Private Sector Federation
(PSF- Rwanda)

DRAFT REPORT

SKILLS ASSESSMENT

HEALTH SECTOR

April 2022

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Acronyms/abbreviations

WHO:	World Health Organization
PSF:	Private Sector Federation
MOH:	Ministry of Health
HPs:	Health Professionals
PSE:	Policies Systems Environment
FP:	Family Planning
NCDs:	No communicable Disease
HRH	Human Resources for Health
EH	Environmental Health
PPP	Public Private Partnership
NOS	National Occupational Standards
HW	Health Workers

Key Term and definitions

Obstetrics: is the field of study concentrated on pregnancy, childbirth and the postpartum period. As a medical specialty, *obstetrics* is combined with gynaecology under the discipline known as *obstetrics* and gynaecology (OB/GYN), which is a surgical field.

Gender Equality: The concept of gender equality in social sciences' literatures defined as reflection of attitudes, beliefs, behaviours and policies that equally value and provide opportunities for both genders. (Anne M.et. Al…)

Skills: are generally a combination of ability, capacity, and knowledge acquired through deliberate, systematic and sustained efforts to carry out complex tasks or job functions. These can be grouped into cognitive skills (Concept ideas) technical skills and interpersonal skills. Skills can also be classified as job-specific or generic/transversal.

Policy, systems and environmental (*PSE*): changes are public *health* interventions that make changes to existing policies, systematic practices or environmental

Labour force participation rate is the proportion of the population ages 15 and older that is economically active: all people who supply labour for the production of goods and services during a specified period.

Ratio of female to male labour force participation rate is calculated by dividing female labour force participation rate by male labour force participation rate and multiplying by 100.[1]

Skill mix is the combination or grouping of different categories of workers that is employed in any field of work. (Wikipedia)

[1]Ratio of female to male labor force participation rate (%) (Modeled ILO estimate)

EXECUTIVE SUMMARY

The health care workforce is one of the most important factors in the health care system, whilst health care providers are instrumental in stimulating, creating and maintaining health care improvement in every society. Around the world, the rapidly shifting balance between acute and chronic and pandemic health problems is placing new and different demands on the skills for health care workforce that needs to be equipped with high standard skills in order to provide effective health care based on trusted service delivered by health professionals to meet health threatening complexities. Putting skills issue into global perspective, the World Health Organization (WHO) estimates a projected shortfall of 18 million health workers by 2030, mostly in lower-middle income countries. Education and training of health workers and the mismatch between education and employment strategies in relation to health systems and population needs are contributing to continuous shortages. [2] Thus, the skills assessment in health sector was conducted focusing solely on the private health facilities in a bid to reveal the skills gaps, required, as well as shortage, and attempt to project skills needed for the next 10 years, tackling issues surrounding the impediment of the private health sector performance in the contribution to the national development at required health level to which, health facilities could attract external investment.

The skills assessment in Private Health sector is primarily aimed at a range of users primarily Private Sector Federation spearheading all health sector stakeholders to foster track issues and impediment surrounding poor performance and weak competition capacities within the private health sector facilities but also shade light on advocacy with planners and policy-makers for health sector, as well as all relevant stakeholders in the health workforce area, including public and private sector employers, medical professional associations and councils, researchers, education and training institutions, labour unions, bilateral and multi-lateral development partners, international organizations, and civil society.

Summary of Findings

- It is difficult to trace the realistic skills available, gaps, and required at the private health sector facilities level by occupation categories due to the fact that the skills assessment in private health sector revealed that most of managerial positions are not permanent but they are rather of rotational system whereby specialized doctors, nurses, and midwifery are part time visiting at more than three (3) private health sector facilities. Therefore, skills required, available, and gaps among professionals by occupation categories may have some errors caused by such duplicating misleading data.
- Although a number of skills survey such as "Rwanda skills survey 2012 have been conducted, and instruments such as policies and strategic plans already exist in the health

[2]Health workforce, WHO: https://www.who.int/health-topics/health-workforce#tab=tab_1

sector, there is considerable scope for improving the effectiveness of health professional skills assessment surveys to generate policy-relevant and actionable evidence such as: Overcoming deployment of under skilled personnel in private health sector which is the major cause of lack of trust in health professional skills and performance. Thus, being uncompetitive.

- A large set of instruments exists like health policy 2018, Private health facility services packages, the Fourth heath sector strategic plan 2018-2024 etc.…However, tools to measure technical and professional skills of different categories for private health sector were not considered and not developed within those instruments. These assessment tools are supposed to be developed and used by health professional associations and professional regulatory bodies for licensing and certification purposes. For this reason, they are generally designed and elaborated to measure the qualifications of a specific health professional group and focused on a particular aspect of healthcare performance, and hence do not lend themselves easily to system-wide assessments of skills across all categories of health professionals. Assessing the skills requirements of professional groups incurred the risk of missing the cumulative or additive effect of skills contributed by all other professionals in a multidisciplinary context. From the desk review, the skills assessment in Private Health Sector indicated that the distribution of health workers in private health sector is about 65% of the aggregate health workforce works in the public sector while the rest work in private-for-profit organizations (20%) and faith-based organizations (15%).[3].
- Employers in private health sector facilities perceive inadequate workforce skills as major constraint. However, most private health facilities managers who are at the same time owners of the facilities have no distinction between skills, occupation, qualification, and position. Therefore, reliable and timely data on the skills structure in private health sector facilities is difficult to obtain and subject to some errors.
- Private Health Sector does not have capacity to conduct or lead researches be it laboratory or community based health threatening issues. A number of interviewed medical personnel in private health sector admit to such as lack of skills and all requirements to do researches.

Limitations to the skills assessment in private health sector facilities

Limitations to the private health sector skills assessment include:

Not being able to track health worker's relational circuit or trajectory, and periodic relocation. Thus, for example, a paediatrician doctor who works in more than one private hospital or clinic cannot be counted as skilled health worker of a specific clinic or hospital as he/she is just in such facility for one day per week. This kind of scattered skills "service may affect the quality of care

[3] Health Labour Market Analysis report, May 2019

delivered, continuity of chronic care by breaking up patient-provider relationships, and the morale of remaining staff due to increased workload."[4] Other factors such as health worker motivation, burn out or work load, opportunities for professional development, salaries, management and work environment are not reported in details and there is a need for a study in the context of private health sector for better performance to link placement and retention strategies.

The shortage of doctors in Rwanda that leads to their high demand in private sector, poor working conditions, and lack of opportunities for other sources of income such as in private practice make rural areas less desirable to health workers was not also included in the skills assessment in private Health sector. However, it can be hypothesized that health workers in private health sector facilities are less skilled working in a compulsory service program for newly graduate doctors, nurses and midwives who need to receive medical practice license. Therefore, capturing their occupational categories in terms of skills definition is not accurate.

[4] Pan Africa Medical Journal 2017

I. CHAPTER ONE: INTRODUCTION

1.1 Background and Context

The issue of skills imbalance in private health sector facilities is not new on the health agenda, as various elements related to skills in the health sector contribute to obscure policy development provisions, seemingly looking and considering definitions of types of facilities, services available at each type of private healthcare facility, types and qualifications of human resources required for each service, basic equipment needed for each type of service, laboratory test packages and required basic equipment, as set out by the Ministry of Health, all of these coupled with different levels of skills required to perform on each.

The ability of a health institution to meet its health goals depends largely on the knowledge, skills, motivation and deployment of the people responsible for organizing and delivering health services.

Labour market supplies and demands for occupational skills when it comes to medical fields are continuously fluctuating, and at certain point in time, there will be a continuous labour market imbalance if skills issues in private health sector are not appropriately addressed. In other words, a shortage or surplus is the result of disequilibrium between the demand and supply for labor in all categories. Private health facilities are often a significant part of the health system in medical ecosystem. Consequently, they are an important focus for governments, which aim to improve the performance of their health system, [Rwanda being of no exception]. [5]

The Ministry of Health has set a private health services packages for three purposes: **1)** to identify standard packages of services at each level of the healthcare system, **2)** to provide a guide for the MOH, private sector and non-governmental organizations (NGOs) and donors on how the health care facilities should be staffed and equipped and **3)** to promote a health referral system that integrates all levels of services.

This document includes the description and qualifications of staff required but does not include the numbers of staff needed for each service, as the quantity of staff will vary based on types of services, workload and an indicator for staffing needs as is supposed to serve as a human resource planning tool. The private health facilities services packages have elements for each level of facility so that the skills needed may be worthwhile for better services. Thus,

1. Services are available at each type of private healthcare facility
2. Types and qualifications of human resources required for each service meet the demand of clients
3. Skilled professionals are available to handle equipment for each type of service and are of the international standards certified and approved,

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[5]Working with Private Sector Providers for Better Health Care an introductory guide: Elizabeth Smith, Ruairi BRUGHA and Anthony ZWII

4. Skills required for laboratory test packages and required equipment laboratorial are not basic but internationally desired.

1.1. Objectives of the health sector skills assessment

1.1.2. General objective

The skills assessment in private health sector facilities general objective is to identify gaps, required skills and allow international comparability or benchmarking the sector, taking into account reviewing the status of existing surveys that measure health professional skills, and the competitiveness across different categories of health professionals skills that can draw lessons to learn from, propose appropriate responses to anticipated skills shortages robust and actions to bridge the skills gaps, providing recommendations that would build on drivers of change for future skills that make the sector competitive regionally, and internationally.

1.1.3. Specific objectives

- Shade the light on the skills that are trusted and attractive for better service delivery in private health sector facilities.
- Inform policies and strategic plans on gaps in providing guiding principles to skills development and responses to the labor market demands.
- Inform the employers' behaviours in regards to supporting skills development effort that satisfy private health sector facilities need for growth and be at an internationally competitive skills base levels
- Produce assessment report that serves as a tool for PSF and health sector stakeholders in supporting the private health sector to build the right specialized skills of health professionals that inspire investment in the sector, providing a robust evidence base insights and actions, drawing on good and comparability practice from the more advanced countries innovative thinking to meet skills challenges and counteract all improvise that may be among all health.

1.2. The Context of skills assessment in health sector

Skills in private health sector are evolving rapidly at an aggregate industry level, the degree to which skills requirements within individual job categories and occupations is at high levels. The skills assessment in health sector looked at existing policies, plans, strategies, as PSF Rwanda deemed it necessary to identify skills gaps, skills required for the sector's competitive performance and projection of future skills needed for the sector growth and sustainability.

1.3. Policies and strategies provisions context

Existing policies and strategies elaborated recognized and provided for heath sector capacity and services enhancement, which require high levels of skills in different professional and occupational categories. For instance, 7 Years Government Programme: National Strategy for Transformation (NST 1) 2017–2024provisions include (to)"enhancement of the "Demographic Dividend through ensuring access to quality health for all. (Thus), focus was to improve health care services at all levels, strengthening financial sustainability of the health sector, and enhancing capacity of health workforce".[6]

Although one of the NST1 pillars especially pillar five (5) (pointed out the) broad objectives highlighting quality healthy population especially in its priority area three (3), whereby" demographic dividend would be enhanced by ensuring access to quality health for all, and quality health care that will be enhanced through (provision of) adequate health infrastructure, skilled and motivated health workforce as well as enabling health systems".[7] mechanisms for development were not indicated and prospects for occupation categories were not provided for, showing how health care will be enhanced and how workforce will be skilled, thus, there was no clear provision indicating that health policies informs the development of strategies to achieve those inspirational provisions statements relating to the policies objectives and implementation directions in place.

For example, it was planned in NST1 2017–2024 that there would be an "Increased human resources for quality health ratio of medical practitioners, general specialists, nurses and qualified midwives per population Ratio (Doctor/ population) 1/10,055 was baseline 2017 and target was 1/9,000 by 2024, whist 1/7,000, Ratio (Nurses/ population) as 1/1,094 was baseline 2017, the target being from 1/ 900 to1/ 800, while the Ratio (Midwives/(women aged beateen15-49) is 1/ 4,064 baseline and target is from 1/ 3,500 to 1/ 2,500 by 2024 these targets are set under the MoH, Health Sector.[8] However, no mention about how skills would be developed for the sector to reach those targets.

Furthermore, in the flagship projects that were planned in the "National skills development and employment promotion strategy 2019 -2024", it was stressed that health sector was considered and deemed a priority sector that needed an increase in numbers and development of capacity of human resources for health sector professionals (by) Promot[ing] industries in pharmaceuticals" but no strategic provisions for pharmacists' skills development was prioritized. The "five-year program for priority skills development to deliver EDPRS II (2013 - 2018)" [9]has also identified

[6]The National Strategy for Transformation (NST1) 2017 – 2024
[7]7 Years Government Programme: National Strategy for Transformation: (NST 1) 2017 – 2024
[8] Ibid
[9]The "five-year program for priority skills development to deliver EDPRS II (2013 - 2018)"

areas, levels and numbers or required for health professional categories. 4,061health professionals in all categories were required 2013-2018. Again, no strategies were identified to develop health workers in number to mitigate that required professionals.

National Skills Development and Employment Promotion stipulated that it will be necessary that private sector would be involved in training, curriculum development and identification of skills gaps (market-led education initiative), which is the core aim of this assignment. [10]

However, the "Revised National employment policy 2019 articulated that The private sector has not been sufficiently involved in the implementation of some development strategies and policies including the employment policy. The private sector needs to be fully involved in all employment strategies and interventions to become the engine of growth and jobs creation. Thus, Rwanda's private sector needs to grow faster to absorb the labour market entrants.

1.4. Global context

The supply projections, based on current trends and under the assumptions made in the health sector models, point to a significant growth (55%) leading to an aggregate number by 2030 of 67.3 million health workers. This comprises approximately 13.8 million physicians, 32.3 million nurses/midwives and 21.2 million other health workers.[11]

1.5. Continental context

Africa total health workforce was 1,640,000 by 2006, with density of (per 1000 population) **2.31**, and 83% percent of total global health workforce; if they are not present in sufficient numbers and with appropriate skills, the system cannot function.[12]

Table 1: Global health workforce by density, WHO Region: Africa.

WHO Region	Total health workforce		Health service providers		Health management and support workers	
	Number	Density (per 1000 population)	Number	Percentage of total health workforce	Number	Percentage of total health workforce
Africa	**1, 640, 000**	**2.3**	**1, 360, 000**	**83%**	**280, 000**	**17%**

Source: The world Health Report 2006**,** Health workers, Chapter One, Global profile[13]

[10]National Skills Development and Employment Promotion Strategy 2019-2024
[11]WHO Global Health
[12]https://www.globalhealthlearning.org
[13] Only Africa region was extracted from all WHO regions

1.6. Country context

Rwanda health workforce comprises of 7% (1,648) Doctors, 70% (15,050) Nurses and Midwives, 19% (4,083) allied Health Professionals, and 4% Pharmacists and Pharmacy Technicians. These come from the 21,679 health professionals registered of which 30% employed in the private-for-profit sector and 13% in the faith-based organizations. On the other hand, slightly more than half (50.6%) of medical specialists are employed in the private-for-profit sector whilst Pharmacists of whom 77.3% worked in the private sector.[14] Rwanda private health sector engagement assessment report 2015, Pg7, acknowledges that there is a "National- and district-level manager's lack[ing] of adequate skills and business know-how to implement PSE and PPPs.

The Fourth Health Sector Strategic Plan July 2018 – June 2024 outlined challenges in health sector including skills mix gaps; a high staff turnover and limited career development opportunities for health professionals at different levels of the health sector.

