HEALTH LABOUR MARKET ANALYSIS FOR ESWATINI

August 2023

Contents

Foreword

As a country, our vision is to have a healthy and productive Swazi population that lives longer, fulfilling and responsible lives. In line with this aspiration, the Government of Eswatini has, over the years, prioritised health investment as key to socio-economic development. As part of this, many initiatives have addressed various health system challenges, including the health workforce. These efforts have served us well over the years – notably, we have decreased maternal mortality by 65% between 2008 and 2020 and under-five mortality declining by 49% within the same period. This significant progress gives us hope for the future. Additionally, the country has strived to improve access to health services, particularly towards our 95-95-95 goal. Despite our progress over the last two decades, our country's speed of progress is beginning to show signs of attenuation – principally driven by the availability of human resources for health, infrastructure adequacy and availability of health products.

These have impacted the health system's capacity to deliver adequate and quality health services to address the population's health needs. As part of efforts to generate evidence towards a review of its health workforce strategic plan, the Ministry of Health commissioned a health labour market analysis to gain comprehensive insights into the health workforce issues from a health labour market perspective to inform appropriate inter-sectoral action and strategic investments. The assessment included data from various government and non-state institutions and inputs from over 500 health workers, clinical experts, health managers and civil society.

As of 2022, Eswatini has approximately 7,159 skilled health professionals and about 3,200 Rural Health Motivators (together making 10,359). While the number of these health workers has grown, the assessment identified many unemployed or underemployed, suggesting their skills still need to be appropriately availed to benefit the population. To achieve Universal Health Coverage (UHC) targets and make substantial progress towards health-related Sustainable Development, Eswatini requires a significant increase in its health workforce, from 10,359 in 2022 to approximately 26,563 health workers by 2032. This need is driven by the evolving disease burden, demographic changes, and the essential services that must be available through health promotion, disease prevention, diagnostics, treatment/disease management, rehabilitation and palliative care.

The public, private, and missions/NGOs together need to invest about US$17 million in health workforce education over ten years and plan for almost US$260 million in employment, of which 16,000 will be required in the public sector to accelerate progress. The report underscores that investing in the Eswatini health workers should no longer be considered a consumptive cost to

be contained but a worthwhile investment to be nurtured. This underscores the urgent need for strategic investments in our health workforce.
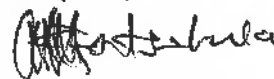
Moreover, the report underscores the high intention among health workers to migrate abroad, driven by better employment opportunities and working conditions elsewhere. Addressing this requires not just improving job quality, increasing remuneration, and ensuring adequate training and career development opportunities, but a fundamental change in how we value and support our health professionals to retain them within the country.

The assessment has identified critical areas for policy and strategic action, including:

1. Strengthen health workforce governance and coordination and development of a National HRH Strategic Plan.

2. Optimise health workforce education and training by developing an integrated national master plan for health workforce training and education in collaboration with various stakeholders.

3. Progressively rationalising and expanding health workforce employment to address critical service delivery gaps.

4. Improve mechanisms for health worker retention and equitable distribution.

5. Investing in strengthening health Workforce Information Systems.

The findings in this report will be critical input in developing a new Human Resources for Health strategic plan. But it does not stop there. I implore all sister ministries agencies and development partners to make good of this report and advocate for increased investment in the health workforce. The MOH will, on its part, ensure greater efficiency in utilising the health workforce and will further use the evidence from this report to improve human resources planning and management towards our goal of Universal Health Coverage (UHC) and the Sustainable Development Goals (SDGs).

Hon. Mduduzi Matsebula
MINSTER OF HEALTH

Acknowledgements

The Ministry of Health (MOH) is committed to achieving Universal Health Coverage and other health-related targets of the Sustainable Development Agenda by 2030. The Senior Management Team (SMT) of MOH is dedicated to leading and supporting the vision of having an "adequate, competent, and motivated health workforce capable of providing quality healthcare to meet national and international standards by 2030." The SMT is equally devoted to ensuring the health system is staffed with adequate numbers of health workers, who are equitably distributed and possess the necessary skills mix. To this end, the SMT, in collaboration with MOH, undertook a comprehensive Health Labour Market Analysis (HLMA) of the Eswatini Health Workforce to understand the full spectrum of health workforce needs, demand and supply dynamics, and mismatches. This analysis provides an evidence base for responsive and proactive policy and strategic interventions.

This endeavor would not have been possible without the contributions from various organizations and individuals. The SMT extends its profound gratitude to the WHO Country Office in the Kingdom of Eswatini and the WHO Africa Regional Office for providing technical expertise and financial assistance throughout the development of this HLMA. We would like to acknowledge the contributions and participation of government institutions, development partners (including the Elizabeth Glazer Pediatric AIDS Foundation - Aspire Project and Georgetown University), the World Bank, and private and not-for-profit hospitals.

We express our deepest appreciation to the Technical Working Group (TWG) members who worked tirelessly throughout the process of methodology development, data collection, analysis, and consolidation of this comprehensive HLMA report for the Kingdom of Eswatini.

Leadership

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- **Mr. Khanyakwezwe Mabuza**, Principal Secretary
- **Ms. Ncamsile Mtshali**, Under Secretary Administration
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Acronyms/List of abbreviations

ENC	Eswatini Nursing Council
EMCU	Eswatini Medical Christian University
HWF	Health Workforce
GDP	Gross Domestic Product
GSCCH	Good Shepherded Catholic College of Health Sciences
GEI	Geographical Equity Index
HIV	Human Immunodeficiency Virus
HRH	Human Resources for Health
MoE	Ministry of Education
MoH	Ministry of Health
MoLSS	Ministry of Labour and Social Security
MoPS	Ministry of Public Service
NHS	National Health Strategy
RHM	Rural Health Motivator
SADC	Southern African Development Community
SANU	Southern African Nazarene University
TTT	Technical Task Team
UNESWA	University of Eswatini
UHC	Universal Health Coverage
WHO	World Health Organization
WHO/AFRO	World Health Organization, Regional Office for Africa

Glossary

Accreditation (in professional education): The process of evaluating education institutions against predefined standards required for the delivery of education. The outcome of the process is the certification of the suitability of education programmes and of the competence of education institutions in the delivery of education.

Demand (for health services): The health care expectations expressed by individuals or communities; or the willingness and ability to seek, use, and, in some settings, pay for services. It may be subdivided into expressed demand (equated with use) and potential demand. It may also be subdivided into rational demand (demand that corresponds to need) and irrational demand (demand that does not correspond to need).

Demand (for health workers): The demand for health workers corresponds to the number of health workers that a health system can support in terms of positions or economic demand for services. In other words, it reflects the capacity and willingness to pay the purchasers of health care (for example, the Government or private sector firms), which in turn drives the demand for employing health workers in public or private hospitals, public health centres and other parts of the health system, including self-employed health workers. The demand for health workers is therefore a derived demand for health services.

Education (of health workers): The process of developing knowledge, skills, attitudes and competencies related to the delivery of health services. Specialization is the process of developing advanced knowledge, skills, attitudes, and competencies related to the delivery of specific health services.

Employment status: full-time, part-time, temporary, permanent: Full-time (whole-time) is employment for or working for the amount of time considered customary or standard. Part-time is employment for or working for less than the amount of time considered customary or standard. Permanent is employment contracted for an indeterminate period. Fixed term is employment contracted for a fixed period of time. Temporary refers to short-term contracts or "casual" work, either for a definite period or for a specific Health Labour Market Analysis.

Health labour market: The structure that allows services of health workers to be sought (demanded) and offered (supplied). The health labour market can be characterized according to geographical area (local, national or international); occupation (by occupation title or category, specialized or unspecialised); and sector (private or public, formal or informal). The dynamic between the number and the kind of jobs offered on the market and the number of health workers is central in determining the configuration of the health labour market.

Health workforce, human resources for health, health workers: All persons engaged in actions whose primary intent is to enhance health, irrespective of whether they are paid staff or volunteers, whether working fulltime or parttime and regardless of whether they deliver health services, manages the services offered by the system or address social determinants of health (WHO 2006;2). They can either be;

Health service providers: This group comprises the people who deliver services – whether personal or non-personal (health and care professionals and associate professionals) or;

Health management and support workers: this group comprises people not engaged in the direct provision of services.

Health workforce planning: The process of estimating potential requirements (the calibre, quantity and skills mix) for human resources for health and designing ways of fulfilling those requirements, including strategies that address the adequacy of the supply and distribution of the health workforce according to policy objectives and the consequential demand for health labour.

International Standard Classification of Occupations (ISCO): An international classification for organising jobs into a clearly defined set of groups according to the tasks and duties undertaken in the job. It is maintained by the International Labour Organization.

Mismatch: A discrepancy or a lack of correspondence between demand and supply that can result in (a) health worker shortage or surplus, (b) skills mismatch related to under education or over education, or (c) labour discrimination or bias exercised by the employer.

Stakeholder: An individual, group or organization that has an interest in the organization and delivery of health care.

Stock: The total number of health workers potentially available in a country, including those participating in the health labour market, plus those who are qualified to do so but do not participate for some reason, such as early retirement.

Supply (of health workers): The number of health workers active in the health labour market, either in employment or not employed but willing to work.

Surplus (of health workers): The situation in which more qualified health workers are willing to work than there are jobs readily available to employ them.

Executive Summary

Background and objectives

The Kingdom of Eswatini has a vision of ensuring a healthy and economically productive population that lives longer, healthier, and socially fulfilling lives, and contribute optimally towards the national vision of achieving first world status. Pursuant to this vision, the Kingdom of Eswatini conducted a Health Labour Market Analysis to inform its HRH policy making and guide targeted strategic interventions. The Health Labour Market Analysis is a systematic, comprehensive and evidence-based Health Workforce planning tool used to appreciate the labour market dynamics in a country and guide decision making. This study was conducted with the understanding that the Health Labour Market like any market is dynamic and influenced by policy decisions and actions across several sectors that include education, labour market, finance, foreign relations and the health sector itself.

This report presents a comprehensive Health Labour Market Analysis (HLMA) of the Kingdom of Eswatini's health workforce. The main aim of the HLMA was to conduct an in-depth analysis of the relationship between supply, demand, need for Health Workforce in Eswatini and the necessary policy actions to address any existing or anticipated gaps. The specific objectives of the analysis were:

i.   To undertake a descriptive analysis of the dynamics of supply and demand for the Health Workforce in Eswatini, covering clinical health workers in both the public and private sectors

ii.   Estimate the normative need for the Health Workforce to address the disease burden/workload in Eswatini vis-à-vis the outlook in supply, demand and fiscal space scenarios.

iii. Explore the nature and drivers of the out-migration of skilled Health Workforce from Eswatini and ascertain the necessary conditions, policies and regulatory measures towards sustainability.

iv.   Conduct an exploratory analysis of the required policy actions to address supply and demand mismatches/gaps required to achieve the desired need and distribution of the Health Workforce in Eswatini.

v.   Develop policy recommendations with regard to the production, inflows/outflows, distributions, inefficiencies, and regulations in the Eswatini health labour market.

Scope and Methodology: The analysis adopted technical approaches recommended in various WHO normative guidelines for HLMA, global and regional health labour market studies. Multiple complementary approaches were used to collect data and analyse the Health Workforce situation and labour market dynamics. Eswatini's Health Labour Market Analysis involved three core areas to derive an understanding of the past, present, and future health workforce circumstances, both in the public and private sectors. These involved descriptive, predictive and exploratory labour market analyses. The HLMA Technical Task Team conducted field surveys using adapted WHO tools to collect primary and secondary data from health workers in both public and private hospitals, training institutions, and regulatory and health administrative bodies in Eswatini. The questionnaires explored seventy-four (74) staff categories of health workers targeted in the research.

Summary of Findings

There are 10,359 health workers registered in Eswatini with 94% of them either working or looking for a job but private sector can only absorb 21%: As of July 2022, the overall stock of the health workforce in Eswatini stood at approximately 10,359 individuals, spanning 51 major generalist and specialist occupational categories of which 3,200 (21.6%) were Rural Health Motivators. About 94% of these professionals were either employed or actively looking for a job (actively participating in the health labour market). Among health workers who were employed about 71% were in the public sector and the private sector contributed only 29% of the employment.

Majority of health workers are young but 13% are set to retire soon: Most health workers (60%) are young people within the age of 25 to 44. Those nearing retirement 55 to 64 are about 13%.

Nearly one in every two health workers is a Nurse: Nurses constituted the largest segment with 48.3%, followed by community health nurses at 10%, medical officers at 4.2%, and laboratory assistants at 2.6%. Notably, rural health motivators made up 21.6% of the total health workforce.

There are 51 Doctors Nurses and Midwives for every 10,000 Emaswati: in 2016 there were about 38 Doctors, Nurses and Midwives per 10,000 population in Eswatini. As a result of Government policies this has increased by about 25.5% to the current 51 Doctors Nurses and Midwives per 10000 population in 2022.

Eswatini's coverage of health services is estimated to be 58% but this can be maximised to nearly 70% if all trained health workers are employed: Eswatini has an aggregate health workforce density that is comparable with countries that have attained at least 70% of universal health coverage essential service coverage score and are making progress towards the SDGs. Measures to employ and optimise the utilisation of the health workforce and ensuring a skill mix balance are key, particularly reforming the model of care could improve efficiency and deepen access to health services.

One out of every ten health workers are either unemployed or under employed but their services is critically needed in the frontline of health service delivery: The unemployment rate of the active health workforce is 9% which is lower than the 26.7% overall 2023 unemployment rate. There are 907 unemployed health workers including 431 midwives, 300 general practitioners, 30 general nurses, 144 nursing assistants, and 2 clinical dieticians. Eswatini is facing demand-side constraints as a result of a freeze of employment in 2018 i.e., Circular no.3. which inhibited recruitment and absorption of newly trained health care professionals.

There is a glaring inequity whereby 77% of the population is living in rural areas but have access to only 23% of health care workers: There is distributional inequity in the health workforce between rural and urban areas, 55% of the health workers worked in urban areas where there was only 23% of the population while 77% of the population who live in rural areas are served by 45% of the health workers.

Young people are interested in the health occupation but capacity to train them is limited: The health professions education in Eswatini are broadly very attractive to prospective students and have become competitive as the programmes are on average able to admit only 6.7% of the applicants despite a significant unutilised capacity especially for nursing training where the schools are given a quota of 40 per year even though some are thought to have 60 to 90 seats per year. There are reasonable pros-

pects to expand training if the staff establishments are expanded and funded. Some stakeholders have expressed concerns about the quality of training of some health workers, especially those trained abroad.

Currently, Eswatini needs about 20,272 health workers and 26,563 health workers by 2032 to achieve UHC targets: The need for health workers was estimated using the burden of diseases, conditions and risk factors, population size and demographics, and service delivery standards. Based on these, Eswatini needed at least 22,272 health workers in 2022 to meet the country's population health needs and attain UHC. This was further estimated to increase by 14.3% by 2027 to 23,179 and then to 26,563 by 2032 - or an overall increase of 19.3% in the need for health workers in 10 years due to evolution in the disease burden and demographic change. Specifically, the country requires at least one general practitioner to 2,398 population; at least one specialist doctor per 130,500 in each medical speciality. For Professional Nurses and Midwives, one nurse per 520 population is required while at least one specialised nurse per 1,270 is required in each speciality area. Also, one pharmacist per 2,929 population is required as is one Community Health Worker per 307 population.

Current supply meets only 48.1% of the population health Needs: In 2022, the estimated need for health workers across 51 occupations was 22,272 compared to an overall supply of 9,741. Thus, overall supply met 48.1% of the need for health workers if all the supply were employed and deployed. However, there were wide variations as serious gaps were noticed in specialist areas and occupations that are less popular. To meet the population health needs, the annual rate of increase in the supply of health workers will have to surpass the average annual rate 4.2% (range: 2.4% - 10.6%) increase in the need for health workers due to changing disease burden and demographic shifts.

There is an anticipated 11.6% increase in Demand for Health Workforce by 2022: Based on economic conditions and health spending, Eswatini is projected to be capable of supporting the employment of 10,084 health workers in 2023, which if the trends remain the same, is likely to grow by 11.6% to 11,254 by 2032. However, epidemiological need-based modelling indicated that the country required at least 22,272 health workers – thus the demand (willingness and capacity to employ) is at 50.5% of the need. By 2032, the estimated need will rise to 26,563, but demand may cover only 49.8% of this need. For 2022, the gap between supply and demand yielded in a predicted supply gap of 7.05%. This is suggestive of an emerging labour market failure, characterized by rigidities in the employment process– leaving 907 health workers unemployed in 2023 exacerbated by factors such as government employment freezes and insufficient prioritization of health workforce employment in the country's health spending.

About 41% of health workforce have intentions to migrate of these 34% have already started working on their intentions to migrate: Exploratory survey results showed that about 41% of the health workforce intended to migrate abroad at some point, about 61% intended to migrate for employment purposes, while 36% intended to migrate for further education. Of those that intended to emigrate, 34.38% had already begun working on their intentions to migrate, with 4% planning to migrate within the next 5 months, while 6% intended to migrate within the next 6 to 11 months.

Health Worker scored their overall Job quality at 59%: Overall, the job quality index of health workers was estimated to be 59%. Thus, health workers highly values 59% of their job characteristics. Of three broad dimensions of job quality measured, quality of earnings, and quality of working environment scored higher, 73%, 65.3%, respectively as compared labour market security that scored 39.6% (labour market security encompasses unemployment risk, probability of falling into extreme low-pay and the

probability of getting out of extreme low-pay). Thus, health workers are relatively content with their earnings and working environment but less so on the safety nets provided to safeguard their jobs and earning.

Self-Reported Income and Wage Expectations of Health Workers revealed a potential retention gap of US$464: The average income for health workers in Eswatini was SZL 23,763 (US$1,287), while their average monthly expenditure was US$639. For health workers who have planned and are working to leave the country for greener pastures, they would need to earn an average of SZL 33,183 ($1,751) to be retained (transfers wages). Thus, there is a potential retention gap of SZL9,419 (US$464), future retention strategies would therefore need to gradually close the retention gap.

Wages and salaries consume 30% to 33% of the health sector expenditure in Eswatini: Wages and salaries consume 30% to 33% of the health sector expenditure in Eswatini, which is lower than East and Southern African (ESA) average of 49% and the Africa regional average of 45% as well as the global average of 57%. At 2022 wages and salaries, the available financial space was USD 58.5 million, this was predicted to increase to USD 69 million by 2030. The fiscal space (government funding) dedicated to health workforce financing was USD 45.6 million, this was anticipated to increase to USD 53.7 million by 2032. The private sector financing for health workforce was USD 12.9 million, and this was predicted to increase to USD 15 million by 2032.

The total investment required to address population health needs (Needs-based Employment + Training Cost) is projected to average USD 379.3 million by 2032: The minimum financial space required to employ population-based health workforce needs would be USD 308.31 million. The average cost of training to address population-based health needs was projected to be USD 15 million. Thus, the total investment required to address population health needs (Needs-based Employment + Training Cost) is projected to average USD 379.3 million by 2032.

Summary of Recommendations

1. **Strengthen health workforce governance, coordination and alignment of priorities:**

The study found fragmentation and gaps in coordination and hence strongly recommended strengthening coordination among key stakeholders. Urgent high-level multisectoral dialogues on health workforce and a new National HRH strategic plan are recommended. Additionally, negotiating with Civil Service to secure the stability in the tenure of HRH managers and leaders at the Ministry of Health will be key for enhanced leadership and stewardship.

2. **Strengthen and optimise the health workforce education and training:**

To address training and education related challenges, the creation of an integrated national master plan for health workforce training and education in conjunction with various stakeholders, including the Ministry of Education and Prime Minister's Office is recommended. Such a plan should aim to locally train personnel, thereby reducing the country's reliance on foreign training. An urgent bridging program is suggested for those health workers whose overseas training is inadequate for local needs. Furthermore, it is suggested that a focus on specialized training, specifically in nurses and selected areas for medical doctors, and calls for a review of professional scopes of practice.

3. **Stimulate and expand health workforce employment to address critical service delivery gaps while optimising the utilisation of existing health workers:**

To address urgent staffing requirements, especially in under-served areas, the report recommends an immediate exemption from recruitment freezes for the health sector to facilitate the hiring of 907 trained but currently unemployed health workers. Additionally, it suggests that the government should undertake an evidence-based review of staffing norms/standards and increase budgetary allocation to the Ministry of Health with a commensurate increase in the prioritization of the health workforce employment with the overall health spending across government and development partners – with clear sustainability and transition plans for partner supported health workers. Also, the country's model of care appears to be inefficient, and it is suggested that a review of the model of care along primary health care approaches would deepen access to health services and optimise the utilisation of the health workers.

4. **Strengthen national systems for health workforce retention and equitable distribution:**

The report identifies the migration intent among 36.1% of the health workforce as a key concern. Local training opportunities and post-basic allowances are recommended as retention strategies. For equitable distribution of health workers, the report suggests differentiated remuneration and working conditions to attract and incentivize working in rural areas.

5. **Invest in health workforce information system, data and evidence generation for decision making:**

Current HRH information systems are fragmented and suboptimal. Recommendations are made for revitalization of the HRH information systems, capacity-building in HRH data management, and the implementation of the National Health Workforce Account.

1. Introduction

1.1 Context/Background

1.1.1 Geographic and socio-economic information

Eswatini is a landlocked country in Southern Africa. It is bordered by Mozambique to its north-east and South Africa to its North-west-south and south-east. Eswatini has four regions namely Hhohho, Manzini, Shiselweni and Lubombo. Despite its size the country's climate and topography are diverse, ranging from a cool and mountainous highveld to the hot and dry lowveld. The total surface area of Eswatini is 17,364 km and its Population density in 2022 was 67 per km2. The Manzini region (355,945) has the highest population followed by Hhohho (320,651), Lubombo (212,531) and lastly the Shiselweni region (204,111). There are two official languages in Eswatini namely Siswati and English.

1.2 Demographics and health status

1.2.1 Population size and growth

According to the 2017 Eswatini Population and Housing Census, the country's population was 1,106,451, with 538,957 males and 567, 494 females. Over the projection period 2017 to 2024, the annual population growth rate was 1.2%. The Manzini region has the highest population with 32.9% followed by Hhohho region with 29.4%, then Lubombo region with 19.6% and the Shiselweni region with 17.9%.

Figure 1: Eswatini's Population size
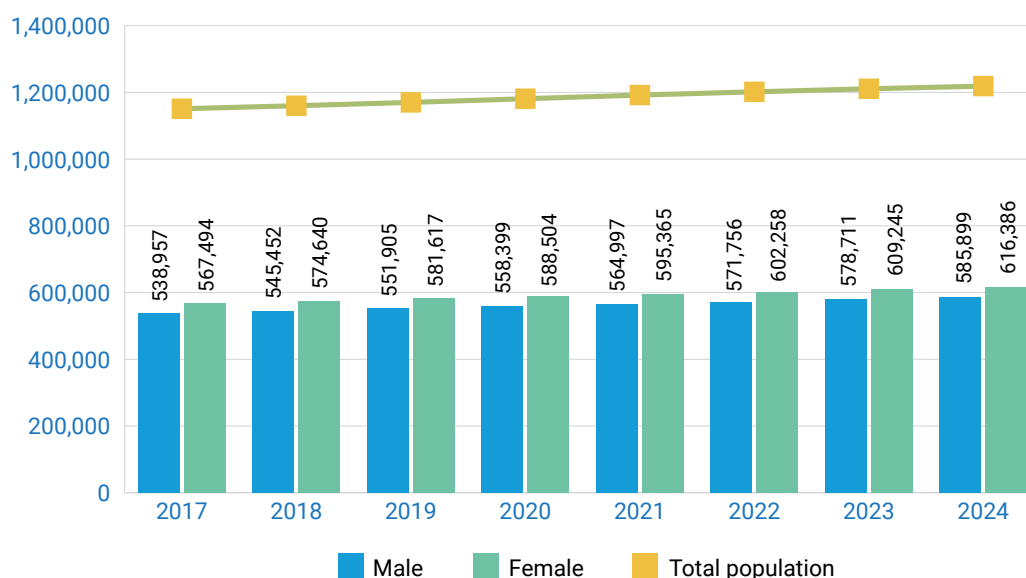
UN DESA, Population UN, 2022

1.2.2 Distribution of the population

Eswatini's has a youthful population, for example in 2018, the population of those aged 14 or younger made up 35% of the country's population, with a median age of 22 years. In 2021, this had marginally increased to around 35.03% of the population, 73% of the country population was under 35.

Figure 2: Eswatini's population by sex and age group
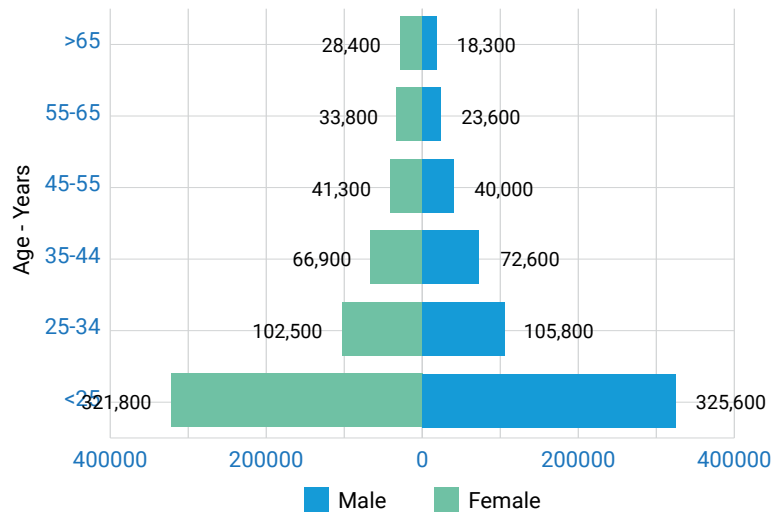
The majority of the Eswatini population 69.1% (732,228 people) resides in the rural areas while the urban population constitutes 30.9 % (374,223 people).

Figure 3: Urban vs Rural Population from 1995 to 2020
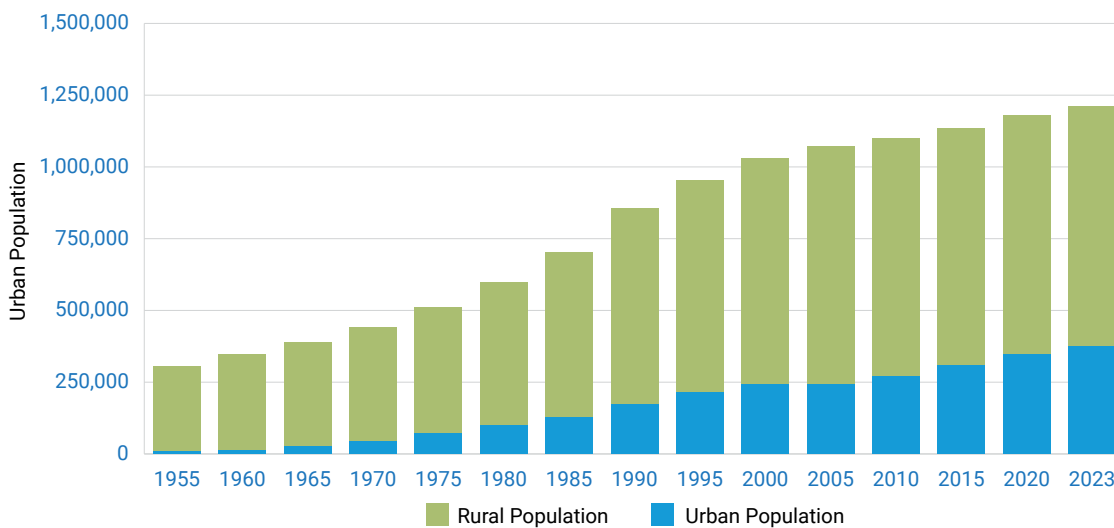
1.3 Health status

The country's health statistics have progressively improved in the last 10 years. For example, the life expectancy at birth improved from 47.4 years in 2010 to 62.2 years in 2017, maternal mortality rate decreased from 452 deaths per 100,000 live births in 2014 to 240 deaths per 100,000 live births in 2023. With the implementation of the 94-97-96, Eswatini has surpassed UNAIDS treatment and viral suppression targets ahead of the 2025 target date, demonstrating the progressive improvement and efficiency of the country's HIV treatment programs.

1. Introduction

According to routine data from the ministry of health, the proportion of overweight people in health care facilities increased from 26% in 2020 to 42% in 2021, while that of obesity increased from 33% in 2020 to 49% in 2021. From 2020 to 2021, the number of people visiting facilities to get NCD services as an outpatient decreased for all the three major conditions, hypertension patients from 22,624 to 20,279, while that of diabetic clients increased to 6,420 from 5,795 and 3,802 to 3,090 for asthma clients. In 2021, 53,130 women were screened for cervical cancer, an increase from over 27,000 that was recorded in 2020. The Kingdom of Eswatini has also made progress in maternal health initiatives, for example the contraceptive prevalence rate in 2023 stood at 85.3%, the ANC visit rate of women who attend at least four visits was approximately 76%, and about 88.3% of deliveries were performed by a skilled birth attendant, while exclusive breastfeeding stood at 63.8 (MICS 2014). Infant and neonatal mortality rates had also decreased from 85/1,000 live births and 22/1,000 live births to 79/1,000 live births and 19/1,000 live birth respectively.

