Health Policy of 2007, implementation of the PHSDP 2007-2017, Health Sector Strategic Plans III, IV and V (2021-2026) and Human Resources for Health Strategic Plan (2021-2026). All these strategies have contributed significantly to the strengthening and orientation of secondary and tertiary services delivery in hospitals, in support of primary health care. However, for the past four years the number of sponsored students has been increasing due to the substantial increase of funds allocated to sponsor the public employees. For example in the year 2015 the government disbursed 501,466,575 TZS as compared to TZS 8,000,000,000 in 2022 leading to an increase in the number of sponsored staff from 317 in 2015 to 848 in 2022.

Table 20: Trend of Enrolments & Outputs of Postgraduates students By Speciality 2017/18-2022/2023

Sn	Training Program (Awards)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	MMed Pediatric and Child Health	19	24	37	43	67	74	19	38	19	20	26	4
2	MMed Obstetric and Gynecology	26	52	78	94	105	113	27	43	31	31	43	51
3	MMed Internal Medicine (physician)	21	29	48	64	93	87	24	30	32	33	31	34
4	MMed Surgery	18	29	58	61	82	77	20	24	19	28	25	29
5	MMed Radiology	14	22	28	36	27	32	11	12	14	10	12	13
6	MMed Urology	2	4	9	11	25	21	6	13	2	4	5	4
7	Mmed Orthopedics and Traumatology	8	24	36	57	74	72	21	20	7	20	16	19
8	MMed Emergency Medicine	11	9	7	9	18	11	10	8	9	8	5	6
9	MMed ENT	7	9	16	24	31	29	8	12	7	9	7	9
10	MMed Dermatology	2	1	3	2	3	5	0	3	0	0	3	3
11	MMed Ophthalmology	6	10	18	26	45	44	3	5	5	10	9	7
12	MMed Restorative Dentistry	3	3	2	4	3	2	1	1	3	3	2	2
13	MMed Oral Maxillo Facial Surgery	1	0	2	2	1	1	3	2	1	0	1	1
14	MMed Pediatric Dentistry	1	0	1	0	0	1	3	2	1	0	0	1
15	Mmed Community Dentistry	0	0	0	0	0	0	0	1	0	0	0	0
16	MMed Oncology	5	4	4	3	3	5	3	3	4	4	2	1
17	MMed Anatomical Pathology	6	4	3	2	1	3	5	7	6	4	2	2
18	MMed Anaesthesiology	8	9	8	9	7	8	7	12	7	9	5	4
19	MMed Haematology & Blod Tnasfussion	2	7	5	6	4	6	2	3	2	7	3	3
20	MMed Psychiatry	4	5	7	9	17	15	4	1	3	5	4	4
21	Msc Cardiology	2	3	4	5	12	9	0	0	2	3	5	6
22	Msc. Plastic & Reconstructive Surgery	0	3	2	0	2	0	0	0	0	2	2	2
23	Msc Interventional Radiology	0	4	3	6	4	1	0	0	0	0	2	3
24	Msc Haematology & Blood Transfussion	0	0	0	0	2	2	0	0	0	1	2	2
25	Msc Gastroentorology and Hepatology	0	6	7	8	2	4	1	0	3	4	5	5
26	MSc Nephrology	3	1	3	3	4	4	0	1	3	1	3	3
27	Msc Neuroradiology	0	0	2	4	3	0	0	0	0	2	2	3
28	Msc Neurosurgery	1	0	2	2	2	2	0	0	1	0	2	1
29	Msc Neurology	1	1	3	2	0	2	1	0	1	1	3	2
30	Msc Neonatology	0	0	2	0	4	3	0	0	0	0	0	3
31	Msc Anatomy	1	5	1	1	1	0	0	0	1	4	1	2
32	Msc Physiology	0	1	1	3	0	1	0	0	0	1	0	1
33	Msc Clinical Psychology	3	0	1	4	3	3	0	0	3	0	1	0
34	Msc Histotechnology	2	1	2	1	1	2	0	0	2	1	1	1
35	Msc Clinical Pharmacology	1	2	0	1	4	3	0	2	1	2	3	2
36	Mpharm. Hospital and Clinical Pharamcy	3	2	3	3	4	3	4	2	3	2	2	3
37	Mpharm. Quality and Quality Assurance	3	4	3	4	4	3	4	3	3	4	3	3
38	Mpharm Pharmacognosis	0	0	1	1	1	3	0	1	1	1	2	1
39	Mpharm Industrial Pharmacy	0	0	1	2	2	3	0	0	0	2	1	1
40	Msc. Microbiology	4	8	13	16	29	33	1	0	3	4	4	4
41	Msc Parasitology & Entomology	2	4	5	5	4	1	2	0	2	4	3	4
42	Msc.Tropical Disease Control	1	4	2	2	0	1	0	0	1	4	2	2
43	Msc Traditional Medicine Development	4	3	0	0	0	0	1	2	3	3	2	3
44	Msc. Biochemistry	2	5	1	1	2	0	2	4	2	4	2	3
45	Msc. Bioethics	14	11	12	7	4	5	0	0	13	10	3	4
46	Msc Critical Care and Trauma	6	5	4	5	5	7	6	3	6	4	3	4
47	Msc. Paediatric Nursing	4	13	5	6	8	7	4	0	3	13	5	5
48	Msc. Midwifery	21	25	22	20	19	19	21	0	20	23	8	12