The Fourth Health Strategic Plan 2018-2024 further elicited some areas whereby skills gaps exist and proposed strategies to bridge them by:

- Improving uptake of skills to care for Comprehensive Emergency Obstetric and New-born Care at hospital level,
- creating more jobs and employment opportunities… which, would require increase in number and skills of human resources for health given the projected increase in the number and complexity of health services
- Increase knowledge, counselling skills and Management of side effects of contraceptives for FP providers
- Introducing use of mentoring approaches and e-learning platforms in skills enhancements
- Improving the quality of the health workforce by strengthening a comprehensive, hands-on pre-service training, regulation of clinical practice and skills enhancement applying in-service mentorship
- Strengthening HRH management at central and decentralized levels for enhanced leadership skills, improve retention and reduce health worker's attrition
- Equipping health staff of HPs with basic skills for diagnosis and management of NCDs

It is very clear that Fourth Health Sector Strategic Plan July 2018 – June 2024 has not indicated a comprehensive range of professional and technical gaps in the health sector especially in the specialized domains by occupational categories, as categorized according to the standard

[14]Rwanda Health Professional Councils (RMDC, RNMC, NPC, RAHPC), November 2018

professional qualifications governed by the law regulating employment in the public service and the private sector for all workers listed further in sector profile chapter **(See the sector profile)**

At the level of cooperation, WHO Country Cooperation Strategy 2014-2018, RWANDA indicated that emphasis will be put on capacity-building in specialized skills in health-care technology management including biomedical engineering and hospital infrastructure engineering" but did not specify which area of specialization and was not on any data that could indicate skills gaps, required and priorities to attend to in terms of narrowing the gaps[15]

1.7. Methodological approach to data collection

This is a narrative the sector specific skills assessment, which reviewed, took an iterative approach to finding skills gaps, required, existing and projection for future skills for sector competition-based sustainability. The author conducted the skills assessment in private health sector using a range of different search terms relating to skills at physicians' occupational levels.

A qualitative methodological approach has been used to collect data in effort to assess Skills in health Sector. For desk review, various documentations were consulted including the Plans and Policies as well as reports produced nationally and internationally. In order to have a grips on what was captured in previously developed instruments.

It was worthwhile to look at global, regional and Rwanda contest on health workforce skills issue, but also considered reviewing existing instruments that were developed such as, Rwanda Demographic and *Health Survey* (DHS). RDT ... HSSP III, the Health Sector Policy 2015, Rwanda Vision 2020, the EDPRS 2, and the HSSP III ... Capacity Building and Private Sector engagement, mobilizing partners to support the private health sector become a key contributive to the national development.

Outstanding challenges remain the gaps in skills mix; a high staff turnover and limited career development opportunities for health professionals at different levels of the health sector Questionnaire was administered online through "Monkey Survey systems|" to selected private health facilities including: private hospitals, polyclinics, clinics, dispensaries, faith-based hospitals pharmacies, pharmaceutical wholesalers, private health insurance companies, private health professionals' associations, private medical training institutions, A structured telephonic interview was conducted with the Ministry of Health (MOH) that provided a list of all private health facilities to whom questionnaires were forwarded related to skills at institutional levels, and answers were analyzed and interpretation was done using IT data generating system. To identify the policy gaps questions and the types of information required in terms of the skills requirements for different categories of health selected expert professionals group and key

[15]WHO Country Cooperation Strategy 2014-2018 RWANDA

informant addressed with specific questions. These included healthcare managers, head of private health sector facilities, nurses and midwiferies.

1.8. Sampling framework

Probability sampling: - Proportionate Stratified random sampling. This method involves knowledge of the likelihood of the respondents in this case the private health sector as referred to as “for profit making health facilities” in associations, Councils, and Union clusters in which all health professionals belong. Out of 550 private health sector facilities, a sample of 125 populations was selected respondents’ representatives of the said facilities namely: private hospitals, clinics dispensaries, out of the sample population of facilities, who filled up the questionnaire uploaded in Monkey Survey system, constituting 22.7**%** of the total sample population.

II. DRIVERS OF CHANGE AND THEIR SKILLS IMPLICATIONS

The term 'drivers for change' refers to those forces that are influencing the future shape of an economy, region or sector. In the field of skills and labour market intelligence, understanding what forces are the most influential and how they might interact together can provide insight into the trajectory and possible future employment and skills needs. They are not intended to predict the future, but they can provide an ongoing framework for review and analysis of possible future concerns and help develop consensus with of health sector institutions practitioners about future actions. (Ian Wheeler and Lorraine Yeomans, 2012).

The drivers for change, short, medium and long term are all pointing towards the need for the sector to move beyond many of its traditional models of working. Failure to have skilled professionals and technicians in all occupational groups to address these challenges is the main reason health sector is not strong enough to handle various health threatening cases that make the population have little confidence in their services and prefer to go seek medical services abroad. The quality of health services is the ultimate result of the skilled healthcare providers and how such service is provided is the key indicator of best service.

The skills implications of these drivers range from a shift in skills amongst the workforce to enhance roles and better utilize the existing workforce to the creating of new skillsets within the sector. The consequences of such drivers are discussed throughout however; the scale and nature of these drivers in more detail also outlines how these drivers are expressed in each set of drivers.

2.1. Regulation and Governance

The health sector is shaped by a wide range of political and regulatory influences such as the policy provisions that are important for the regulation of the sector. Whilst the continued trend towards devolution can led to significant emphasis on delivery mechanisms, there are also commonalities across the whole health sector variances as in from hospitals, clinics, pharmacies, laboratories, dispensaries, etc.…and how they are operated. With that, policies implementation and monitoring should be reinforced in order for the skills requirements within the policies are adhered with. This is aimed putting control over their quality of service delivered, continuous checking and balancing of trends in medical field globally, and stocktaking of skillset of professionals in health domain as well as increasing innovation and productivity by encouraging a more open and competitive market in the sector. The Health sector has to be and for the near future should be affected by political decisions and influences.

2.2. Demographics

The ageing population of health professionals is a factor that is likely increase in a long run as the demand for health-related services will require the younger professionals to replace the elder ones. They may have a particular range of issues closely linked to the skills they possess that was

developed by the old ones over the years of the career path. Therefore, the sector will need to be responsive. This will have influence on skills demand for professional who can take takeover thus, overall, older health sector professionals who are likely to be a powerful treasure group on health skills requirements in the sector. The impact of a rapidly ageing population of wealth sector workforce on the sector are numerous, including:

- Fewer working-age people able to work after the old, it is likely that those working in Health sector need a greater level of skills to deal with a broader range of Health issues that require experience that is technological based.
- A large number of older, more experienced employees over the future, succession planning are therefore extremely important and urgent as part of the sector's skills development and stock creation in order to provide the service-skills oriented and avoidance of skills gaps.
- An increase in demand for care that is provided by older populations health professionals who have more long-term skills accumulated over the time with a drive to be able to work in patients own homes rather than in hospital. This can be the best mechanism to make use of the less technologically experience old health professionals rather than losing such treasure of wisdom.

Source: RAHPC

2.3. Environmental change

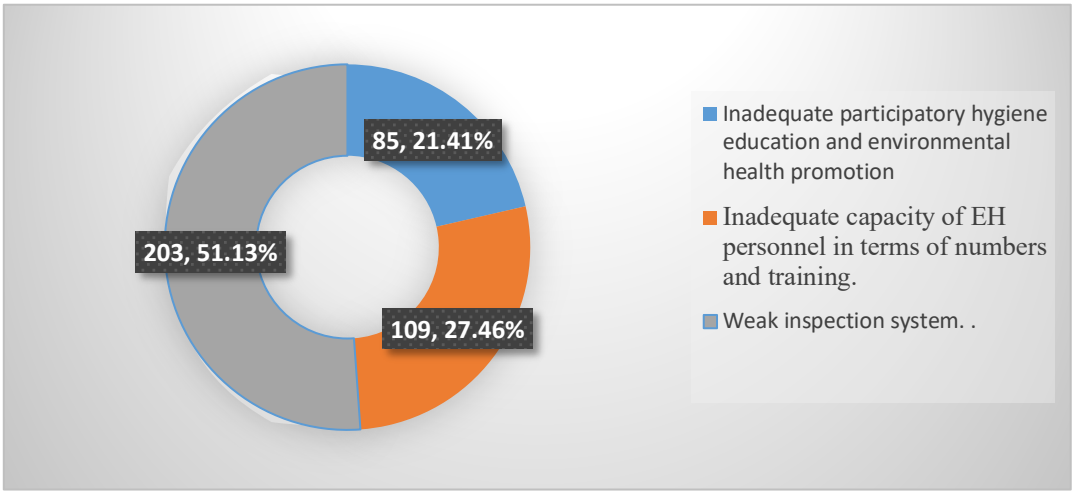
There are strong ties between health and environment. Health professional who are able to be dealing with pollution-linked health issues affecting aspects of Health are needed in terms of skilled health workforce that can engage in researches on pollution, climate changes and all other aspect of environmental changes and how they are interlinked with new heath threatening cases. This calls for specialized bodies for such health threatening drivers Causes of a growing number of people suffering from deferent kind of diseases also raised by effect of global warming. Again, the planning of urban spaces can place a health effects on the ability of residents to lead

healthy lifestyles as they prevent them from fully enjoying outside spaces life. In many communities there are an increasing shortage of space and new housing development and building elected. All these are the factors that influence health skills needs to respond to any kind health issues arising from environment changes.

Rwanda Environmental Health Policy **(2003)** revealed that there is inadequate participatory hygiene education and environmental health promotion ..., inadequate capacities of EH personnel in terms of *numbers* and training, weak inspection system. 85, (21.41%), 109, (27.46%), and 203, (51.13%) respectively, responses from interviewed representatives of medical councils during Skills assessment in private health sector revealed in **Figure 1** levels of inadequacy in hygiene education and environmental health promotion, inadequate capacity**(lack of skills)** of EH personnel in terms of numbers and training, and weak inspection system

Rwanda faces various challenges, many related to the complex relationships between population trends, poverty, and environmental conditions[16] . This is the light shaded upon the environment change as major drivers of change for health sector in general and private health sector in particular.

Figure 1: Integrating Population, Health, and Environment in Rwanda



Source: www.pbr.org

2.4. Economics and Globalization

to health sectors, the reality is that whatever the health issues are in one place of the globe, skills needs are the same to counteract such issues. The drivers for change in the Health sector in

[16] Integrating Population, Health, and Environment in Rwanda

regards to economics and globalization will be on scale up, economic trends are interactive, and the global economy is a key driver of the Health sector. However, the skills gaps in health sector effects would be mediated by the decisions of politicians in terms of how much 'funding' the state could afford in the light of the global economic crises and how much budget allocated and expenditure managed and affected by the economic situations.

2.5. Economic trends and social aspects

The more economy of the country evolves the more different kind of health issues especially the non-communicable diseases increase. Health skilled professional who can be able to handle such NCD cases are needed in order to keep the private health sector stable. The Government's commitments and efforts are needed to contribute to engagement in research on economic development caused diseases. This research could bring the real-terms growth of economy and possible diseases brought about by such cover the spending period.

Market forces impacting on the health sector influence the success of existing organisations in delivering high-quality, affordable healthcare and providing jobs to healthcare professionals. They also influence the types of businesses that are set up, as well as their location. The demographic and economic profile of potential consumers in different geographic locations is an important consideration for organisations looking to expand or start new services.

One way in which the Health sector skills assessment looked at to answer questions that the drivers of change have raised is by the use of health sector profiling in terms of the drivers of change Such profiling will give users of the sector skills assessment report a glimpse of the demographic, economic, current health and future health profiles of sector.

Given these drivers of change in the sector across its composition, it is reasonable to consider that they will affect all areas of the sector growth and development whilst ensuring that sustainable efficiency in delivering good service by capable skills professional are required in order to maintain the sector performance balance and high-quality service sought by foreigners

2.6. Technological innovation.

Advances in medical treatments and technology constantly drive changes in the sector. Developments in pharmaceuticals, bioscience, diagnostics, information, and communication technology influence how healthcare is delivered and therefore the roles required within the healthcare systems are also played guided by technology. Technological driver highlighted here fall into three main categories, Information Technology, telecare & remote monitoring and pharmaceuticals. All other emerging technologies will affect skills requirement in health sector in order to be able to compete and operate sustainably. This requires innovation coupled with

close GD verification of how far and what the rest of the world is doing how far others are reaching to avoid being left behind in the health sector.

2.7. Information Technology

Influence of information technology in health sectoris rapid increases in terms of capacity needs that are leading to important new methods in diagnostics, visualizing the patient, and dealing with health issues (Ynnerman, 2011). There are also a growing range of opportunities offered in the next 10 years that will accelerate growth such as mobile technology and the cross cutting of previously un-connected technology, an example of which is the smart-phone which joins mobile phone and computing technology from which a patient can be consulted while at home and medicine prescribed right at pharmacy ready to deliver. Skills to adapt and handle these technologies are key and considered as gaps to be bridged in next 10 years or even in a shorter period due to the urgency of such technologies.

It should however, be given a great consideration that technological advances are not simply as simple as they sound, Thus, applications are given direction by the complex interactions of all other drivers and changes in the health sector. Therefore, information Communication Technology (ICT) is one of the most influential drivers in developing healthcare practice. ICT initiatives are clear about its possible impact on productivity within the health sector landscape. The hope is that the financial imperatives may encourage more rapid adoption. This will have a significant impact on skills demand to meet the service delivery requirement and competition.

It is therefore evident that there should be a range of ICT technologies developments, which indicate a rekindling of the health sector's approach to the use of information technology. Therefore, a number of ICT businesses seeking to develop software solutions for the Health sector and a willingness of larger number of health sector facilities to buy ICT solutions.

2.8.Pharmaceuticals

Historically the Health sector has had a strong reciprocal relationship with the bioscience/technology and pharmaceutical industries. The Health sector has been able to take advantage of the breakthroughs made in these fields to improve healthcare. These supplier sectors have also been able to make these breakthroughs with the help of those in the Health sector. Such collaborative innovations can occur rapidly and have far-reaching consequences for Health provision and the skills of the workforce. In some cases, this driver will translate into a range of high-level skills around developing medical intervention, diagnosis and management of care. There is also a rich trend of technological innovations reshaping Health provision and skills within the Health sector.

However, the precise impacts for the future are difficult to pinpoint as the use of technology continues to be mediated by culture and practice. However, there are a range of developments that will have a profound effect on healthcare activities and the shape of the workforce and skills.

The key theme for the next decade is anticipated to be the bringing together of information technology and biological science as medical issues can be clarified into data. Another is the merging of technologies that have been traditionally separate. The smart phone is an example of how computer technology and telephony can be brought together. Smart televisions, more reliably hardwired that allow applications could also provide monitoring of Health conditions as well as entertainment.

2.9. Health Tourism

Looking further into the future, there is every reason to see further developments in diagnostic technologies and the emergence of robotics into the sector. The sector must monitor these longer-term trends to ensure it can exploit these for the Health Sector sustainability and competitiveness.

Medical **tourism** provides a unique opportunity to contribute to growth while ensuring that the key goal of EDPRS II of providing a better quality of life for all Rwandans is met through the provision of better healthcare. ... Medical tourism spend is estimated at between $3,000 and $5,000 per visit[17]

Quality medical services that attract foreigners require trust based on high skilled professional in private and public health facilities. This requires preparedness by having in place specialized doctor, nurses, midwifery in different medical fields, new medical technologies and equipment in laboratories and specialized lab technicians.

2.10. Scale of drivers

Some of the drivers for change are considered as significantly impactful in terms of the scale of they will have on the sector whilst others will have a low or no impact at all.

Health sector sees three commonly in the demand around the future of the sector whichare linked with demographic changes, the financial restrictions on the sector and technological innovation. Therefore, the Health sector is a very multifaceted setting in terms of the range of drivers acting upon it.

[17] https://www.google.com/search?client=firefox-b-d&q=health+tourism+in+Rwanda

Table 2: The health sector scale of drivers and their impacts on current and future skills needs.