Table 1: Health indicators

Indicator	Estimate	Year of estimate
Life expectancy at Birth	62.2	2017
Maternal Mortality Rate	452/100,000	2017
HIV Prevalence	24.8	2021
HIV Incidence	0.62%	2021
TB prevalence	319/100,000	2020
Tb Incidence	348/100,000	2021
Stunting	23%	2017

MoH, 2023

1.4 Overview of Eswatini's health system

The Kingdom of Eswatini had 327 health facilities in 2023, this was an increase from the 287 health facilities that had been reported to exist in 2013, Service Availability and Readiness Assessment (SARA) 2017,Table 2. The country has one (1) National Referral Hospital which is located in the Hhohho region (Mbabane Government Hospital), followed by five (5) regional referral hospitals, one (1) in Lubombo, two (2) in Manzini, and two (2) in Shiselweni regions.

Table 2: Health facilities in Eswatini

Facility level	Number of facilities
National Referral hospital	1
Regional Referral hospital	5
Specialised hospital	3
Health Centre	5
Public Health Unit	7
Clinic With maternity	31
Clinic without maternity	203
Specialised Clinics	65
Private Hospitals	7
Total	**327**

Source: Services Availability and Readiness Assessment, 2017

1.5 Health Expenditure

Eswatini's total health expenditure rose from SZL 5.2 billion in 2018 to SZL 5.7 billion in the 2019/20 budget year. The per capita health spending was SZL 4,630 (USD 330,65) in 2018 and this had increased to SZL 5,041 (USD 342) in 2019. The country has exceeded the current WHO recommendation of USD 140 for per capita health expenditure, however, the total government expenditure spent on health is 10.1%, which falls short of the government's goal of increasing health expenditure and reaching the Abuja Declaration of 15% of all resources generated being spent on health care.

1.6 Organization of Health

The Ministry of Public Service (MoPS), which was established by the Employment Act of 1980 and the Public Service Act of 2017, employs the majority of public health workers. The Ministry of Health (MoH) is solely responsible for the day-to-day management of all HRH functions, with the exception of the recruitment and management of attrition functions which are carried out in collaboration with the Ministry of Public Services,

1.7 Health workforce context

The presence of adequate numbers, capacity, and equitable distribution of health workforce remain key requirement for the attainment of Universal Health Coverage and sustainable delivery of health services in the Kingdom Eswatini. The current Health workforce strategy for the MoH is premised on ensuring that sufficient human resources for health are available, equitably distributed, efficiently managed, properly developed, and well-motivated in order to provide quality healthcare to the population. The strategy which is also in line with the National Development Goals, the National Health Sector Strategy, and the Global HRH Strategy resulted in an increase of the density of doctors, nurses and midwives by 7.9 per 10,000 population in the public sector between 2018 and 2022 translating into an additional 21,000 people potentially gaining access to health workforce.

1.8 Rationale/Justification of the health labour market analysis

The Eswatini Human Resource for Health Strategic Plan expired in the fiscal year 2022/2023 and in order to develop the new HRH strategy, the MoH required scientific evidence about the status of its health workforce. Pursuant to this, the country decided to embark on the Health Labour Market Analysis (HLMA), which would assist with the analyses of the supply, demand, and need for health workforce. In the context of the HLMA, the supply of health workforce is defined as the number of qualified health workers who are willing and able to join the Eswatini health workforce at the current wage rate, while the Demand is defined as the number of health care professionals that the health sector is willing to absorb at the current wage rates and the need is the total number of health workforce required to meet the populations health needs.

1.9 Aims and objectives of the Eswatini Labour Market Analysis

The specific objectives were to:

    i.   Undertake a descriptive analysis of the dynamics of supply and demand for Health Workforce in Eswatini, covering clinical health workers in both the public and private sectors.

   ii.   Estimate the normative need for Health Workforce to address the disease burden/workload in Eswatini vis-à-vis the outlook in supply, demand and fiscal space scenarios.

  iii.   Explore the nature and drivers of in out-migration of skilled Health Workforce from Eswatini and ascertain the necessary conditions, policies and regulatory measures towards sustainability.

  iv.   Conduct an exploratory analysis of the required policy actions to address supply and demand mismatches/gaps required to achieve the desired need and distribution of Health Workforce in Eswatini.

   v.   Develop policy recommendations with regards to the production, inflows/outflows, distributions, inefficiencies, and regulations in the Eswatini health labour market.

2. Implementation Process and Technical Methodology

2.1 Conceptual approach for the HLMA

The Health Labour Market Analysis provides insights into the HRH market dynamics and reveals current and potential labour market failures or mismatches for corrective policy actions. The health labour market is dynamic and influenced by policy decisions and actions across several sectors that include education, labour, finance, planning and public service among other sectors. The HLMA framework proposed by Sousa and colleagues (2013), which has been adopted by WHO was adopted for analysing the core aspects of the health labour market in Eswatini, Figure 4 (Figure 4), is a simple guide of the HLMA.

Figure 4: Health Labour Market Framework for UHC
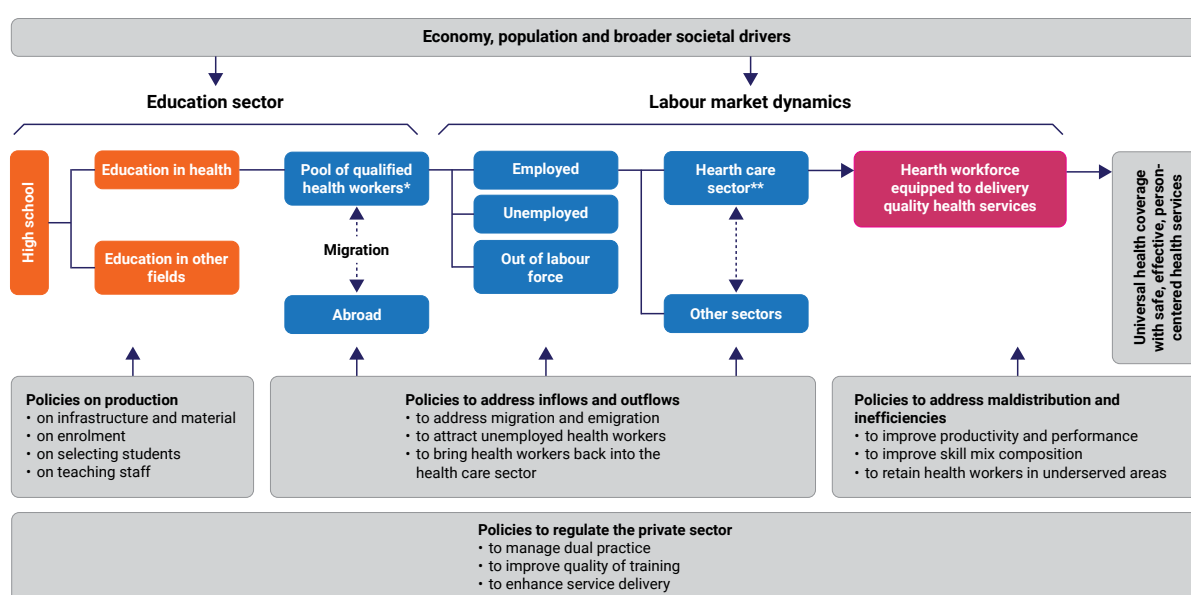
Source: WHO, 2016

Data on the health labour market dynamics in Eswatini was collected and analysed using a multi-method approach. These approaches included desk reviews, stakeholder discussions (inception meetings, key informant interviews, and focus group discussions), triangulation and descriptive analysis of secondary data from multiple sources (primarily from the MoH and MoPS, Private Sector and Regulatory Authorities, and other MDAs such as the Ministries of Education and Finance). In addition, an explorative health workforce survey, and a group modelling exercise for the projection of need, demand, and supply of Health Workforce was also conducted. The WHO Health Labour Market Analysis Guidebook, 2022, guided the implementation of the Eswatini HLMA.

2.2 Overview of the HLMA process in Eswatini

2.2.1 Implementation of the HLMA

The implementation of the HLMA in Eswatini followed the following process.

a.   The evaluation of the HRH Strategy (2019 to 2023)

The HLMA analysis began with an evaluation of the outgoing HRH strategy (2019 to 2023) The methodological approach involved conducting a baseline and end line evaluation of the implementation of the HRH strategic plan, this was carried out in two stages:

A. Document review: This involved the analysis of reports on the implementation of activities and national policy documents.

B. Analysis using quantitative and qualitative approaches: the quantitative approach was used to assess the extent of implementation of the strategy, its effectiveness and impact. The qualitative approach involved the processes of self-assessments, Focus group discussions and key informant interviews in relation to the implementation of the HRH strategy.

b. Qualitative Stakeholder Interviews

In order to gain a wider understanding of the health labour market in Eswatini, qualitative stakeholder interviews were conducted, the interviews aimed to gather the history and context of the health workforce, identify the interests and objectives of the different stakeholders and increase stakeholder participation and involvement in the health workforce agenda through a shared vision.

c. Primary data collection

A digital questionnaire to elicit the views of Health professional and management was developed for the collection of primary data from sampled sites and health workers. A team of data collectors composed of 4 supervisors and 8 data collectors was contracted to conduct the data collection. Each supervisor was responsible for 2 data collectors in each region who collected data from health personnel over a period of 3 weeks.

d. Need based analysis of HWF requirements.

A five-day workshop was held with selected clinicians and public health experts to determine the disease burden of the country, the appropriate service interventions and standards to enable estimation of future HWF needs.

e. Data cleaning and analysis workshop

A five-day workshop was held with selected experts to conduct data analysis of the labour market (from secondary and primary data), modelling the HLM outlook and undertake strategic interpretation of the results as well as prepare for the report writing.

2.2.1.1 Descriptive and Predictive Labour Market Analysis and Modelling
Based on the data collected, a labour market modelling (need, supply, and economic space) was undertaken guided by established methods and frameworks. Also, findings were strategically interpreted taking the Eswatini national context into account.

2.2.1.1.1 Descriptive analysis of the size, composition, and distribution of the health workforce
Descriptive statistics were utilised in analysing the size, composition, distribution, and trend of the health workforce in Eswatini. Data obtained from different sources was triangulated and compared with evidence from various reports and policy documents as well as the qualitative insights obtained from the qualitative stakeholder interviews. Although very limited in scope, some inferential statistical analysis was done, whereupon a 0.05 (95%) confidence level was used for statistical significance. Due to the large number of health worker categories in the Eswatini classification system, it was critical to match the local health workforce categorisation to some internationally recognised health workforce occupational groups to enable the analysis and comparison of data. For this purpose, the International Standard Classification of Occupations (ISCO-08) was adopted.

1. Analysis of current situation and past trends

Several analyses were carried out to generate results for the various components of the HLMA's, which are presented in tables, graphs, and/or textual descriptions as appropriate. The size, character, and distribution of the health workforce were analysed using descriptive statistics of trends and interpreted with the qualitative insights obtained from stakeholders. Furthermore, a trend analysis was conducted to assess the health sector's contribution to the overall economic activity as measured by the GDP. This analysis entailed a graphical trend in the proportional contribution of the entire health sector to the overall economic output of the country from 2012 to 2022. A trend analysis on the health sector employment as a share of total employment in the country for the period 2012 to 2022 was also carried out. Comparative analysis of remunerations in different sectors in relation to the health sector was used to gauge attractiveness of the health sector.

2.2.1.1.2 Modelling the future supply and needs-based requirements for health workers.

The demand and supply analysis of the labour market was conducted using existing frameworks developed and recommended by the World Health Organisation. Based on the expressed need requirements by stakeholders during qualitative stakeholder interviews, the need-based framework for health workforce was modelled to determine current health and to estimate future health workforce requirements up to the year 2032.

    a. **Health workforce supply forecast:** The supply-side forecasting involved determining the inflow or entry into the current workforce and outflow or attrition from the current workforce. Whilst the inflow is depended on the training capacity and immigration, the outflow/attrition, on the other hand, is influenced by retirements, emigration, deaths, resignations, and dismissals of the health workforce.

    b. **Forecasting economic demand for health workers:** The economic demand for health workers is reflected in a country's ability and willingness to pay for health workforce. This estimates the joint capacity of the government, development partners and the private sector in acquiring healthcare services, with the cost of health workforce wages representing a substantial proportion of this capacity. This approach is based on the understanding that a country will not spend more on health care than what it can afford, even if their health or level of health utilization is suboptimal relative to an internationally established benchmark. Figure 5 shows the framework for the need-based health workforce planning.

1. Modelling the need-based requirements for health workers:

There are several methods for determining the 'needed' health workforce in a country, however, the Global Strategy on Human Resources for Health recommends the need-based approach which aligns investments to the population's health needs. For the Eswatini HLMA, the need-based or epidemiology approach was adopted, based on the assumption that the need for Health Workers in the country depended on the 'need for health services' as defined by the disease burden and structure of the population alongside the health service delivery model of the country. To determine the need for health workforce, the following technical steps were followed:

• **Estimating the population's 'need for health services':** It was prioritised to assess the 'need for health service' that addresses at least 95% of the population's disease burden and risk factors. The list of diseases and risk factors that account for 95% of morbidity and mortality was established using data from the country's Health Information and Surveillance system. A desk review to deter-

Figure 5: Framework for Need-Based Health Workforce Planning

1. Analysing Population Need for Health Services

2. Setting Professional Standards Workload and Productivity

3. Translating Need for Health Service into Health Workforce Requirements

Adjustment for Support Activities (C)

Needs-based Health Workforce Requirements (D − (A/B) + C)

Standard Workload (Measure of Productivity) (B)

Estimate Available Working Time

Professional Standards for Health Service Delivery (Activity Standards)

Population's Need for Health Services (NHS) (A)

(a). Population Size & Demographics
(i). Size
(ii). Gender
(iii). Age Cohorts
(iv). Location

(b). Population's Level of Health
(i). Prevalence of Disease & Risks Factor
(ii). Coverage of Public Health Interventions

(c). Package of Health Services (Level of Service)
(i). Service Tasks/Interventions
(ii). Required Frequency

Integrating Needs & Supply Analysis

Absolute Gap Analysis (Difference between need and supply)

Number Needed to Train from HPE Institutions

Relative Gap Analysis (Workforce Availability Ratio)

Prioritisation based on relatve gaps

Cost Implications
1. Employment Cost of Need
2. Employment Cost of Supply
3. Investment Needed to Train and Employment
4. Overall Cost of training and Employment

Comparison (Economic Feasibility Analysis)
1. % of health profession education output that can be employed
2. % of needs that can be employed if trained
3. Overall cost as % of GDP

Budget Ceiling (Economic Capacity)
1. Public Sector Budget or Fiscal Space for HWF
2. Private Sector Contribution

Effective Supply (Practising Stock) of Health Professionals

Stock of Registered Health Professionals

Participation Rates (%)

Licensing Pass Rate (%)

Anual rate of new migran professionals

Attrition rates (%)

Out of Labour Force (Retired, died, migrated out, etc)

Immigrations

Output from training Institutions

Annual Enrolment of Students

Dropouts

Dropouts

Source: adopted from Asamani et al.[1]

1   James Avoka Asamani, Christmal Dela Christmals, and Gerda Marie Reitsma (2021). Modelling the supply and need for health professionals for primary health care in Ghana: Implications for health professions education and employment planning. In: PLOS ONE, 16.9, e0257957 (<https://doi.org/10.1371/journal.pone.0257957>).

mine the prevalence rates of the diseases and risk factors, as well as the targets for the coverage rates of priority public health interventions was conducted by a team of Epidemiologists and Statisticians from the Ministry of Health. The disease burden and risk factors were mapped using routine health information data from the Health Information and Surveillance System and the health facility attendance.

- **Translating the need for health services into needs-based staffing requirements:** With the technical assistance of Clinical Experts drawn from the health workforce and with reference to experiences from other countries in the SADC region, a standard workload was determined for each of the health interventions identified by the clinical expert teams. A standard workload, which represents a measure of productivity, is defined as the volume of work within one health service activity that one health worker can accomplish within a year to acceptable professional standards. The estimated "need for health services' was then translated into health workforce using the standard work.

2. Forecasting budget space for the health workforce

The ability and desire of a country to pay for Health professionals to address the health needs of its population reflects the country's economic demand for health workforce. Thus, aggregate demand is the sum of the government's, Private sector and development partners' combined financial capacity to purchase health care services, with the cost of health worker wages representing a substantial proportion of this. This approach is based on the assumption that countries (governments Private sector and partners) will not necessarily spend more on health care than they can afford, even if their health or level of health utilisation is falling below internationally established benchmarks. Therefore, demand for Health Workers can be measured using fiscal space for the wage bill as a proxy and adjusting for the private sector contribution to HWF employment. The health sector budget was analysed to measure the level of priority towards health workforce within successive budgets.

3. Exploratory Survey Methodology

Using a descriptive survey design, districts and health facilities were randomly sampled and respondent health workers were consecutively selected from these sampled districts. There were 543 respondents to the survey questionnaire from Health Workers across 40 staff categories. The survey was conducted using a standardised tool adapted from OECD, previous HLMAs and research. The 2023 Health Workforce Survey, the first of its kind to be conducted in Eswatini, collected information on the available number of Health Workforce, the available jobs in both public and private sector and identified the number of Health Workforce needed to serve the population. The survey also sought information on the wage expectations and the migration intention of the health workforce. The data collection was undertaken by a team of data collectors contracted by the MoH to collect data from health workforce from sampled sites.

Report writing, validation and consensus building.

Selected clinicians and public health experts, with technical guidance from WHO experts, held a 5-day working session to develop the main points of the report and to address data gaps and inconsistencies as necessary. A zero draft report was developed and presented to the Ministry of Health for preliminary review and feedback. Following the feedback from the ministry, a technical and stakeholder review and validation workshop was held to discuss the data and findings in terms of accuracy and appropriateness, after which recommendations and concrete policy actions were finalised and submitted to the MoH to convene a multisectoral and multi-stakeholder dialogue on health workforce investment.

Data sources, validation, and quality assurance

At various stages, multiple data validation processes were implemented to guarantee that the data established and used during the study was valid, consistent, and acceptable. To compile the data from the shared documents, a predetermined data gathering tool (in Excel template) was created.

A hierarchy of data sources was employed to ensure that data from reputable sources was used (see Figure 6). In instances where there was doubt regarding the validity of any data, particularly data utilised in the projection assumptions (such as calculating health workforce needs to offer health services), relevant stakeholders (e.g., health professionals) were consulted for their expert opinions.

Figure 6: Hierarchy of data sources used in the analysis

Type of data source	Example(s) of data sources
1. Most preferred — National surveys	Example: KDHS, Population census, Economic Survey reports, STEPS surveys etc.
2. Very Good — National Reports, policies and strategies, institutional datasets and reports	Human Resources for Heath Norms and Standards 2014; Human Resources for Health Strategic Plan 2019-2023; National Health Workforce Accounts (NHWA) database; Data sets submitted by professional regulator bodies; National Health Accounts Report etc.
3. Good — High quality scientific publications	Peer-reviewed publications
4. Satisfactory — Other databases	Websites of International agencies and development partners. E.g. WHO health observatory. World Bank's WDI, IHME etc.
5. Use with caution — Imputation with Expert opinions	Borrow the estimates from similar geographical areas (or regional average), News items and expert opinions

Source: Adapted from WHO[1]

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1   WHO (2021) Prioritisation of data sources for HLMA – as applied in MOHCC (2021) Partial HLMA for specialist health workers in Zimbabwe.
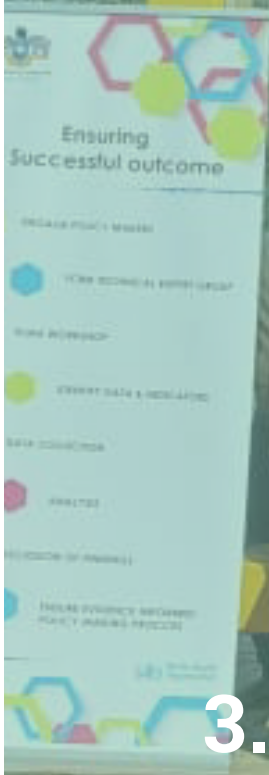
3. The Political Economy and Macroeconomic Factors Influencing the Health Labour Market

3.1 Overview of the health workforce governance Shaping the health labour market

3.1.1 Mapping the stakeholder that shape the health workforce landscape in Eswatini.

The HWF policies and decisions are a result of the interaction of numerous actors which includes; the Ministry of Education (MoE), Ministry of Labour and Social Security (MoLSS), Ministry of Public Service (MoPS) and the Ministry of Health (MoH) which in varying capacities are responsible for the management of Health workforce in the Kingdom of Eswatini.

The function of the multisectoral ministries interact at national, regional, and local community, each with their own objectives and interests. At national level, health workforce policies are developed and implemented by the MoH, but largely shaped by the overall human resource and wage bill policies developed at the governmental level. Operationally, all the human resource management functions including recruitment, deployment, payroll management and release for training are jointly managed by the government through the MoH Human Resource Unit and the MoPS. Table 3.

Table 3: Mapping of Stakeholders and their Interests in the Health Labour Market in Eswatini

Stakeholders	Objectives
Ministry of Health	Health policy management and regulation
Ministry of Finance	Planning, budgeting, execution and reporting to enable implementation of the policies
Ministry of Labour and Social Security	Provide training opportunities, career guidance
Ministry of Education	To provide, promote and coordinate quality education, training, and research
Development partners	Provide a pool of resources for the development of the sector
Universities and Health Training Institutions	To provide training records for analysing the supply of HWF

3.1.2 Health workforce governance and coordination

The country has a technical working group (TWG) on Human Resources for Health which provides technical advice to the Ministry of Health and is often used as a platform for dialogue and execution of technical tasks such as the development of the strategic plan. However, it was apparent that it has not been vibrant since 2019, which was partly attributed to COVID-19 and frequent changes in the top management at MoH. These have resulted in bottlenecks for the advocacy, planning and execution of the health workforce agenda. For example, the outgoing strategic plan was only implemented at 20% and was not fully formally adopted as a national document. Consequently, key implementors at the regional levels were unaware of the strategy and some expressed doubt if it made any difference apart from being a reference document. Although there have been substantial investments in health from Government and partners, the investments in health workforce appear to be fragmented and stagnating due to misalignment of priorities and inefficiencies. Stakeholders particularly highlighted inefficiency in HRH management, citing an inefficient and elaborate recruitment process of health workers (the process is estimated to take a minimum of 4 months).

3.1.3 Health workforce information and evidence generation capacity

Although the health workforce strategic plan prioritised research and data for decision making, fragmentation of data and ineffective data flow systems as well as weak Human Resource Information Systems (HRIS) impacted progress and subsequently the quality of data available for the HLMA. The implementation HRIS had a potential of improving the availability and quality of data to enhance informed

decision-making within the health sector. However, its functionality and use has been suboptimal and characterized by irregular updates. These limitations have had significant impact on workforce management where data quality and real-time information are paramount for resource allocation and planning. Consequently, it becomes imperative to address these challenges ensuring optimal functionality of HRIS. The country took initial steps to implement the National Health Workforce Account (NHWA) which could contribute to improve alignment and data flows, strengthen the HRIS and facilitate multisectoral collaboration to improve health workforce information and management.

3.2 Overview of the attractiveness and importance of health labour market.

This section presents an overview of the attractiveness and importance of the health sector as a source of employment in the Kingdom of Eswatini's economy.

3.2.1 Attractiveness and Importance of Health Sector Employment

Over the last five years, the government of Eswatini has implemented reforms of economic recovery and this came with some challenges ranging from the political climate, fiscal crisis, slow economic growth, and increased levels of youth unemployment. The challenges were exacerbated by the emergence of the COVID-19 pandemic and worsening human development indicators. For example, since 2019 one out of four Swazis face unemployment as the national rate of unemployment fluctuates between 24% and 25%. It is, however, worse for young people as the level of unemployment is nearly 50% although marginal declines have been recorded in the last three years.

Figure 7: National & Youth Unemployment Rate, 2018—2022

Youth Unemployment Rate ■ National Rate of Unemployment ■
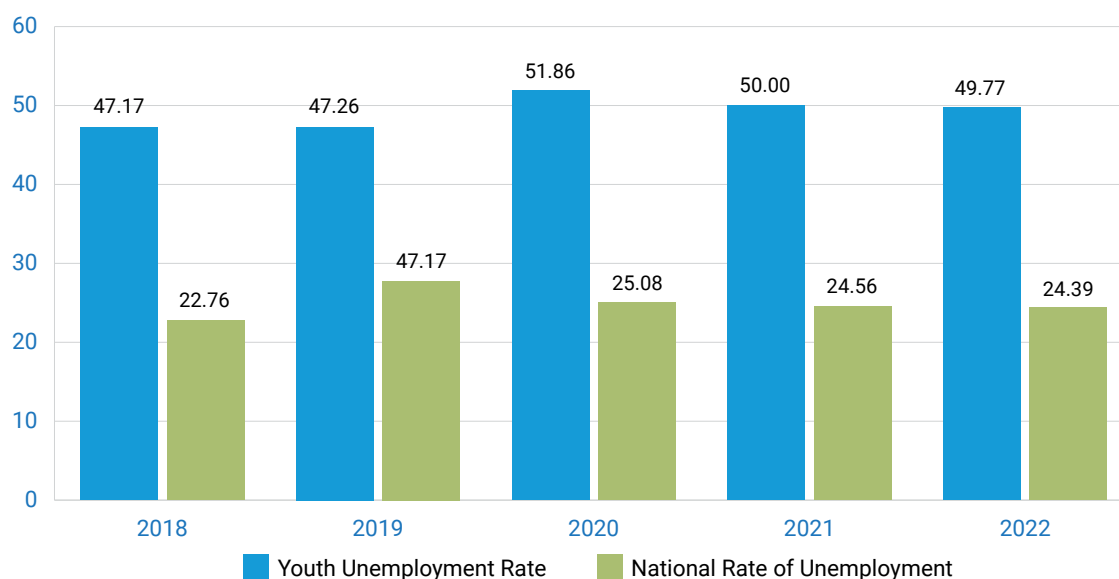
Data Source: Eswatini Youth Unemployment Rate 1991-2023 | MacroTrends as reported by ILO (accessed 20th November 2023)

The 2021 GDP estimate showed that there was 2.1% growth and although that represented an improvement from the 1.9% recorded in the previous year, domestic inflation stood at 3.7% in the same year, an increase from 2.6% recorded in 2019 and this had negatively impacted on import prices of raw materials and food. The increase in inflation in Eswatini led to an increase in the repo rate by the Central Bank of Eswatini. Although these challenges were faced, the government continually increased budgetary allocation to activities towards Universal Health Coverage.

Figure 8: Sectors Contributions to GDP
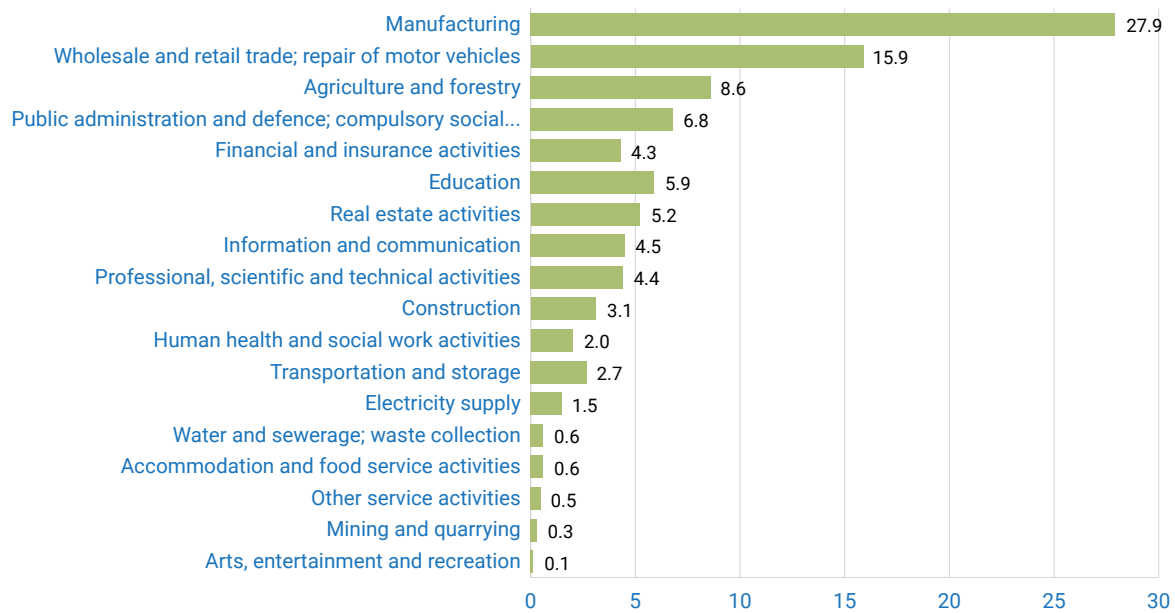
Source: Gross Domestic Product 2022 (Central Statistical Office National Account Unit)

When it comes to sector contributions to GDP, Human Health and social work activities are very marginal (2%) as compared to Manufacturing (27,9%), Wholesale and retail; repair of motor vehicles (15,9%), etc.