Sn	Training Program (Awards)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
49	Msc Mental Health Nursing	1	2	3	4	4	5	1	0	1	2	4	3
50	Msc.Nursing Education	8	7	3	0	0	0	8	0	8	7	4	2
51	Msc Environmental and Occupational Health	6	3	5	7	7	9	3	0	5	3	4	5
52	Msc Epidemiology	27	32		30	32	39	25	1	26	26	22	18
53	MA. Health Policy Management	2	2	5	0	9	13	5	0	2	2	3	3
54	Msc.Health Information Management	10	0	0	9	7	6	0	0	9	0	2	3
55	Msc Project management in Health	57	33	35	24	29	33	0	0	52	31	22	26
56	MPH	132	120	148	161	198	203	141	155	128	117	202	228
	Grand Total	**485**	**555**	**674**	**809**	**1018**	**1035**	**407**	**414**	**480**	**493**	**536**	**570**

7. HRH UTILIZATION

Utilization of graduates available in the labor market

Despite the fact that Tanzania has a severe shortage of health workers, some graduates from health training institutions are not absorbed into employment in the health sector. There is inadequate capacity to train interns for the cadres that require internship training before registration and employment. Such cadres include medical doctors, nurses, pharmacists and laboratory scientists. As a result, some graduates change their mind and engage in other kinds of employment or migrate out of the country. For example, there are more than 1,000 in the FY 2015/16 medical doctors in the labour market waiting for employment but the employment permits are not yet granted.

Employment permits that are given by the PO-PSM are cadre specific and have to be utilized within the financial year. Quite often, there is a mismatch between the employment permits provided and the actual need of specific cadres across the health and health related professions.

7.1 Recruitment and Deployment of HRH

7.1.1 Recruitment

Recruitment in the health sector is a multi-sectoral function; it involves PO-RALG through Councils which are charged with the responsibility of identification of new employment posts. Likewise, PO-PSM is charged with the responsibility of rationalisation, validation and approving new employment posts. The Ministry of Health is responsible for advertising and posting of health workers to relevant authorities before the Ministry of Finance take its responsibility of financing new posts in form of salaries. Challenges in recruitment include; low human resource management capacity in the councils, limited allocations for personnel emoluments, poor working conditions (roads, communication network, electricity, recreation, water, and schools for children) especially in rural areas, limited ability of the health sector to meet the basic employee personal needs (including pay for extra/ heavy workloads, workplace hazard allowance and opportunities for self-development) and brain drain within and outside the country.

Table 21: Health Workers Production and Recruitment Trends 2012/2019 – 2021/2022

Year	Recruitment Permits issued and filled	Number of Graduates	Graduate not absorbed by Public Sector	Percentage absorbed by Public Sector
2012/2013	6,471	6,166	0	100%
2013/2014	10,940	7,828	0	100%
2014/2015	8,345	8,324	0	100%
2015/2016	0	9,082	9,082	0%
2016/2017	3,152	8,653	5,501	36%
2017/2018	7,680	6,668	0	100%
2018/2019	120	7,121	7,001	2%
2019/2020	1,000	13,800	12,800	7%
2020/2021	2,930	13,852	10,922	21%
2021/2022	10,285	14,550	4,265	71%
Total	**50,923**	**96,042**	**49,571**	**53%**

*From 2012-2014 recruitment included graduates of the previous years hence accounts for the 5% increase of the absorbed graduates to the public sector.
Based on the ten-year staff recruitment target planned on the HRH Production Plan 2014-2024 to recruit 68,195 staff, the Ministry has achieved the target by 74.7% (50,923).
The number of staff expected to be recruited during the ten-year period (Production Plan 2014-2024) is 68,195 new employees and is made up of two parts:

1. Staff required to meet the expansion of the services, and
2. Those required replacing leavers from the existing stock of staff over the ten-year period.

While the trends of employment for the past ten years show that, the absorption rate is below the production capacity. For the past ten years the health sector has produced 96,042 and only 50,923 health care workers have been absorbed in the public health sector equivalent to 53% of the production of healthcare workers.

MINISTRY OF HEALTH

HUMAN RESOURCES FOR HEALTH

TANZANIA MAINLAND COUNTRY PROFILE