No	Driver	Curent Skills	Future Skills Needs
1	**Regulation and Governance**	Simple Consultation that needs to be advanced and professionalized Prescription of medication based on occupation without tasting and cross information checking The sector has to develop a range of skills in order to comply with a range of statutory skills needs in the sector	Skills for the Ethical Practice Creating a workable institutional code of conduct and professionalism Skills to uphold standards in terms of consultation with patients Skills for privacy and keeping information secure and records professionally Formalization of procedures Skill to establish follow and reinforce employee handbook. Skills will need to be developed in the context of a high compliance environment. This will mean innovation in roles and job roles is key, as will be managing risk
2	**Economic and Globalisation**	Management of funds Insignificant skills around management and leadership to assist the sectors drive to make efficiency financial planning and increase productivity Performance Changes in the structure of the sector are already requiring greater team-work as a result of multi-disciplinary teams. Limited to local environment	Management and leadership skills will increase. Need for skills in evaluation and impact knowledge of how services can make an impact on health and well-being in the sector Overall increases in need for skills around assessing the impact of intervenes. The economics and suppressed funding is likely to lead to an increase in employers seeking to develop new roles in the Health sector
3	**Technological innovation** - **Information Technology Telecare and remote monitoring Pharmaceuticals and bio-science**	The sector has opportunities job specific skills in relation to health based on knowledge of the new technological trends in health sector Developing skills around IT are raised in the sector as current skills needs the discipline of bio-informatics is emergent Early signs of technology being applied to care at home.	Broad range of job specific and technical skills around the application of new scientific discoveries will emerge Information technology skills will require enhancements as more biological related data is managed through this area. Skills to utilize technology to co-ordinate services in a highly multidisciplined and geographically diverse environment will grow. skills will require management. Knowing the boundaries between

No	Driver	Curent Skills	Future Skills Needs
4	**Consumer demand** **The choice agenda**	Sector reporting current skills needs in a range of 'generic' skills areas including customer services	Breadth of customer service-related skills are likely to increase as well as entrepreneurship amongst smaller providers of healthcare
5	**Environnemental change**	This is currently a relatively under developed area in the sector.	Likely to be increasing in skills needed to treat some areas of health care brought on via changes to the environment.
6	**Health Tourism**	Currently levels of skills that are of internationally desired and attractive are not available or not known nor trusted by international	Once skills are developed in every specialties and occupational categories, local patients and internationals will have confidence in medical services provided by private and public health facilities.

Source: https://dhsprogram.com

However, each of the major occupational groups in the sector is likely to experience significant shifts in the skills they need to develop in order to be and remain competitive regionally and globally. Coordination of services across all occupational groups is very important. This requires a different additional skills requirement for such coordination to be effective. Communication skills at high level are key for such coordination to work.

III. PRIVATE HEALTH SECTOR PROFILE

3.1. Sector overview

Health professional workers are categorized according to the standard professional qualifications governed by the law regulating employment in the public service and the private sector for all workers. The recognized professional categories in Rwanda include: Physicians (specialized and general practitioners), Dentists, Pharmacists, Nurses and midwives (specialized and general nurses), .Allied health professionals (Anesthesia Practitioners, Biomedical Laboratory Technologists, Chiropractors, Clinical Psychologists, Dental Therapy Practitioners, Environmental Health Officers, Medical Imaging Practitioners, Nutritionists/ Dieticians/ Nutritionist Assistants, Occupational Therapists, Ophthalmic Clinical Officers/ Cataract Surgeons, Optometrists/Opticians, Orthopedic Clinical Officers, Physiotherapists/ Physiotherapy Technicians/ Assistants, Prosthetics and Orthotics Technicians, Public Health Officers and Speech Therapists and Physician assistants), Emergency care officers, Biomedical engineers and technicians and others.[18]

Although there is no conclusive evidence concerning the relationship between health skills and the number of human resources (HR) available for health care, it is clear that qualified and motivated human resources are essential for adequate health service provision, but also that the skilled labor force in health sector shortages have now reached critical levels in all areas.[19]

3.2. Private health facilities composition and professional bodies

In Rwanda, the privet health sector is composed of 550 facilities (includes private health posts). There are **124** clinics out of which **13** are specialized clinics, and **15** are polyclinics. The remainder of the private facilities is comprised of **135** dispensaries. These numbers are embedded in twelve different health professional bodies presented in the table below. [20]

Table 3 presents the health professional bodies namely comprising councils, associations and Unions in which all health professional are grouped.

Table 3: Health Professional Bodies in Rwanda, (Councils, Associations, and Unions).

No	Name	Website
1	Rwanda Nursing and Midwifery Council	www.ncnm.rw /
2	Rwanda Allied Health Professionals Council	www.rahpc.org.rw /
3	National Pharmacy Council	www.pharmacycouncil.rw /

[18]National human resources for Health Policy October, 2014

[19] National human resources for Health Policy October, 2014

[20] Ibd

No	Name	Website
4	Rwanda Medical Association	**www.rma.rw** /
5	Rwanda Nurses and Midwives Union	**www.rnmy.rw** /
6	Rwanda Surgical Society	**www.rss.rw** /
7	Rwanda Pediatrics Association	**www.rwandapaeds.rw** /
8	Rwanda Ophthalmologist Society	**www.rmdc.rw** /
9	Rwanda Ophthalmologist Society	**riio@email.com, info@riio.org.**
10	Rwanda Society of Anesthesiologists	
11	The National Health Research Committee	
12	Rwanda Gynecology – Obstetricians Society	
13	Rwanda Physician Society	
14	Rwanda Medical & Dental Council	E-mail:info@rmdc.rw Web :www.rmdc.rw
15	Rwanda Allied Professional Council	info@rahpc.org.rw https://www.rahpc.org.rw

Source: **www.ncnm.rw**

For each of the private health Facility is classified in a specific category, and there are a set or requirements to comply with as illustrated in the **tables3**, established by Ministry of Health (MOH).

Table 4: Types of Facilities and Service package for private health facilities

Type of Facility	Description	Service Parameters
Dispensary	First level curative, preventive and laboratory activities, which is staffed by an A1 nurse. Deliveries are not performed in dispensaries.	Not to exceed 12 hours
Medical Practice	Consultation, diagnostics, prescriptions of treatment and emergency laboratory tests are carried out, run by medical doctors.	Not to exceed 4 hours; transfer if necessary
Medical Clinic	Diagnosis and/or curative consultation, preventive care and hospitalization is carried out, which is operated by a general	Maximum 7 hospital

	practitioner or a specialist in the field.	beds; night duty mandatory
Specialized Clinic	Diagnosis and specialized consultative care is provided and is operated by a specialist in the field. Hospitalization is permitted. Examples of specialized clinics include ophthalmology, pediatrics, gynecology, ENT, stomatology/ dental surgery, dermatology, psychiatry, neuropsychiatry, geriatrics, cardiology, endocrinology, urology and medical imaging.	Hospital beds; night duty mandatory (optional beds and night duties)
Polyclinic	Diagnosis, consultation, curative and preventive care as well as hospitalization in different specialized domains are available. The clinic may be operated by a general practitioner or a specialist in the field.	May have 10-50 beds; night duty is mandatory and services must be available 24/7.
Hospital	A hospital has a clear clinical governance structure and provides the following services but not limited to: general medicine, surgery, gynecology-obstetrics, pediatrics, stomatology, ophthalmology, physiotherapy, dermatology, medical imaging, laboratory, a stock of health products and a dispensing room. A hospital has different departments operated by permanent qualified health professionals. An intensive care unit is mandatory.	Minimum of number beds 50
Specialized Hospital	Diagnosis, consultation, specialized treatment and/or specialized care is provided according to the specialization. Outpatient, inpatient, and investigation services as well as an intensive care unit are mandatory or clear written agreement with a hospital which has intensive care unit. The subspecialty services are operated by specialized professionals. Some health products and a dispensing facility are available; the list of health products is established by the Minister of Health.	Minimum of number of beds 20

Paramedical Facilities

Biomedical	Analysis of biological samples from the human body
Laboratory	Providing consultations, health care or distributing health products. A biomedical laboratory scientist with a Bachelor's degree manages the lab.
Antenatal Clinic	Consultations, antenatal and postnatal care are carried out. At least a midwife with advanced diploma operates the clinic.

Nursing Home	A nursing home is a place for people who do not need to be in a hospital but cannot be cared for at home. Most nursing homes have nursing aides and skilled nurses on hand 24 hours/day. Some nursing homes are set up like a hospital. The staff provides nursing care, as well as physical, speech and occupational therapy.
Physiotherapy	Diagnosis and/or consultation treatment and physical exercises are carried out in the areas of narco-therapy, thermotherapy, cryotherapy, pulley therapy, physical re-education and/or physiotherapy. A holder of at least a Bachelor's degree in physiotherapy manages the clinic.
Dental	Diagnosis and/or consultation and care in the domain of the odontology is provided. A person with at least a Bachelor's degree in dental therapy manages the clinic.
Ophthalmic Technician	Consultation and treatment in the areas of ophthalmology is provided and is managed by at least an ophthalmic technician with a Bachelor's degree.
Optometry	Only a clinical optometrist having academic qualification of at least A0 level is permitted to prescribe and sell medical eyeglasses or contact lenses; they examine, prescribe and dispense.
Ophthalmologist	An ophthalmologist possesses all the equipment necessary to prescribe medical eyeglasses and treat all eye related diseases but does not sell eyeglasses.
Imaging Center	A medical imaging officer with at least a Bachelor's degree carries out medical imaging techniques.

Source: MOH, Private Health Facilities in Rwanda Health Service Packages, January 2017

Gaps in specialists' medical specialties and skill gaps among medical professionals is significant when compared to the MOH's recommended service packages and qualifications and the ideal numbers and qualifications suggested by the Ministry of Health (MOH) package are shown in the **table 5** in which a description of the required qualifications for different levels for private health facilities is specified.

Table 5: Levels of Health Care Workers

Type of Health Care Worker	Qualifications
Sub-specialists: Cardiologist, pulmonologist, anaesthesiologist, ophthalmologist, radiologist, oncologist,	Specialty certification (greater than A0) Master in Paediatrics/Paediatrician and Internal Medicine and Sub specialization Cardiology,

Type of Health Care Worker	Qualifications
paediatrician, psychiatrist, obstetrician, ENT, maxilla- facial surgeon, nephrologist, gastroenterologists, pathologist	Master in Anaesthesiology, Master in Ophthalmology (Specialization in Ophthalmology), Master in Radiology (Specialization in Radiology), Master in Oncology, Master in Psychiatry (Specialization in Psychiatry), Gynaecology & Obstetrician/Master in Gynaecology & Obstetrician, Master in Ear, Nose and Throat Surgeon/ Ear, Nose and Throat Surgeon, Master in Maxilla-facial surgery, Master in Nephrology, Master in Gastroenterology, Master in Pathology.
Specialists: Internal medicine, surgeon, dentist, podiatrist, emergency medicine	Master Degree/Specialization in Internal Medicine, General Surgery, Orthopedic, Neurosurgery, Emergency Medicine, Dentist
Physicians: General and family practitioners	A0
Psychologists	Bachelor's degree
Nurses/Midwives	A0 level: Bachelor's degree
	A1 level: advanced certificate following 3 years of school
Nurse Anesthetist	A1/A0
Mental Health Nurse	A1/A0
Allied Health Professionals	A1/A0
• **Dental**	Dental Assistant (DA) – 1 year training
	Dental Therapist (BDT) – 3 years' training
	Bachelor of Dental Surgery (BDS) – 5 years' training
• **Dietician/Nutritionist**	A0/Master's degree

Type of Health Care Worker	Qualifications
• **Physiotherapist**	A1/A0
• **Occupational Therapist**	A0
• **Optometrist**	A0
• **Optician**	Diploma
• **Ophthalmic Technician**	A1 special course; certifications
• **Lab Scientist**	A0
• **Lab Technician**	A1

Source: Private Health Facilities in Rwanda: Health Service Packages, January2017

The health sector is evolving at a rapid pace, with transformations increasingly being led by actors outside the health sector including technologies.

3.3.4 Skills Stock, composition and distribution of the health professionals.

A total of 21,679 health professionals are registered in Rwanda comprising of which 7% (1,648) are Doctors, 70% (15,050) Nurses and Midwives, 19% (4,083) Allied Health Professionals, and 4% Pharmacists and Pharmacy Technicians. About 30% were employed in the private-for-profit sector and 13% in the faith-based organizations. On the other hand, slightly more than half (50.6%) of medical specialists were employed in the private-for-profit sector whilst Pharmacists of whom77.3percentage worked in the private sector.[21] in Rwanda. (Public & Private combined).**Table 6** indicates the details of the aggregate stock and composition of the health professional.

Table 6: Details of the aggregate stock and composition of the health professionals in Rwanda. (Public & Private combined)

Broad Classification	Staff Category	Total Number Registered in Rwanda	Percent (%)
Doctors	GPs(General Practitioners)	1,114	5.14

[21]Rwanda Health Professional Councils (RMDC, RNMC, NPC, RAHPC), November 2018

	Medical Specialists	534	2.46
Nurses & Midwives	Registered Nurses	7,200	33.21
	Nurses (Enrolled)	5,592	25.79
	Mental Health Nurses	268	1.24
	Midwives	1,990	9.18
Allied Health	Nutrition & Dietetics	224	1.03
	Public Health	381	1.76
	Speech and Language Therapy	3	0.01
	Biomedical Engineering	18	0.08
	Clinical Medicine	119	0.55
	Environmental Health	201	0.93
	Clinical Perfusion	4	0.02
	Ophthalmic Clinical	90	0.42
	Prosthetics & Orthotics	26	0.12
	Clinical Psychology	310	1.43
	Biomedical Laboratory	1,415	6.53
	Dental & Oral Health	236	1.09
	Medical Imaging	152	0.70
	Anaesthesia	291	1.34
	Physical Therapy	225	1.04
	Optometry	13	0.06
	Social Work	364	1.68
	Orthopaedic Clinical	7	0.03
	Chiropractic	1	0.00
	Emergency Care	1	0.00
	Occupational Therapy	2	0.01
Pharmacy	Pharmacist	886	4.09
	Pharmacy Technician	12	0.06
TOTAL		**21,679**	**100**

Source: Rwanda Health Professional Councils (RMDC, RNMC, NPC, RAHPC), November 2018

Table 7 below outlines occupation group, the types and level of skills that are used across the sector. This outline of the skills used by broad occupations in the sector has been derived from a number of sources. The list of health sector occupations is intended to be indicative of the roles that fall within each of the broad occupation groups and is not exhaustive. However, it is clear that there is a strong utilization of higher-level skills across the sector.

Table 7:Summary and the nature of skills in the Health sector: -Occupational group, skills required and minimum qualification levels require

Occupation Group	Sector Occupations	Predominate level of skill required	Generic/Soft skills required	Specific skills required (linked to an occupation where appropriate)	Minimum qualification level typically required
Managers and Senior Officials	Chief Executives Directors Health service managers including: Information Managers HR Managers Finance Managers	Higher skills	Leadership and management Strategic thinking Communication skills Customer care Team working Use of technology Financial and numerical skills Complex problem solving	Chair meetings Technical knowledge including knowledge of specific field e.g. finance but also of the sector. Develop procedures for delivery of services Recruit and select people Allocate and monitor the progress and quality of work Monitor and evaluate the quality, outcomes and cost-effectiveness of Health care services	Level 3 or 4
Professionals	Doctors Dentists Anaesthetists	Higher skills	Leadership and management Communication skills Customer care Team working Use of technology	Medical expertise in a given field Diagnose problems and diseases Plan activities, interventions and treatments Identifying and administer treatments Prescribe drugs Carrying	Level 4+ Post graduate level qualification i.e. medical degree

Table 7:Summary and the nature of skills in the Health sector: -Occupational group, skills required and minimum qualification levels require

Occupation Group	Sector Occupations	Predominate level of skill required	Generic/Soft skills required	Specific skills required (linked to an occupation where appropriate)	Minimum qualification level typically required
			Financial and numerical skills Analysis and interpretation of information Complex problem solving	out surgery Provide advice to patients Contribute to the formulation of policy Direct and manage research activities	
Associate Professionals	Nurses Midwives Health Visitors Physiotherapists Ophthalmologists Scientists e.g. immunologist's microbiologist	Higher and Intermediate Skills	Communication and customer care Use mathematics - deciding what needs to be calculated, using appropriate calculations and presenting and explaining results clearly and accurately Use technology Teamwork including leading or supporting when appropriate and motivating a group for high performance Solve problems - assessing situations and identify the root cause of a problem	Occupational example - Nurse Lead a specific area of clinical expertise (i.e. surgery, dermatology, ophthalmology, and orthopaedics), developing nursing care to the highest standard possible Assess an individual's Health status Prioritise treatment and care for individuals according to their Health status and needs Manage environments and resources Administer medication Provide intermediate life support	Level 4+ Degree level entry with post graduate qualification for some roles
Caring, leisure and other	Health Care		Communication and customer care	Able to provide basic life support	

Table 7:Summary and the nature of skills in the Health sector: -Occupational group, skills required and minimum qualification levels require

Occupation Group	Sector Occupations	Predominate level of skill required	Generic/Soft skills required	Specific skills required (linked to an occupation where appropriate)	Minimum qualification level typically required
services	Support Workers Nursing Auxiliaries Senior Health Care Support Workers Assistant Practitioners	Intermediate skills Basic skills Employability Skills	including listen to, understand and follow lengthy or multi-step instructions and narratives and speak clearly and confidently in a way which suits the situation. Use mathematics including tackling practical number problems using straightforward calculations. Teamwork Solve problems by following a given procedure in response to a problem	Obtain specimens from patients for the purpose of testing and screening Prepare patients and assist practitioners to implement Healthcare activities Skills to move and position patients Escorting patients occasionally with the use of wheelchairs	Level 2/3[22]
Administrative and Clerical	Medical Secretaries Receptionist Ward clerks Administrative Assistants Computing staff Human Resource staff Finance staff	Intermediate skills Basic skills Employability skills	Communication and customer care including listen to, understand and follow lengthy instructions and narratives Use mathematics Use technology Teamwork Solve problems including assess situations, identify problems and implement solutions	Receive and monitor visitors Enter and retrieve data from databases Understand and maintain confidentiality in Health care Make and receive telephone calls Use a diary system Use a filing system Support the organisation of meetings Prepare text from recorded audio	Level 2/3

Source: https://dhsprogram.com,

[22] Levels of Healthcare 1= Primary care, 2 Secondary care, 3, Tertiary Care, 4 Quaternary Care

IV. GENDER AGGREGATES IN HEALTH SECTOR SKILLS DISTRIBUTION

Despite their strong contribution to the overall world economic growth, gender gaps are narrow in in the health sector than in other sectors. Women are well presented as private health care providers. This assessment provides information number of students enrolled in tertiary institution and percentage compare to other sectors.