3.3 The State of Health and Health Workforce Spending

The health sector has been a key sector of investment for the Government of Eswatini. According to the Eswatini National Health Account (NHA) data (2018-2020), the Government health expenditure as a percent of total government expenditure increased from 16.9% in 2018 to 21.3% in 2019 - above the Abuja target of 15%. In terms of current health expenditure per capita (using Purchasing Power Parity, PPP), the country spending is on average 3.3 times higher than the average for sub-Saharan countries.

Figure 9: Current Health Expenditure per capita, PPP
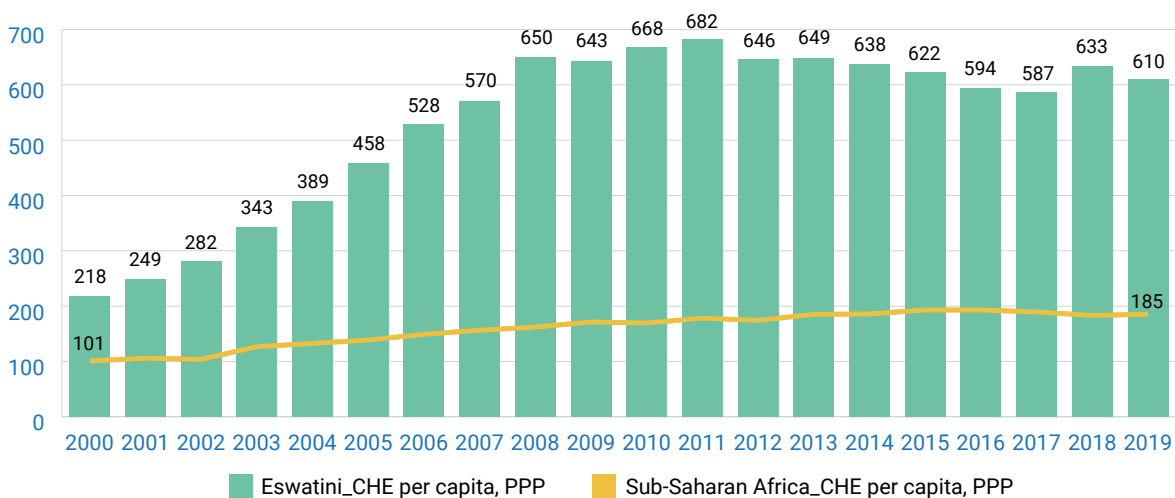
Source of data: World Bank's World Development Indicators (2000–2020).

Health expenditure as a percentage of nominal GDP marginally increased from 8% in 2017/18 to 8.8% in 2019/20. Per capita, spending increased by 6% between 2017/18 to 2019/20 accounting for USD 322.5 and USD 341, respectively. However, government health expenditure as a percentage of total government expenditure decreased from 14.6% to 13.8% in 2017/18 and 2019/20 respectively, albeit Government health expenditure as a percent of GDP increased from 3.6 percent in 2017/18 to 4.6% in 2019/20. Health financing in Eswatini comes from four major sources, namely, the government, households (out of pocket), corporations and donors. The three most recent National Health Insurances conducted in Eswatini (2017,2018, and 2019) revealed the increasing role the Government has taken in the financing of health in the country, and this indicates a reasonable transition of funding to domestic sources which is more sustainable. Table 4 provides the details.

Table 4: Source of Healthcare Financing in Eswatini between 2017—2020

SN	Source of Revenue	2017/18	2018/19	2019/20
1	Government	2,080,520,425	2,099,589,249	2,863,816,197
2	Corporations	467,680,012	532,278,771	555,375,671
3	Households	507,017,583	636,907,384	754,822,205
4	Donors	1,315,623,210	1,253,575,255	1,283,265,580
5	**Total**	**4,370,841,230**	**4,522,350,659**	**5,457,279,653**

It is worth noting that despite the progressive improvement in the overall health spending, wages and salaries consume a relatively small portion (30% to 33%) of the health sector expenditure compared to East and Southern African (ESA) average of 49%, the Africa regional average of 45% and the global average of 57%. The proportion is insufficient to expand opportunities for employment of trained health workers.

Figure 10: Prioritisation within health expenditure
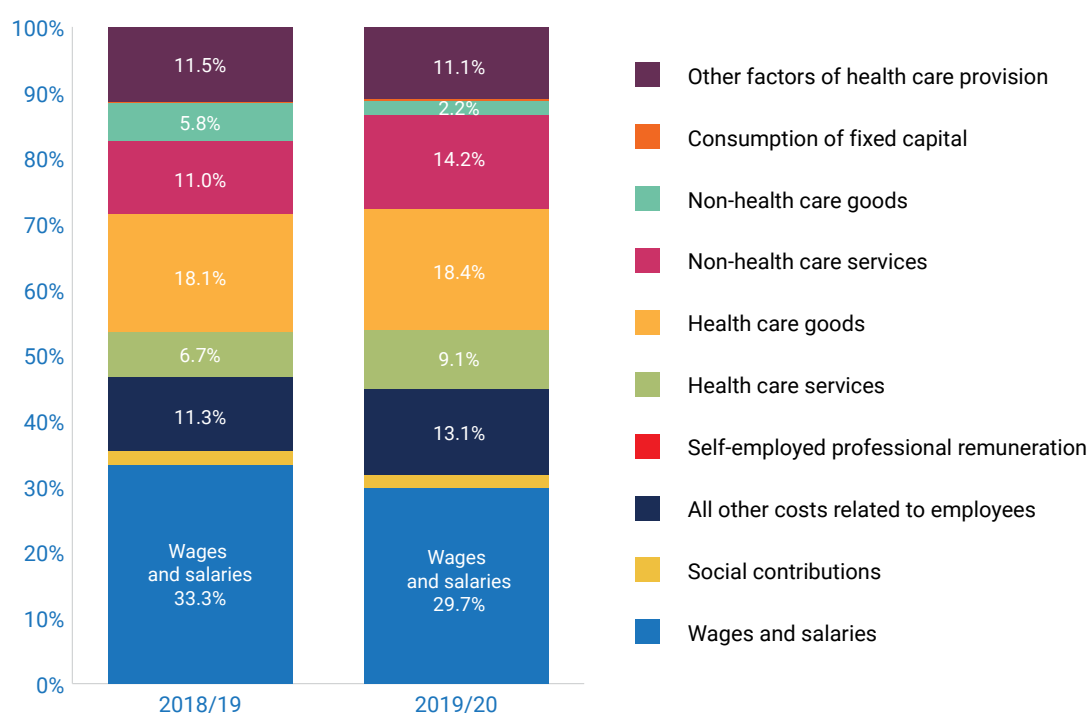
Source: Eswatini NHA report (2019/20)

BOX 1: **ONE-THIRD OF CURRENT HEALTH SPENDING IS ALLOCATED TO WAGES AND SALARIES**

While Eswatini's current health spending is relatively higher than its African peers, wages and salaries consume a relatively small portion (30% to 33%) of the health sector expenditure compared to East and Southern African (ESA) average of 49%, the Africa regional average of 45% and the global average of 57%.

3.4 Wages and remuneration of health workers and income relativities

Using data from the June 2023 Government payroll, the income of health workers was estimated, and relativities measured. As expected, Medical Specialists were the highest paid cadres, earning around SZL 966,939 (US$ 53,719) annually, while the Pharmacy Assistants and Paramedic were among the lowest paid cadres earning SZL 106,211 (US$ 5,901) annually. Thus, the income disparity between the top earners and bottom earners is more than 9-folds.

The salary of the Medical Officer (General practitioner) was used as a comparison for the analysis of internal income relativity of the HWF, and the results showed that General and Specialised Nurses, Optometrists, Occupational and Speech Therapists were earnings income that were 41% of what the Medical Officer (General Practitioner) earned. On the other hand, Rehabilitation Technicians, Paramedics, Laboratory Assistants and Pharmacy Assistants were earning 15% of what the Medical Officer was earning.

When the income of health professionals is compared with that of a Senior Crown Counsel/Prosecutor in the public service as a proxy, medical officers (General Practitioner) in the public health sector earns 167% (2.67) above what a Crown Counsel/Prosecutor in the civil service earns. A comparison of the earnings of the Crown Counsel/Prosecutor vis-a-vis that of the Registered Nurse reviewed that the Crown Counsel/Prosecutor was earning 21% (0.79) more than what the Registered Nurse was earning.

Furthermore, a comparison of the income levels with the GPD per capita of the country (Wage Index) revealed that on average, health workers are earning about 7-folds the GDP per capita. This however, ranges widely from almost 15-folds for medical specialists, 10-folds for general practitioners to 3-folds for nurses and under 2-folds for cadres in assistant roles. In comparison to countries in similar income group, the average wage index for doctors is 7.8-folds, 6.4 for nurses and 3.7 for other health workers.

Income comparison with other countries

The monthly income of selected health workforce was compared against those of neighbouring countries in the SADC region upper middle-income economies (Botswana, Namibia and South Africa) and lower-income economy (Zimbabwe), and high-income economies (United Kingdom, Australia and the United States of America). The comparison reflected that Eswatini was paying the Medical Officer/Physician Generalist and Medical Specialist relatively closer to other upper middle-income economies. For example, the physician was being paid higher than in Namibia, while the Specialists salary was only lower than that offered in South Africa. For the rest of the staff (Nurses, Pharmacists, Laboratory Technologist & Radiographers) it was established that they were earning lower monthly salaries than those being paid in other upper- middle - income economies, except for the physiotherapists who were earn-

ing higher salaries than those in all-African Countries used in the comparison. Overall health workforce in high income economies earned higher salaries than those offered in Eswatini while all health workforce in lower income economy (Zimbabwe) were earning lesser than health professionals in Eswatini.

Table 5: Comparison of wages in Eswatini with other countries

Country	Eswatini (converted to USD)	Zimbabwe (converted to USD)	Monthly health service income – Botswana (converted to USD)	Monthly health service income – Namibia (converted to USD)	Monthly health service income – South Africa (converted to USD)	Monthly health service income – United Kingdom (converted to USD)	Monthly health service income – Australia (converted to USD)	Monthly health service income – USA
Physician generalists (medical officers)	3189	908	3361	2131	5506	4681	9500	18690
Medical specialists	4477	1328	3361	3193	6010	7391	9875	30666
Nurses	946	764	2494	4150	1100	2391	4633	6905
Midwives	946	861	2494	4150	1288	2430	4608	9768
Dental Officer	2790	908	3361	3193	2250	7000	6990	19833
Pharmacists	1839	938	2819	2730	2212	5083	5027	12095
Laboratory Scientists	1726	880	2819	2730	1513	2875	4500	5675
Radiographers	1054	880			1366	2920	5294	5485
Physiotherapists	1314	880		1814	1222	2825	4985	6667
Rural Health Motivator	19	15	557	20	250	2800	4375	3334

Source: www.payscale.com accessed on 5 October 2022

Table 6: Health Workforce Salary and Income Comparison in the Public Sector

Occupational Group	Average Annual Salary per worker (in LCU) - Before tax (Public Sector)	Other Monetary Benefits/ Allowances per worker (in LCU) - Per Year (Public Sector)	Total Public Sector Income	Overall Annual Income per worker (LCU)	Total Income per worker (USD)-Current Official Income	Health Sector Internal Income Relativity	Wage Index (Income as multiple of GDP per capita)	External Income Relativity - Crown Counsel/Prosecutor as reference
Clinical Psychologist	493,240		493,240	493,240	27,402	0.72	7.23	1.91
Laboratory Technologist	266,239	106,496	372,735	372,735	20,707	0.54	5.46	1.44
Laboratory Technician	185,392	74,157	259,549	259,549	14,419	0.38	3.81	1.01
Laboratory Assistant & Phlebotomist	72,989	29,196	102,185	102,185	5,677	0.15	1.5	0.40
Health Education Officer	122,555		122,555	122,555	6,809	0.18	1.8	0.47
Nutritionist	177,746		177,746	177,746	9,875	0.26	2.61	0.69
Clinical Dietician	283,720		283,720	283,720	15,762	0.41	4.16	1.10
Dental Officer	430,472	172,189	602,661	602,661	33,481	0.88	8.84	2.33
Dental Technologist	248,229		248,229	248,229	13,791	0.36	3.64	0.96
Optometrist	283,720		283,720	283,720	15,762	0.41	4.16	1.10
Occupational Therapist	283,720		283,720	283,720	15,762	0.41	4.16	1.10
Physiotherapist	283,720		283,720	283,720	15,762	0.41	4.16	1.10
Audiologist	283,720		283,720	283,720	15,762	0.41	4.16	1.10
Speech Therapist	283,720		283,720	283,720	15,762	0.41	4.16	1.10
Rehabilitation Technician	106,211		106,211	106,211	5,901	0.15	1.56	0.41
Environmental Health Officer/Inspector	147,595		147,595	147,595	8,200	0.21	2.16	0.57
Environmental Health Assistant	87,900		87,900	87,900	4,883	0.13	1.29	0.34
Biomedical Engineer	248,229	99,292	347,521	347,521	19,307	0.5	5.1	1.35

Occupational Group	Average Annual Salary per worker (in LCU) - Before tax (Public Sector)	Other Monetary Benefits/Allowances per worker (in LCU) - Per Year (Public Sector)	Total Public Sector Income	Overall Annual Income per worker (LCU)	Total Income per worker (USD)-Current Official Income	Health Sector Internal Income Relativity	Wage Index (Income as multiple of GDP per capita)	External Income Relativity - Crown Counsel/Prosecutor as reference
Biomedical Technician	97,772		97,772	97,772	5,432	0.14	1.43	0.38
Medical Officer (General practitioner)	430,472	258,283	688,755	688,755	38,264	1	10.1	2.67
Medical specialists – (All specialities)	604,337	362,602	966,939	966,939	53,719	1.4	14.18	3.75
Specialised Nurse – Dermatology	177,746	106,648	284,394	284,394	15,800	0.41	4.17	1.10
Medical specialist – Pomologist	604,337	362,602	966,939	966,939	53,719	1.4	14.18	3.75
General Nurse	177,746	26,662	204,408	204,408	11,356	0.3	3	0.79
Nursing Assistant	106,211		106,211	106,211	5,901	0.15	1.56	0.41
Specialised Nurse – All specialities	177,746	26,662	204,408	204,408	11,356	0.30	3	0.79
Community Health Nurse	177,746	26,662	204,408	204,408	11,356	0.3	3	0.79
Paramedic	106,211		106,211	106,211	5,901	0.15	1.56	0.41
Diagnostic Radiographer (Radiology technologist)	162,671	65,068	227,739	227,739	12,652	0.33	3.34	0.88
Ultrasonographer	248,229	99,292	347,521	347,521	19,307	0.5	5.1	1.35
Pharmacist	283,720	113,488	397,208	397,208	22,067	0.58	5.82	1.54
Pharmacy Technician	122,555	49,022	171,577	171,577	9,532	0.25	2.52	0.66
Pharmacy Assistant	106,211		106,211	106,211	5,901	0.15	1.56	0.41
Rural Health Motivator	4,200		4,200	4,200	233	0.01	0.06	0.02
					Overall	0.74	7.5	1.12

4. Descriptive Analysis of the Health Labour Market Situation

This section provides a description of the health workforce education and training capacity, the existing stock and composition of the health workforce (supply) and the demand for health workers (capacity to employ and level of vacancies).

4.1 Analysis of the Health Professions Education Sector

The Ministry of Education (MoE), Ministry of Labor and Social Security (MoLSS), Ministry of Public Service (MoPS) and the Ministry of Health (MoH) are responsible for the training of Health Professionals in the Kingdom of Eswatini. The MoLSS is primarily responsible for undergraduate training for the following locally provided programs: Nursing, Nursing assistant, Pharmacy, Medical Laboratory technician, Environmental Health, Radiography, Psychology, Anaesthesia, Community health, social work and Occupational Health and Safety. The locally available postgraduate programs include: MSc in Midwifery, certificate in Nephrology, diploma in Midwifery and family nurse practice.

Students are financed through a combination of government scholarships for undergraduate/pre-service students and in-service professionals, self-sponsorship and in some instances partner support through intervention-based training on current and emerging health issues.

4.1.1 Student Enrolment and Production Capacity

The health professional training programs are very attractive to prospective students, however training schools are only able to admit an average of 18% of the applicants (excluding midwifery). Most of the training programs were seen to be highly competitive, the proportion of applicants that are offered for most programs are lower than 50%. With the exception of the post graduate diploma in midwifery program which had a 96% enrolment rate, all the other training programs had an enrolment lower than 50%, for example, radiography 24.6%, Medical Laboratory Science 18.2%. Amongst the training programs with the lowest enrolment rate were: The Diploma in Pharmacy 5.4%, Certificate in Nursing Assistant 2.8%, and Diploma in General Nursing with a 2% enrolment of applicants (see details in Figure 11).

Figure 11: Annual Applicants vs Admitted.

	Number of Applicants	Admitted
Bachelor of Science in Medical Laboratory Science	690	5.1%
Bachelor of Science in Nursing and Midwifery	950	4.2%
Certificate in Nursing Assitant	1,417	2.8%
Diploma in General Nursing	255	2.0%
Diploma in Occupational Health and Safety	255	18.8%
Diploma in Phamarcy	650	5.4%
Medical Laboratory Science	231	18.2%
Nurse	1,820	2.2%
Post Diploma Certificate in Midwifery	25	96.0%
Psycology	286	15.0%
Radiography	118	24.6%
Social Work	299	13.0%

■ Number of Applicants ■ Admitted

4.1.2 Training of Selected Health Workforce

Four training institutions in Eswatini were offering Nurse training courses in nursing assistant, general nurse (diploma-trained nurses), and General nurses (degree-trained nurses and double-qualified nurses with specialty in midwifery or mental health nursing). Other locally offered programs included the Diploma in Pharmacy, Bachelor of Science in Medical Laboratory Sciences, Diploma in Occupational Health and Safety and Diploma in Environmental Health among others. It is worth noting that there was no locally available training for Medical Officers and Specialists, for these programs the country relied on health professionals trained abroad.

4.2 Number of Faculty (Trainers or Tutors)

The nursing programs have the most full- and part-time lecturers (64) when compared with other health-related programs. For example, the pharmacy program had 14 trainers followed by the occupational health and safety program with 10 while the laboratory technologist program had 10 trainers. This may be a result of the fact that nursing programs were being offered at four Nurse training institutions, while other health related programs were being trained at one institution apart from the Bachelor of Science in Medical Laboratory Sciences program which was being offered at two institutions.

BOX 2: **STUDENTS TO TUTOR RATIO AND ITS IMPLICATION**

The adequacy or otherwise of tutors depends on number of students admitted on the program, which is usual calculated as student: tutor ratio. Higher ratios may indicate lack of tutors and could lead to lower quality of training, while very low ratio indicate having more tutors compared to student and may signal some inefficiencies or a situation where there is over restriction in the number of students admitted.

Eswatini has a ratio of 6 students: 1 tutor for first year cohorts. There is no global standard for student to tutor ratio that is acceptable for all occupations. Some occupations have threshold they consider reasonable for quality training.

For this analysis, the number of students per institution for the first-year cohort was compared with the number of tutors to generate the student to tutor ratio. The average student to tutor ratio for first year cohort is 1:6 but varies widely from 1:2 to 1:25.

The environmental health training program had the highest student-to-tutor ratio of 25:1, while on the other hand, the General Nursing and Bachelor in Nursing midwifery had the lowest ratio of 2:1. The diploma in Occupational Health and Safety and Bachelor of Science in Medical Laboratory Sciences had a student to tutor ratio of 4:1. It was generally observed that there is a need to expand the number of faculty (lecturers and tutors) for all locally offered programs.

Table 7: Number of Students per Faculty/Tutor

No.	Programme	Accreditation Status	Number of Institutions Offering the Program	Average Number of Students Admitted per Institution	Average Number of Faculty	Average Students / Tutor Ratio (per cohort)
1	Post diploma certificate in midwifery	Fully Accredited	1	24	4	6

No.	Programme	Accreditation Status	Number of Institutions Offering the Program	Average Number of Students Admitted per Institution	Average Number of Faculty	Average Students / Tutor Ratio (per cohort)
2	Pharmacy	Fully Accredited	1	38	14	3
3	Bachelor of Science in Nursing and Midwifery	Fully Accredited	3	40	21	2
4	Diploma in Pharmacy	Fully Accredited	1	35	14	3
5	Bachelor of Science in Medical Laboratory Sciences	Fully Accredited	2	35	10	4
6	Diploma in General nursing	Fully Accredited	1	40	25	2
7	Diploma in Occupational Safety and Health	Fully Accredited	1	48	12	4
8	Certificate in Nursing Assistant	Fully Accredited	1	40	14	3
9	Environmental Health	Fully Accredited	1	150	6	25

4.3 Cost of Training of Health Workers

The Eswatini government funds pre-service training of health workers in all local institutions as well as training in certain external institutions. The cost of training a health worker includes tuition costs paid directly to training institutions by the Eswatini government and personal, book, accommodation, food, project, and field attachment allowances which are paid directly to students by the government through the MoLSS Scholarship Unit. However, because the government only pays within its available revenue, it was noted that the entire tuition paid to training institutes, as well as all student allowances, were sometimes insufficient.

It is estimated that locally trained programs costs an average of SZL 15,630 to train a general nurse and a minimum of SZL 16,200 annually to train a specialised nurse Midwife. Also, it costs between SZL 16,200 and SZL 22,000 to train a Medical Laboratory Technician and SZL16,200 for a pharmacy program. Table 7 illustrates the cost of training for various local training programs.

Table 8: Tuition Fees

Training Program	Cost annually at University of Eswatini (UNESWA)	Cost annually at Good Shepherded Catholic College of Health Sciences (GSCCH)	Cost annually at Southern African Nazarene University (SANU)	Cost annually at Eswatini Medical Christian University (EMCU)
Undergraduate Training Program				
Bachelor of Nursing Science & Midwifery (4 years)	E25,330.00	Not offered	E 16,200.00	E27,000.00
Bachelor of Science in Nursing Anaesthesia (4 years)	Not offered	Not offered	E24,385.00	Not offered

Training Program	Cost annually at University of Eswatini (UNESWA)	Cost annually at Good Shepherded Catholic College of Health Sciences (GSCCH)	Cost annually at Southern African Nazarene University (SANU)	Cost annually at Eswatini Medical Christian University (EMCU)
Diploma in General Nursing (3 years)	Not offered	E15,630.00	Not offered	Not offered
Certificate in Nursing Assistant (2 years)	Not offered	E13,800.00	Not offered	Not offered
Bachelor of science in Medical Laboratory Technician (4 years)	Not offered	Not offered	E16,200.00	E22,000.00
Bachelor of Science in Pharmacy (4 years)	Not offered	Not offered	Not offered	E22,000.00
Diploma in Pharmacy Technician (3 years)	Not offered	Not offered	E16,200.00	Not offered
Bachelor of Science in Environmental Health (4 years)	E23,840.00	Not offered	Not offered	Not offered
Diploma in Occupational Health & Safety (3 years)	Not offered	E15,630.00	Not offered	Not offered
Postgraduate Training Programme				
Master of Science in Nursing – Family Nurse Practitioners	E24,154.00	Not offered	Not offered	Not offered
Master of Science in Midwifery	E24,154.00	Not offered	Not offered	Not offered
Postgraduate Diploma Certificate in Midwifery (1 year)	Not offered	E13,800.00	Not offered	Not offered
Postgraduate Certificate in Nephrology (1 year)	E14,304.00	Not offered	Not offered	Not offered

For those programs not offered locally such as General and Medical Specialist programs, it costs the government an average of SZL99,300 per student annually higher than the average cost for locally offered programs which ranged between an average of SZL37,050 to SZL 58,750 annually.

Table 9: Cost of training inside and outside Eswatini

Cost of training abroad	Annual Cost
Tuition fees, registration, and international levy.	E 50,000
Accommodation/Residence (off campus)	E 25,000
Meals	E 15,000
Books	E 6,000
Personal allowance	E 900
Travelling allowance	E 2,400
TOTAL	**E 99,300**

Cost of Training Students in Eswatini by Institution	Annual cost
Estimated average annual cost of training at University of Eswatini (UNESWA)	E 58,750
Estimated average annual cost of training at Good Shepherded Catholic College of Health Sciences (GSCCH)	E 37,050
Estimated average annual cost of training at Southern African Nazarene University (SANU)	E 43,958
Estimated average annual cost of training at Eswatini Medical Christian University (EMCU)	E 48,450
AVERAGE COST	**E 47,052**

4.4 Attractiveness and Volume of Applications to Health Professions Programmes

Across ten programmes of various duration of training, the capacity was 545 seats for admission in the last admission cycle. About 9981 applicants competed for these slots thus there were 18 applicants per each available slot. Of these applicants only 6.7% could be admitted. This implies that the young people are interested in the health occupation but capacity to train them is limited. Nursing programs attract a significant number of applicants when compared to all other health-related programs, according to the application data obtained for the 2022 academic year. However, most of these applications are turned down, with only about 2 to 4% of applicants admitted into the various nursing programs. The main reason for the low acceptance rate is a restriction established by the Eswatini Nursing Council, which allows institutions to admit no more than 40 students per program.

Table 10: Annual number of applicants vs number of admitted by program

Programme	Number of Seats Available for admission	Number Admitted from the applicants	Annual Number of Applicants for the program	Percentage Admitted
Certificate in Nursing Assistants	40	40	1417	3%
General nurses (diploma)	40	40	2002	2%
Bachelor's degree in nursing	120	120	3170	4%
Diploma in Occupational Health and Safety	50	48	255	19%
Bachelors in medical laboratory science	60	77	921	8%
Bachelors in radiography	25	29	118	25%
Bachelors in pharmacy	30	38	500	8%
Bachelors in psychology	45	45	286	16%
Diploma in pharmacy	35	35	650	
Bachelor's degree in environmental health science	100	200	662	30%
Average	**545**	**672**	**9981**	**6.7%**

4.5 Attraction of health professionals to further their studies/specialise.

Healthcare workers are keen to further their education; however, not all employees are permitted to embark on further training. Apart from Medical Officers/practitioners, all other Health Workforce categories who pursue additional training do not receive salary increments or incentives upon completion of their specializations. This frequently discourages Health Workers from further studies and acquiring specific post basic qualification skills.

> ### BOX 3: SUMMARY ON THE HEALTH WORKFORCE TRAINING AND EDUCATION
>
> The health professions education in Eswatini are broadly very attractive to prospective students and have become competitive as the programmes are on average able to admit only 6.7% of the applicants despite a significant unutilised capacity especially for nursing training where there the schools are given a quota of 40 per year even though some are thought to have 60 to 90 seats per year. There are reasonable prospects to expand training if the staff establishments are expanded and funded. Some stakeholders have expressed concerns about the quality of training of some health workers, especially those trained abroad.
>
> A case in point was 50 doctors who trained abroad and returned but there were concerns about insufficient practical component of their training which led to more than one year delay in the recognition of their qualification and commencement of their internship locally.
>
> Although continuous professional development (CPD) opportunities are increasingly becoming available through the professional regulatory bodies, these are not founded upon competency gaps and training needs assessment (TNA) that links staff development to competency deficits and health service delivery requirements.

4.6 Current Stock and Supply Trends of Health Workers in Eswatini

4.6.1 Current stock and density of health workers

The overall stock of Health Workforce for Eswatini across 51 major Health Workforce occupations in 2022 was estimated to be about 10,359. This stock excluded Management, Administration and Support Staff. Of the total stock, about 9,744 (94%) were actively participating in the health labour market in both the private and public sectors – thus, they were either employed or actively looking for jobs. The public sector employed 71% (6,931), whilst 29% (1,906) were employed in the private sector.

Although most health workers were employed in the public sector, several staff categories, such as anaesthesiologists (75%), orthopaedic surgeons (60%) and physiotherapists (68.7%), had more workers employed in the private sector. According to data from the Eswatini Nursing Council, the public sector employed more Registered General and Specialised Nurses than the private sector, for example, 64% of general nurses and 79.7% of midwives worked in the public sector. However, specialised nurse categories such as Anaesthesia and Operating Theatre, and Nursing assistants, had more health workers employed in the private sector at 100%, 53%, and 54%, respectively. In Eswatini Nurses may hold multiple specialties and available data did not allow for sufficient disaggregation by specialty in a way that would avoid multiple counting of the same worker. Hence subsequent analysis of supply uses the overall stock of professional nurses and midwives. Table 10 provides details of the estimated stock and supply of Health Workers in 2022.

> ### BOX 4: WHY ARE RURAL HEALTH MOTIVATORS INCLUDED IN THE ANALYSIS
>
> The recruitment, selection and training of RHMs do not follow the standard civil service processes as such, they do not hold full time government employment status. They are paid an allowance by the government and partners may supplement with incentives. Nevertheless, their contribution to health service delivery in terms of health promotion, disease prevention and treatment of minor ailments as well as linking communities to health systems cannot be underestimated. In recognition of this critical role RHMs were included in this analysis for planning purposes.

Table 11: Stock of health Workers in Eswatini

Occupation Title used in the Country	Equivalent ISCO Classification	Stock of qualified health workers, (P)	Number Employed in Public Sector (EnPb)	Employed in Private Sectors (EnPr)	Number Unemployed (U)	Health Labour Market Participation Rate [(EnPb+EnPr+U)/P]	Estimated Unemployment Rate [U/P]	Effective Supply (S)	% Employed in Public Sector	% Employed in Private Sector	Density per 10,000 population - 2022
Clinical Psychologist	2634 - Psychologist, clinical	8	4	4		100%	0%	8	50%	50%	0.07
Laboratory Technologist	3254 - Dispensing opticians	130	93	37		100%	0%	130	72%	28%	1.11
Laboratory Technician	3212 - Medical and pathology laboratory technicians	59	48	11		100%	0%	59	81%	19%	0.50
Laboratory Assistant & Phlebotomist	3212 - Medical and pathology laboratory technicians	190	177	13		100%	0%	190	93%	7%	1.62
Health Education Officer	2269 - Health professionals not elsewhere classified	1	1			100%	0%	1	100%	0%	0.01
Nutritionist	2265 - Dieticians and nutritionists	4	4			100%	0%	4	100%	0%	0.03
Clinical Dietician	2265 - Dieticians and nutritionists	10	5	3	2	100%	20%	10	63%	38%	0.09
Dental Officer	2261 - Dentists	35	30	5		100%	0%	35	86%	14%	0.30
Dental Therapist / Dental Assistant	3251 - Dental assistants and therapists	8	6	2		100%	0%	8	75%	25%	0.07
Optometrist	2267 - Optometrists and ophthalmic opticians	6	5	1		100%	0%	6	83%	17%	0.05
Occupational Therapist	2263 - Environmental and occupational health and hygiene professionals	12	7	5		100%	0%	12	58%	42%	0.10
Physiotherapist	2264 - Physiotherapists	32	10	22		100%	0%	32	31%	69%	0.27
Audiologist	2266 - Audiologists and speech therapists	8	4	4		100%	0%	8	50%	50%	0.07

Occupation Title used in the Country	Equivalent ISCO Classification	Stock of qualified health workers, (P)	Number Employed in Public Sector (EnPb)	Employed in Private Sectors (EnPr)	Number Unemployed (U)	Health Labour Market Participation Rate [(EnPb+EnPr+U)/P]	Estimated Unemployment Rate [U/P]	Effective Supply (S)	% Employed in Public Sector	% Employed in Private Sector	Density per 10,000 population - 2022
Speech Therapist	2266 - Audiologists and speech therapists	6	2	4		100%	0%	6	33%	67%	0.05
Rehabilitation Technician	3255 - Physiotherapy technicians and assistants	9	7	2		100%	0%	9	78%	22%	0.08
Environmental Health Officer/Inspector	2263 - Environmental and occupational health and hygiene professionals	51	42	9		100%	0%	51	82%	18%	0.43
Environmental Health Assistant	3257 - Environmental and occupational health inspectors and associates	20	19	1		100%	0%	20	95%	5%	0.17
Biomedical Engineer	2149 - Engineer, biomedical	12	3	9		100%	0%	12	25%	75%	0.10
Biomedical Technician	3259 - Health associate professionals not elsewhere classified	34	27	7		100%	0%	34	79%	21%	0.29
Medical Officer (Generalist practitioner)	2211 - Generalist medical practitioners	623	283	40	300	100%	48%	623	88%	12%	5.31
Medical specialist - Pathologist	2212 - Specialist medical practitioners	3	2	1		100%	0%	3	67%	33%	0.03
Medical specialist - Radiologist	2212 - Specialist medical practitioners	1		1		100%	0%	1	0%	100%	0.01
Medical specialist - Orthopaedic Surgeon	2212 - Specialist medical practitioners	5	2	3		100%	0%	5	40%	60%	0.04
Medical specialist - Neurosurgeon	2212 - Specialist medical practitioners	2	1	1		100%	0%	2	50%	50%	0.02
Medical specialist - Psychiatrist	2212 - Specialist medical practitioners	1	1			100%	0%	1	100%	0%	0.01
Medical specialist - Anaesthesiologist	2212 - Specialist medical practitioners	4	1	3		100%	0%	4	25%	75%	0.03

Occupation Title used in the Country	Equivalent ISCO Classification	Stock of qualified health workers, (P)	Number Employed in Public Sector (EnPb)	Employed in Private Sectors (EnPr)	Number Unemployed (U)	Health Labour Market Participation Rate [(EnPb+EnPr+U)/P]	Estimated Unemployment Rate [U/P]	Effective Supply (S)	% Employed in Public Sector	% Employed in Private Sector	Density per 10,000 population - 2022
Medical specialist - Ophthalmologist	2212 - Specialist medical practitioners	3	2	1		100%	0%	3	67%	33%	0.03
Medical specialist - ENT Surgeon	2212 - Specialist medical practitioners	2	1	1		100%	0%	2	50%	50%	0.02
Medical specialist - Urologist	2212 - Specialist medical practitioners	2	1	1		100%	0%	2	50%	50%	0.02
Medical specialist – Internal Medecine Physician	2212 - Specialist medical practitioners	8	6	2		100%	0%	8	75%	25%	0.07
Medical specialist - Paediatrician	2212 - Specialist medical practitioners	6	3	3		100%	0%	6	50%	50%	0.05
Medical specialist - Paediatric Surgeon (1 in private)	2212 - Specialist medical practitioners	1		1		100%	0%	1	0%	100%	0.01
Medical specialist - Obstetrician & Gynaecologist	2212 - Specialist medical practitioners	7	4	3		100%	0%	7	57%	43%	0.06
Medical specialist - General Surgeon	2212 - Specialist medical practitioners	9	7	2		100%	0%	9	78%	22%	0.08
Medical specialist - Nephrologist	2212 - Specialist medical practitioners	2	1	1		100%	0%	2	50%	50%	0.02
Medical specialist - Dermatologist	2212 - Specialist medical practitioners	1	1			100%	0%	1	100%	0%	0.01
Medical specialist - Neurologist	2212 - Specialist medical practitioners	1	1			100%	0%	1	100%	0%	0.01
Medical specialist - Oncologist	2212 - Specialist medical practitioners	2	2			100%	0%	2	100%	0%	0.02
Medical specialist - Maxillo-Facial Surgeon	2212 - Specialist medical practitioners	2	2			100%	0%	2	100%	0%	0.02

Occupation Title used in the Country	Equivalent ISCO Classification	Stock of qualified health workers, (P)	Number Employed in Public Sector (EnPb)	Employed in Private Sectors (EnPr)	Number Unemployed (U)	Health Labour Market Participation Rate [(EnPb+EnPr+U)/P]	Estimated Unemployment Rate [U/P]	Effective Supply (S)	% Employed in Public Sector	% Employed in Private Sector	Density per 10,000 population - 2022
Medical specialist - Cardiologist	2212 - Specialist medical practitioners	1	1	1		100%	0%	1	0%	100%	0.01
Medical specialist - Neonatalogist	2212 - Specialist medical practitioners	1	1			100%	0%	1	100%	0%	0.01
Professional Nurses and Midwives	2221 - Nursing professionals	4,190	2,012	1,102	461	85%	11%	3,575	65%	35%	35.69
Nursing Assistant	2221 - Nursing professionals	1,052	482	426	144	100%	14%	1,052	53%	47%	8.96
Paramedic	3258 - Ambulance workers	310	257	53		100%	0%	310	83%	17%	2.64
Diagnostic Radiographer (Radiology technologist)	3211 - Medical imaging and therapeutic equipment technicians	64	33	31		100%	0%	64	52%	48%	0.55
Ultrasonographer	3211 - Medical imaging and therapeutic equipment technicians	10	8	2		100%	0%	10	80%	20%	0.09
Pharmacist	2262 - Pharmacists	42	34	8		100%	0%	42	81%	19%	0.36
Pharmacy Technician	3213 - Pharmaceutical technicians and assistants	105	57	48		100%	0%	105	54%	46%	0.89
Pharmacy Assistant	3213 - Pharmaceutical technicians and assistants	61	29	32		100%	0%	61	48%	52%	0.52
Rural Health Motivator	3253 - Community health workers	3,200	3,200			100%	0%	3,200	100%	0%	27.26
Epidemiologist	2269 - Health professionals not elsewhere classified	3	3			100%	0%	3	100%	0%	0.03
Total		10,359	6,931	1,906	907	94%	2%	9,744	67%	33%	88.24

4.6.2 Trend of HWF Stock in Eswatini

Over the past 5 years, a period corresponding with the implementation of the HRH strategic plan (2018 to 2023), the country made progress towards increasing the stock of health workforce. From 2018 to 2022, about 1,198 health professionals were added across 16 staff categories for which data was available, resulting in an increase of roughly 20% in the stock over the period.

Figure 12: Trend of selected Health Workers[2] stock in Eswatini
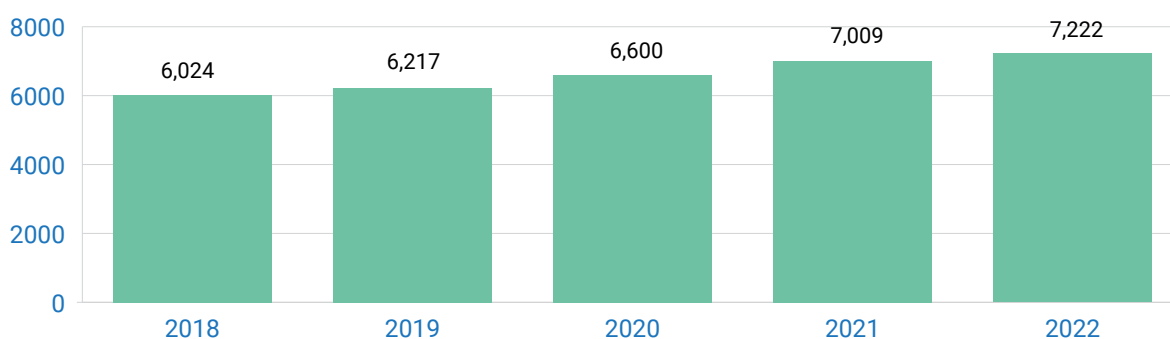
Data source: MoH and Councils Data (2022)

Table 12: Stock of HWF in the Public Sector from 2018 to 2022

#	Cadres	2018	2019	2020	2021	2022
1	General Medical Practitioners	569	618	630	659	718
2	Specialist Medical Practitioners	134	140	144	148	154
3	Nursing professionals	4,183	4,216	4,425	4,594	4,594
4	Nursing assistants	524	558	575	626	626
5	Pharmacists	152	160	192	253	279
6	Pharmaceutical technicians	66	97	117	148	180
7	Dentists		61	63	64	64
8	Dental therapists	7	8	8	8	9
9	Dental assistants	4	4	4	4	4
10	Laboratory Scientist	15	14	15	15	15
11	Laboratory Technologists	167	124	197	240	305
12	Laboratory Technicians	30	37	41	41	42
13	Radiographers	67	69	74	89	108
14	Environmental Health Professionals	36	36	37	39	39
15	Occupational Health Professionals	22	23	23	23	26
16	Physiotherapists	48	52	55	58	59
	TOTAL	**6,024**	**6,217**	**6,600**	**7,009**	**7,222**

4.6.3 Unemployment of Health Workers

As illustrated in Figure 13, it was estimated that about 907 health workers were unemployed. When compared with the overall supply of health workers, it represents about 9% unemployment rate of the active health workforce. This is lower than the 26.7% overall unemployment rate in Eswatini in 2023, according to data from the ILO. Among the unemployed are 431 midwives, 30 general nurses, 144 nurs-

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2   Seventeen Cadres (General Medical Practitioners, Specialist Medical Practitioners, Nursing Personnel, Nursing professionals, Nursing assistants, Pharmacists, Pharmaceutical technicians, Dentists, Dental therapists, Dental assistants, Laboratory Scientists, Laboratory Technologists, Laboratory Technicians, Radiographers, Environmental Health Professionals, Occupational Health Professionals and Physiotherapists)

ing assistants, 2 clinical dieticians and 300 general practitioners. It is worth emphasizing that among the 431 unemployed midwives, it could not be ascertained if some migrated outside the country or were working in other tertiary institutions or with health partners.

Figure 13: Estimated unemployed HWF among selected health professionals, 2022
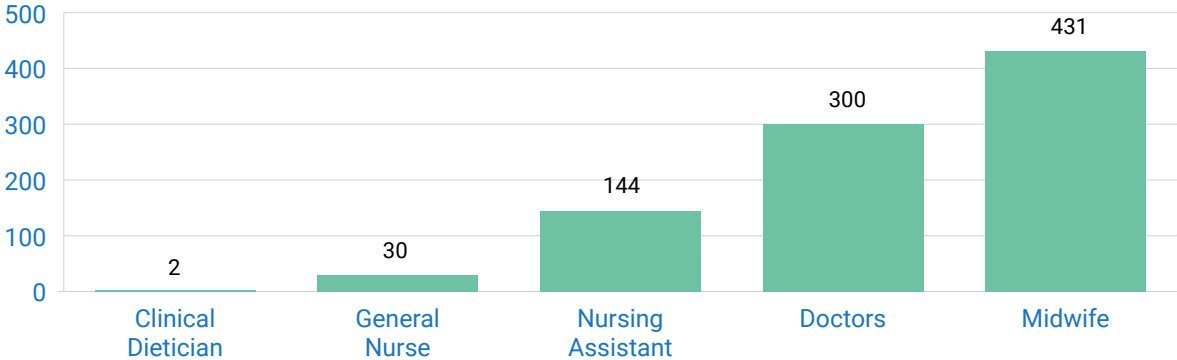
4.6.4 Density of Health Workforce in Eswatini, 2023

As of July 2023, the aggregate density of doctors, nurses, and midwives was 51 per 10,000 population, which is higher than the 44.50 per 10,000 population estimated in in the Global Strategy for Health Workforce, 2030 as necessary to make progress towards the SDG 3 tracer indicators. When all cadres of health workers were considered in the analysis, the density was 88.24 per 10,000, which is 66% of the threshold of 134.2 estimated by WHO AFRO as essential to achieve at least 70% UHC Service Index Coverage.

Figure 14: Doctors, Nurses, and Midwives density in Eswatini (2016 to 2022)
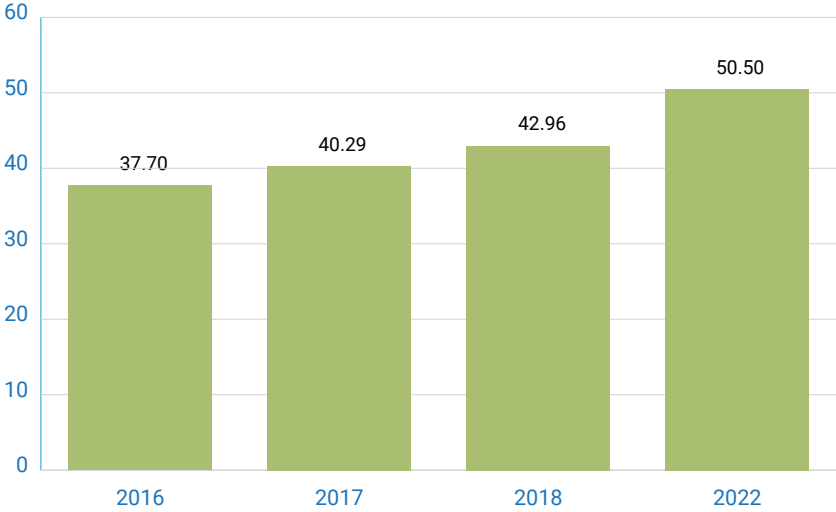
Between 2016 and 2022, the density of Doctors, Nurses, and Midwives increased by 40% from 37.7 per 10,000 population to 50.5 per 10,000 population in 2022. The fastest growth was recorded between 2018 and 2022 when the density of doctors, nurses, and midwives per 10,000 population increased by 18%, from 42.96 in 2018 to 50.5 per 10,000 population to in 2022. However, most this expansion did not result in the employment of the new health workers, hence not all these gains translated into actual workforce capacity for service delivery as at least 907 health workers remained unemployed.

BOX 5:   **THE AGGREGATE HEALTH WORKFORCE DENSITY IS COMPA-
RABLE TO COUNTRIES WITH HIGH UHC INDEX**

Since 2016, the density of Doctors, Nurses, and Midwives increased by 34% from 37.7 per 10,000 population to 50.5 per 10,000 population within the period.

Eswatini has an aggregate health workforce density that corresponds to 67% of what is required to attain universal health coverage targets towards attainment of the SDGs. Measures to optimise utilisation of the health workforce and ensuring a skill mix balance is key.

4.6.5 Composition of Health Workforce (Distribution by Occupational Category)

As shown in Figure 10, Eswatini's breakdown of the health workforce by staff category reveals that nurses made up 48.3% (General Nurse: 28.3% and Specialised Nurses: 20%) of the overall stock, followed by Rural health motivators, 21.6%, Community Health Nurse, 10%, medical officers represent 4.2%, and laboratory assistants at 2.6%.

Figure 15: Composition of the health professionals (Selected cadres), 2022
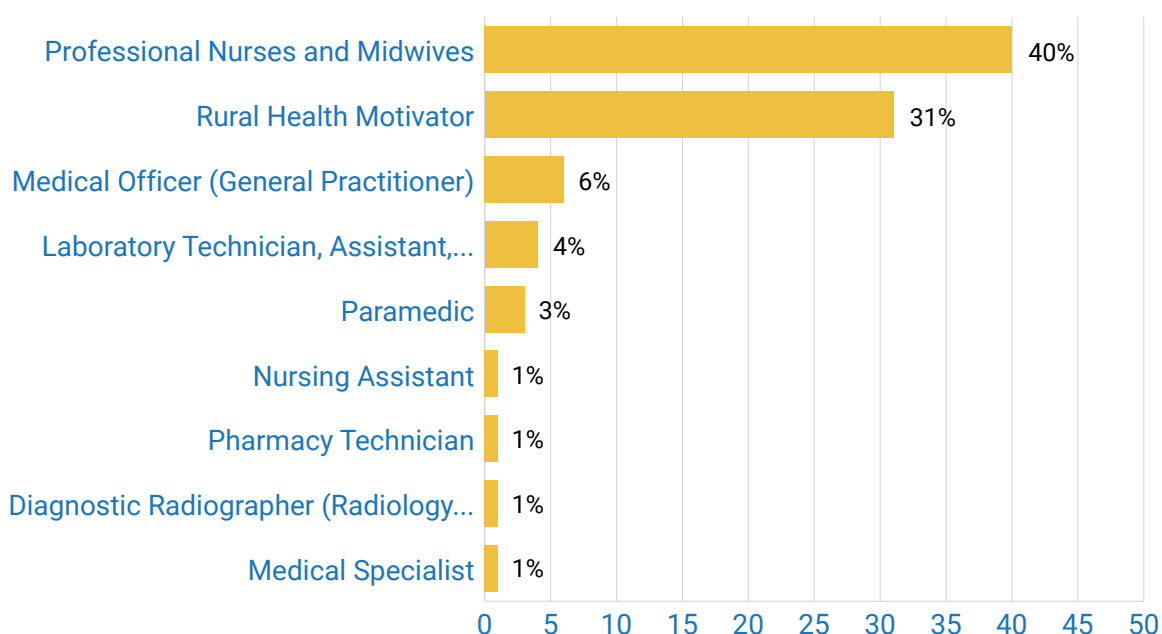
4.7 Characteristics of the Current Stock of the Health Workforce

4.7.1 Age Distribution of Health Workers

The Eswatini health labour market had a young health workforce. Out of a total of 6,103 health professionals whose ages could be determined, 3,661 (59.9%) were in the 25-44 years age group, 1,106 (18.1%) were in the 45-54 age range, and the remaining 13.3% were in the 55-64 age range. Figure 16 provides a breakdown of the age distribution by cadre.

Figure 16: Age distribution of Health Workforce
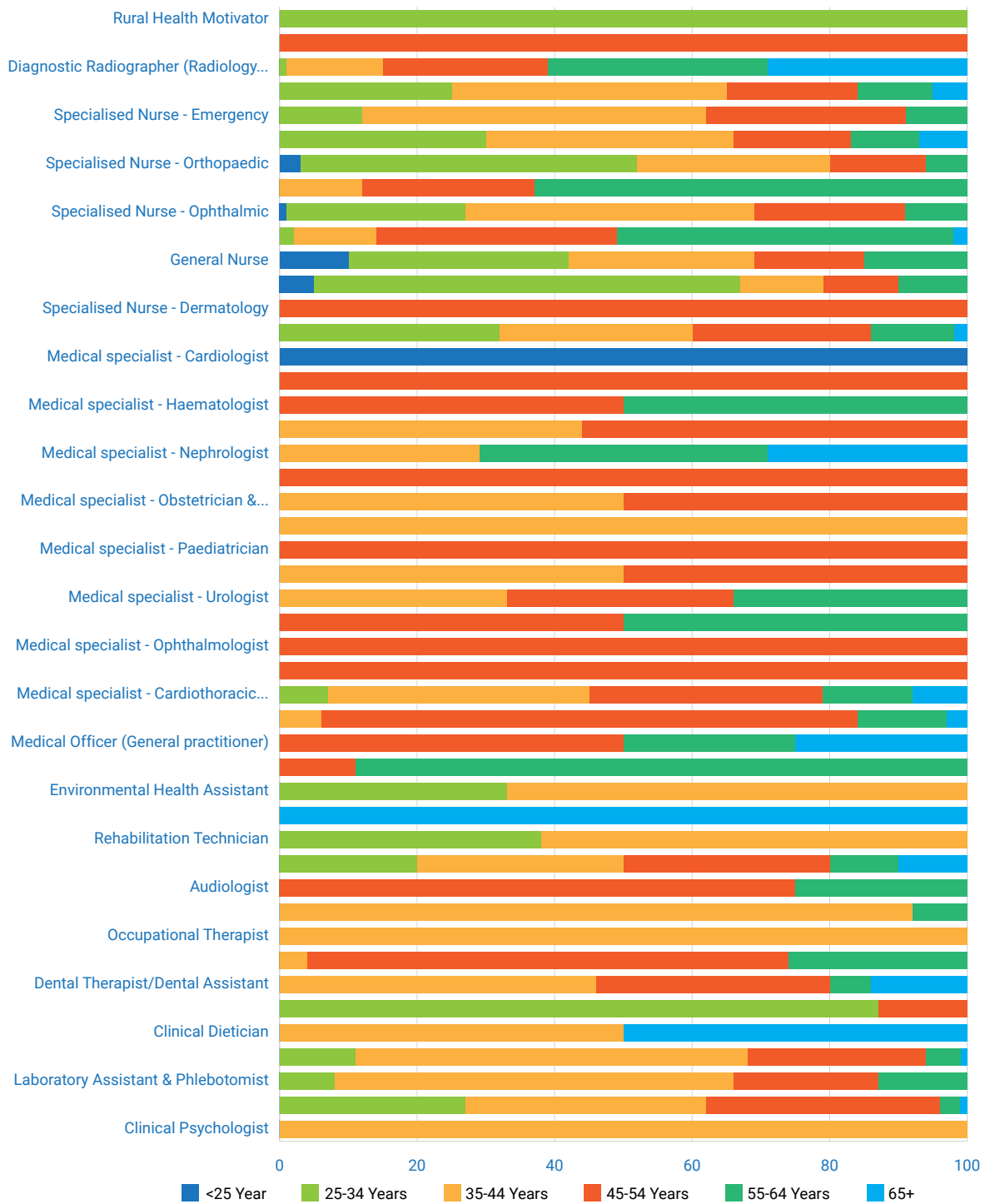
4.7.2 Gender Distribution of Health Workers

Out of the 8,543 health workers whose gender was specified, females constituted 70% of the total stock, which is similar to the global average of 70%. There were more males among biomedical engineers and Technician, Medical specialist Cardiothoracic surgeon, and medical specialist ENT, as shown in Figure 17.

Figure 17: Gender Distribution of Health Workforce
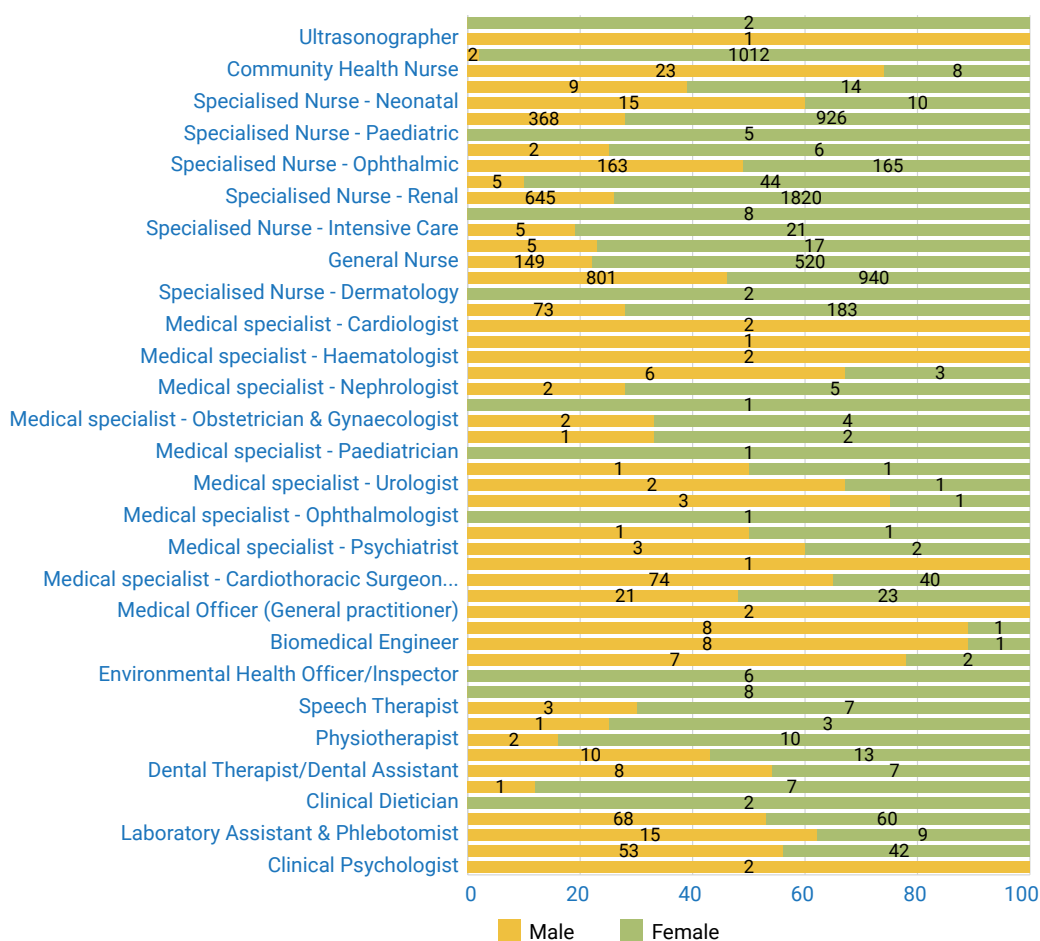
4.7.3 Geographic Distribution of Health Workers: Equity Implications

From the total public sector health workforce stock, 34% and 33% were concentrated in the Hhohho and Lubombo regions respectively, while Manzini had 24% and Shiselweni had only 9% of the health workforce.

Figure 18: Density of HWF and Geographical Equity Index for Selected HWF in the Public Sector

2018

Hhohho
7.29

Manzini
4.67

Lubombo
4.78

Shiselweni
3.83

3.01 - 4.25
4.26 - 5.50
5.51 - 6.75
6.76 - 8.00

Density in HWF per 10,000 Population per region (2018-Base line) - Eswatini

2022

Hhohho
11.45

Manzini
5.97

Lubombo
3.85

Shiselweni
5.21

3.01 - 5.25
5.26 - 7.50
7.51 - 9.75
9.76 - 12.00

Density in HWF per 10,000 Population per region (2022-End term) - Eswatini
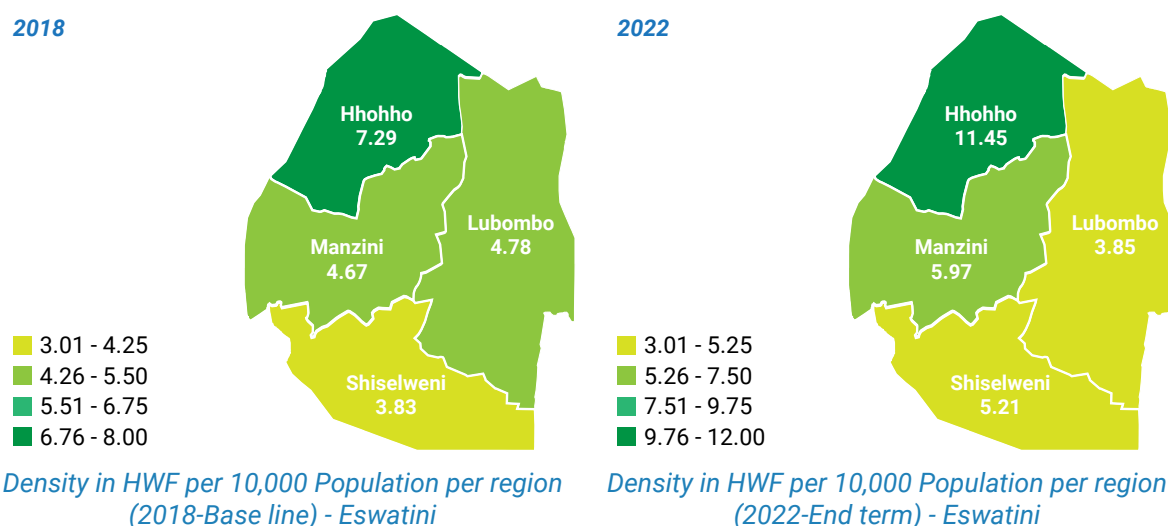
To examine if the distribution health workforce had inherent inequity, the health workforce Geographical Equity Index (GEI) was computed. The HRH Geographical Index, which is an approach used in a number of African countries to explore the equity implications of regional distribution of the existing health workforce. The approach uses the region's percentage share of national population as a denominator and their respective percentage share of the public service health workforce as a numerator. A perfectly distributed workforce will ideally generate an HWF GEI of 1, hence a GEI above 1 in a particular region represented a skewed distribution of health workers in its favour, and vice versa. A region with the greatest GEI compared to a region with the lowest GEI demonstrated the magnitude of inequality between the best and worst staffed regions.