Table 8: Tertiary institution students enrolled in 2018/19 by field of education by gender in Rwanda

Field of Education	Male	Female	Total	% by field
Health and Welfare	3,477	3,249	6,726	7.80%
Total	**3,477**	**3,249**	**6,726**	**7.80%**

Source: UNESCO, Institute of Statistics, international standard classification of Education (ISCED 2011)

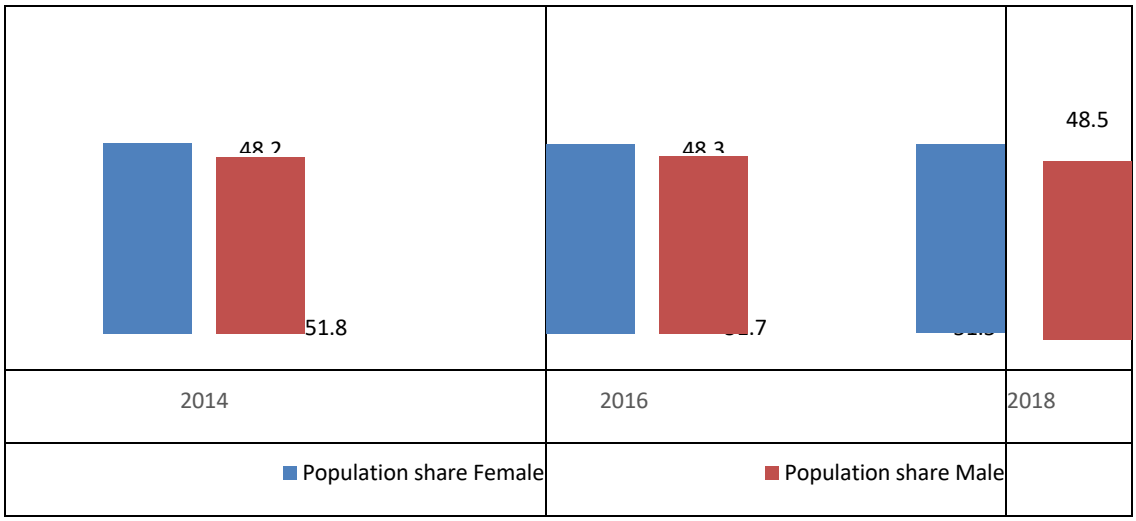
According to Gender equity in the health workforce: Analysis of 104 countries, women are form 70% of workers in the health and social sector globally. African region constitutes 28% female, and 72% male. Nurses and midwives counting 65% female, and 35% Male.[23]The average value for Rwanda during that period was 85.75 percent with a minimum of 83.65 percent in 2019 and a maximum of 91.1 percent in 1990.[24] The latest value from 2019 is 83.65 percent. For comparison, the world average in 2019 based on 182 countries is 62.40 percent.Labour Force Participation Rate in Rwanda increased to 55.60 percent in the first quarter of 2020 from 55 percent in the fourth quarter of 2019.[25]

[23]https://stats.oecd.org/Index.aspx? Dataset Code=RENRL: Gender equity in the health workforce: Analysis of 104 countries, March 2019, WHO.

[24] https://apps.who.int

[25] https;//rwanda.un.org

Figure 2: Percentage of tertiary students from 2014 to 2018.



Source: Rwanda, Gender statistics report 2019

With regard to tertiary education, **figure1** shows that women and girls' enrolment has slightly decreased from 39,146 in 2014 to 38,041 in 2018 while that of men and boys increased from 47,867 in 2014 to 51,119 in 2018. In general, at tertiary level female lag behind their male counterparts in participating to education at higher level.

More than half of civil servants in health centers in Rwanda are women representing 58.6 per cent, according to the latest findings published in an official report on Gender Statistics highlighting the gender equality and development issue. Nevertheless, official statistics show that 87.6 per cent of specialist doctors in the Rwanda's public sector are men while women account only 12.4 per cent in the same category.

In general, Rwandan female nurses outnumber men with the proportion estimated at 58.6 per cent within all health centers across the country. Key positions, such as heads of learning institutions, hospital directors. …show big gender gaps with very few women.[26] The question remains on levels of skills distribution and ration of men to women in health sector.

According to "UBUZIMA" medical journal issue 3. A publication of the health sector by Rwanda Biomedical Center, 100 Americans from the best universities every year, were brought "to teach, to mentor, bedside and also transfer clinical skills to Rwandan professionals at the level of post-graduate. Through this, 500 specialists and sub specialists were trained. Through this program, every district hospital has been staffed with one gynecologist one pediatrician, one internist, one anesthetist and one surgeon." And again, that number of medical professionals and specialists is not enough. **Table 9 and Table 10** shows "Health Sector human resources distribution by level of care".

[26] Rwanda Gender statistics 2019

Table 9: Health Sector human resources distribution by level of care

Level of care		GPs	Specialists	A1 & A0	Nurse A2	Mid Wives	Lab techs	Physio	Anaesthetists	Pharmacists	Dentists
Private Facilities	Hospitals	19	50	49	78	15	28	5	13	4	5
	Clinics	195	168	239	147	48	251	47	16	2	78
	Dispensary	3	3	185	173	5	117	3	0	1	0
Total		**217**	**221**	**473**	**398**	**68**	**396**	**55**	**29**	**7**	**83**

Source: Author, RwandaMFL, 2018 -[27]

Table 10: Human resource distribution in private health facilities

Owner	# and Percent	GP	Specialists	Nurses A1	Nurses A2	Midwives	Lab Tech.	Physiotherapists	Anaesth.	Pharmacist	Dentists
Private	#	232	232	232	232	232	232	232	232	232	232
	%	30	30	30	30	30	30	30	30	30	30
Total		**262**	**262**	**262**	**262**	**262**	**262**	**262**	**262**	**262**	**262**

Source: Author, RwandaMFL, 2

V. HEALTH SECTOR SKILLS STATUS

The sector specific skills assessment in Private health sector facilities reviews the status of existing health professional skills, and identifies gaps, policy-relevant evidence on skills requirements in healthcare settings. Furthermore, the assessment explores gaps and allows comparability of taking into account the diversity of health care required skills provided in private health facilities service and skills package, and comparability across different categories of health professionals. Despite the segmented nature of the skills assessment landscape, there is a remarkable convergence of the types of skills that are important across different categories of health professionals

These crosscutting skills include some of interpersonal skills, such as communication, teamwork, self-awareness and openness to continuous learning, and analytical skills such as adaptive

[27] *Extracted information relevant to Private health facilities only.*

problem-solving skills to devise customized care for individual persons and the ability to use ICT effectively

5.1. *Skills required.*

A Five-Year Program for skills development to deliver EDPRS II **(2013-2018)** has been developed to address the critical and scarce skills gap in the high priority sectors including health. To get to the point of drawing projection of skills required in the next 10 years (2020-2030), there are a trajectory of changes that happened along the way to 2019. **Table 11** indicates theHealth Sector Skills area and numbers of priority skills required by different professional categories and groups up to 2018. However, there was a twist in terminologies as occupations were somehow ruffled with areas of professions.

Table 11:Health Sector Skills area and numbers of priority skills required

Area	Level	Number
Cardiothoracic surgery	MMED in Surgery with a sub specialty in cardiac surgery	4
Intensive care medicine	MMED (Specialist in intensive care Medicine)	7
Vascular surgery	MMED in Surgery with a sub specialty in Vascular surgery	3
Neurosurgery	MMED in Surgery with a sub specialty in Neurosurgery	8
Pediatric surgery	MMED in Surgery with a sub specialty in pediatric surgery	10
Urology	MMED in Surgery with a sub specialty in Urology	8
Orthopaedic surgery	MMED in Surgery with a sub specialty in orthopedic surgery	23
Anesthesiology	MMED in Anesthesiology	72
Cardiology	MMED in Internal Medicine with a sub specialty in Cardiology	46
Clinical biochemistry	MMED in Clinical biochemistry	2
Clinical microbiology	MMED in Microbiology	3
Cytology	MMED in Cytology	3
Dermatology	MMED in Dermatology	8

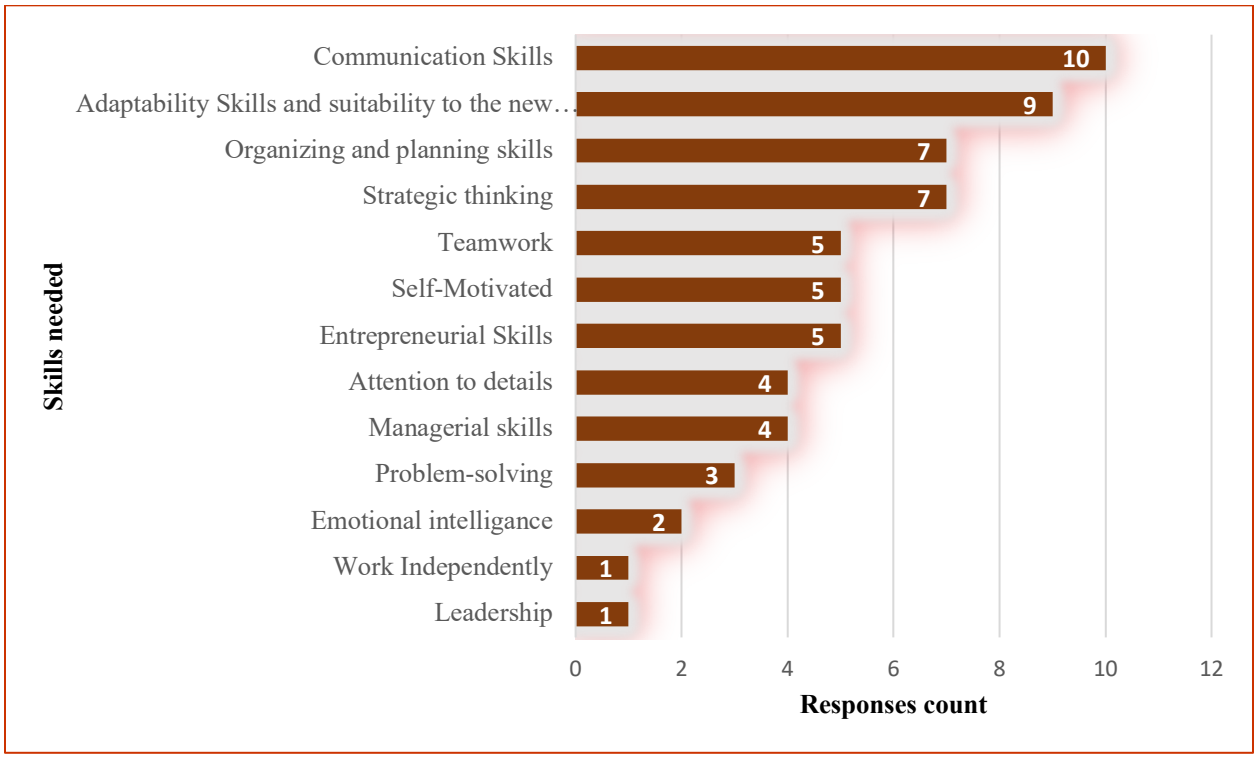
Area	Level	Number
Disaster medicine	MMED with a specialty in Disaster medicine	5
Endocrinology	MMED in Endocrinology	10
Gastroenterology	MMED in Internal Medicine with a sub specialist in Gastroenterology	10
Medical genetics	MMED in Medical genetics	2
Hematology	MMED in Hematology	2
Hepatology	MMED in Internal Medicine with a sub-specialty in Hepatology	4
Human anatomy	MMED in Anatomy	2
Infectious diseases	MMED in Internal Medicine with a sub specialist in Infectioulogy	**7**
Histopathology	MMED in histopathology	5
Medical Oncology	MMED in Oncology	6
Molecular biology	MMED in Molecular biology	3
Nephrology	MMED in Internal Medicine with a sub specialty in Nephrology	9
Neurology	MMED in Internal medicine with a specialty in neurology	4
Nuclear Medicine	MMED in Nuclear medicine	3
Nuclear physics	MMED in Nuclear Physics	3
Ophthalmology	MMED in Ophthalmology	12
Oral and maxillofacial surgery	MMED in Oral and Maxillofacial surgery	10
Otolaryngology	MMED in ENT	17
Parasitology	MMED in Parasitology	4
Neonatology	MMED in Pediatrics with a specialty in Neonatology Plastic surgery	10

Area	Level	Number
Pulmonology	MMED in Internal Medicine with a specialty in Pulmonology	9
Radiology	MMED in Radiology	10
Rheumatology	MMED in Internal medicine with a sub specialty Rheumatology	3
Toxicology	MMED in Toxicology	3
Virology	MMED in Virology	3
Biomedical Engineering	Masters in Biomedical Engineering	9
Psychiatry	MMED in Psychiatrics	5
Biomedical Engineering	A1 biomedical technicians	120
Nurses and Allied Science	A1 Nurse	3562

Source:five-year program for priority skills development to deliver EDPRS II (2013 - 2018)

The data from health skills assessment conducted were aggregated and analyzed by cadres at private health facility categories and levels or required qualification and compared with the findings looking at skills Standards Guidelines provided by MOH. The specialized staff distribution and availability was further analyzed according to their functions in either direct service delivery or administration. Soft (generic skills have been identified to be in the set of requirements for health sector performance. The representatives of private health facilities indicated that soft skills are among the major hindrances of performance as shown in **Figure 3.**

Figure 3: Soft skills required for health sector according to respondent in the questionnaire



Source: Customised from data collection

5.2. *Skills gaps*

The capacity of health systems to deliver health services and meet the changing demands of care strongly depends on the availability of a workforce with the right skills and flexibility. Health systems that support high levels of initial education and training, as well as consistent investment in continuous professional development, are better equipped to develop innovative and integrated solutions to respond to the major challenges that the health sector is facing.

5.3. *Gaps in specialists: Technical skills*

5.3.1. . *Medical officer specialists*

The extrapolating opinion is that the skill gaps among medical officer specialists is significant when compared to the MOH guidelines embedded in Private health facility services and qualification requirement package, and the reported ideal skilled medical professionals suggested by the managers of: - Hospital, Clinics, Dispensaries, Pharmacies and Laboratories of Health of private health facilities. Findings of sampled specialty areas are detailed as follows:

Neurosurgeons had a gap of 100 and 94% against the guidelines and as suggested by the private health facilities representatives respectively; The shortage of urologist accounted for 70 and 97% against the type of private health facilities Standards Guidelines stipulated in services and qualification package set out by MOH and the ideal skills needed articulated by the private health facilities representatives respectively, while neurologists had a shortage of 99% against the Standards Guidelines and 96% against the ideal numbers of needed skilled specialists gap within the hospitals and clinics. Pediatric surgeons had a shortage of 98 % against the Standards Guidelines and 94% against the ideal number of skilled specialists respectively.[28]

[28]The Rwanda health sector performance report 2017-2019

VI. HEALTH SECTOR SKILLS SUPPLY

For the economy to grow at 8% to 9%, it is required that the secondary and tertiary sectors grow at 10% to 11%.[29] Medical Tourism strategy 2014 revealed that there were 3 oncologists, 3 nephrologists and 2 cardiologists in the whole country.

A critical skill is one that, if not present, results in a task not being completed satisfactorily, if at all and the lack of a critical skill causes problems, but the possession of it allows work to continue[30]

This is true for the private health sector, considering that there is a major shortage of medical professionals. According to theSkills Area and Numbers of Priority Skills Required across RwandaFive Year Program for Priority Skills Development to Deliver EDPRS II (2013-2018) as also provided by the Vision 2020, 10 medical doctors, 20 nurses, and 5 lab assistants are required for every 10,000 inhabitants[31].As it stands, targets 2020 (mid-term): Doctor/pop. ratio (General Practitioners (GP) and Specialists as well) Nurse/pop ratio is 1/ 9,000 and 1/ 900, Midwife/pop ratio 1/ 3,500, Pharmacist /pop ratio1/16,000, Lab Technicians /pop ratio 1/ 9,000, Doctor attrition rate>10%.[32]

Considering the ratio of medical professional categories by a number of populations the table 13 indicated the number of students in private sector alone. Adding on the number of students in public institution which is 1,386 (Rwanda statistic 2019) does not correlate with estimated ratio of medical professional per the number of the population. The combined number of students in private and public tertiary institutions was 4080 by 2019. Comparing this number with the ration of health sector professional by the national population, these numbers are not coherent and it's an indication that the number of available skills is still insufficient in health sector.

Table 12: Students in private tertiary institutions from 2017 to 2019 -Health and Welfare

Field of Education/Year by gender	2016/17	2017/18	2018/19
Male	1,082	1,369	1,062
Female	1,942	2,014	1,832
Total	**3,024**	**3,383**	**2,894**

Source: Rwanda statistics 2019

[29] **HeathWorld.com: Skill gap in healthcare**

[30] Ibd

[31] Ministry of Public Service and Labour: Skills area and numbers of priority skills required across Rwanda Five Year Program for priority skills development to deliver EDPRS ii (2013 - 2018)

[32] Ibd

6.1. *Numbers of Graduates across 22 Training Programs (2013-2019).*

The report on "Health ProfessionalTraining and Capacity Strengthening Through International Academic Partnerships report "The First Five Years of the Human Resources for Health Program in Rwanda"[33] indicated existing numbers of graduates in health sector for physicians, nurses and midwifery, and training programs up to "Master of Global Health Delivery as well as oral health|."[34] To highlight availability of skills in health sector, the number of graduate in 22 training programs 2013-2019 is indicated in the **table 12**

Table 13: Cumulative Numbers of Graduates in Rwanda (2013-2019).

Training Program	**Program Duration**	**Cumulative Graduates 2013-2019**
Physicians		
Master of Medicine in General Surgery	4	31
Master of Medicine in Internal Medicine		
Master of Medicine in Obstetrics and Gynecology	4	85
Master of Medicine in Pediatrics	4	56
Master of Medicine in Anesthesiology	4	57
Master of Medicine in Otorhinolaryngology	4	24
Master of Medicine in Emergency Medicine	4	12
Master of Medicine in Neurosurgery	4	12
Master of Medicine in Orthopedic Surgery	6	4
Master of Medicine in Pathology	6	5
Master of Medicine in Psychiatry	4	9
Master of Medicine in Urology	4	7

[33] The First Five Years of the Human Resources for Health Program in Rwanda
[34] Health Professional Training and Capacity Strengthening Through International Academic Partnerships

Master of Medicine in Radiology	6	3
Master of Medicine in General Surgery	4	0
Nursing and Midwifery		
Advanced Diploma in Nursing (A1)	3	2199
Advanced Diploma in Midwifery (A1)	3	1092
Bachelor of Science in Nursing (A0)	4	293
Bachelor of Science in Midwifery (A0)	2	108
Master of Science in Nursing[a] Critical care and trauma nursing	2	
Nursing education leadership and management	2	35
Medical surgical	2	26
Neonatology	2	33
Nephrology	2	25
Oncology	2	13
Pediatrics	2	15
Perioperative	2	37
Oral Health		
Bachelor of Science in Dental Therapy	4	231
Bachelor of Science in Dental Surgery	5	31
Master of Hospital and Healthcare Administration **Master of Global Health Delivery**		

Master of Hospital and Healthcare Administration	2	66
Master of Global Health Delivery	2	63
Total		4541

Source: International Journal of Health Policy and Management.

Table 14: Training Targets for the Human Resources for Health Program in Rwanda, 2011–2018.

Objective	**Baseline, 2011**	**Target, 2018**
Increase the total number of physicians	625	1,182
Increase the number of specialists in priority clinical areas	150	551
increase the total number of nurses and midwives	8513	11,384
Increase the number of nurses and midwives with A0 credentials	104	1,011
Increase the number of nurses with qualifications upgraded from A2 to A1 level credentials	797	5,095
Introduce the role of health manager at the district hospital level and increase the number of health managers	7	157
Increase the number of oral health professionals, including dental assistants, therapists, and surgeons	122	424

Source:***PubMed*** Research Gate:The Human Resources for Health Program in Rwanda - A New Partnership

6.2. *Comparison analysis between EDPRS II (2013-2018) projection and Cumulative Numbers of Graduates in Rwanda (2013-2019)*

Health Sector Skills area and numbers of priority skills required as by the Five-Year Program for skills development to deliver EDPRS II **(2013-2018) i**n all projected occupational categories was **4049- (Seetable11),** thus, the Cumulative Numbers of Graduates across **22** Training Programs in Rwanda (2013-2019) was **4541- (See table 13)** Graduates in different health professional fields. The difference is an increase of **492.** By this comparison in numbers from the respective tables, **492** is presumed the number of health professionals who received skills training in occupational categories as listed in **table 13**.

6.3. *Health sector performance 2019-2020*

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6.3.1. *Health system strengthening*

Health systems strengthening investments, have contributed to remarkable progress in population health. As of 2015, the maternal mortality ratio (MMR) was 210 maternal deaths for every 100,000 live births down about 72% from an MMR of 750 in 20051. The 2015 Demographic and Heath Survey shows that by 2015, 91% of births were assisted by a skilled health provider, up from 39% in 2005. In the last decade access to specialty services has increased while primary and secondary care has been strengthened to bring services closer to the population.[35]

6.3.2. *Governance and policy development*

National strategy for health professions development 2020 – 2030 suggested that improvement in quality and institutional Strengthening for Health Professions Governance and Regulation should be attained to ensure continuous improvement of the quality of health workforce and health professional training, thus, the HRH Secretariat must collaborate with regulatory bodies in charge of education as well as health professional regulation to reinforce implementation of appropriate quality standards and culture of professionalism and ethics; increase professional knowledge and competencies by streamlining continuous professional development; and work with health professional regulatory institutions in charge of regulating education to improve the standards and quality of teaching[36]

Several policies and other strategic documents for Rwanda's Health Sector have been developed in the FY 2019-2020. All developed documents can be accessed on **https://moh.gov.rw/index.php?id=390**. Some of developed documents include:

6.3.3. *Guidelines and Standards*

- Rwanda Health Post Accreditation Standards
- Rwandan Health Post Accreditation Standards Performance Assessment Toolkit
- Integrated National Health Sector Referral Guidelines (INHSRG)
- Facility transfer forms 2020

[35] National strategy for health professions development 2020 – 2030

[36] ibd

- Community transfer form 2020
- Guidelines to operate a private Emergency Medical Services (EMS) or private ambulance services.
- District Health System Guidelines

6.3.4. *Strategic Plans*

- Mental Health Strategic plan 2020-2024
- Rwanda National Strategy for Health Professions Development 2020-2030.
- Coronavirus Disease 2019, National Preparedness and Response Plan

6.3.5. *Human Resources for Health*

To achieve Universal Health Coverage, the Government of Rwanda continues to invest in the capacity development of all health systems, with a special focus on the quality and increase of the quantity of Human Resource for Health. The health sector is continuously increasing the number of qualified health Professionals. As of end of end of June 2020, there were 1,518 physicians working in both private and public health facilities (including 493 specialists and 1,025 general practitioners), 10,447 nurses and 1,562 midwives.The health sector is continuously increasing the number of qualified health Professionals. As of end of June 2020, their number has dramatically increased during the last 10 years as follows:

- Doctors per population ratio has improved from one doctor/16,001peoplein 2010 to 1/8,247 in 2020.
- Nurses per population ratio has improved from one nurse /1,291 peoplein2010 to 1/1,198 in2020.
- Midwives per population, ratio has improved from1midwife /66,749 Women in Reproductive age people in 2010 to 1/2,340 in 2019.[37]

However, the performance is by numbers to achieve Universal Health Coverage, but skilled workforce is still in shortages. The solution for bridging health professional gaps is found in table 15 bellow.

Table 15: Targets Program, National Health Workforce, Target 2030 Forecasted, Workforce 2030 with Proposed NSHPD Interventions% National Health Workforce and Target 2030 NSPHD Aims to Achieve.

Targets* Program	**National Health Workforce Target 2030**	**Forecasted Workforce 2030 with Proposed NSHPD Interventions**	**% National Health Workforce Target 2030 NSPHD Aims to Achieve**
Women and Children's Health			
Midwifery (A1)	2621	1176	45%

[37]HealthSectorPerformanceonoperationalplansfortheFiscalYear(FY)2019-2020

Midwifery A0)	1030	368	36%
Master of Midwifery	39	47	121%
Master of Nursing: Pediatrics	173	139	80%
Master of Nursing: Neonatal	158	160	101%
Physician: Obstetrics & Gynecology	270	131	49%
Physician: Pediatrics	239	148	62%
Medicine and Non-Communicable Diseases*			
Master of Nursing: Nephrology	38	38	100%
Physician: Internal Medicine	186	170	95%
Master of Nursing: Oncology	84	84	100%
Emergency Medicine			
Master of Nursing: Critical Care/Trauma	336	206	61%
Physician: Emergency Medicine	74	65	88%
Surgery/Anesthesia*			
Non-Physician Anesthetist (A0)	556	557	101%
Master of Nursing: Medical Surgical	302	214	71%
Master of Nursing: Perioperative	254	172	68%
Physician: Anesthesiology	162	135	83%
Physician: Otorhinolaryngology (ENT)	124	59	48%
Physician: Surgery-General	140	103	73%
Physician: Surgery-Neuro	30	10	33%
Physician: Surgery-Orthopedic	60	60	100%
Physician: Surgery-Urology	38	20	53%
Mental Health*			
Physician: Psychiatry	44	39	89%
Diagnostics and Support Services*			
Biomedical Laboratory Scientist (A0)	826	670	81%
Physician: Pathology	54	52	96%
Physician: Radiology	54	37	69%
Oral Health			

Dental Therapy (A0)	1244	261	21%
Dental Surgery (A0)	124	143	115%
Sensory Services			
Audiology (A0)	121	64	53%
Speech Therapy (A0)	121	64	53%
Physician: Ophthalmology	44	37	84%
Leadership and Management			
Nurse: Education, Leadership, and Management	79	78	99%
Master of Hospital and Healthcare Administration	172	193	112%
Undergraduate Medical Education			
Undergraduate Medical Education	1018	976	96%

Source: National strategy for health professions development 2020 – 2030

6.4. *Impact of education and training on health workforce*

Skills are acquired through leaning from educational and capacity building institutions, in work environments, and from internet libraries and archives.

The future of work in private health sector will generally require mechanisms that ensure lifelong learning, flexible education, and training systems that can anticipate the skills demanded by the labour market. Technology has become the pipeline for learning and health private health sector are utilizing the smallest portion of it. Thus, the transformations in work driven by new technologies mean that education and training will have to better prepare health workers for their new tasks and roles. Investment in continuous skills development will be critical to ensure that technologies like Artificial Intelligence (AI) and other current technologies are properly integrated into the private health sector facilities and managed by highly skilled ICT medical professionals, and this will ease the workload of health workers and make the services provided at private health sector facilities a more attractive and competitive image and trust regionally and internationally.

According to Wikipedia, "Artificial intelligence in healthcare is the use of complex algorithms and software, or in other words, artificial intelligence (AI), to emulate human cognition in the analysis, interpretation, and comprehension of complicated medical and healthcare data"

Education and training in the health professions will most likely be influenced by the larger factors shaping the future of work, characterized by basic cognitive skills. Due to these factors and the growing importance of technologies such as AI, it is expected that the relative weight of

certain skills will grow in value. This includes interpersonal and soft skills like communication, social and emotional skills, higher cognitive and technological skills, as well as teamwork and team-building abilities.[38]

6.5. *Collaborations between private health facilities and academic institutions*

Reasonable access to quality education and life-long learning is the foundation for health literacy founded on inclusiveness and is an integral part of the skills, and competencies developmenteven after academic period thus, a lifetime, and this can only be achieved through the school curriculum collaboratively developed.[39]

A synergy between different bodies is necessary for being ascertained that there is a common agreed upon skills gaps in a given professional category and a set of solutions must be validated in terms of the skills development mechanism and approaches to tackle the skills shortages and specific needs at different levels e.g.: basics, intermediate, advanced, and the types of certifications that are attributed to them such as:

- For health fields, there must be a close cooperation between health facilities and institutions of medical teaching for work-based learning and smoother school-to-work transition; adjustments and flexibility for relevant and good quality skills development; and the involvement of all relevant bodies.
- Ascertaining skills needs at territorial level may be a way of kick-starting dialogue and alliances between actors in education, business and economic development. Areas of cooperation can include work-based learning for smoother school-to-work transition; adjustments and flexibility for relevant and good quality skills development; and the involvement of enterprise staff in teaching and assessment in schools, among other issues.

- Competitiveness based on Good quality lifelong learning package contributes to confidence in services offered engagement. Therefore, skills development provisions that are embedded in national development strategies, plans, policies, and other international frameworks that the Government of Rwanda adheres to must be observed in order to avoid regional brain drain.