Hhohho region had the highest GEI for Medical Officers/General Practitioner with a GEI of 1.69. In Contrast Manzini which has a higher population, had a Medical Officer GEI of 0.93. Lubombo and Shiselweni regions had lower GEI ratio, with Lubombo scoring 19.7 and Shiselweni 17.9, the lowest GEI score for Medical Officer.

The GEI for General Nurses was lowest in Shiselweni region which had a GEI of 0.68, Lubombo which has a closer population to Shiselweni had a GEI of 1.01. The highest ratio for General Nurses was in Manzini region 1.10 whilst Hhohho region recorded a 1.07 GEI score.

The highest GEI for Pharmacists was in Hhohho region (2.16). The other three regions had a GEI lower than 1, Manzini (0.83) while regions with a relatively similar population and geographical setting Shiselweni and Lubombo had a GEI of 0.25 and 0.23 respectively.

For the Laboratory Technologist the highest ratio was in Shiselweni (1.23) followed by Hhohho (1) and Manzini (0.98). Lubombo had the lowest GEI (0.23) of Laboratory Technologist

The highest GEI for Rural Health Motivator was Lubombo region (3.84) followed by Hhohho region (0.83) and Shiselweni and Manzini regions recorded a ratio of 0.

Figure 19: Geographical Equity Index (GEI) for some cadres
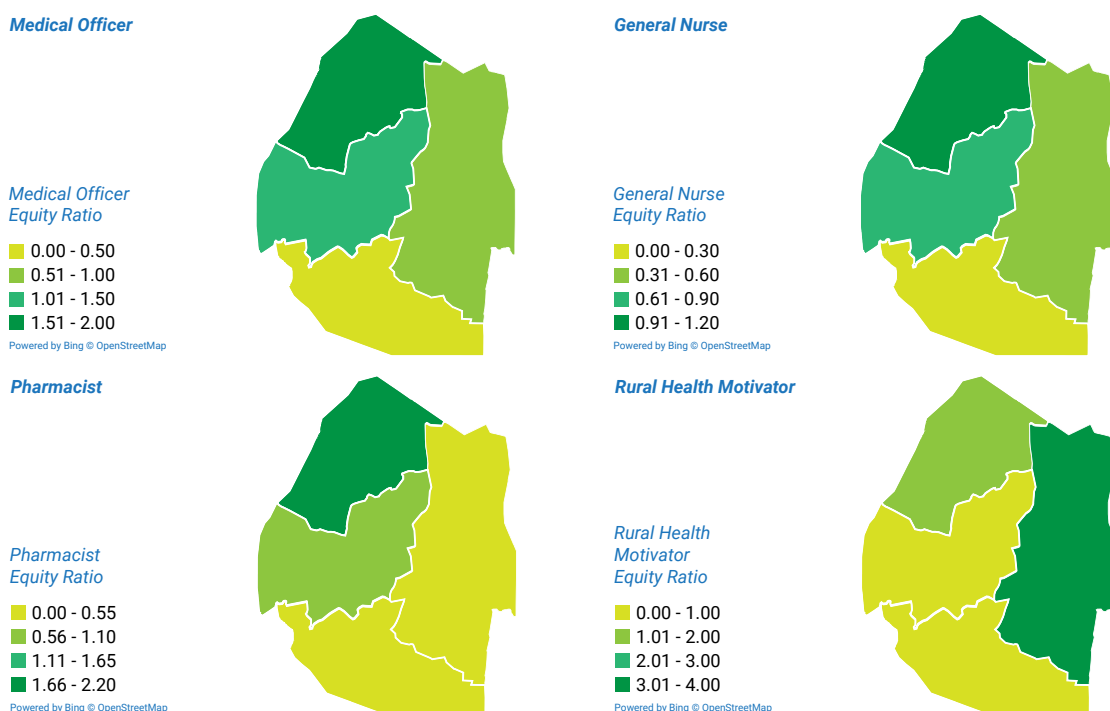
4.8 Demand for health workers: establishment and vacancy analysis

The descriptive demand analysis was limited to the public sector, this was due to the unavailability of data on establishment and vacancies for the Eswatini private health sector.

4.8.1 Public Sector Vacancy Analysis

The Public Health Sector had a total of 6,587 established posts (indicative demand) across the 74 staff categories analysed. Each of those established posts was said to be funded. However, the posts that were filled (met demand) was 6,903 (94.4%), leaving an unmet demand (vacancies) of 316 (an overall vacancy rate 5.6%). The unmet demand was a result of vacancies in most medical specialist staff categories where there was inadequate supply. For example, such as 3 filled posts for specialist paediatricians from the 6 funded posts and 1 filled post for specialist anaesthesiology out of the 4 funded posts. Also, neurologist, medical specialist maxilla-facial surgeon, psychiatrist, and dermatologist had 0% vacancy rates, whereas medical specialist cardiologist, paediatric surgeon, and radiologist had 100% vacancy rates.

There are also 15 vacant posts for pharmacists from 34 funded posts. The posts for Nurse Specialists had not been broken down by specialty, however, it was discovered that there was an overstaffing of 347 Nurses, with 2012 filled posts out of the authorized 1,665 nursing posts.

According to an evaluation of the Eswatini HRH strategic Plan. 2017 – 2022, the country is facing demand-side constraints as a result of the 2018 circular Number 03 that brought a "net freeze" in employment, which has had a debilitating toll on the health sector – as the sector has been unable to make a special case to be exempted to "expand recruitment to absorb those being trained". Most of the key informants interviewed emphasized the impact of the circular number 03 on the ability to recruit more health workers – as illustrated in the box below.

Figure 20: Voices from stakeholders on the impact of public sector employment freeze on health

1. "[The 2018 circular] it has crippled our ability to do more..."

2. "Nurses, Lab techs, health officers are unemployed or are employed at a lower scale."

3. Since the freeze, there is no need to look at the strategic document. "... it is painful to even peruse when it will change nothing"

4. New facilities, no staff: "a new health facility is opened; they take one nurse from here and there and put in the new facility without adding to the establishment register..."

5. "... its like they are punishing us"

Consequently, there has been limited new posts created between 2018 and 2022 to absorb newly trained health workers. For instance, there were just 23 additional posts created and filled in 4 years for medical and dental doctors, 62 additional posts created and 51 new posts filled in 4 years for nurses and midwives and 87 additional post created and 17 new posts filled in 4 years for allied and all others cadres.

Figure 21: Vacancy analysis – 2018 compared to 2022

Medical and Dental   **Nursing and Midwifery**   **Allied and all other cadres**
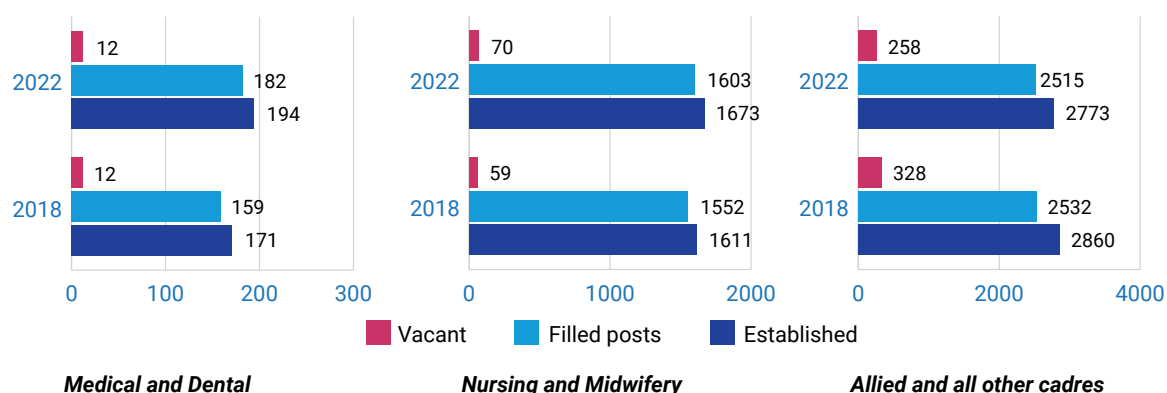
The RHM is not in the Government Establishment but receives nominal allowances or stipend which is budgeted for under the MoH, in addition, the RHM also receive additional support from the Ministry's development partners.

4.8.2 Type of Employment Contract of Health Workforce in the Public Sector

From the total stock employed in the public sector, it was established that 91.71% were on full time employment whilst 7.22% were employed on a contract basis. The contract workers were mostly medical officers and medical specialists, partner funded positions constituted the remaining 0.80% of the health workforce employed in the public sector, the partner funded positions included Laboratory staff and Nurses. Also, there has not been a clear transition/absorption plan for the partner funded positions. Staff who are employed by partners have to undergo the normal recruitment process to gain employment in Government, but with freezing of employment vide circular No.3 of 2018, employment opportunities in the public sector became limited. Additionally, Government has faced challenges in absorbing partner funded positions due to disparities in remuneration and other allowances offered.

BOX 6:	**INCREASING DENSITY OF HEALTH WORKERS WITHOUT COMMENSURATE JOBS**

The country's health workforce (doctors, nurses, paramedics) stock increased by roughly 42% between 2018 and 2022, but without commensurate increase in establishment and fulltime employment due to the net-freezing of public sector employment (circular 03 of 2018) leading to growing number of unemployed or underemployed doctors, nurses, laboratory technicians, with a total estimate of 907 trained, but unemployed health workers in 2022.

The staffing establishment appear not to be responsive to the need for health workers on the ground resulting in employment in some cases above the establishment. A comprehensive review of the establishment to respond to the disease burden of the country's health system needs and capacity is thus warranted.

Table 13: Aggregate Health Workforce Establishment and Vacancy Analysis, 2023

SN	Occupation Title used in the Country	Total Established Posts (Indicative Demand) - (a)	Total Funded Posts (Effective Demand) - (b)	Number of Funded Post Filled - (c)	Number of Funded Post Vacant [d = b-c]	Number Unemployed (e)	Vacancy Rate (%) - [g = c/a]	Unemployment Rate [no. unemployed/ unemployed/ supply]
1.	Clinical Psychologist	5	5	4	1	-	20.0%	0.0%
2.	Laboratory Technologist	69	69	93	(24)	-		0.0%
3.	Laboratory Technician	55	55	48	7	-	12.7%	0.0%
4.	Laboratory Assistant & Phlebotomist	74	74	177	(103)	-		0.0%
5.	Health Education Officer	4	4	1	3	-	75.0%	0.0%
6.	Nutritionist	9	9	4	5	-	55.6%	0.0%
7.	Clinical Dietician	7	7	5	2	2	28.6%	20.0%
8.	Dental Officer	20	20	30	(10)	-		0.0%
9.	Dental Therapist / Dental Assistant	6	6	6	-	-	0.0%	0.0%
10.	Dental Technologist	1	1	-	1	-	100.0%	
11.	Optometrist	5	5	5	-	-	0.0%	0.0%
12.	Occupational Therapist	12	12	7	5	-	41.7%	0.0%
13.	Physiotherapist	9	9	10	(1)	-		0.0%
14.	Audiologist	1	1	4	(3)	-		0.0%
15.	Speech Therapist	5	5	2	3	-	60.0%	0.0%
16.	Rehabilitation Technician	2	2	7	(5)	-		0.0%
17.	Environmental Health Officer/Inspector	95	95	42	53	-	55.8%	0.0%
18.	Environmental Health Assistant	63	63	19	44	-	69.8%	0.0%
19.	Biomedical Engineer	2	2	3	(1)	-		0.0%
20.	Biomedical Technician	29	29	27	2	-	6.9%	0.0%
21.	Medical Officer (General practitioner)	283	283	283	-	300	0.0%	48.2%
22.	Medical specialist - Pathologist	1	1	2	(1)	-		0.0%
23.	Medical specialist - Radiologist	1	1	-	1	-	100.0%	0.0%
24.	Medical specialist - Orthopaedic Surgeon	5	5	2	3	-	60.0%	0.0%
25.	Medical specialist - Neurosurgeon	2	2	1	1	-	50.0%	0.0%
26.	Medical specialist - Psychiatrist	1	1	1	-	-	0.0%	0.0%
27.	Medical specialist - Anaesthesiologist	4	4	1	3	-	75.0%	0.0%

SN	Occupation Title used in the Country	Total Established Posts (Indicative Demand) - (a)	Total Funded Posts (Effective Demand) - (b)	Number of Funded Post Filled - (c)	Number of Funded Post Vacant [d = b-c]	Number Unemployed (e)	Vacancy Rate (%) - [g = c/a]	Unemployment Rate [no. unemployed/unemployed/supply]
28.	Medical specialist - Ophthalmologist	2	2	2	-	-	0.0%	0.0%
29.	Medical specialist - ENT Surgeon	2	2	1	1	-	50.0%	0.0%
30.	Medical specialist - Urologist	2	2	1	1	-	50.0%	0.0%
31.	Medical specialist - Internal Medecine Physician	3	3	6	(3)	-	-	0.0%
32.	Medical specialist - Paediatrician	6	6	3	3	-	50.0%	0.0%
33.	Medical specialist - Paediatric Surgeon (1 in private)	1	1	-	1	-	100.0%	0.0%
34.	Medical specialist - Obstetrician & Gynaecologist	7	7	4	3	-	42.9%	0.0%
35.	Medical specialist - General Surgeon	9	9	7	2	-	22.2%	0.0%
36.	Medical specialist - Nephrologist	2	2	1	1	-	50.0%	0.0%
37.	Medical specialist - Dermatologist	1	1	1	-	-	0.0%	0.0%
38.	Medical specialist - Neurologist	1	1	1	-	-	0.0%	0.0%
39.	Medical specialist - Oncologist	1	1	2	(1)	-	-	0.0%
40.	Medical specialist - Maxillo-Facial Surgeon	2	2	2	-	-	0.0%	0.0%
41.	Medical specialist - Cardiologist	1	1	-	1	-	100.0%	0.0%
42.	Medical specialist - Neonatalogist	1	1	1	-	-	0.0%	0.0%
43.	Specialised Nurse - Dermatology	1	1	1	-	-	0.0%	0.0%
44.	General Nurse	1,665	1,665	2,012	(347)	30		0.7%
45.	Nursing Assistant	424	424	482	(58)	144		13.7%
46.	Paramedic	335	335	257	78	-	23.3%	0.0%
47.	Diagnostic Radiographer (Radiology technologist)	39	39	33	6	-	15.4%	0.0%
48.	Ultrasonographer	10	10	8	2	-	20.0%	0.0%
49.	Pharmacist	49	49	34	15	-	30.6%	0.0%
50.	Pharmacy Technician	52	52	57	(5)	-		0.0%
51.	Rural Health Motivator	3,200	3,200	3,200	-	-	0.0%	0.0%
52.	Epidemiologist	1	1	3	(2)	-		0.0%
	Overall	**6,587**	**6,587**	**6,903**	**(316)**	**476**		**20.6%**

NB: Negative vacancies mean those in positions exceeds the number in the official established post.

5. Exploratory Analysis of the Labour Market (Health Worker Survey)

5.1 Categorisation of Respondents

A total of 543 health workers from sampled facilities responded to the survey. Amongst the respondents, General Nurses were most represented (44.94%), followed by Nursing Assistant (12.52%) and Laboratory Assistant & Phlebotomist (6.1%). From the total number of respondents, 4.2% were Medical Officers (General Practitioners), the percentage of health workers that responded to the survey by occupation is shown in Table 14.

Table 14: Percentage of Health Workforce Who Responded to the Survey by Occupation

Health Worker	Number of Health Workers who responded to the survey	Percentage
Administration	1	0.18%
Audiologist	1	0.18%
Biomedical Technician (Maintenance Tech. & Tech. Assistant)	12	2.21%
Clerical Officer	1	0.18%
Clinical Dietician	2	0.37%
Clinical Psychologist	1	0.18%
Data Clerk	6	1.10%
Dental Officer	4	0.74%
Dental Therapist/Dental Assistant	12	2.21%
Diagnostic Radiographer (Radiology technologist)	16	2.95%
Environmental Health Assistant	2	0.37%
Environmental Health Officer	7	1.29%
General Nurse	244	44.94%
Laboratory Assistant & Phlebotomist	33	6.08%
Laboratory Technician	8	1.47%
Laboratory Technologist	24	4.42%
Medical Officer (General practitioner)	23	4.24%
Medical specialist - General Surgeon	2	0.37%
Medical specialist - Internal Medicine Physician	1	0.18%
Medical specialist - Maxillo-Facial Surgeon	2	0.37%
Medical specialist - Obstetrician & Gynaecologist	1	0.18%
Medical specialist - Paediatrician	1	0.18%
Nursing Assistant	68	12.52%
Occupational Therapist	5	0.92%
Pharmacist	14	2.58%
Pharmacy Assistant	3	0.55%
Pharmacy Technician	15	2.76%
Physiotherapist	8	1.47%
Rehabilitation Technician	1	0.18%
SHEQ Officer	1	0.18%
Social welfare officer	1	0.18%
Specialised Nurse - Anaesthesia	3	0.55%
Specialised Nurse - Intensive Care	1	0.18%
Specialised Nurse - Mental Health	1	0.18%

Health Worker	Number of Health Workers who responded to the survey	Percentage
Specialised Nurse - Midwife	10	1.84%
Specialised Nurse - Operating Theatre	1	0.18%
Specialised Nurse - Renal	1	0.18%
Speech Therapist	1	0.18%
Store lady	1	0.18%
Ultra-sonographer	4	0.74%
Total	**543**	**100 %**

5.2 Demographic Characteristics of the Respondents (Health Workers)

The average age of the respondents was 40 years (range: 23-68 years), with 68.14% of the respondents falling between the ages of 25 and 44 years. Only 0.92% of the respondents were under the age of 25 years, while 23.39% were between the ages of 45 and 54 years, as shown inFigure 22.

Figure 22: Health Workers Age Pyramid from the Survey Data
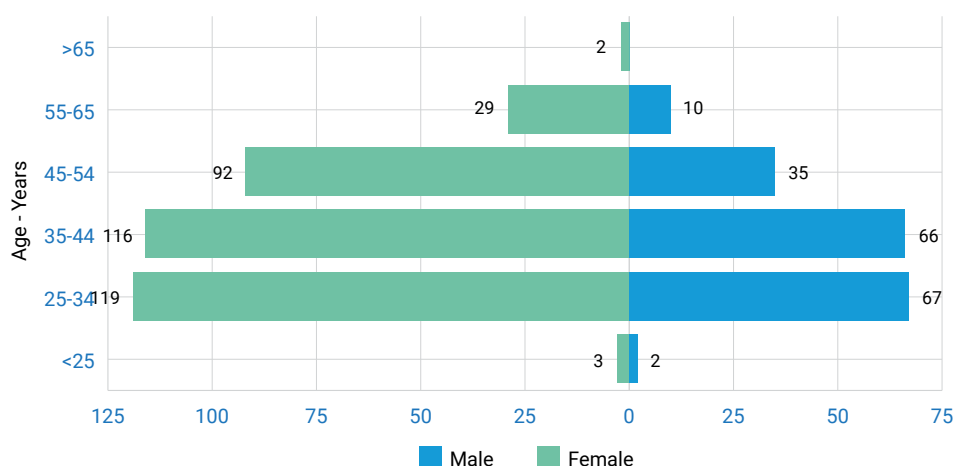
The working experience of the Respondents ranged from less than one year to more than thirty years of working experience. Most of the respondents, 17.9% were within the 3 to 5 years' working experience range, followed by those with 9 to 12 years of experience who accounted for 17.5% of the respondents, as shwon inFigure 23.

Figure 23: Distribution of Health Workers Interviewed by work Experience
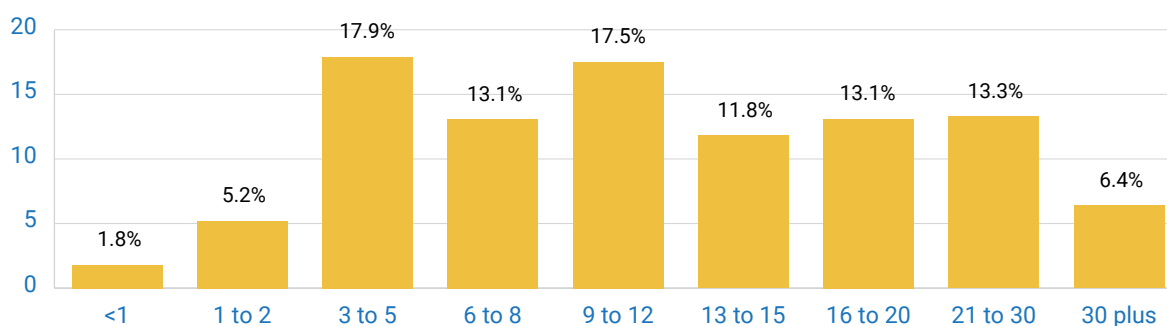
Also, about 66.48% of the respondents were female and 33.15% male (close to the 70% female representation of the overall heath workforce). A small proportion (0.37%) chose not to identify their gender. Approximately 69.57% of doctors that responded to the survey were male, males also constituted the majority of respondents in the occupations of Biomedical Technician (83.33%), Laboratory Assistant & Phlebotomist (51.52%) and Environmental Health Officer (71.43%). General nurses (74.18%), midwives (70.00%), pharmacists (78.57%), dental therapists / dental assistants (83.33%), laboratory technologists (58.33%), and nursing assistants (80.88%) were more females than males.

Table 15: Characteristics of Health Workers who responded to the survey

Dimension	Male (33.1%) (N=180)	Female (66.5%) (N=361)	Undisclosed (0.4%) (N=2)	Total or Average (N=543)
Age				
Mean (SD)	39	40	42	40 years
Median (Min. Max)	39 (Min:23; Max:58)	37 (Min:23; Max:63)	42 (Min:40; Max:43)	38 years
Employer				
Mission (private-not-for profit)	35%	65%		100%
Other	40%	60%		100%
Private for-profit sector	36%	64%		100%
Public Sector	32%	67%	1%	100%

Figure 24: Gender Distribution of the Respondents
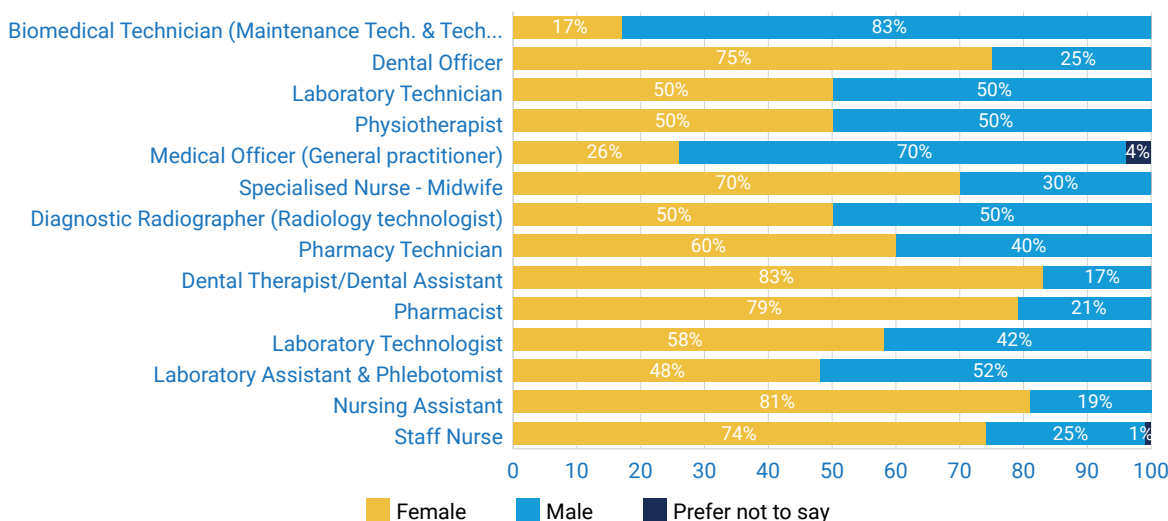
5.3 Facility Type and Rural-Urban Distribution of Health Workers

The survey reflected that, 55% of the respondents worked in the urban areas while 45% was working in the rural areas. The distribution of the health workforce by facility type revealed that the Government Hospital had the highest share (29%), followed by Private Clinic/Hospital (27%), Clinic Health Facility (24%), and Community Level (5%). Public Health Unit had the lowest share of health workforce (4%), Figure 25.

Figure 25: Facility type and rural-urban distribution of health workers
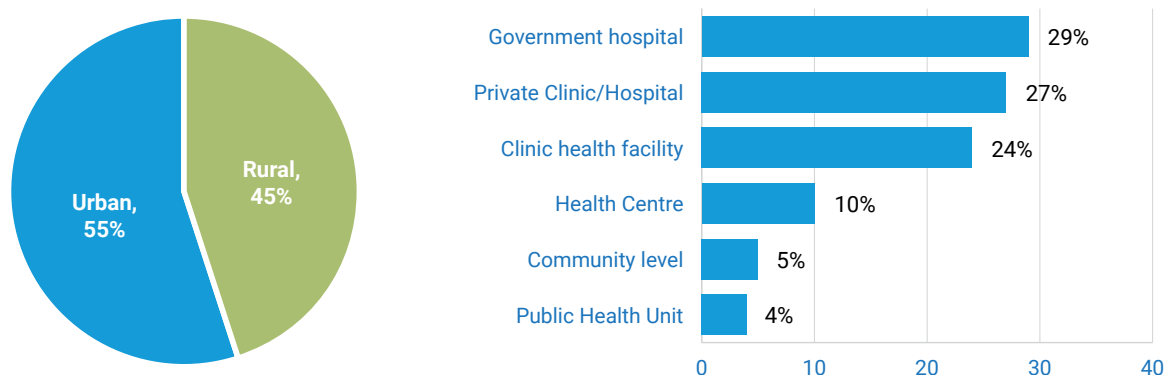
An examination of the distribution of the health workforce across urban and rural areas revealed that 55% worked in urban areas, while 45% worked in rural areas. The rural-urban population distribution, on the other hand, was 77% rural and 23% urban. This means that the majority of the health workforce (55%) was concentrated in urban areas, serving 23% of the population, while the rest of the population (77%) was being served by 45% of the health workforce.

Figure 26: Distribution of Eswatini's Population by area (Rural vs Urban)
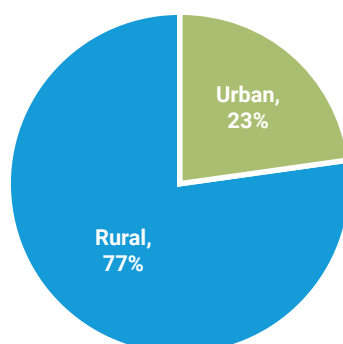
5.4 Intention to Migrate Amongst Health Workers

In relation to migration intentions, 41% (224) of the 543 respondents intended to migrate abroad at some point in the future. Amongst the health workforce with intentions to migrate, 60.71% intended to migrate for employment purposes (to practice their profession), while 36.16% intended to migrate for further education. About 34.38% of the 41% planning to relocate had already begun working on their intentions to migrate, with 4% planning to migrate within the next 5 months, while another 6% intended to migrate within the next 6 to 11 months. Overall, 10% of the Health Workforce planned to migrate out of the nation in less than a year while almost 55% planned to migrate from one year or more. Thirty-three percent (33%) were unsure of when they would migrate but had intentions to migrate sometime in the future.

Figure 27: Overall Migration Intention

Overall Intension to migrate

When Health Workers with migration intentions are planning to emigrate
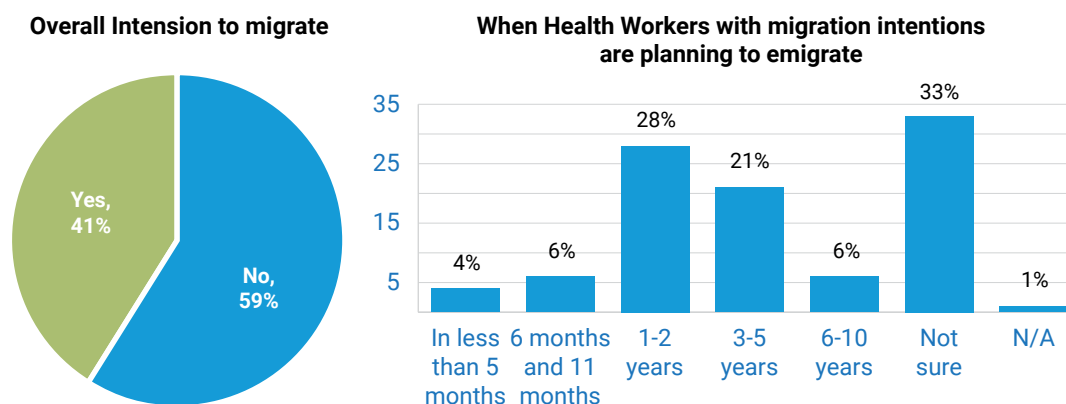
General Practitioners: Fifty seven percent (57%) of General Practitioners had intentions to migrate abroad, and twenty-six (26%) had already started working on their plans to migrate. Around 7.69% intended to leave in less than 6 months while 30.77% intended to leave between 1 and 2 years.