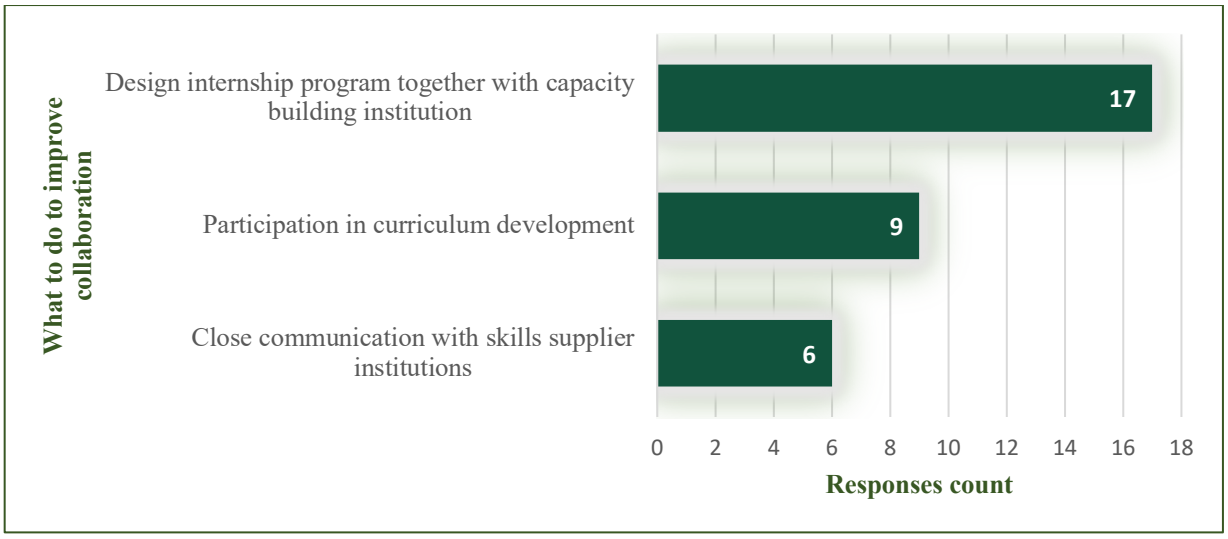
Multilevel framework and approach to develop and manage the many actor and inter-institutional cooperation is very essential for good quality vocational education and training. Institutions of higher learning that supply skills should be respondents to the required labor market, and adherent to occupational classification and standards. Agreement on what role and responsibilities to assign to which stakeholder at which level is key to a good quality skilled workforce.Figure 3 highlights the views of the health sector actors in regards to the way in which

[38]The future of work in the health sector, International Labor Organization (ILO) 2019

[39]Report on the 9th global conference for health promotion: all for health, health for all, 21–24 November 2016

collaboration between private health sector facilities can be achieve in developing curriculum for health. Designing internship program together with capacity building institutions in collaboration is highly recommended, and communication between health sector actors and skills suppler institutions is key to kills development at academic level

Figure 4: Ways of Collaboration between health sector actors and skills supply institutions



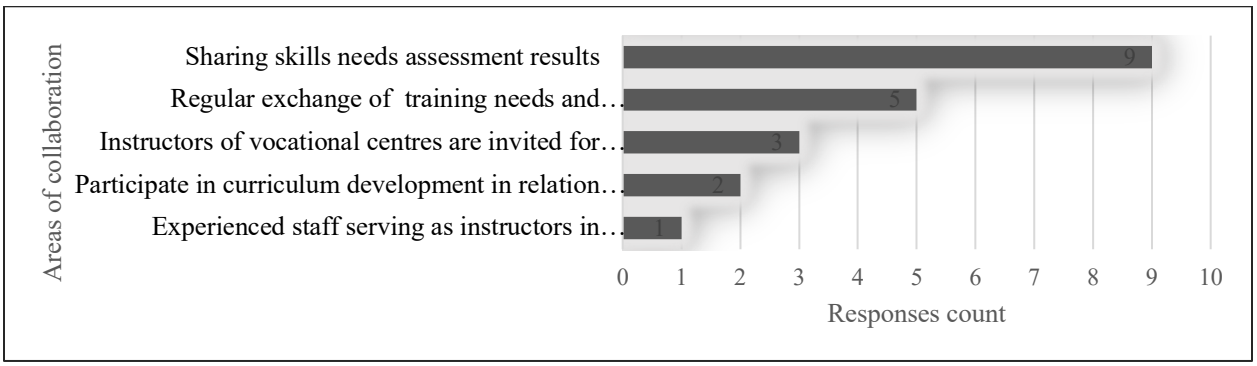
Source: Customised from data collected

6.6.Stakeholder involvement approach in curriculum design

Collaboration with different but relevant stakeholders in curriculum development is essential and must be based on a closer partnership with government, educators, health sector, in order to realize the assurance of health workforce upskilling. It's important to ensure that people coming out of full-time education have work-ready skills, but also that they have some well-planned ahead opportunities to refresh their capabilities.

As it is indicated in **figure 5**, sharing skills needs results followed by regular exchange of training needs and occupations required with training institutions were indicated by skills assessment respondent in health sector to be the greatest needs in collaboration developing curriculum for health sector, medical field. The respondents highlighted the areas that are eminent for collaboration in curriculum development for health sector.

Figure 5: Area of collaboration between Health sector skills provider institutions



Source: Customised from data collected

Rwandan private Health Sector, despite the government's interest in private health facilities development, the latter is relatively still lacking specialized services that are the most sought affdjdjd in the real sense of quality of private health facilities. Rather, they are inadequately operating in a fragmented manner by type of service they provide according to MOH classification, qualification and service package. ***They are comprised of private hospitals, polyclinics, clinics, dispensaries, faith-based hospitals pharmacies, pharmaceutical wholesalers, private health insurance companies, private health professionals' associations, private medical training institutions, and NGOs***.

The foundation for a strong and effective health workforce, able to respond to the 21st century priorities, requires matching effectively the supply and skills of health workers to population needs, now and in the future.[40]

The skill gaps among medical officer specialists is significant when compared to the national guideline and the reported ideal numbers suggested by the health service packages established by the ministry of Health (MOH).

Skills gaps the skills needed and those that are possessed by health facilities workers are of the same levels because those who are available are not at best level of skills that are competitive and those that are needed are not available in number and kills levels – These differences causes major constraint on health institutions development at four levels:

[40] **Global strategy on human resources for health: Workforce 2030: World Health Organization**

- For the individual, skills gaps limiting employability is based on who are available in the market but have no skills that substantial to the job professionally. They are just individuals seeking opportunity to improve their living conditions.
- At the medical institutions level, skills gaps limit productivity, which can lead to higher costs and lower quality, and reduce the heath sector and health institutions growth prospects.
- At the country level, skills gaps limit the nation's competitiveness and reduce economic and social development potential, which causes slowing down of attainment of health tourism aspirations.

By observations from skills assessment conducted in private health sector, some gaps are caused by employees that are not in the positions whereby they can fully play their roles. However, between 2013-2018, according to the "Five-year program for priority skills development to deliver EDPRS II (2013 - 2018)" a list of gaps by profession was identified and elicited as there were a "critical need to train"**373** Doctors at Specialist level through facilitating them to pursue Master's degree in/ or with a specialty in the following areas: Cardiac surgery, intensive care, Vascular surgery, neurosurgery, Pediatric surgery, Urology, Orthopedics surgery, Anesthesiology, Cardiology, Cytology, Dermatology, Disaster medicine, Endocrinology, Gastroenterology, Medical genetics, Hematology, Anatomy, internal medicine with a sub specialty in Infectiology, Histopathology, Oncology, Internal Medicine, Molecular Biology, Nephrology, Neurology, Nuclear Medicine, Nuclear Physics, Ophthalmology, Oral and Maxillofacial Surgery, ENT, Parasitology, Pediatrics, Pediatrics with specialty in Neonatology, Nuclear medicine, Plastic Surgery, Pulmonology, Radiology, Rheumatology, Toxicology, Virology, Psychiatrics and Dentistry.

Skill Gaps by occupational category in private health sector

Occupation	**Skills required**	**Skills Gaps**
Cardiac surgery	Dexterity	Sound judgment Ability to work complex equipment
Medical genetics	Excellent and technology skills	Knowledge of genetic software
Molecular Biologist	Plasmid preparation	Genomic DNA extraction manual and automated DNA sequencing

		microarray (Scanarray)
Plastic Surgery	Plastic Surgery virtual format	Virtual surgery technology

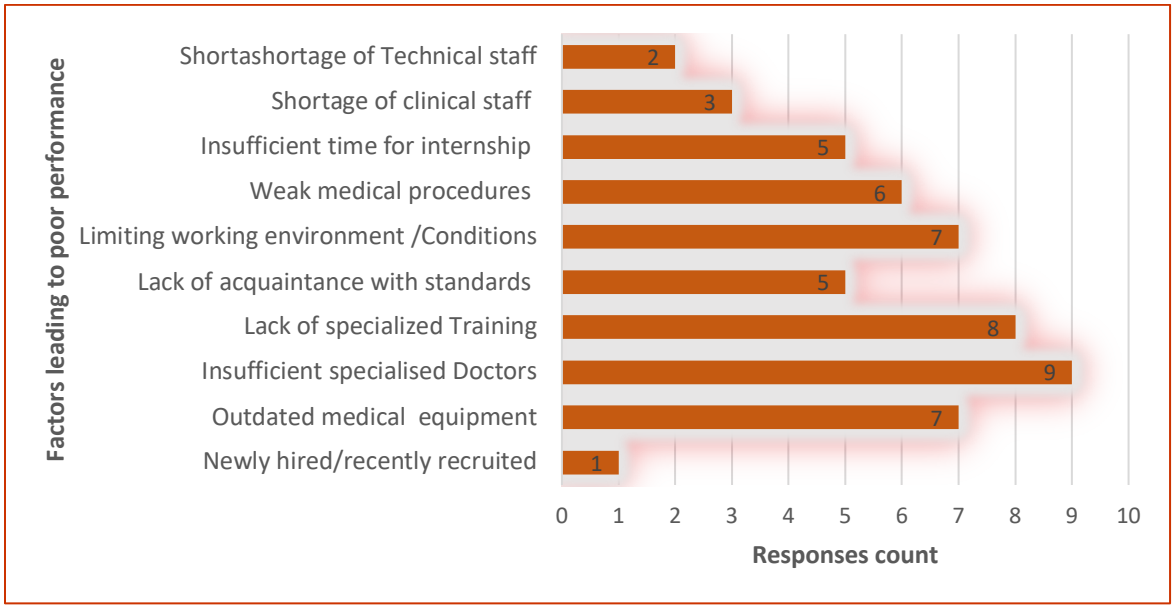
Table 16: Medical professional position gaps for private health sector facilities as per facility categories

Specialized and Sub-specialized Skills Area: (Private: Hospitals, Clinics, and Dispensaries)		
Sub-specialists/Specialists	**Specialists:**	**Allied Health Professionals**
Pulmonologist	Surgeon	Dental
Anesthesiologist	Dentist	Dietician/Nutritionist
Ophthalmologist	Podiatrist	Physiotherapist
Radiologist	Emergency medicine	Occupational Therapist
Oncologist	Physicians	Optometrist
Pediatrician	Psychologists	Optician
Psychiatrist	Nurses/Midwives	Ophthalmic Technician
Obstetrician	Nurse Anesthetist	Lab Scientist
ENT (**ears, nose and throat)**		Lab Technician
Maxillofacial surgeons	Injuries that affect the head, neck, mouth, jaw, and face.	Pathologists, anesthesiologists, nurse practitioners and physician assistants
Nephrologist	Specialize in conditions that affect the kidney.	Dietetics, pharmacy, podiatry, psychology and social work
Gastroenterologists	The esophagus, stomach, small intestine, colon and rectum, pancreas, gallbladder, bile ducts and liver.	diagnostic medical, dietitians, medical technologists, occupational therapists, , radiographers, pathologists..
Pathologist	Examines bodies and body tissues.	Lab tests.

Source*:* Fourth Health Sector Strategic Plan July 2018 – June 2024

Results from the skills assessment conducted in private health sector as indicated in the **figure 6,** respondents highlighted skills gaps and related factors leading to poor performance of employees. As indicated, insufficient number of specialized doctors is the major factor leading to poor private health sector performance followed by lack of specialized training.

Figure 6:Skills gaps and related factors leading to poor performance of health private health sector employees



There are concerns about adequacy of private health facilities despite service and qualification package set out by the Ministry of Health. However, they present to have knowledge but with limited skill due to working conditions, lack of professional training, remunerations, knowledge might have resulted from curriculum while at academic institutions.

6.7.Imbalances of skills distribution in private health professional labour markets.

To a large degree, recruitment performance outcomes reflect the context of the broader labour market. Private health facility employers, on the demand side of the market, delineate the types and conditions of employment, while the private health facility workers, on the supply side, contribute their limited skills and their individual preferences about how and where to work. Market equilibrium is not being reached because the labour demand is not equals supply of health sector workers. Market equilibrium can coexist, however, with urban mostly hosting most of private health facilities whereby health workers; prefer to work leading to over-supply of healthworkers and rural scarcity of health workers as well as underserved areas.

The workforce needs skills to ensure that the safety and quality of patient care is continuously improved. These abilities and skills are reflected in five basic competencies that apply to all private health facilities workforce: **1**. patient-centred care **2**. Partnering **3**. Quality improvement

4. Information and communication technology **5**. Public health perspective for the purpose of skills balancing and facilities capacity requirements.[41]

Skills development strategies are high on the priority list of countries in all stages of development, for at least [two of the]five reasons that are most crucial are:

- **Skills matching:** to better forecast and match the provision of skills, both in terms of relevance and quality, with labour market needs;
- **Skills upgrading:** to adjust skills development programmes and institutions to technological developments and changes in labour markets so that workers and enterprises can move from shrinking, low-productivity economic sectors and professions to expanding, high-productivity sectors and occupations. Such adaptation requires permanent and regular re-skilling, skills upgrading and lifelong learning for workers to maintain their employability and enterprises to remain competitive[42]

6.8.Barriers to skills development in private health sector

6.9. *Limited Access to training and skills utilization*

Access for all too good quality education, vocational training and workplace learning is a fundamental principle of social cohesion and economic growth. Some groups of people may require targeted attention if they are to benefit from education, training and employment opportunities.

6.10. *Private medical training institutions.*

The global needs-based shortage of health-care workers is projected to be still more than 14 million in 2030 (a decline of only 17%). Hence, current trends of health worker production and employment will not have sufficient impact on reducing the needs-based shortage of health-care workers by 2030, particularly in some countries: in the African Region the needs-based shortage is actually forecast to worsen between 2013 and 2030….[43]

It is crucial that training institutions set a long term skills development plan budget for health professionals to undertake "lifelong learning" and develop relevant workplace competencies that can adapt to diverse challenges and populations. Professional medical training institutions are in a range of big gaps and once established, they must look at a holistic education aiming at improving the health of the clients by implementing this idea in training methods; this involves

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[41] Workforce report on health education: Preparing a health care workforce for the 21st century

[42] International Labor Organization: Skills and Employability.

43. Global strategy on human resources for health: Workforce 2030

integrating three approaches and yields greater improvements in skills, attitudes and behaviors of health professionals.[44]

In the context of probable responses to the finding from the skills assessment conducted in health sector, the training of health workers is a key determinant of supply of new graduates –skills development policies for health sector professionals **is of a great need**and should emphasis on the opening of new professional training institutions specifically for health sector, the provision of scholarships, the offer of financial incentives for teaching staff. the alignment of health worker education with the health needs of the population, and the training of new cadres of health workers.

These polices should aim at producing enough health workers to fulfil the needs of the population and be able to attract internationals due to the quality and standards that can be reflected in the competition and trust created with it. However, that can be realized only if they are designed in parallel with employment policies to ensure the absorption of new graduates into the labour market and to correct workforce maldistribution and inefficiencies especially in private health facilities.In return,higherwages encourage more students to apply for health professional education, and increase the demand for medical training and highly qualified skills providers and eventually the number of skilled professionals' availability will be assured.

6.11. *Financial capacity for skills development*

According to the "Rwanda private health engagement assessment conducted in 2015, "Health Sector Strategic Plan III (HSSP III) (was) underfunded with a likely gap of $372- $697 million. Private sector investment, which could potentially help fill this gap, is only 1.7 percent. The Government of Rwanda (GOR)'s goal of increasing this investment to five percent (or approximately $260 million/ year) would cover almost 50 percent of annual total health. However, it stresses that there is a limited business skill in the health sector (that) prevent increased access to finance and investment.

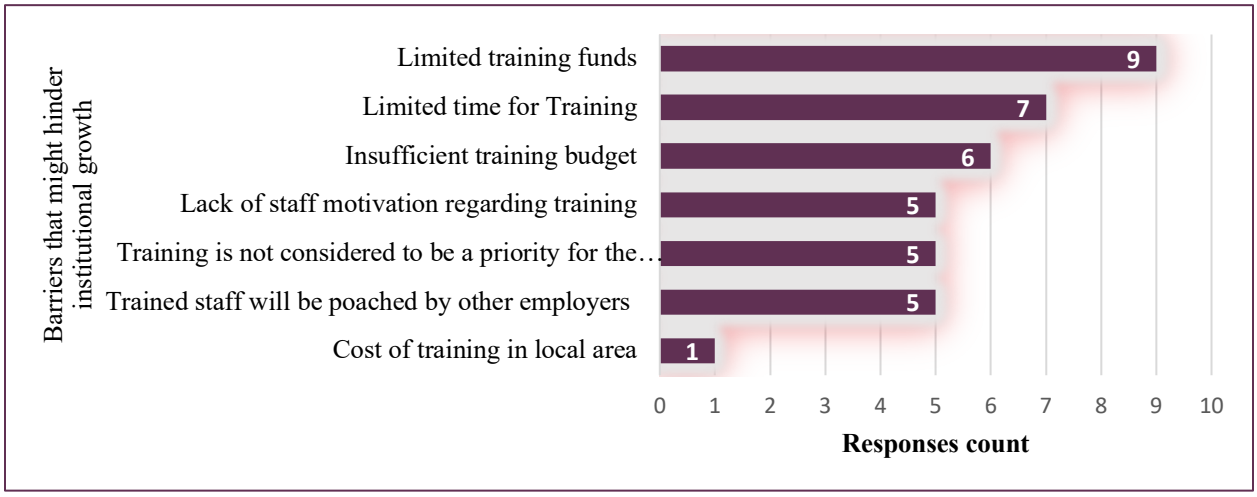
Despite the great need of training across the Health sector in comparison to the private health sector service requirement package established by the MOH, there are still a significant proportion of health institutions that report that they do not provide training.