General Nurse: The survey revealed that 41% of General Nurses intended to migrate. Of these 38% had initiated the process of migration. The survey revealed that 5.88% intended to leave in less than 5 months while 5.88% had intentions to leave between 6 months and 11 years. Almost 58.82% of General Nurses intended to migrate from one year or more and 28.43% were still not sure.

Midwife: Seventy percent (70%) of Midwives surveyed had an intention to migrate abroad, of these 40% had already started working on their plans to migrate. About 14% of midwives intended to leave in less than one year. The survey results showed that 29% of midwives intended to leave from 1 year or more and 57% were still hesitant (not sure).

Table 16: Migration Intention among Selected Cadres

Nursing Assistant	Intention to migrate	Started working on migration plan	When the Health Worker intend to migrate					
			< 5 months	6 to 11 months	1-2 years	3-5 years	6-10 years	Not sure
Lab. Assist. & Phlebotomist	8%	8%	100%	0%	0%	0%	0%	0%
General Nurse								
Laboratory Technologist	33%	4%	0%	0%	25%	25%	13%	38%
Pharmacist	71%	29%	10%	30%	10%	10%	20%	20%
Dental Therapist/Assistant	25%	8%	0%	0%	0%	33%	33%	33%
Pharmacy Technician	47%	7%	0%	14%	29%	14%	14%	29%
Diagnostic Radiographer (Radiology technologist)	56%	13%	0%	11%	0%	22%	11%	56%
Specialised Nurse - Midwife	70%	40%	0%	14%	15%	14%	0%	57%
Medical Officer (General practitioner)	57%	26%	0%	8%	31%	31%	0%	31%
Physiotherapist	38%	25%	0%	0%	67%	33%	0%	0%

Nursing Assistant	Intention to migrate	Started working on migration plan	When the Health Worker intend to migrate					
			< 5 months	6 to 11 months	1-2 years	3-5 years	6-10 years	Not sure
Laboratory Technician	25%	13%	0%	0%	0%	0%	0%	100%
Dental Officer	75%	0%						67%
Biomedical Technician	8%	8%						67%

5.5 Rural vs Urban Comparison in Intentions to Migrate Abroad.

The survey revealed that 60% of the health workforce in urban areas were most likely to migrate/relocate while only 40% of the health workforce in the rural areas showed intentions to migrate, Figure 28.

Figure 28: Rural vs Urban Distribution of Health Workers with Intentions to Migrate

Rural, 40%	Urban, 60%

5.6 Likely Destination Countries for Health Workers with Migration Intentions

According to current migration data, the United Kingdom is the most preferred destination country for health workers with migration aspirations. Survey results indicated that, the top five most favoured nations for health workers to migrate to are the United Kingdom (41.07%), South Africa (20.54%), Canada (10.27%), and Australia (5.80%), as shown in Figure 29.

Figure 29: Most preferred destination Countries of Health Workers with Migration Intentions
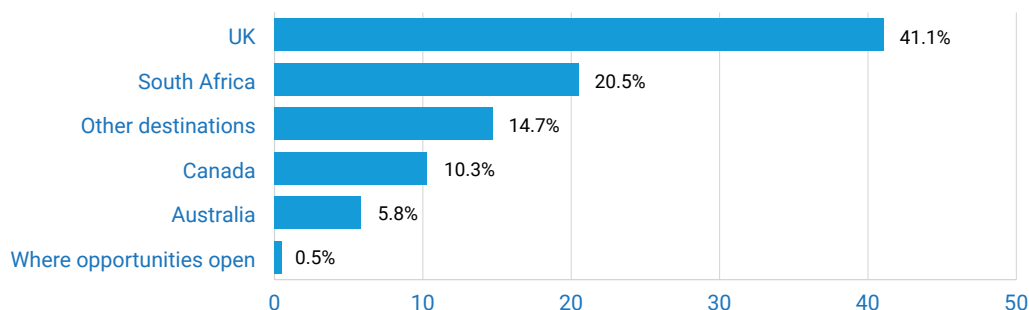
5.7 Predictors of Intention to Migrate

This Section presents the findings of an analysis of the HLMA individual health worker survey data that sought to identify predictors of Intention to Migrate (ITM). Using the question of whether a health worker had an intention to migrate or not as an outcome variable of interest against all possible predictor variables in the questionnaire, the technical task team used a Random Forest machine learning classification model against 39 predictor variables. The predictors were filtered having been confirmed as important predictors from the total of over 60 variables in the questionnaire, as part of a variable extraction step in the analysis. The Random Forest Model was noted to have sufficiently good performance to provide some insights on factors influencing migration among health workers in Eswatini.

Figure 30 shows the ranking of variable importance in the prediction model, based on average decrease of accuracy - number or proportion of observations that are incorrectly classified by removing the variable from the model. In addition to directly and typically anticipated related factors such as health workers' age and Current income, reservation wage, leaving feeling, and migration wage, other factors that ranked high were related to transfer wage, physical health risk, relative income satisfaction, learning opportunities, job experience. Other factors included in the list of confirmed predictors, albeit with relatively lower importance scores, reflect the diversity of push and pull factors that go beyond the income and expense burden to include unemployment risk, workplace relationships, etc.

Figure 30: Rationale for intention to migrate
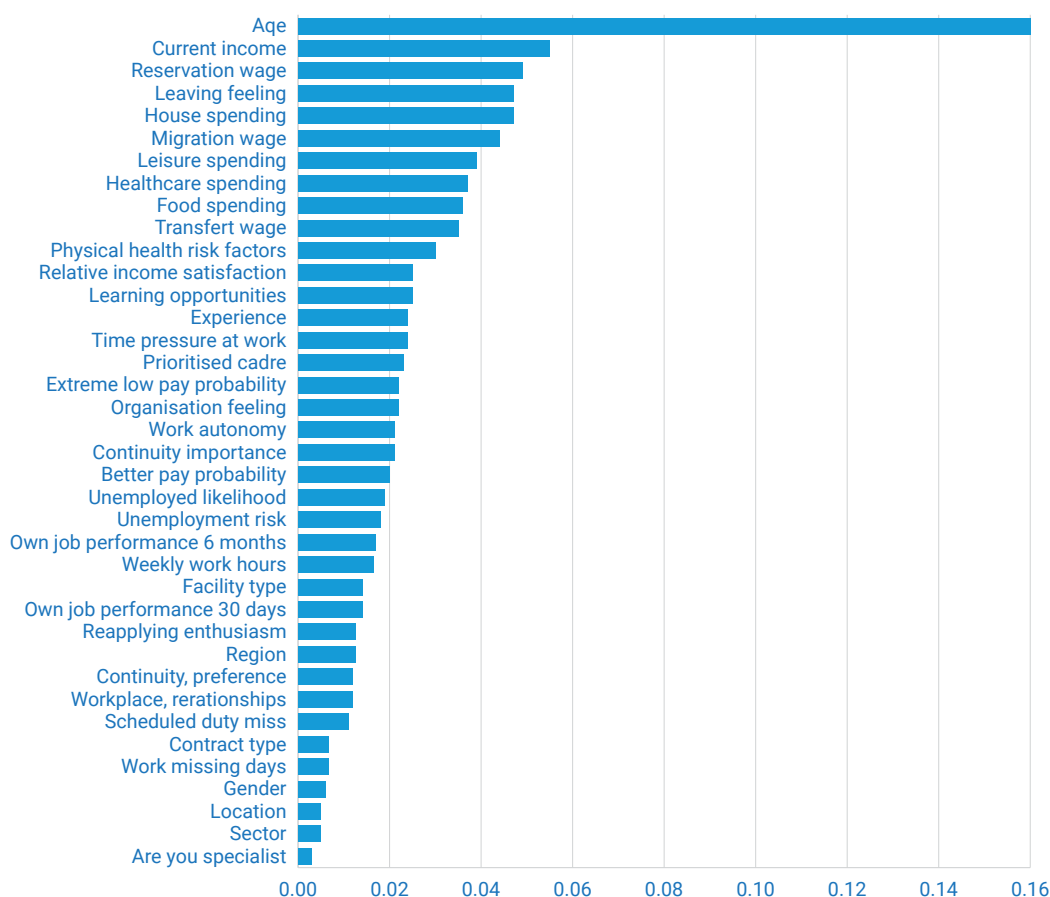
5.8 Income and Wage Expectations of Eswatini's Health Workers

In contrast to the anticipated reservation pay of SZL15,636 (US$847), the exploratory survey found that the average current income of all cadres of health workers was approximately SZL23,763 or US$1,287 (median = SZL19,700 or US$1,067). The results showed a difference of SZL8,128 (US$440) per month between what workers were earning and the minimum they would accept if they were still unemployed, it is worth noting that there were significant variations across cadres. Some respondents, on the other hand, underreported their total income by failing to include some allowances as part of their salary. When the health workforce reservation wages were compared to the payroll data, the survey data revealed that 56.35% of the health worker categories had already reached their reservation wage. As a result, a salary increase would be required to attain the transfer wage.

The survey also found that the transfer wage (the pay that discourages people from seeking job else-where) – was SZL33,183 ($1,751). The potential retention gap, calculated as the difference between their present pay and their transfer wage, was SZL9,419 (US$464). Future retention strategies would therefore need to gradually close the gap of SZL9,419 (US$464). The average migration wage to local, regional, and international locations was SZL45,697 ($2,348). The average wage expectations of the health workers are summarized in Figure 31.

Figure 31: Summary of Current Income vs Wage Expectations
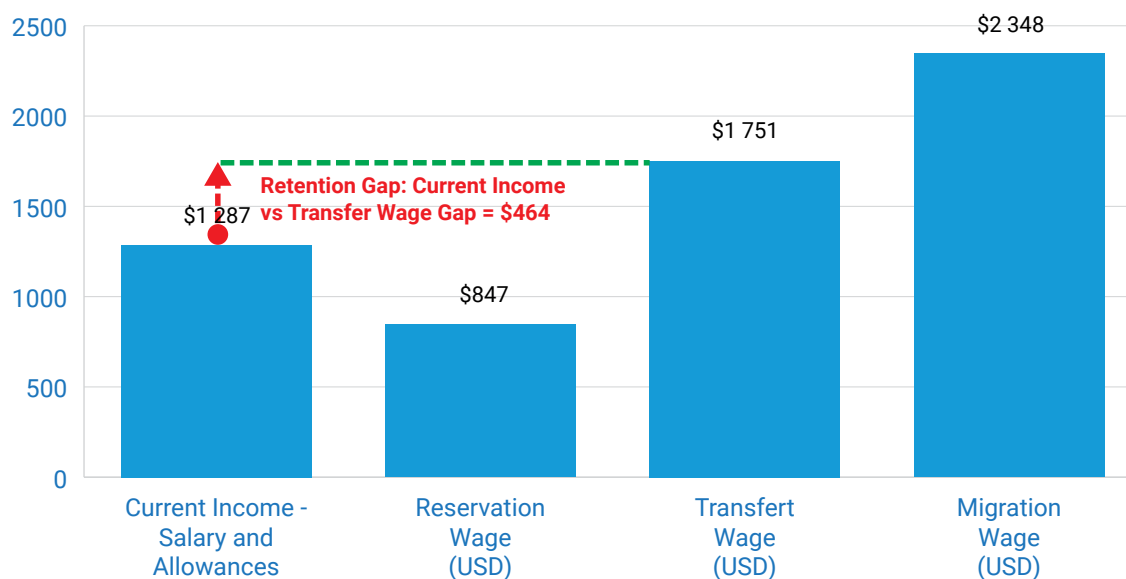
From the survey, General practitioner (Medical Officer) reported their own income to be SZL49,584 ($2,755) and listed SZL49,584 ($3,001) as their transfer salary, while General nurses reported their own income to be SZL20,850 ($1,158) and listed SZL25,000 ($1,389) as their transfer wage. The current, reservation, and transfer wage for selected surveyed cadres are summarized in Figure 32.

Figure 32: Self-Reported Income and Wage Expectations by Cadre
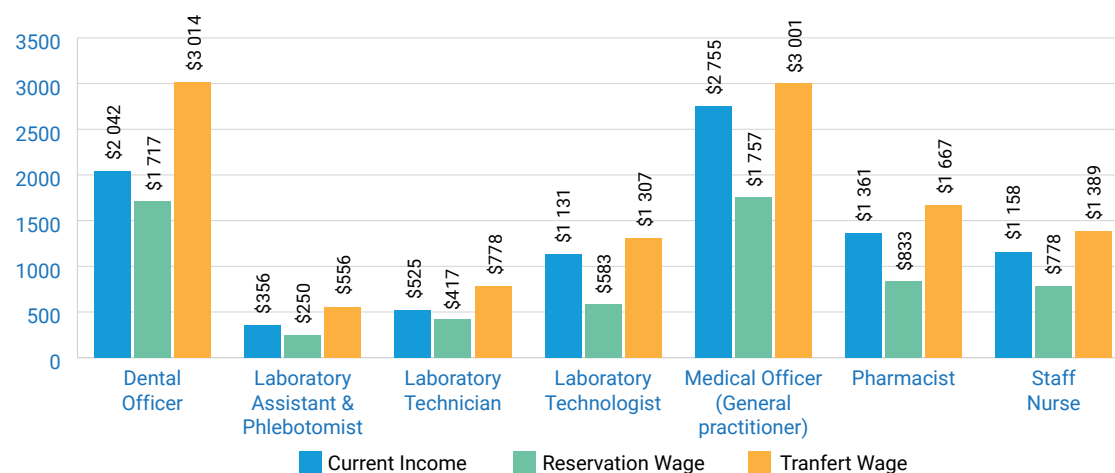
5.9 Health Workers' Personal Expenditure Compared with Current and Expected Income

The survey established that the health workforce was on average spending US$639 per month compared to their self-reported average income of US$1,287. If health workers were earning the average transfer wage of US$1,751, they would be earning a full living wage plus a potential savings of US$464, which would translate to 26% of income as savings. The evidence showed that the difference between the health workforce's current income and their expenditure was an average of US$648. Thus, health workers were breaking even and potentially saving 50% of their salaries after expenses Figure 33.

Figure 33: Summary of Health Workers' Personal Expenditure Compared with Current and Expected
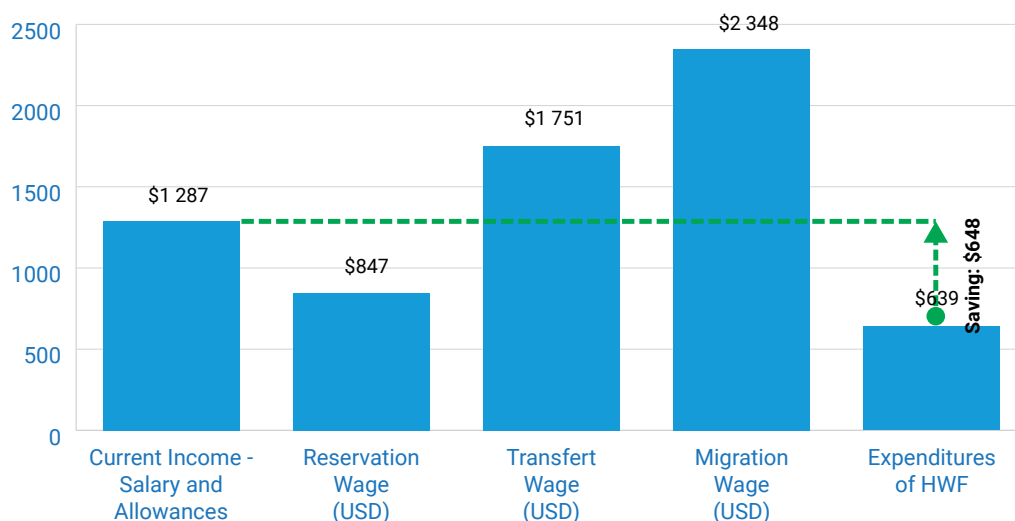
Overall, consumption expenditure of the health workforce varied between cadres with the General Medical Officer expenditure at US$611 compared to their self-reported average monthly earnings of US$2,755 resulting in a potential saving of US$2,144, while that of the Staff Nurse was US$300 compared to their self-reported income of US$1,158 reflecting a potential saving of US$858. The net effect of the above scenario in real terms after statutory deductions as well as other basic deductions e.g., medical, and funeral policy, is that the worker had a potential saving after expenses (net salary vs reported expenditure).Figure 34shows the variations between income and expenditure by cadre.

Figure 34: Personal Expenditure Compared with Current and Expected Income by Cadre
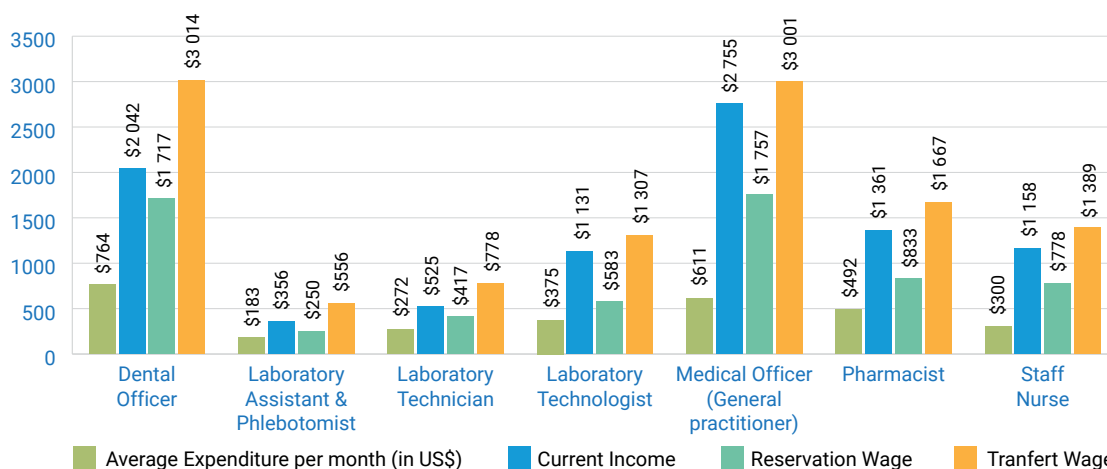
5.10 Self-Reported Levels of Productivity and Absenteeism

The self-reported performance of Health workers in the last 30 days was 85.02% and 84.34% in the last 6 months. The self-productivity gap was in the range of 14.98% to 15.66% and efforts should be made to improve productivity levels to 100%.

Figure 35: Self-Reported Levels of performance
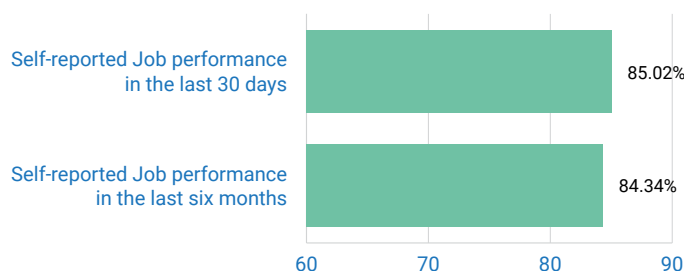
The self-reported productivity varied from one cadre to another as presented in the Figure 36 below:

Figure 36: Self-Reported Levels of Productivity (Selected Cadres)
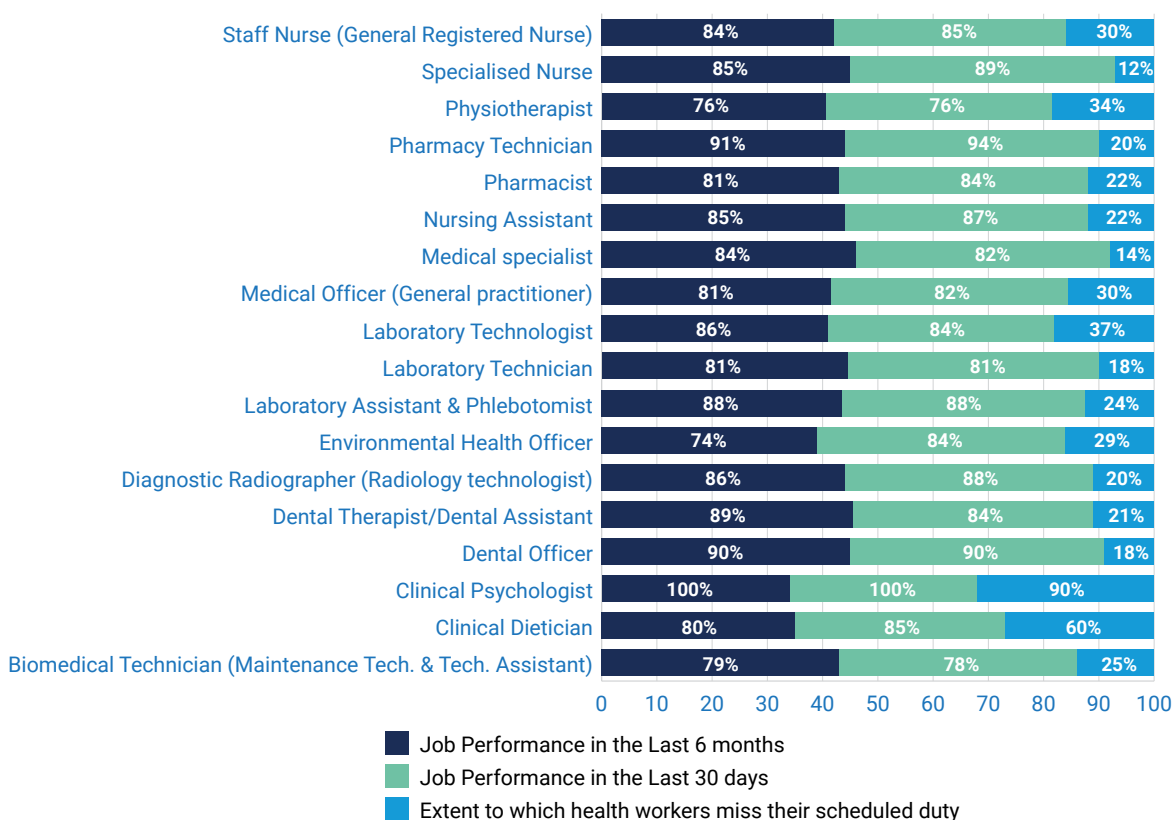
5.11 Quality of Health Worker's Job in Eswatini

The survey determined and measured the Global Job Quality Index which is a composite measure of the following three dimensions: (1) Quality of earnings score, (2) Labour market quality score, and (3) Quality of working environment.

The overall quality of health worker's job was rated at 59% for all the cadres. Among the three dimensions, the highest job quality score was on the quality of earnings (73%) followed by the quality of the working environment rated at 65%, the lowest score was on the labour market security (Unemployment risk & Insurance, Probability of falling into extreme low-pay and Probability of getting out of extreme low-pay) which was rated at 39.6%. The Global job quality index for the health workers is below 60% and efforts should be made to target the labour market security score and the quality of the working environment score which were generally low and resultantly brought down the Global Job Quality Index score.

Figure 37: Job Quality Index for all cadres

Quality of Earning Score	Labour Market security against unemployment	Extreme Low Pay security score	Job Demands Score	Job Resources Score
73%	39%	41%	67%	64%

Quality of Earning Score	Labour Market Security score		Quality of the Working Environment	
73%	40%		65%	

Job Quality Index

59%

Figure 38: Job Quality Index for All Cadres
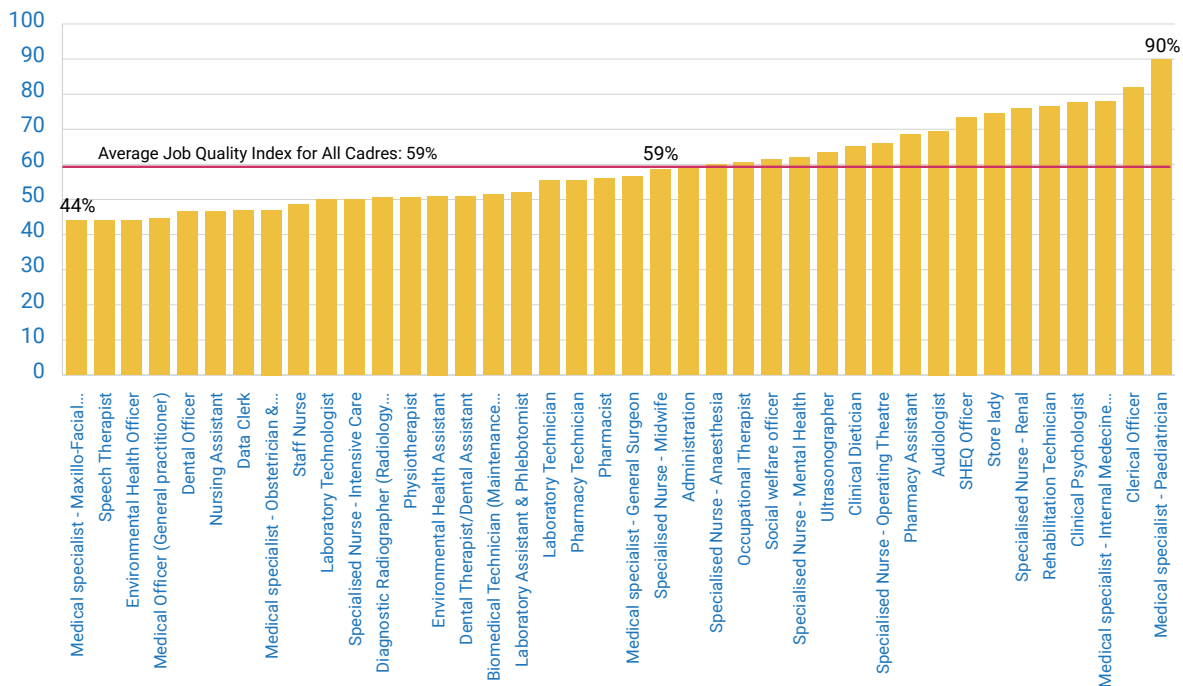
Medical Officers were less satisfied with the quality of the work they are doing (with a score of 45%) compared to other selected cadres. In other terms, the Medical Officers are 55% not satisfied with their job mainly because of their earnings (scored 24%) and the labour market security against unemployment. They are followed by Nursing Assistants and General Nurses with 46% and 48% job quality scores. Both are not satisfied with their level of earnings. Compared to the selected cadres, only the

Midwives, Pharmacists, Pharmacy Technician and Laboratory Technicians are relatively scoring well in the quality of earnings. It's worth noting that the quality of the working environment is appreciated by the cadres (ranging from 43.7% to 90%) as shown in Table 17.