Table 3 shows that the main reasons given by private health facilities owners/managers for not providing training in Health in the Health sector, most of them cited: "All our staff are fully proficient / no need for trainings and some reported that "there is no money available for training". Few of hospital own stated that they do not provide training as there is no training available in relevant subject area, and may indicate that the need for more tailored training provision in certain areas of Health is needed. **Figure7** indicates the skills assessment respondent

44 The world health report 2006 Chapter three, health workforce.

opinions on the reasons and barriers for skills training planned and provide by health sector institutions.

Figure 7: Barriers to skills development in health sector



Source: Customised from data collected

VII. SKILLSDEMAND IN HEALTH SECTOR

A widening demand-supply gap of skilled professionals is creating stretching challenge for public and private health systems, which may also have long-term detrimental consequences. The situation appears to be particularly acute within two pivotal medical professions—**physicians and nurses**. Health care systems imperatively should consider new methods to source, **hire**, **train**, and **retain** skilled workers to achieve their overall objective`

Although some private health sector facilities employers are in general satisfied with the technical skills of graduates, they expressed concern about the lack of soft skills among new entrants into the healthcare industry. Respondents have displayed a lack of interview skills at the initial contact. Additionally, private health sector representatives of hospitals, clinics, dispensaries, pharmacies noted that new entrants into the healthcare industry also lack essential daily soft skills. Within the healthcare industry personal presentation is important, as first impressions can have a strong influence in patient experiences.

7.1. *Health sector skills projections*

As the "health labour market analysisreport" (2019) indicates, two scenarios were simulated for comparison. In the first projection scenario, the approved health facilities structure of 2016 was used as the staffing norms which yielded a total of 28,075 required health workers in 2018, increasing by 64% in 2024 and to more than double by the 2030. These estimates translate into 1.64 Doctors, Nurses and Midwives per 1,000 population which will increase steadily to 3.15 doctors, nurses and midwives per 1,000 population by 2030. In the second scenario, the workforce targets in the Ministry's Fourth Health Sector Strategic Plan (HSSP4) yielded an aggregate health workforce need of 23,973 in 2018 which would increase to 27,386 by 2030, translating into a density of 1.79 Doctors, Nurses and Midwives per 1000 population in 2018 and 2.09 per 1,000 population by 2024[45]. for better positioning the private health sector to the rest of the continent will help to have focused planning for best performance and skills comparatively.

7.2. *Responses to address skills gaps*

7.2.1. Future skills need in health sector

Anticipating and building skills for the future is essential to a rapidly changing labour market. This applies to changes in the types and levels of skills needed as well as in occupational and technical areas. Effective methods to anticipate future skills needs and avoid potential mismatches include: sustained dialogue between employers and trainers, coordination across

[45] Rwanda Health Market Analysis 2019

government institutions, labour market information systems, employment services and performance reviews of training[46]

The sector will be under considerable pressure to change how it provides healthcare. It has to have traditional ways of working fading away gradually. There will be a greater emphasis on community-based care as a means of dealing with the ongoing increases in demand for Health provision in the context of less financial resources.

Working Futures for forecasts that the sector is likely to contract in the short term with very modest growth return in the long term.

- Administrative occupations are forecast to reduce significantly between 2020 and 2030.
- Such changes will have a 'multiplier' effect on many of the generic skills employers' report today as issues for the sector including, team working, communication, customer services and problem-solving skills.
- Skills around utilizing advanced information technology in the sector are likely to be required, new skillsets around navigating patients through the complexity of the Health sector show signs of emerging.
- Existing occupations will see their roles requiring additional skills around managing and leading change in the sector.
- Developing intermediate level occupations will become more important as the sector seeks to utilise, more cost effectively the skills and knowledge and professionals in the sector.
- The sector will need to equip those providing healthcare in the third sector and within the community with skills to enable them to continue to make an effective contribution.

Trends for future skills need in health sector are evident: 1) more patients, 2) more technology, 3) more information, 4) the patient as the ultimate consumer, 5) development of a different delivery model, 6) innovation driven by competition, 7) increasing costs, 8) increasing numbers of uninsured, 9) less pay for providers. In addition, telehealth technology allows patients to access health services, such as virtual appointments, from the comfort of their homes. Digital technologies are already having an impact on healthcare, thus, upgrade skills without having to be present at a hospital is possible. This, in turn, will have big impacts in the future of medical practice." 3. Resilience is key to retaining the nursing workforce.Table 15 indicated skill in needs, future trends, and skills implications in health sector.[47]

[46]International Labor Organization: Skills for Employment
[47]ILO, the future of work in Health Sector

Table 17: Future trends and their skills implications in health Sector

Skill	Future Trends	Skills Implications
Generic Skills e.g. **Team working** **Communication** **Customer Services** **Problem Solving**	Move to non-traditional health outlets. Greater focus on skills for doctor and s delegating the administration of treatment to appropriately trained staff. Greater emphasis on self-care. Know how to use of web-based communication. A continued focus on the importance of dignity and respect in relation to treatment The increase of knowledgeable consumers. The expectation from consumers for rapid diagnosis and treatment is likely to continue and increase due to many factors such as NCD caused by economic advancement	**Team working skills** In greater demand as employees in private health facilities need to work across multi-disciplinary teams. The presence of multidisciplinary teams in the community setting is likely to increase and will more commonly incorporate professions not traditionally seen in health environment e.g. social workers, teachers etc. **Communication skills** Require employees to effectively communicate with a diverse client base, tailoring the messages to meet what will be very differing individual needs. developed and use web-based communication and technology to assist patients to stay well in their own homes and reducing hospital admissions. This will require clinical staff to draw together an array of data and clinical indicators to identifying accurately and quickly when clinical intervention may be necessary. Engage in using web-based communication to help those who are 'hard to reach' due to issues such as rurality or chronic ill health. A good example is blood distribution to unreachable rural areas. This can be realized by creating a web-based consultation point in Villages To identify, and in some instances support or facilitate virtual support networks for those with rare or complex conditions, new communication skills will be acquired and applied to be able to do it effectively. There will be a general need to improve customer service skills across the sector to keep up with

Skill	Future Trends	Skills Implications
		consumer expectations.
	A greater complexity across the health service structure in respect of the providers available.	**Customer service skills** This requires a greater focus on understanding the needs of individual patients and increased empathy skills from those within the sector. This is very crucial To ensuring that all basic care needs are met for all patients. **Problem solving skills** Skills to enhancement a wide range of occupations in the sector resulting in some specificskills being developed will be required Inevitably, continued increased emphasis on the use of technology to support diagnosis will be required in respect of clinical skills and diagnostics. Skills will be required to help consumers deal with the complexity that plurality of provision may bring, helping people to navigate through this new 'eco-system' in order to get the service they want.
Use of Information Technology	All healthcare occupation, wherever they are based need to will acquire skills so that they are not affected by the ongoing impact of ICT on the Health sector over the next ten years (2020-2030) There is huge potential for ICT to reshape the way that services are delivered across the Health sector.	The variety of roles will have to be takenand learn to operate in basic ICT systems in order to do their jobs. This will require increased levels in many of the related 'functional' and key skills. Data-handling skills with respect to issues of confidentiality and security of records will continue to range in importance. There is likely to be discussedbetween the heath sector actors about which roles should be taken in processing patient information.

Skill	Future Trends	Skills Implications
	The connection between the biological sciences and information intelligence has given rise to a new phrase in the Health sector known as bio-informatics.	A range of potential developments for Health professionals and clinicians will have to cope With ICT developments bringing remote diagnostics to the wok protocols,surgery within ever closer reach. The exponential rise in medical knowledge requires that professionals will need to make much greater use of information technology to support clinical decision-making. Professionals need to be expert knowledge managers and navigators
Entrepreneurship	Diversity of provision - This is particularly relevant within health sector, but should be acknowledged as potential development in the sector The drive to ensure that healthcare provision is connected more closely with the other businesses communities will see extensive consultation and organization in the sector evolving in a more dynamic and approachable way.	Within health sector, there is likely to be a greater focus across the whole sector on the identification of 'diverse investment opportunities' through private sector. There is also likely to be greater call for health entrepreneurship within the Health sector. This this will capture an increase in requirement of employment creation to be constantly seeking ways of exploiting new opportunities to improve health sector.
Development of multifunctional skillsets	Increasing complexity and interlinking nature of institutions in the Health sector Customers who wish to look for the best health service for healthcare. Policies should be reviewed so that there could be a continuedeffort to stress the importance of customer choice	The range of drivers affecting the sector point out the potential development of a cross sectoral skill set. This might be incorporated in existing occupations, or could lead to the development of a specific occupation The Health multifunctional role could be promoted, by organizer and health intermediaries. The role will act as an enabler, that couldhelp clients to find their way through the increasingly joinedsystems of health, education institutions and other actors.
Employee Engagement and Distributed Leadership	Sector needs to be more responsive to rapid changes in population health needs. Sector needs to overcome some barriers that are systemic across the sector. These include silo working,	The heath sector will have a great need to establish leadership that can engage health professionals in the increasing changes. Leadership practice is a skill that will be needed to be

Skill	Future Trends	Skills Implications
	and employee disengagement from employers' aims and objectives	developed at different levels across the health sector.
Strategic Management and Workforce Management	The Health sector will remain a 'planned' workforce economy. The traditional focus of workforce planning activities on professional grades of staff will continue to be challenged and a focus on nonprofessional grades will become important The large number of skills providers will assume planners to also be skilled in health field in order to plan future workforce numbers	Health intuitions will need to ensure that they have skills required in stock to capture all aspects of health issues buythe workforce data across all professional groups. developing the number of Assistant Practitioners will require health institutions to understandimportance of number of healthcare assistants who are already in the stream to acquire high level of skill in their occupational categories. The sector has relatively few people qualified to desired levels; therefore, significant development of this area of the workforce may need to be undertaken and well structured. The need to make greater efficiencies in the sector and the new complexity may heighten the demand for such skills. There are likely to be specialists in the field of workforce planning, however it will continue to grow and these skills may become a core part of management skills in the Health sector in the same way that financial management is today Those working in the Health sector will need to become skilled at evaluating the effectiveness of health- related services, including articulating the return on investment and social return on investment.

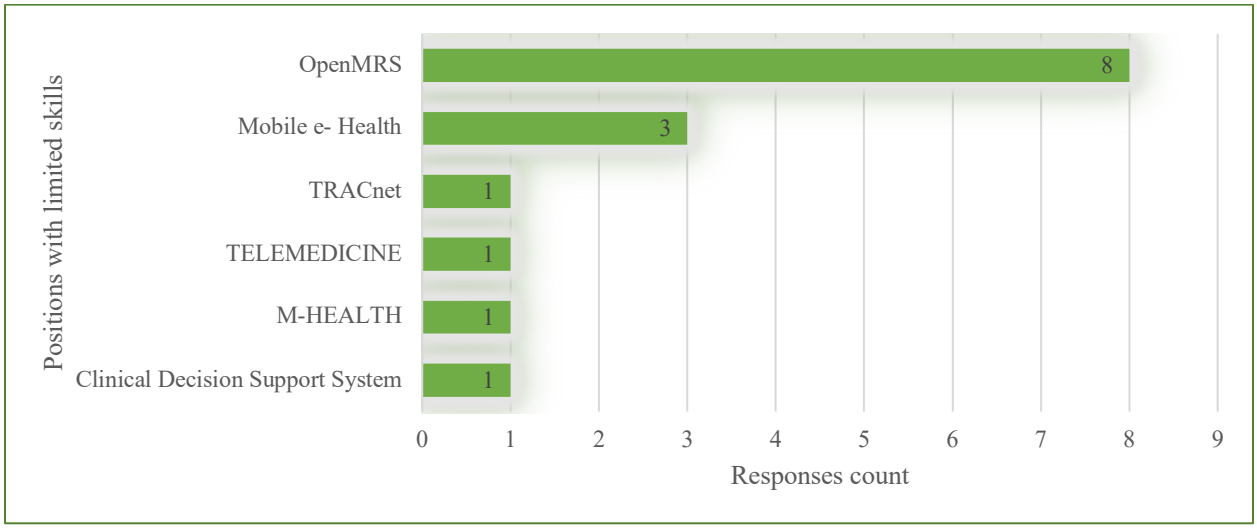
Source: www.ILO.org

7.2.2. ICT Skills and use in Heath sector

Rwanda Health Management Information System (R-HMIS): system that integrates data collection processing, reporting, and use of the information for programmatic decision-making. For example, Monthly reporting forms for Health Centres, District Hospitals, Referral Hospitals and Private health facilities. However, most of private health facilities are not using the system due lack of ICT skilled personnel to use it. One of the key drivers of change in health sector being one of the major drivers of change in health sector as technological innovation and

information technologies are sustainers of health sector in all aspects, thus, any profession in the sector is ICT based. As indicated by the respondents in the skills assessment conducted, Open MRS is the most used ICT system followed by Mobile e-heath in private health facilities as shown in **Figure 8**. This is an indication that there is still a big gap in use of ICT in health sector especially private health facilities. In the interview with some health facilities owner and managers, when asked if they have ICT units or staff, the answer was no except one. It is expected that health worker within those institutions are supposed to have the knowledge and skills in ICT but they have just a minimal level such as writing and sending emails, especially nurses and midwives.

Figure 8: ICT Systems used in private health facilities



Source: Customized from data collected.

7.2.3. Anticipating future skills needs

Anticipating future skills needs for health professionals is crucial to meet the new demands of health care, for example:

- The shift from care in hospitals to the provision of care closer to home - to cope with elderly patients with multiple chronic conditions, such as heart disease and diabetes.
- The growth of new technologies, new medical appliances and diagnostic techniques which requires technical know-how in addition to clinical knowledge
- The expansion of e-health, which enables distant diagnostics services, requires new ways of working. This is currently in operation in health sector in Rwanda.

VIII. HEALTH SECTOR SKILLS BENCHMARKING/BEST PRACTICE

8.1.1. The Global Medical Tourism Opportunity

Medical Tourism has become a major economic driver and investment opportunity creator for countries in the past decade. Medical tourism, which is simply the act of people making health choices and accessing health treatments across borders begins and ends with excellent specialist health care. In essence, successful medical tourism is a by-product of a strong health care system.

8.1.2. Good practice to address skills gaps

Five (5) analytical frameworks take a comprehensive view of the good practice, ranging from a wide strategic perspective to a specific operational focus. their aim is to provide guidance and ideas for a company to develop its own skills-gap measures, and they need to be selected and adapted carefully to the company's distinctive context and combination of challenges. The good practices for closing skills gaps within the workforce occur along the HR value chain. So the reader is able to trace the good practices along the typical process from workforce planning to retention, but at the same time to concentrate on those areas where the most pressing challenges are known to be (such as recruiting, for instance).

1. **Plan**. On the basis of the health facility strategic plan and people-management goals, which are in turn derived from the facility strategy, the HR department needs to plan what types of skills are required, and where, and for how many employees, and by when.

2. **Recruit**. To fill vacancies, the health facility has to recruit the right people. This step has several components: devising a hiring strategy and an employer-branding strategy, attracting applications, and seeking and sorting applicants.