Table 17: Job Quality Index Components for all cadres

Cadres	N	Quality of Earnings Score	Labour Market Security Score	Quality of the Working Environment	Job Quality Index by Cadre
Administration	1	100.0%	36.7%	42.0%	59.6%
Audiologist	1	100.0%	50.0%	60.0%	70.0%
Biomedical Technician (Maintenance Tech. & Tech. Assistant)	12	39.4%	45.6%	69.0%	51.3%
Clerical Officer	1	100.0%	66.7%	82.0%	82.9%
Clinical Dietician	2	71.7%	55.0%	69.0%	65.2%
Clinical Psychologist	1	100.0%	60.0%	76.0%	78.7%
Data Clerk	6	64.2%	8.9%	67.0%	46.7%
Dental Officer	4	66.7%	20.0%	51.5%	46.1%
Dental Therapist / Dental Assistant	12	44.0%	40.8%	68.8%	51.2%
Diagnostic Radiographer (Radiology technologist)	16	42.6%	43.1%	65.8%	50.5%
Environmental Health Assistant	2	75.6%	23.3%	54.0%	51.0%
Environmental Health Officer	7	44.3%	31.4%	55.7%	43.8%
Laboratory Assistant & Phlebotomist	33	44.7%	42.3%	69.9%	52.3%
Laboratory Technician	8	52.4%	42.1%	72.3%	55.6%
Laboratory Technologist	24	30.2%	46.8%	72.3%	49.8%
Medical Officer (General practitioner)	23	23.8%	42.3%	66.1%	44.1%
Medical specialist - General Surgeon	2	72.7%	45.0%	53.0%	56.9%
Medical specialist - Internal Medicine Physician	1	100.0%	66.7%	70.0%	78.9%
Medical specialist - Maxillo-Facial Surgeon	2	81.1%	15.0%	35.0%	43.7%
Medical specialist - Obstetrician & Gynaecologist	1	100.0%	3.3%	38.0%	47.1%
Medical specialist - Paediatrician	1	100.0%	80.0%	90.0%	90.0%
Nursing Assistant	68	30.7%	42.6%	65.6%	46.3%
Occupational Therapist	5	68.8%	47.3%	67.2%	61.1%
Pharmacist	14	53.5%	52.4%	63.0%	56.3%
Pharmacy Assistant	3	83.7%	53.3%	70.0%	69.0%
Pharmacy Technician	15	52.6%	45.8%	68.8%	55.7%
Physiotherapist	8	51.3%	41.3%	59.0%	50.5%
Rehabilitation Technician	1	100.0%	50.0%	82.0%	77.3%
SHEQ Officer	1	100.0%	56.7%	66.0%	74.2%
Social welfare officer	1	100.0%	13.3%	72.0%	61.8%
Specialised Nurse - Anaesthesia	3	66.6%	40.0%	73.3%	60.0%
Specialised Nurse - Intensive Care	1	100.0%	0.0%	50.0%	50.0%
Specialised Nurse - Mental Health	1	100.0%	36.7%	50.0%	62.2%
Specialised Nurse - Midwife	10	63.0%	40.0%	73.8%	58.9%
Specialised Nurse - Operating Theatre	1	100.0%	30.0%	70.0%	66.7%
Specialised Nurse - Renal	1	100.0%	56.7%	74.0%	76.9%
Speech Therapist	1	100.0%	3.3%	28.0%	43.8%
General Nurse (Staff Nurse)	244	30.2%	44.2%	71.4%	48.6%
Storekeeper	1	100.0%	43.3%	82.0%	75.1%
Ultrasonographer	4	70.6%	36.7%	85.0%	64.1%
Total/Average	**543**	**73%**	**40%**	**65%**	**59%**

6. Health Labour Market Projections

6.1 Outlook of the Health Workforce Supply in Eswatini, 2022 – 2032

Caveat: There was no adequate data on the education pipeline, no adequate data on annual admission, drop-out rates, pass rates and inflows from foreign training. Also, there was no disaggregated data on the level of health workforce attrition. Hence, an assumption was made for the overall supply which is presented in this section. A cadre-by-cadre supply projections were either producing status quo outputs or illogical trajectory. As a result, disaggregated Supply projections for each cadre is therefore not presented in this report due to the data limitations described above.

From the available supply data, the estimated supply of health workers for Eswatini in 2022 was 9,741 health workers across the 51 staff categories studied. If the current status quo on production is maintained, the supply is anticipated to increase by 37.94% (3697) to 12,438 by 2032. Given the high level intention to migrate (41% overall and 35% in less than a year) alongside 13% of the workforce who are expected to retire in the next 5 years the situation could be worse than projected if the training component is not adjusted to respond the attrition.
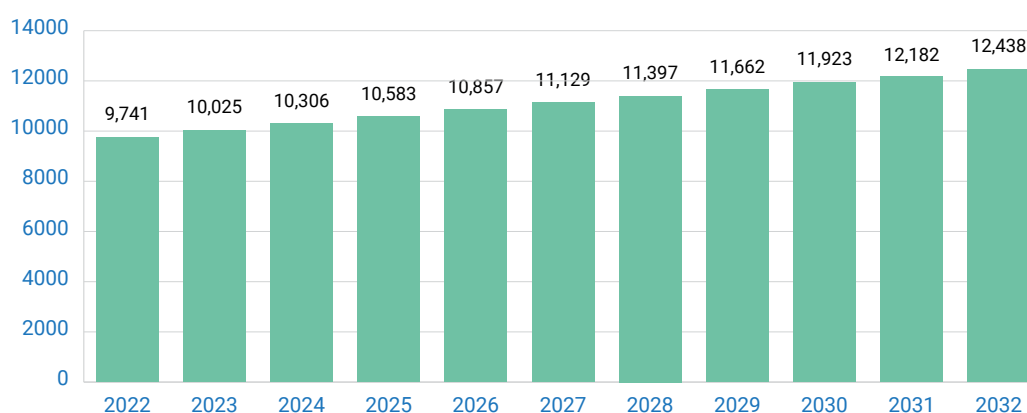
6.2 Projected Need for Health Workers Based on the Population's Need for Health Services

The need analysis considered four factors: (a) 98% of the country's disease burden, (b) population size, growth, and demography, (c) package and model of vital service provision, and (d) health professional productivity (standard workload).

Figure 39: Parameters Used for Analysing the Need for Health Workers

A need-based approach that makes an "*... explicit consideration of population health needs, direct measures of levels of health that give rise to need for care - and the planned number and type of services to be provided to address those needs*" (Tomblin Murphy et al., 2012).

Population (along their life course)
Size, Gender, Age Cohorts, Distribution

Interdisciplinary Health Interventions along the life course (essential package)
Interventions that are planned or otherwise necessary to address the health needs along the life course

Disease burden and level of health
Prevalence/incidence of diseases, risk factors, injuries that account for 95% of mortalities and morbidities or health service use.

Interdisciplinary Professional standards for service delivery
How many times a service is required; tools and medicines needed; the acceptable time it would take a reasonably trained health worker to deliver the intervention

Download an excel tool for analysis from: https://doi.org/10.1371/journal.pone.0257957.s002

The analysis identified 139 disease conditions risk factor and injuries that account for 98% of mortalities and morbidity in the country. Across these disease areas 775 direct care interventions and 126 support or catalytic activities were identified by local clinical experts based on standard treatment guidelines, clinical protocols and package of services. Along the life course of the population and across the continuum of care an estimated 5.4 to 6.3 Million interventions per year are required to address the disease burden mentioned above.

Figure 40: Interventions required to address disease burden annually
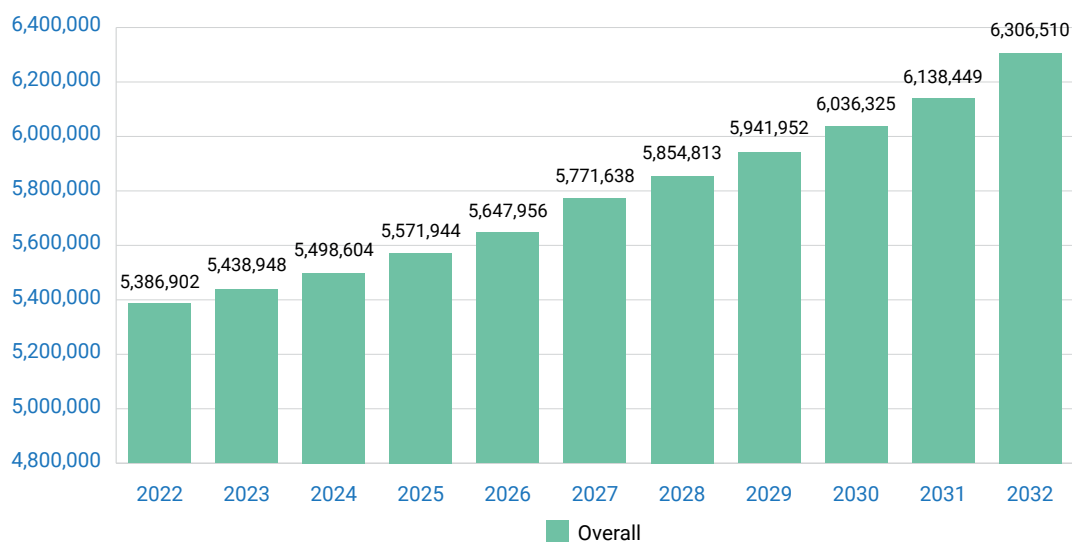
Depending on the target for addressing the disease burden through by providing the required 5.4 to 6.3 million interventions, it has different implications for health workforce requirements. For example in a scenario where 70% of the disease burden is targeted between 14,000 and 18,600 health workers are required. In an alternative scenario where 80% is targeted the number of health workers required will between 16,00 and 21,250. If a 100% of the disease burden is targeted the required health workers will be 20,272 to 26,563 health workers. The following section provides detailed estimates of the required health workers based on the later scenario, but the other alternative scenarios can be generated.

The need-based modelling estimates that Eswatini needed at least 20,272 Health Workers in 2022 to address the country's population health needs and attain UHC. Under the observed pattern of the disease burden and population dynamics, and service delivery model, the overall need of health workers would likely increase by 14.3% by 2027 to 23,179 and then to 26,563 by 2032, or an overall increase of 31% in the need for health workers. Table 17 provides detailed year-by-year estimates of the required health workers (by cadre) to sustain gains and advance the country's efforts towards UHC.

For example, based on the population health needs, the country requires at least 631 Medical Officers, with a projected increase to 813 by 2032, implying a need for at least generalist doctors per 10,000 population (or a ratio of 1:1,641 population). The country will also require at least 7,661 Professional Nurses and Midwives across various specialties in 2022 which is anticipated to increase by 31.1% to 10,046 in 2032. Thus, the country requires an aggregate of about 75 Professional Nurses and Midwives per 10,000 population (or a ratio of 1:134 population). Similarly, about 660 midwives were required in 2022, which could increase to 815 by 2032, or 23.5% increase in the need over 10 years. Thus, at least 6.32 Midwives per 10,000 population (or a ratio of 1:63 pregnant women) is required to sustain current

gains and adapt to the evolving need of the population for midwifery services. For all other specialties except for general nurse and midwives the country requires on average 1 nursing specialist in each domain per 10,000 population. As the country reinforces primary health care approach the epidemiological analysis also points that Community Health Nurses are key with a need for 32.5 per 10,000 population in 2022 which will increase to 39.2 per 10,000 population in 2032.

BOX 7:   **ESTIMATED AND POPULATION RATIOS FOR SELECTED HEALTH WORKERS IN ESWATINI**

General practitioners: 6.1 per 10,000 population or 1: 1,640 people

Specialist doctors: at least 0.5 per 10,000 people or 1: 130,500 people in each medical speciality

All professional Nurses and Midwives: 19.27 per 10,000 population or 1: 520 people

Specialised Nurses: at least 1 per 10,000 population or 1: 1,270 people in each Nursing speciality

Pharmacists: 4.50 per 10,000 population or 1: 2,220 people

Rural Health Motivators: 31.4 per 10,000 population or 1: 320 people

Diagnostic Radiographer: 5 per 10,000 population or 1: 2,000 people

Community Health Nurses: 32.5 per 10,000 population or 1: 310 people

Table 19: Projected Need for Health Workers based Population Health Needs (Displayed in Headcounts & Densities)

Health Professionals	Projected Need for Health Workers based Population Health Needs (Displayed in Headcounts & Densities)											Required Density per 10000 Population	Required Population ratio (1 professional is to xxx population)
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032		
Clinical Psychologist	105	110	115	120	125	133	139	145	152	159	168	1.14	8,783
Laboratory Technologist	1,570	1,606	1,643	1,682	1,723	1,769	1,814	1,861	1,911	1,962	2,018	15.15	660
Laboratory Technician	663	685	708	733	758	787	815	844	875	908	944	6.75	1,481
Laboratory Assistant & Phlebotomist	88	92	96	100	105	110	115	120	126	132	139	0.95	10,545
Nutritionist	60	60	60	60	60	67	67	67	67	68	72	0.55	18,266
Clinical Dietician	28	28	28	29	29	30	30	30	30	31	31	0.25	39,753
Dental Officer	46	47	47	48	49	50	51	52	53	54	55	0.43	23,431
Dental Therapist/ Dental Assistant	20	21	21	22	22	22	23	23	24	24	24	0.19	52,606
Dental Technologist	16	16	16	16	17	18	19	19	19	19	21	0.15	65,759
Optometrist	29	29	29	29	29	29	29	29	29	30	30	0.25	40,049
Occupational Therapist	46	46	46	46	46	51	51	51	51	51	54	0.42	23,919
Physiotherapist	20	20	20	20	19	20	20	20	19	19	20	0.17	59,532
Speech Therapist	31	31	31	32	32	34	34	34	34	34	36	0.28	35,567

Health Professionals	Projected Need for Health Workers based Population Health Needs (Displayed in Headcounts & Densities)											Required Density per 10000 Population	Required Population ratio (1 professional is to xxx population)
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032		
Rehabilitation Technician	11	11	11	11	11	12	12	12	12	12	12	0.10	100,547
Environmental Health Officer/Inspector	178	185	191	199	206	214	222	230	238	247	257	1.83	5,459
Environmental Health Assistant	107	108	109	110	112	113	114	115	117	118	119	0.96	10,406
Biomedical Engineer	41	40	39	39	38	39	38	38	37	37	37	0.33	30,462
Biomedical Technician	37	36	36	35	35	36	35	35	34	34	34	0.30	33,464
Medical Officer (General practitioner)	631	644	658	672	687	717	734	751	770	789	818	6.10	1,641
Medical specialist - Pathologist	11	11	12	12	12	13	13	13	13	13	14	0.11	94,583
Medical specialist - Cardiothoracic Surgeon (Needed)	11	11	11	11	11	11	11	11	11	11	11	0.10	104,863
Medical specialist - Radiologist	24	24	24	24	24	25	25	26	26	26	27	0.21	47,296
Medical specialist - Orthopaedic Surgeon	41	40	39	39	38	37	36	36	35	34	34	0.32	31,545
Medical specialist - Neurosurgeon	18	18	18	17	17	18	18	18	18	18	18	0.15	65,436
Medical specialist - Psychiatrist	47	49	52	55	58	62	65	68	72	76	81	0.53	18,855
Medical specialist - Anaesthesiologist	175	176	178	179	180	185	186	188	189	191	194	1.57	6,386

Health Professionals	Projected Need for Health Workers based Population Health Needs (Displayed in Headcounts & Densities)											Required Density per 10000 Population	Required Population ratio (1 professional is to xxx population)
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032		
Medical specialist - Ophthalmologist	190	191	193	194	195	197	198	200	201	203	204	1.68	5,963
Medical specialist - ENT Surgeon	101	102	104	105	106	112	114	115	116	118	122	0.94	10,623
Medical specialist - Urologist	31	31	31	32	32	33	33	33	34	34	35	0.28	35,998
Medical specialist - Internal Medicine Physician	149	150	151	152	153	158	159	160	161	162	166	1.33	7,513
Medical specialist - Paediatrician	24	24	24	24	23	22	22	22	22	22	22	0.19	51,529
Medical specialist - Paediatric Surgeon (1 in private)	7	7	7	7	7	7	7	7	7	7	7	0.06	171,891
Medical specialist - Obstetrician & Gynaecologist	225	227	230	232	234	252	255	257	260	262	270	2.09	4,777
Medical specialist - General Surgeon	33	32	32	31	31	33	33	32	32	31	33	0.27	36,647
Medical specialist - Nephrologist	499	504	509	514	518	523	528	533	538	543	548	4.46	2,243
Medical specialist - Dermatologist	7	7	7	7	7	7	7	7	7	7	7	0.06	170,816
Medical specialist - Neurologist	8	8	8	8	7	8	8	8	8	8	8	0.07	150,305
Medical specialist - Oncologist	58	58	59	59	60	65	66	66	67	67	71	0.54	18,536
Medical specialist - Haematologist	1	1	1	1	1	1	1	1	1	1	1	0.01	1,025,434

Projected Need for Health Workers based Population Health Needs (Displayed in Headcounts & Densities)

Health Professionals	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Required Density per 10000 Population	Required Population ratio (1 professional is to xxx population)
Medical specialist - Maxillo-Facial Surgeon	96	96	96	96	96	89	89	89	89	90	88	0.79	12,735
Medical specialist - Cardiologist	12	12	12	12	11	11	11	11	11	10	10	0.10	104,919
Medical specialist - Neonatalogist	74	74	74	74	74	81	81	81	81	81	85	0.67	14,989
Medical specialist - Emergency	105	106	107	108	109	113	114	115	116	117	120	0.95	10,492
Professional Nurses and Midwives	7,661	7,835	8,016	8,205	8,401	8,786	9,000	9,222	9,454	9,695	10,046	74.59	134
Nursing Assistant	1,036	1,078	1,122	1,169	1,218	1,276	1,330	1,386	1,446	1,508	1,578	10.96	913
Paramedic	75	75	76	77	78	82	83	83	84	85	88	0.69	14,576
Diagnostic Radiographer (Radiology technologist)	448	461	475	490	505	527	544	562	580	600	624	4.50	2,220
Ultrasonographer	97	97	98	98	99	102	103	103	104	104	106	0.86	11,613
Pharmacist	534	541	549	558	566	591	600	609	619	630	651	4.99	2,003
Pharmacy Technician	834	856	879	903	928	960	988	1,017	1,047	1,078	1,115	8.21	1,218
Pharmacy Assistant	813	826	840	854	868	883	898	914	930	947	964	7.54	1,327
Rural Health Motivator	3,101	3,205	3,314	3,426	3,542	3,658	3,782	3,911	4,045	4,184	4,327	31.36	319
Eswatini	**20,272**	**20,752**	**21,252**	**21,772**	**22,314**	**23,179**	**23,769**	**24,383**	**25,024**	**25,692**	**26,563**	**197.44**	**53,865.83**

Table 20: Disaggregation of requirement for Professional Nurses and Specialised Nurses

Nursing Specialities	Need			Density of Nurses/ 10000 population		
	2022	2027	2032	2022	2027	2032
Specialised Nurse - Dermatology	47	49	52	0.40	0.40	0.40
General Nurse	2309	2693	3153	19.66	21.89	24.46
Specialised Nurse - Intensive Care	116	122	127	0.99	0.99	0.99
Specialised Nurse - Operating Theatre	69	76	82	0.59	0.62	0.64
Specialised Nurse - Anaesthesia	113	122	131	0.96	0.99	1.01
Specialised Nurse - Renal	91	96	101	0.78	0.78	0.78
Specialised Nurse - Midwife	660	750	815	5.62	6.10	6.32
Specialised Nurse - Oncology	109	125	137	0.93	1.01	1.06
Specialised Nurse - Ophthalmic	30	31	31	0.26	0.25	0.24
Specialised Nurse - Mental Health / Paediatric Mental Health	76	93	114	0.65	0.76	0.89
Specialised Nurse - Paediatric	45	45	46	0.38	0.36	0.36
Specialised Nurse - Orthopaedic	4	4	4	0.03	0.03	0.03
Specialised Nurse - Neonatal	77	79	81	0.66	0.64	0.63
Specialised Nurse - Emergency	99	109	117	0.85	0.89	0.91
Community Health Nurse	3816	4392	5054	32.50	35.70	39.20
Eswatini	**7661**	**8786**	**10046**			

6.3 Analysis of need and supply gaps and mismatches

As a result of significant data limitations related to education pipeline and attrition for each cadre only aggregate supply projections are presented and compared with the aggregate need. Detailed cadre by cadre comparison for 2022 is also presented. Since the data was inadequate to make supply projections, the comparison focused on analysing only the current stock of 2022 with the projected need. In 2022, the estimated need for health workers in Eswatini was 20,272 compared to an overall supply of 9,741. This means the overall supply met 48.1% of the need for health workers if all the supply were employed and deployed.

It is also worth noting that there is substantial variation among the cadres. For example, while the country appears to have sufficient general practitioners compared to the estimated need, those of medical specialist are woefully inadequate. For all medical specialist areas, the country in 2022 had less than 50%, ranging between 1% and 42%. For all professional nurses and midwives, the country is only able to meet 46.7% of its need. Eswatini has 12.1% of pharmacists compared to the general need. Table 15 provides detailed need versus supply gap analysis for all the health workforce occupational groups considered in this analysis.

6.4 Scenarios of the impact of interventions targeting training and attrition.

Base Scenario – Maintaining the current training and attrition levels.

At current levels of training and attrition, by 2032 Eswatini will need approximately 26,563 health workers, while the supply will be 12,438, representing a gap of 14,125 or a met need of 46.8%.

Scenario 1- Maintain current training and reduce attrition by 50%

If the current training is maintained at current levels and attrition is reduced by 50%, the anticipated supply will be approximately 13,054, meeting about 49.1% of the need by 2032.

Scenario 2- increasing training by 25% and keeping attrition at the current levels.

If training is increased by 25% while the attrition is kept at the current levels, supply is estimated to be 13,379, this would meet 50.4% of the need for health workers in Eswatini by 2032.

Scenario 3– Increase training by 25% and reduce attrition by 50%

If training is increased by 25% and attrition is reduced by 50%, the supply will increase to 14,019 health workers, which meets about 52.8% of the need of 26,563 health workers in 2032.

Therefore, to address the health workforce need for the country, a combination of both training and production interventions that address the health workforce outlook is required.

Table 20: Gap analysis of Aggregate need versus supply of health workers in Eswatini, 2022

Health professionals	2022				2027				2032			
	Need-based (a)	Supply (b)	Gap (b-a)	SAR (b/a)	Need-based (a)	Supply (b)	Gap (b-a)	SAR (b/a)	Need-based (a)	Supply (b)	Gap (b-a)	SAR (b/a)
Clinical Psychologist	105	8	(97)	7.6%	133	218	85	163.9%	168	416	248	247.6%
Laboratory Technologist	1,570	130	(1,440)	8.3%	1,769	123	(1,646)	6.9%	2,018	116	(1,902)	5.7%
Laboratory Technician	663	59	(604)	8.9%	787	422	(364)	53.7%	944	765	(179)	81.1%
Laboratory Assistant & Phlebotomist	88	190	102	214.9%	110	179	69	162.7%	139	169	31	122.2%
Health Education Officer	-	1	1		-	206	206		-	400	400	
Nutritionist	60	4	(56)	6.7%	67	4	(63)	5.7%	72	4	(68)	5.0%
Clinical Dietician	28	10	(18)	35.6%	30	14	(15)	48.1%	31	18	(13)	58.5%
Dental Officer	46	35	(11)	76.7%	50	33	(17)	66.1%	55	31	(24)	56.9%
Dental Therapist/Dental Assistant	20	8	(12)	39.3%	22	8	(15)	33.9%	24	7	(17)	29.2%
Dental Technologist	16				18				21			
Optometrist	29	6	(23)	20.6%	29	11	(19)	36.0%	30	15	(15)	50.1%
Occupational Therapist	46	12	(34)	26.1%	51	11	(39)	22.4%	54	11	(44)	19.7%
Physiotherapist	20	32	12	156.3%	20	30	10	149.9%	20	29	9	145.9%
Audiologist	-	8	8		-	12	12		-	17	17	
Speech Therapist	31	6	(25)	19.3%	34	6	(28)	16.9%	36	5	(31)	14.8%
Rehabilitation Technician	11	9	(2)	80.1%	12	8	(3)	71.9%	12	8	(4)	64.4%
Environmental Health Officer/Inspector	178	51	(127)	28.7%	214	48	(166)	22.5%	257	45	(211)	17.7%
Environmental Health Assistant	107	20	(87)	18.7%	113	19	(94)	16.7%	119	18	(101)	15.0%

Health professionals	2022				2027				2032			
	Need-based (a)	Supply (b)	Gap (b-a)	SAR (b/a)	Need-based (a)	Supply (b)	Gap (b-a)	SAR (b/a)	Need-based (a)	Supply (b)	Gap (b-a)	SAR (b/a)
Biomedical Engineer	41	12	(29)	29.5%	39	11	(28)	29.0%	37	11	(26)	28.9%
Biomedical Technician	37	34	(3)	92.0%	36	32	(3)	90.2%	34	30	(4)	89.4%
Medical Officer (General practitioner)	631	623	(8)	98.7%	717	695	(22)	96.9%	818	764	(54)	93.4%
Medical specialist - Pathologist	11	3	(8)	26.5%	13	3	(10)	22.2%	14	3	(11)	19.3%
Medical specialist - Cardiothoracic Surgeon (Needed)	11				11				11			
Medical specialist - Radiologist	24	1	(23)	4.2%	25	1	(24)	3.7%	27	1	(26)	3.3%
Medical specialist - Orthopaedic Surgeon	41	5	(36)	12.2%	37	5	(32)	12.7%	34	4	(29)	13.2%
Medical specialist - Neurosurgeon	18	2	(16)	11.2%	18	2	(17)	10.2%	18	2	(17)	9.6%
Medical specialist - Psychiatrist	47	1	(46)	2.1%	62	1	(61)	1.5%	81	1	(80)	1.1%
Medical specialist - Anaesthesiologist	175	4	(171)	2.3%	185	4	(181)	2.0%	194	4	(191)	1.8%
Medical specialist - Ophthalmologist	190	3	(187)	1.6%	197	3	(194)	1.4%	204	3	(201)	1.3%
Medical specialist - ENT Surgeon	101	2	(99)	2.0%	112	2	(111)	1.7%	122	2	(120)	1.5%
Medical specialist - Urologist	31	2	(29)	6.5%	33	2	(31)	5.8%	35	2	(33)	5.1%
Medical specialist - Internal Medecine Physician	149	8	(141)	5.4%	158	8	(150)	4.8%	166	7	(158)	4.3%
Medical specialist - Paediatrician	24	6	(18)	25.1%	22	6	(17)	25.4%	22	5	(17)	24.4%
Medical specialist - Paediatric Surgeon (1 in private)	7	1	(6)	14.4%	7	1	(6)	14.4%	7	1	(6)	13.3%
Medical specialist - Obstetrician & Gynaecologist	225	7	(218)	3.1%	252	7	(246)	2.6%	270	6	(264)	2.3%
Medical specialist - General Surgeon	33	9	(24)	27.6%	33	8	(25)	25.5%	33	8	(25)	24.4%

Health professionals	2022				2027				2032			
	Need-based (a)	Supply (b)	Gap (b-a)	SAR (b/a)	Need-based (a)	Supply (b)	Gap (b-a)	SAR (b/a)	Need-based (a)	Supply (b)	Gap (b-a)	SAR (b/a)
Medical specialist - Nephrologist	499	2	(497)	0.4%	523	2	(521)	0.4%	548	2	(547)	0.3%
Medical specialist - Dermatologist	7	1	(6)	15.3%	7	1	(6)	13.7%	7	1	(6)	12.3%
Medical specialist - Neurologist	8	1	(7)	12.8%	8	1	(7)	11.6%	8	1	(7)	11.0%
Medical specialist - Oncologist	58	2	(56)	3.5%	65	2	(63)	2.9%	71	2	(69)	2.5%
Medical specialist - Haematologist	1				1				1			
Medical specialist - Maxillo-Facial Surgeon	96	2	(94)	2.1%	89	2	(87)	2.1%	88	2	(86)	2.0%
Medical specialist - Cardiologist	12	1	(11)	8.2%	11	1	(10)	8.4%	10	1	(9)	8.6%
Medical specialist - Neonatalogist	74	1	(73)	1.3%	81	1	(80)	1.2%	85	1	(85)	1.0%
Medical specialist - Emergency	105				113				120			
Professional Nurses and Midwives	7,661	3,575	(4,086)	46.7%	8,786	3,931	(4,855)	44.7%	10,046	4,267	(5,778)	42.5%
Nursing Assistant	1,036	1,052	16	101.6%	1,276	1,242	(34)	97.3%	1,578	1,421	(157)	90.1%
Paramedic	75	310	235	415.0%	82	293	211	357.0%	88	276	188	314.5%
Diagnostic Radiographer (Radiology technologist)	448	64	(384)	14.3%	527	60	(466)	11.5%	624	57	(567)	9.1%
Ultrasonographer	97	10	(87)	10.3%	102	9	(92)	9.3%	106	9	(98)	8.4%
Pharmacist	534	42	(492)	7.9%	591	54	(536)	9.2%	651	66	(585)	10.1%
Pharmacy Technician	834	105	(729)	12.6%	960	309	(651)	32.2%	1,115	502	(613)	45.0%
Pharmacy Assistant	813	61	(752)	7.5%	883	58	(825)	6.5%	964	54	(909)	5.6%
Rural Health Motivator	3,101	3,200	99	103.2%	3,658	3,020	(638)	82.6%	4,327	2,850	(1,476)	65.9%
Eswatini	**20,272**	**9,741**	**(10,531)**	**48.1%**	**23,179**	**11,129**	**(12,050)**	**48.0%**	**26,563**	**12,438**	**(14,125)**	**46.8%**

6.5 Projection of Aggregate Economic Demand for health workers

Based on the prevailing economic conditions and health spending patterns, the demand modelling revealed that Eswatini had capacity to employ 10,084 health workers in 2023, which is anticipated to grow by 11.6% to 11,254 by 2032 if the economic parameters and health spending patterns do not decline. In particular, demand for Medical Doctors (Generalists and Specialists) was projected to increase from 1,894 in 2023 to 2,114 by 2032, while that for Nursing and Pharmacy staff was anticipated to increase by 7.9% (see Figure 36). However, it is important to note that the anticipated rate of increase in demand will be insufficient to meet the population's health needs by 2032.Figure 44illustrates anticipated Health Workforce demand from 2022 to 2032.