3. **Identify and assess**. Performance measurement is the key to elucidating available skills and detecting talent in the workforce. This element involves the design and implementation of a performance-management system, including skills assessment and feedback collection.
4. **Train and develop**. Training and development ensure that the right skills are available in the company at the right time. This element involves skills development in the narrower sense, and includes the following components: defining career steps, developing training plans, planning and implementing the various training measures, and conducting talent management

   Once the right skills have been developed, the medical facilities have to make sure that it can benefit from these skills by retaining qualified employees and maintaining their engagement so that they deliver the best value to the company. This step includes the

following components: monitoring employee satisfaction, developing a retention strategy, and designing and implementing a good scheme of incentives and remuneration.

5. **Optimize the leadership model and system**. This is not a specific step, but rather the basis of HR management and hence the foundation of all the steps just listed. Good leadership starts with an institution's culture that values and respects the individual and encourages employees to bring their own ideas. Systems provide all the necessary HR data needed for making decisions related to people, whether for recruiting, training, promotion or remuneration.

Figure 4: Good-practice framework for workforce development in health Sector

Plan	***Workforce planning***	**1.1** Align production and capacity planning	**1.2** Conduct strategic workforce planning	**1.3** Establish succession planning for key positions
	Demand management	**1.4** Reduce critical-workforce demand through automation	**1.5** Offset short-term demand fluctuation to retain staff	**1.6** Outsource non-critical jobs in order to relieve specialists
Recruit	***Hiring strategy***	**2.1** Develop a positive employer-brand	**2.2** Shift the hiring criterion from "ready-to-use" to "potential"	**2.3** Identify and affiliate potential employees as soon as possible
	Seeking and sorting of applicants	**2.4** Leverage employee and alumni networks	**2.5** Tap into non-traditional workforce pools	**2.6** Use new technologies to enhance recruiting experience
Identify and assess	***Talent identification***	**3.1** Gain a clear understanding of available	**3.2** Systematically identify development potential	**3.3** Identify and manage a top talent pool

		competencies		
Train and Develop	***Performance assessment***	**3.4** Define a health sector-wide performance standards	**3.5** Collect structured and transparent feedback	**3.6** Provide probation leadership experiences to talented staff
	Training environment	**4.1** Set up clearly defined career paths with aligned training plans	**4.2** Provide incentives for undergoing and approving training	**4.3** Collaborate with external partners
	Skills-development measures	**4.4** Tailor training to the needs of the health facility and the target group	**4.5** Foster internal knowledge transfer	**4.6** Develop fast-track programs for high-potential healthcare workers
Retain and Engage	***Retention strategy***	**5.1** Align the interests of the healthcare worker and the patients' expectations	**5.2** Set up a fair and transparent compensation scheme	**5.3** Monitor satisfaction and engagement
	Working-	**5.4** Invest in non-financial	**5.5** Foster internal	**5.6** Provide a forum for

	experience enrichment	benefits and a good working environment	personal networks and integration	employees to engage more
Optimize leadership model and systems	***Enhanced systems***	**6.1** Integrate workforce data and financial data	**6.2** I incorporate HR KPIs into the healthcare facility scorecard	**6.3** Develop systems to measure the benefit of training initiatives
	Cultural adjustments	**6.4** Establish a people-centered healthcare facilities culture	**6.5** Make HR a top management priority	**6.6** Recognize outstanding performance and new ideas

Source: SkillsFuture, Singapore

IX. Conclusion and Recommendations

The drivers for change and likely changes to Health services could have a significant multiplier effect on many of the skills issues currently being experienced by the sector. Each of the major occupational groups in the sector is likely to experience significant shifts in the skills they need to develop.

Professional and clinical occupations and managers and senior officials are likely to be called upon with increased urgency to develop the sector and lead it through a period of prolonged change. Generic skills such as, team working, communication skills, customer services and problem solving will demand constant attention by employers as the sector seeks to provide high quality healthcare in the context of fewer resources.

There is also evidence that some new skill sets are emerging. These may in time become new roles in their own right, or may extend existing occupations.

The need to develop high quality skills at all level is likely to grow in importance to develop the sector for the future. The sector will need to adapt to new developments for which decisions and planning may need to be made for the workforce. Although the types of changes and the implications on skills are more speculative what is clear is that the fusion of consumer expectations and technology has the potential for innovative practice across the sector

X. Recommendations

No	Recommendation	Responsible institutions	Long term/Short term
1	Increase the number of specialized doctors with skills attractive to local and international patients	MINISANTE, RBC	Long term/Short term
2	Planning specialized training for specific areas of health professionals occupation	MINIS.ANTE, RBC, PSF, all medical councils, association, Unions	Long term/Short term
3	Each health facility to conduct skills need assessment, sharing skills needs results followed by regular exchange of training program an conduct joint specialized training	MINIS.ANTE, RBC, PSF, all medical councils, association, Unions	Long term/Short term
4	Designing internship program together with capacity building institutions in collaboration all stakeholders	MINIS.ANTE, RBC, PSF, RDB all medical councils, association, Unions	Long term/Short term
5	Each private healthcare facility must set aside the budget for skills development and integrate it into annual plans approved by MINISANTE	MINISANTE, all private healthcare facilities	Long term/Short term

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XII. Annexes

N⁰	Province	District	Sector	Cell	Village	Facility Name	Categorization
1	Kigali	Kicukiro	Gatenga	Gatenga	Gatenga	Giraneza (Kiraneza)	Dispensary
2	East	Bugesera	Nyamata	Nyamata Town	Rwakibilizi I	Stella Clinic	Clinic
3	Kigali	Gasabo	Gisozi	Musezero	Kagara	Minas Medical Centre	Clinic
4	Kigali	Gasabo	Rusororo	Nyagahinga	Gisharara	Beatrice Polyclinic	Polyclinic
5	Kigali	Gasabo	Remera	Nyarutarama	Kangondo II	Baho International Hospital	Private Hospital
6	Kigali	Gasabo	Remera	Nyarutarama	Kibiraro	ADA Dental	Clinic
7	Kigali	Gasabo	Remera	Rukiri II	Rebero	Centre MédicalOrkide	Clinic
8	Kigali	Gasabo	Kacyiru	KAMATAMU	ITETERO	Centre Médical SOS	Clinic
9	Kigali	Gasabo	Kimironko	Bibare	Bibare	Doctor'SPlazza	Clinic
10	Kigali	Gasabo	Kacyiru	Kacyiru	Kamatamu	Kigali Adventist Dental-Gasabo	Clinic
11	Kigali	Gasabo	Remera	Rukiri I	Agashyitsi	Kigali Adventist Medical	Clinic
12	Kigali	Gasabo	Remera	Rukiri I	Agashyitsi	UN Clinic	Clinic
13	Kigali	Gasabo	Kimihurura	Ubumwe	Ubumwe	AFRICA HEALTH CARE NETWORK	Dispensary
14	Kigali	Gasabo	Kimihurura	Kimihurura	Amajyambere	Dialysis	Specialized Clinic
15	Kigali	Gasabo	Remera	Nyarutarama	Gishushu	Kigali Cardiology Cabinet	Specialized Clinic
16	Kigali	Gasabo	Kacyiru	Kamatamu	Kamuhire	Kigali Dermatology Center	Specialized Clinic
17	Kigali	Kicukiro	Nyarugunga	Kamashashi	Kabagendwa	Legacy Clinics & Diagnostics Ltd	Clinic
18	Kigali	Kicukiro	Kicukiro	Ngoma	Intaho	BRALIRWA Plc	Dispensary
19	Kigali	Nyarugenge	NYARUGENGE	KIYOVU	ISHEMA	RWANDA EYE CLINIC	Clinic
20	Kigali	Nyarugenge	NYARUGENGE	KIYOVU	INDANGAMIRWA	POLYCLINIC DU PLATEAU	Polyclinic
21	Kigali	Nyarugenge	MUHIMA	UBUMWE	ISANGANO	Polyclinique La Medicale	Polyclinic
22	Kigali	Nyarugenge	NYAMIRAMBO	CYIVUGIZA	KARISIMBI	POLYCLINIQUE SAINT JEAN	Polyclinic
23	Kigali	Nyarugenge	NYARUGENGE	Kiyovu	ISHEMA	EJOHEZA SURGICAL CENTRE	Specialized Clinic
24	Kigali	Nyarugenge	MUHIMA	UBUMWE	ISANGANO	KIGALI EYE CENTRE	Specialized Clinic
25	Kigali	Gasabo	Kacyiru	KAMATAMU	KABARE	King Faisal Referral Hospital	National Referral Hosp
26	Kigali	Nyarugenge	NYARUGENGE	RWAMPARA	INTWALI	CLINIC CHINOISE	Clinic
27	West	Rubavu	Gisenyi	Mbugangari	Umubanowa I	La Fidelite Clinic ltd	Clinic

28	West	Rubavu	Gisenyi	Kivumu	Giponda	Grands Lac	Clinic
29	West	Rubavu	Gisenyi	Kavumu	Karisimbi	l'Arche Clinic	Clinic
30	West	Rubavu	Rubavu	Rukoko	Karukogo	Ndengera Clinic	Clinic
31	South	Ruhango	Ruhango	Nyamagana	Gataka	Clinic Bon Samalitain	Clinic
32	South	Ruhango	Mbuye	Kabuga	Musenyi	Umuhoza	Clinic
33	South	Ruhango	Ruhango	Nyamagana	Mujyejuru 1	Blessed F H Ltd	Clinic
34	South	Ruhango	Kinazi	Gisali	Kakirenzi	Ishema Afisam	Dispensary
35	South	Ruhango	Ruhango	Nyamagana	Nyarusange	La charite-Ruhango	Dispensary
36	West	Rusizi	Kamembe	Kamashangi	Kadasonwa	Sagi Clinic	Clinic
37	West	Rusizi	MUGANZA	Shara	Ramiro	CIMERWA	Dispensary
38	West	Rusizi	Kamembe	Kamashangi	Kadasonwa	Dusanganwe	Dispensary
39	West	Rusizi	Mururu	Kagarama	Kamatene	Impuhwe-Mururu	Dispensary
40	East	Rwamagana	fumbwe	Nyagasambu	Rambura	NSAMIRAGARA	Dispensary
41	East	Rwamagana	KIGABIRO	Cyanya	Rurembo	Saint Therese	Clinic
42	East	Rwamagana	KIGABIRO	Cyanya	Rurembo	Saint Simon Medical Clinic	Clinic
43	East	Rwamagana	Kigabiro	Cyanya	Biraro	HUMURA	Dispensary
44	East	Rwamagana	Kigabiro	Cyanya	Biraro	Dufashanye	Dispensary
45	East	Rwamagana	Mwulire	Ntunga	Kiyovu	Girubuzima	Dispensary
46	East	Rwamagana	Musha	Kagarama	Kagarama	Hamaeu des Jeune st Kizito Musha	Dispensary
47	East	Rwamagana	Karenge	Nyabubare	Karenge	Hirwa-Rwamagana	Dispensary
48	West	Rubavu	Gisenyi	Kivumu	Kivumu	Smile dental clinic	Clinic
49	West	Rubavu	Nyamyumba	Rubona	Rushagara	Amahoro	Dispensary
50	West	Rubavu	Rugerero	Gisa	Kaniga	Charite-Rubavu	Dispensary
51	West	Rubavu	Gisenyi	Bugoyi	Isangano	Impuhwe-Rubavu	Dispensary
52	West	Rubavu	Gisenyi	Bugoyi	Kaminuza	Iwacu-Rubavu	Dispensary
53	West	Rubavu	Kanama	Mahoko	Nyamirambo	Sante Pour Tous/ Mahoko	Dispensary

54	West	Rubavu	Kanama	Mahoko	Shusho	Urugwiro	Dispensary
55	West	Ngororero	NGORORERO	Rususa	Kabagari	Ngororero Clinic	Clinic
56	East	Nyagatare	RWIMIYAGA	Rwimiyaga	Nyarupfubire	Ubuzima Bwiza-Nyagatare	Dispensary
57	West	Rusizi	Bugarama	Nyange	Kabeza	Wibabara	Dispensary
58	South	Nyaruguru	Cyahinda	Rutobwe	Kibumba	Umushumba	Dispensary
59	West	Rusizi	Kamembe	Burunga	Karushaririza	ARBEF Rusizi	Clinic
60	West	Rusizi	Kamembe	Kamurera	Cyapa	Clinique Sainte Elisabeth	Clinic
61	West	Rusizi	Kamembe	Kamashangi	Kadasonwa	Sagi Clinic	Clinic
62	West	Rusizi	MUGANZA	Shara	Ramiro	CIMERWA	Dispensary
63	West	Rusizi	Kamembe	Kamashangi	Kadasonwa	Dusanganwe	Dispensary
64	West	Rusizi	Mururu	Kagarama	Kamatene	Impuhwe-Mururu	Dispensary
65	West	Rusizi	Gikundamvura	Kizura	Ituze	Inshuti-Rusizi	Dispensary
66	North	Musanze	Muhoza	Mpenge	Rukoro	Saint Paterner	Dispensary
67	East	Ngoma	Karembo	Karaba	Kigobe	Humura-Karembo	Dispensary
68	West	Ngororero	NGORORERO	Rususa	Kabagari	Ngororero Clinic	Clinic
69	East	Nyagatare	RWIMIYAGA	Rwimiyaga	Nyarupfubire	Ubuzima Bwiza-Nyagatare	Dispensary
70	South	Nyamagabe	Tare	Gasarenda	Murangara	Urumuri	Dispensary
71	South	Nyanza	BUSORO	Masangano	Masangano	Saint Vincent	Dispensary
72	South	Nyamagabe	Tare	Gasarenda	Murangara	Urumuri	Dispensary
73	South	Nyanza	BUSORO	Masangano	Masangano	Saint Vincent	Dispensary

ANNEXES II

Key messages

Each messagecontains a set of knowledge and understanding and performance criteria that must be met before someone can be deemed competent. They describe the minimum standard to which an individual is expected to work in a given occupation as indicated below:

- The choice of a strategy to assess the future health workforce (HW) is value-based and depends on what health outcomes and service objectives policy-makers have set
- Various models, approaches and toolkits have been proposed and tried over the years by the Ministry of Health agreed on by all health sector actors including both public and private health sectors.
- Workforce situation analysis for determining future staff requirements typically builds upon variables such as expected population growth, technological and social change, skills mix, individual performance and health policy that need to be reviewed periodically in order to meet the drivers of change that are dynamic and may affect the health sector,
- There is little benefit in educating adequate numbers of doctors or nurses, and then seeing them migrate to other countries because the labour market cannot integrate them, or because working conditions are not attractive enough.
- Assessing future Health Work needs is not only about projecting the numbers. Policy-makers need also to address the issues of recruiting, educating, distributing, retaining, motivating and managing HW, which implies improving the knowledge about the expectations and behaviours of health workers.
- Addressing needs implies more than producing more workers; scaling up can be achieved by improving competences, changing skills mix, and by augmenting productivity.
- It is important to see HW planning as a process that engages the main stakeholders in assessing needs for change and in devising strategies to achieve those changes.
- The better the information base and the technical capacity to use it, the better the diagnosis and the selection of interventions will be.
- Monitoring is essential to adjust interventions to a changing environment.
- Sufficient and predictable funding must be available to invest in workforce development. The benefits will soon be apparent in terms of better access to services, more efficient utilization of resources and higher satisfaction of citizens.
- The choice of a strategy to assess future HW is value-based and depends on what health outcomes and service objectives policy-makers have set
- Assessing future HW needs is not only about projecting the numbers. Policy-makers need also to address the issues of recruiting, educating, distributing, retaining, motivating and managing the HW, which implies improving the knowledge of expectations and behaviours of health workers. There is little benefit in educating adequate numbers of doctors or nurses, only to see them then migrate to other countries because the labour market cannot integrate them, or because working conditions are not attractive enough
- Addressing needs implies more than producing more workers; scaling-up can be achieved by improving competences, changing skills mix, and by augmenting productivity

- It is important to see HW planning as a process that engages the main stakeholders in assessing needs for change and in devising strategies to achieve it.
- The better the information base and the technical capacity to use it, the better the diagnosis and the selection of interventions will be.
- Monitoring is essential in order to adjust interventions to a changing environment.
- And last but not least, sufficient and predictable funding must be available to invest in workforce development. The benefits can be apparent in terms of better access to services, more efficient utilization of resources and higher satisfaction of citizens.[48]

[48] Assessing future health workforce needs