Figure 41: Estimated Aggregate Demand
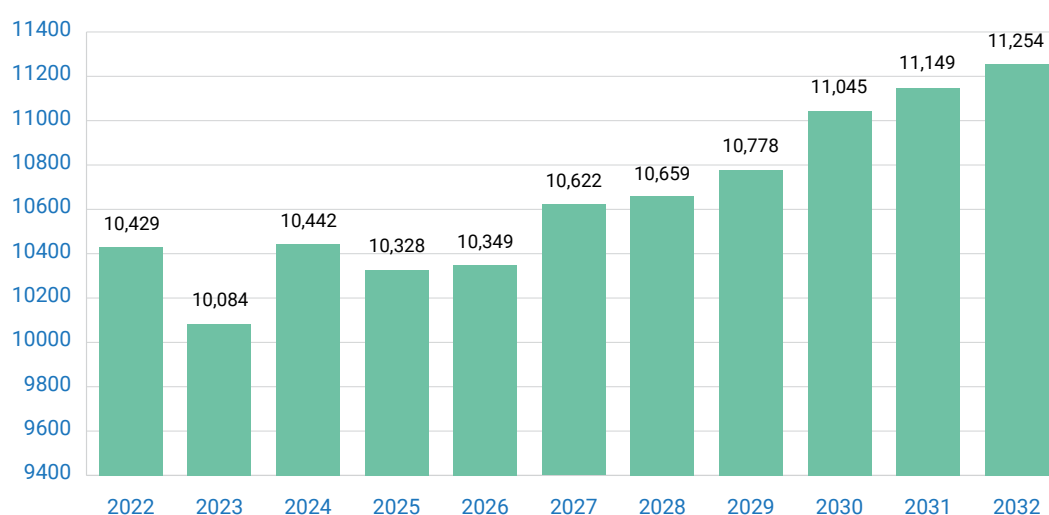
6.6 Projected Demand Versus Need and Supply

The epidemiological need-based modelling revealed that Eswatini required at least 20,272 health workers in 2022 compared with an aggregate demand of 10,429. Thus, the demand was at 51.4% of the need. The demand modelling suggests a non-stable demand prospect linked to changes in economic conditions and the level of priority given to health workforce employment with the health spending of the country. By 2032, while the need for health workers is estimated to reach 26,563, that of demand may cover only 42.3% (n = 11,254). Thus, concerted efforts are needed to expand demand alongside the estimated need to enable attainment of the health sector objectives.

The available data was inadequate to make supply projections hence the comparison on demand versus supply only concentrated on 2022.The 2022, demand for health workers was 10,429 compared with the supply of 9,741 leaving a predicted supply gap of 6.8%. From the foregoing, the current health system capacity can absorb the unemployed health worker, however due to rigidities in the employment process there is still unemployment 2022. This situation, according to the recent evaluation of the health workforce strategic plan is largely attributable to a freeze in government employment, outdated staff establishments, and insufficient prioritization of the health employment with the health spending from both government and donors.

BOX 8:   **ESWATINI'S HEALTH LABOUR MARKET IS FACING DE-MAND-SIDE CONSTRAINTS**

Eswatini is experiencing an emerging labour market failure characterized by rigidities in the employment process – leaving 907 health workers unemployed in 2023. In 2018, a freeze in government employment has limited the health sector's ability to employ health workers and coupled with outdated staff establishments, and insufficient prioritization of the health employment with the health spending from both government and donors has limited the demand for health workers.

Nevertheless, the supply of critical health workers, especially specialists, is failing to meet the needs of the population in terms of the disease burden and demographic evolution.

6.7 Health Workforce Financing and Economic Feasibility Analysis of the Labour Market

This section seeks to assess the possible financial space available or required to absorb the current and future need based health workforce requirements, provided that all other things remain constant. Also, the need based financial space required to address the future disease burden is forecasted. However, due to the unavailability of data on the education pipeline - ie no adequate data on annual admission, drop-out rates, pass rates and inflows from foreign training, the cost of training to fill population health needs-based gap could not be determined, hence the analysis did not consider the cost of training pending acquisition of the minimum data required to estimate the cost of employing projected supply, proportion of supply-side wage bill that could be absorbed by the estimated financial space and cost of training to fill population health needs-based gaps.
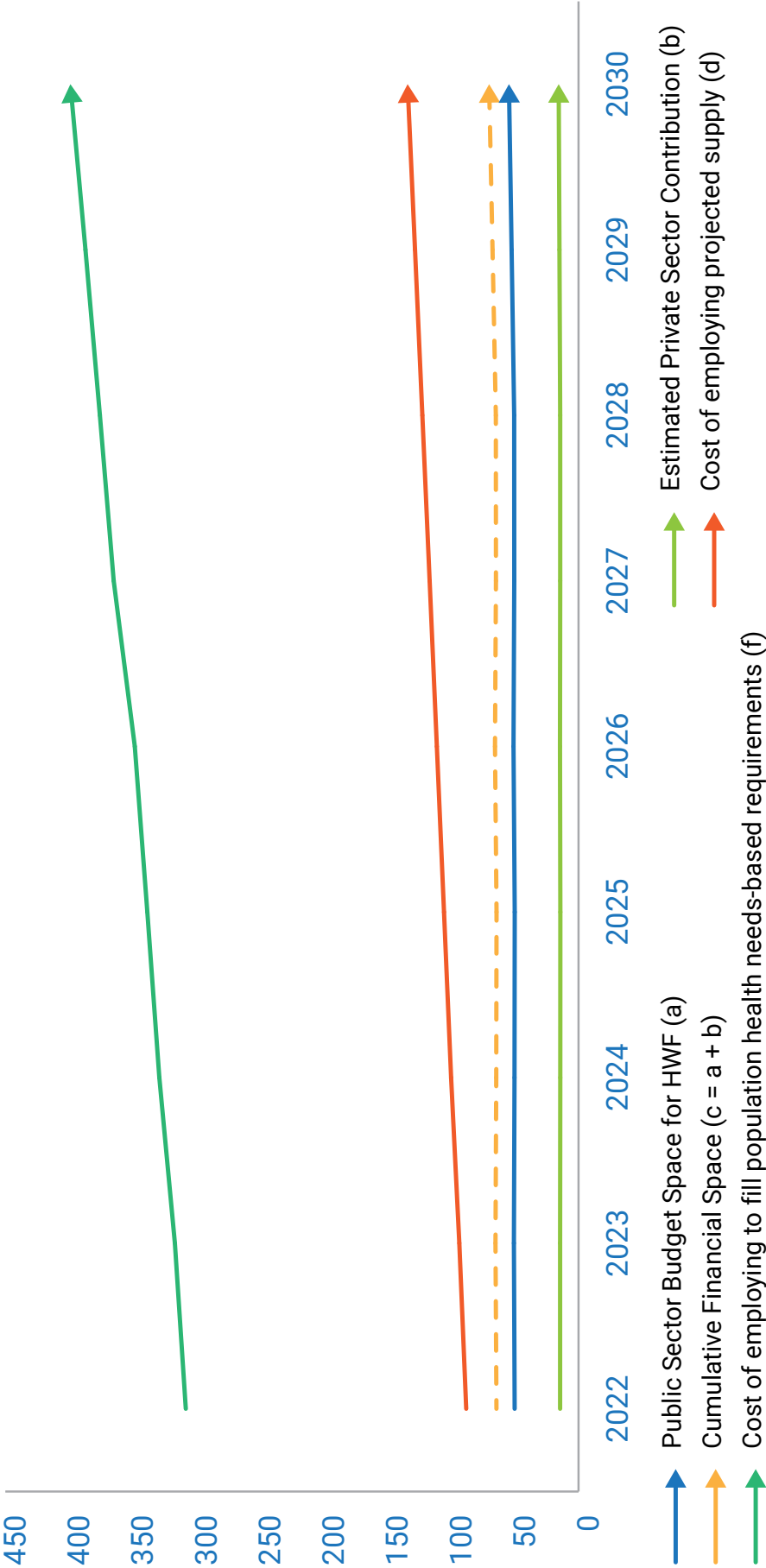
At 2022 wages, salaries, and disease burden, the fiscal space (government funding) dedicated to health workforce financing was USD 50.14 million, this was anticipated to increase to USD 59.07 million by 2032. The private sector financing for health workforce was USD 14.29 million, and this was predicted to increase to USD 16.84 million by 2032. Therefore, at 2022 wages and salaries, the available financial space was USD 64.43 million, this was predicted to increase to USD 75.91 million by 2030.

The minimum financial space required to employ population-based health workforce was USD 308.31 million in 2022 and by 2032 it would be USD 428.12 million. The total investment required to address population health needs (Needs-based Employment) is projected to average USD 379.29 million by 2032. Also, the supply data unavailability led to the exclusion of cost of training in the overall investment price tag, see Table 20.

Table 21: Estimates of economics feasibility of supply and needs compared with potential financial space (in Million USD)

Cost implications and financial sustainability estimates	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Average	Minimum	Maximum
Public Sector Budget Space for HWF (a)	50.14	50.73	50.26	50.08	51.04	50.45	50.51	52.53	54.63	56.81	59.07	52.39	50.08	59.07
Estimated Private Sector Contribution (b)	14.29	14.46	14.32	14.27	14.55	14.38	14.40	14.97	15.57	16.19	16.84	14.93	14.27	16.84
Cumulative Financial Space (c = a + b)	64.43	65.19	64.59	64.36	65.58	64.83	64.91	67.50	70.19	73.00	75.91	67.32	64.36	75.91
Cost of employing projected supply (d)	88.16	93.58	100.03	105.60	111.22	116.88	122.60	128.36	134.18	140.04	145.96	116.97	88.16	145.96
Cost of employing to fill population health needs-based requirements (f)	308.31	316.88	329.09	338.51	348.35	364.91	375.75	387.08	398.92	411.30	428.12	364.29	308.31	428.12
Cost of training to fill population health needs-based gaps (g)	13.31	13.65	13.99	14.32	14.66	15.00	15.33	15.67	16.01	16.35	16.68	15.00	13.31	16.68
Overall investment required based population health need (Needs-based Employment + Cost of Training), (f+g)	321.62	330.53	343.07	352.83	363.01	379.91	391.09	402.75	414.92	427.64	444.81	379.29	321.62	444.81

Figure 42: Economic feasibility analysis under different projection scenarios

Public Sector Budget Space for HWF (a)

Cumulative Financial Space (c = a + b)

Cost of employing to fill population health needs-based requirements (f)

Estimated Private Sector Contribution (b)

Cost of employing projected supply (d)

7. Illustrative Return on Investment Analysis: Making an Investment Case for the Health Workforce in Eswatini

7.1 Overview of The Global Evidence on Returns on Investing in the Health Workforce

The United Nations member countries, including Eswatini, adopted the Sustainable Development Goals (SDGs) in 2015 as part of the global sustainable growth and development agenda, with Goal 3 aiming at healthy lives and the well-being of people of all ages, including universal health coverage (UHC).

Recent evidence indicates that the health workforce is a significant multiplier of economic growth via six major causal pathways. Resultantly, the traditional notion of health workers expenditure as a burden that must be decreased in order to free up resources for investment in traditionally perceived productive businesses is being challenged. These causal pathways are (a) the health pathway -the intrinsic (non-market-value) health benefits of the health system; (b) the economic output pathway which concerns the intrinsic (market-value) economic benefits of the health system; (c) the social protection pathway, addressing sickness, disability, unemployment and old-age benefits, as well as financial protection against loss of income and catastrophic health payments; (d) the social cohesion pathway, addressing the role of a health system in promoting equity and fostering redistribution and growth; (e) the innovation and diversification pathway, addressing the role of the health system in driving technological development and in offering protection against macroeconomic shocks; and (f) the health security pathway, addressing the role of the health system in protecting against epidemic outbreaks and potential pandemics.

Figure 43: Health Pathway to economic growth
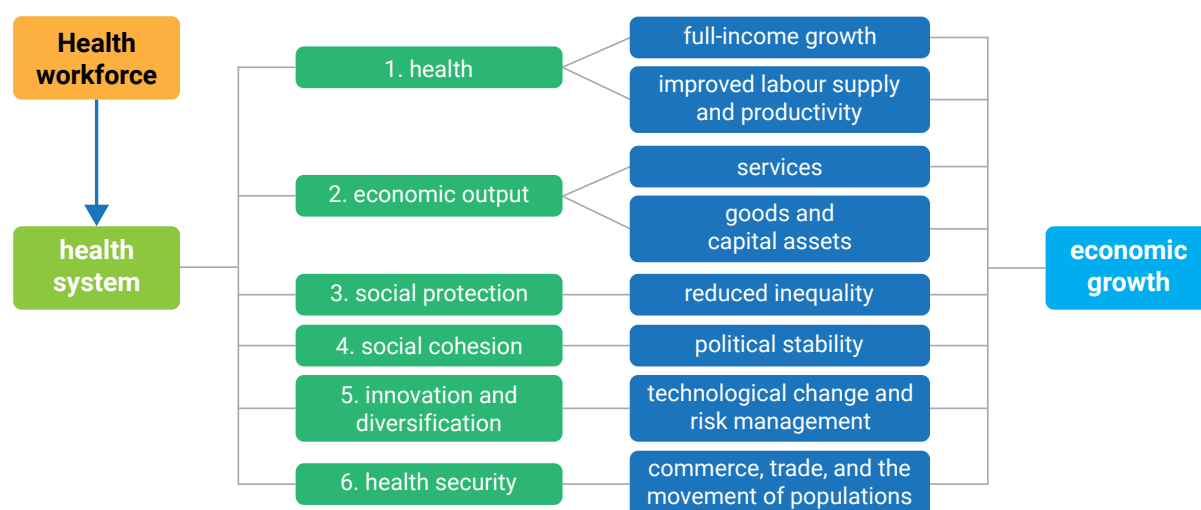
Source: Adapted from Lauer et al, 2017

7.2 Preliminary Analysis of the Correlation Between Health Workforce Density and Selected Indicators in Eswatini

Evidence suggests that as the number of health workers per 10,000 population increases, healthcare systems improve, potentially leading to better health outcomes and a higher life expectancy at birth, as well as lower maternal mortality, under-five mortality, and HIV prevalence. This is a result of the increased access to healthcare services and resources, which result in better healthcare delivery, more timely treatments, and better overall health outcomes for the Eswatini people as shown in figures 45-47.

Figure 44: Ratio of non-health occupation (NHO) workers to health occupation (HO) workers, by income group, 2015
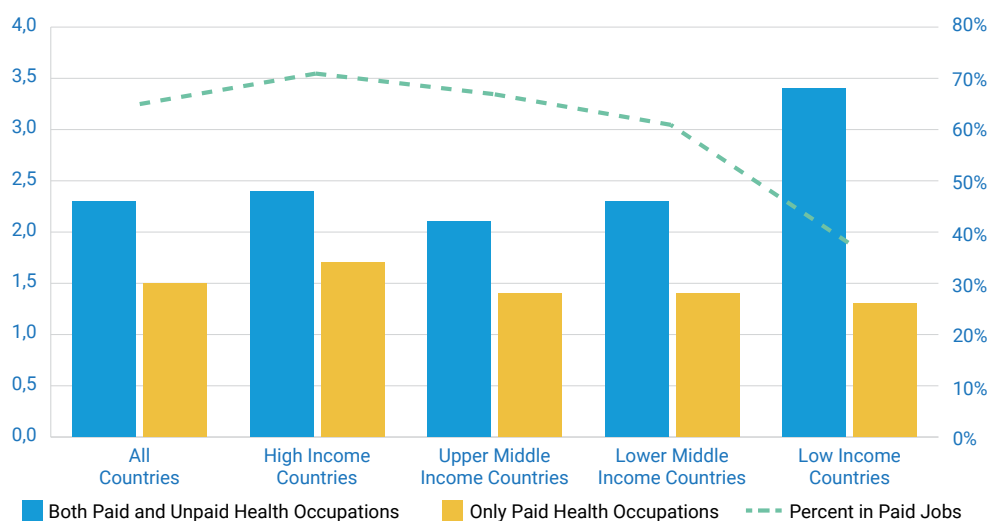
Source: Adapted from ILO calculations, 2016

Figure 45: Scatter plot showing the relationship between health workforce per 10 000 population and life expectancy at birth in Eswatini
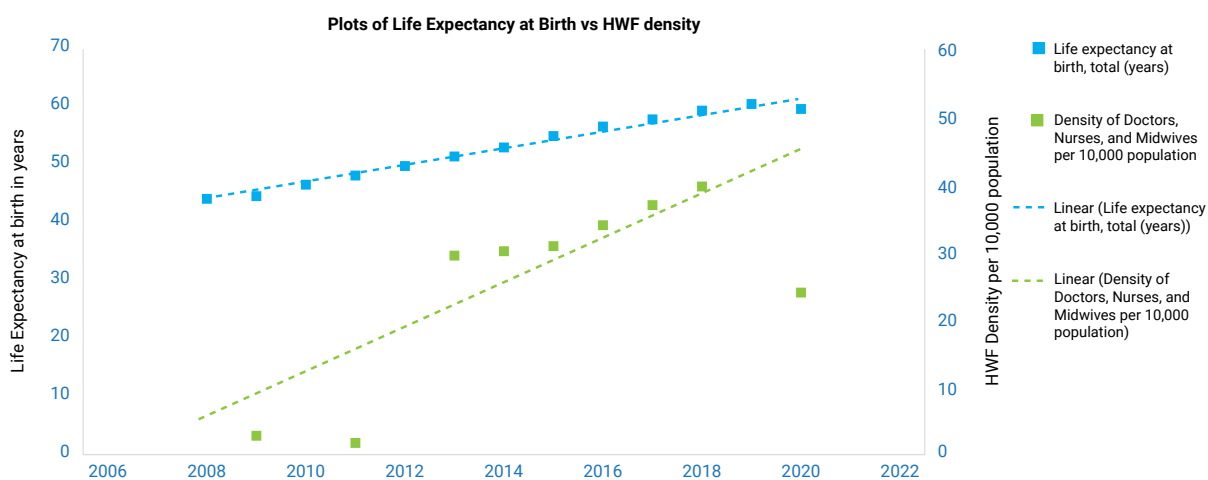

Figure 46: Scatter plot showing the relationship between health workforce per 10 000 population and lifetime risk of maternal death in Eswatini
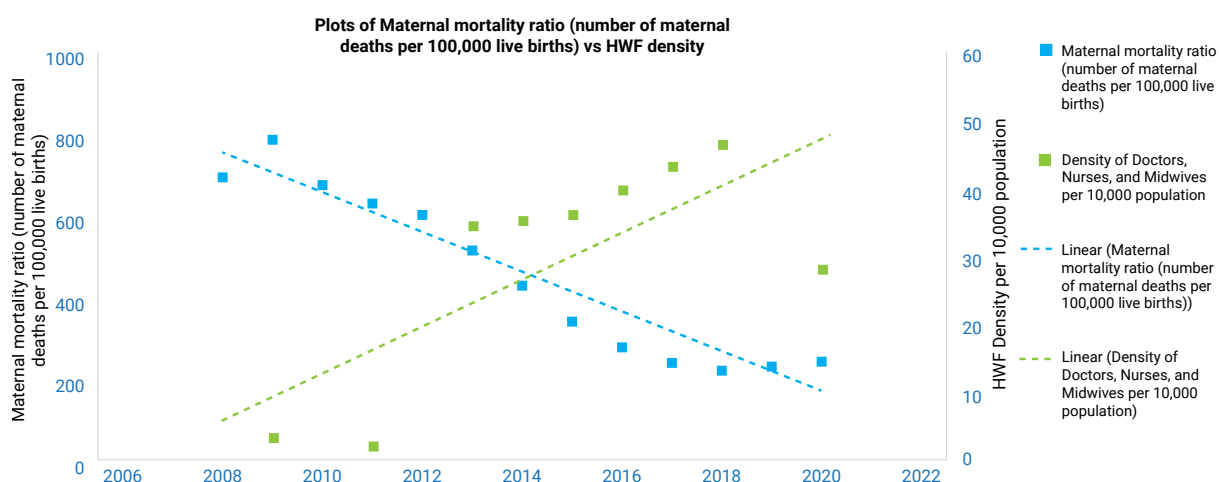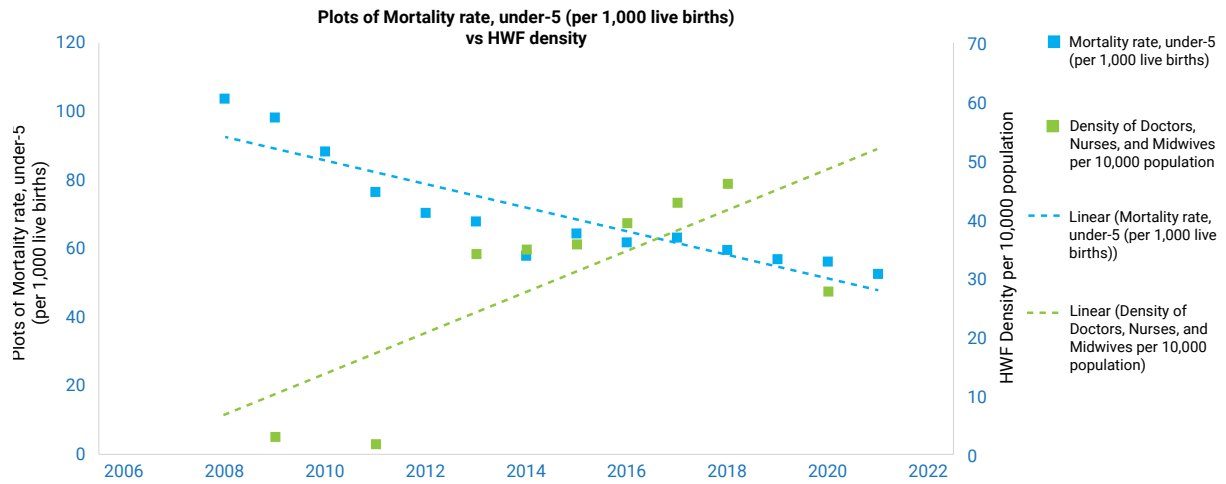
Figure 47: Scatter plot showing the relationship between health workforce per 10 000 population and mortality rate for under -5 in Eswatini

Plots of Mortality rate, under-5 (per 1,000 live births) vs HWF density

Recommendations for Workforce Policy and Strategy

1.   Strengthen health workforce governance, coordination, and alignment of priorities.

The evaluation of the outgoing HRH strategic plan identified inadequate coordination of the various actors relevant to the health workforce as a major bottleneck for the advocacy, planning and execution of health workforce agenda. For example, the outgoing strategic plan was only implemented at 20% and was never formally adopted as a national document. Consequently, key implementor at the regional levels were unaware of the strategy and some expressed doubt if it made any difference apart from being a reference document. Also, while there are substantial investments that goes into health, the investments in health workforce appears to be fragmented and stagnated and require strong coordination and stewardship to align priorities and stimulate investments in the health workforce. The following interventions are proposed.

i.   Urgently organise a high-level multisectoral national policy and investment dialogue on health workforce to facilitate evidence-based policy and strategic decisions that would guide planning and key investment actions on the health workforce. This kind of dialogue should be undertaken every two years for sustained advocacy, prioritisation of health workforce and alignment of policies and plans for sustained actions.

ii.   Develop the next generation of the National HRH strategic plan that is costed and with an accompanying multisectoral investment plan for aligning and stimulating health workforce investment within the context of broader health investment. The strategy should be built on the evidence produced from the HLMA and be aligned with the National Health Strategy as well as the relevant national development plans.

iii.   Revitalise and strengthen the national Technical Working Group (TWG) on Human Resources for Health to facilitate the needed coordination, alignment and ongoing dialogue.

2.   Strengthen and optimise the health workforce education and training.

The health professions education in Eswatini are broadly very attractive to prospective students and have become competitive as the programmes are on average able to admit only 6.7% of the applicants despite a significant unutilised capacity especially for nursing training where there the schools are given a quota of 40 per year even though some are thought to have 60 to 90 seats per year. There are reasonable prospects to expand training if the staff establishments are expanded and funded. Some stakeholders have expressed concerns about the quality of training of some health workers, especially those trained abroad. A case in point was 50 doctors who trained abroad and returned but there were concerns about insufficient practical component of their training which led to more than one year delay in the recognition of their qualification and commencement of their internship locally. Although continuous professional development (CPD) opportunities are increasingly becoming available through the professional regulatory bodies, these are not funded upon competency gaps and training needs assessment (TNA) that links staff development to competency deficits and health service delivery requirements. In addressing these gaps, the following interventions are suggested.

i. In collaboration with all stakeholders (Ministry of education, Prime Minister's Office and regulatory bodies), develop a comprehensive national integrated (master) HWF training and education plans that is aligned with the population health needs and health system capacity. This master training plan should consider progressively increasing the number training capacity and introduce local training for some cadres that the country is over-reliant on foreign training.

ii. Consider establishing 6-12 months bridging programme or remedial training health workers who trained abroad and returned but their training is considered inadequate in practical and/or theoretical content for the local context (starting with the current 50 medical doctors who were not able to commence internship due to concerns about quality of training). This bridging programme could use local expertise and intermittently invite additional experts from neighbouring countries.

iii. Establish a collaborative partnership with institution(s) in neighbouring countries to locally train specialist medical doctors to meet the population needs. This could also be cost effective as evidence suggested that it costs less to train locally than it does to train abroad.

iv. Consider establishing a full-fledge postgraduate specialisation/advanced nursing practice training (at the level of Masters) to expand specialised service delivery and promote quality of care.

v. Review and benchmark professional scopes of practice and scheme of service for health workers, allowing them to practice to the full extent of their training. This would enhance efficiency, role clarity and utilise capacities based on their levels of training.

vi. Align in-service training with population health needs and staff competency gaps by conducting a comprehensive Training Needs Assessment (TNA) and use the findings to develop a comprehensive CPD programmes in collaboration with the regulatory councils.

3. Stimulate and expand health workforce employment to address critical service delivery gaps while optimising the utilisation of existing health workers.

The evidence shows a distributional inequity in the health workforce between rural and urban areas as 55% of the health workers worked in urban areas where there are only 23% of the population while 77% of the population who live in rural areas are served by 45% of the health workers. Alongside, Eswatini is experiencing an emerging labour market failure characterised by rigidities in employment process resulting in at least 907 trained but unemployed health workers. However, health workforce employment consumes only a one-third of the overall current health spending. It is estimated that if the trend is not mitigated, there will be a widening workforce gaps at the frontlines of service deliver while unemployment of health workers could deteriorate to about 24% of the projected supply in the coming years. To address these challenges, the following measures are suggested:

i. The Prime Minster should urgently exempt the health sector from the net-freeze on recruitment arising from circular number 03 of 2018, to allow justified recruitment of the 907 trained but unemployed health workers. However, their recruitment should be strictly for addressing gaps in rural and under-served areas.

ii. The Government should consider undertaking an urgent comprehensive review of the establishment of the Ministry of Health and the health facilities which should be backed by an evidence-based staffing norms and standards.

iii.   In the medium to long term, Government should consider investing more in the health sector by increasing budgetary allocation to the MoH to enable the ministry to expand its demand capacity to absorb the available supply of HWF towards meeting the population health needs.

iv.   Develop a compact for the efficient transition of donor-funded employment of health workers.

v.   Undertake a comprehensive review of the model of care along primary health care approaches to deepen access to health services and optimise the utilisation of the health workers.

4.   **Strengthen national systems for health workforce retention and equitable distribution.**

About 41% of the surveyed health workforce intended to migrate abroad at some point. 60.71% intended to migrate for employment purposes, while 36.16% intended to migrate for further education. 34.38% of those planning to relocate had already begun working on their intentions to migrate, with 4% planning to migrate within the next 5 months, while 6% intended to migrate within the next 6 to 11 months. The transfer wage (the pay that discourages people from seeking job elsewhere) – was SZL33,183 ($1,751). The potential retention gap, calculated as the difference between their present pay and their transfer wage, was SZL9,419 (US$464). In addition, there is distributional inequity in the health workforce between rural and urban areas, 55% of the health workers worked in urban areas where there was only 23% of the population while 77% of the population who live in rural areas are served by 45% of the health workers.

i.   Target the 36.1% of the health workforce who have intentions to migrate for further education by providing them with training opportunities locally. furthermore, the government should consider introducing post basic allowances for health professionals after attainment of post basic qualifications to retain its skilled workers.

ii.   Deliberately incentivise health workforce who opt to work in the rural areas to address the distributional inequity. The government may consider varying remuneration and conditions of service for health workers working in the rural areas as compared to those working in the cities.

iii.   Efforts should be made towards introducing retention strategies to reduce the retention gap of SZL9,419 (US$464).

5.   **Invest in health workforce information system, data and evidence generation for decision making.**

Health workforce research and data for decision making has been suboptimal due to fragmentation of data and ineffective data flow systems. The implementation of Human Resource Information Systems (HRIS) had a potential of improving the availability and quality of data to enhance informed decision-making within the health sector. However, its functionality and use has been suboptimal and characterized by irregular updates. These limitations have had significant impact on workforce management where data quality and real-time information are paramount for resource allocation and planning. Consequently, it becomes imperative to address these challenges ensuring optimal functionality of HRIS. The country took initial steps to implement the National Health Workforce Account (NHWA) which will contribute to improve alignment and data flows, strengthen the HRIS and facilitate multisectoral collaboration to improve health workforce information and management. The following interventions are suggested to improve the availability, quality and use of health workforce data to monitor progress on sector priorities.

i. Revitalize and institutionalize the integrated Human Resource Management and Information System, decentralizing it to regions and health facilities for the effective management and tracking of the health workforce.

ii. Build the capacity of Human Resource Practitioners and Managers in HRH (Human Resources for Health) data management, evidence generation through operational research, and utilization for informed decision-making.

iii. Implement the National Health Workforce Account (NHWA) and employ its indicators for measuring the progress of HRH interventions.

iv. Produce an annual summary HRH country profile to foster policy discussion.

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Engagement with policy makers and stakeholders