THE PRIMARY HEALTH CARE SYSTEM OF MAURITANIA

A PRIMARY HEALTH CARE PERFORMANCE INITIATIVE ASSESSMENT

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ACKNOWLEDGMENTS

This report was written by Awa Diallo, Marwa Ramadan, Caitlin Noonan, Oscar Bernal, Manuela Villar Uribe, Kazumi Inden, Mohamed Vadel Taleb El Hassen and Professor Youssouf Limame. Dr Mohamed Lemine Mohamed El-Hadj contributed extensively to data collection and contextualizing Mauritania's healthcare system.

Revisions and feedback were provided by the larger World Bank team, including Ana Krsteska,Cameron Scott and Thierno Mamadou Bocar Ba. The team is particularly grateful to Dr Salif Diagana, our colleague from UNICEF, and Dr Pallawo Raymond Bernard and Dr Ouldzeidoune Naceredine, our colleagues from WHO, for the time they dedicated to reviewing the report and for their valuable comments.

The team is also extremely grateful to the key informants interviewed, the Steering Committee for this work and the participants of the validation workshop held on September 6 and 7, 2022 and November 1 and 2, 2023 (see list of names in appendix F).

ABBREVIATIONS

ANC	Antenatal Care (or Consultation Prénatale [CPN] in French)
CHW	Community Health Worker (or Agent de Santé Communautaire [ASC] in French)
COSA	Health Committees (or Comités de Santé in French)
CSM	Moughataa Health Centers (or Centre Sanitaires des Moughataa in French)
DALY	Disability-Adjusted Life Year
DHIS2	District Health Information Software 2
DHS	Demographic and Health Survey
DOQS	Organization and Quality of Care Division (or Direction de L'Organisation et de la Qualité des Soins in French)
DPT3	Diphtheria-Pertussis-Tetanus, third dose
DRAS	Regional Directorates of Health Action (or Direction Régionale de l'Action Sanitaire in French)
EHSP	Essential Health Services Package
ENT	Ear, Nose & Throat services
FAO	Food and Agriculture Organization of the United Nations
FEWS	Famine Early Warning Systems
FP	Family Planning
GNR	Global Nutrition Report

GDP	Gross Domestic Product
HMIS	Health Management Information System (or Système National d'Information Sanitaire [SNIS] in French)
HP	Health Post
HRH	Human Resource for Health
IHME	Institute for Health Metrics and Evaluation
ITN	Insecticide-treated nets
MICS	Multiple Indicator Cluster Survey
MIS	Management Information System
MoH	Ministry of Health
NCD	Non-Communicable Disease
NGO	Non-Governmental Organization
OOPS	Out-Of-Pocket Spending
ORS	Oral Rehydration Salts
PHC	Primary Health Care
PHCPI	Primary Health Care Performance Initiative
PNDS	National Health Development Plan (or Plan National de Developpement Sanitaire in French)
PSHC	Permanent Surveys on Household Living Conditions
RMNCH-N	Reproductive, Maternal, Newborn and Child Health and Nutrition

SAM	Severe Acute Malnutrition
SC	Sick Child
TB	Tuberculosis
UHC	Universal Health Coverage
USAID	United States Agency for International Development
USB	Basic Health Post (or Unité de Santé de Base)
VSP	Vital Signs Profile
WB	World Bank
WFP	World Food Programme
WHO	World Health Organization

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الأمين العام
Le Secrétaire Général

Nouakchott, le 08 NOV 2023 نواكشوط في

Numéro: 003373 الرقم

PRÉFACE

Il est de plus en plus largement reconnu que des soins de santé primaires de haute qualité constituent un pilier essentiel d'un système de santé solide, capable de répondre à des besoins sanitaires complexes et variés. En octobre 2018, des décideurs, des défenseurs de cette cause, des patients et des partenaires se sont réunis à Astana, Kazakhstan, pour s'engager en faveur de soins de santé primaires solides, qui constituent le fondement et l'avenir de la santé universelle, à travers l'Initiative sur la Performance des Soins de Santé Primaires.

Le PHCPI (Performance des Soins de Santé Primaires Initiative) est une alliance entre la Fondation Bill et Melinda Gates, le Groupe de la Banque mondiale et l'Organisation mondiale de la Santé, ainsi que les partenaires techniques Ariadne Labs et Results for Développent. Cette initiative repose sur la conviction que les soins de santé primaires sont le pilier du développement durable et que l'amélioration de ces soins passe par une meilleure évaluation.

En avril 2019, le Ministre de la Santé a confirmé l'intention de la Mauritanie de participer à cette initiative en nommant un point focal et en recrutant une assistance technique chargée d'identifier les principales sources de données nécessaires pour compléter le "Profil des Signes vitaux" et de collecter des données en utilisant le modèle de progression du PHCPI.

Le présent rapport présente les résultats de l'exercice de profil des signes vitaux mené entre 2019 et 2022 dans le cadre de l'Initiative pour la Performance des Soins de Santé Primaires de la Banque mondiale. Cette évaluation du système de soins de santé primaires en Mauritanie s'appuie sur les données quantitatives et qualitatives disponibles afin d'analyser les forces et les faiblesses du système de soins de santé primaires, en vue de formuler des recommandations susceptibles de guider la programmation et la planification jusqu'en 2030, en vue d'une meilleure couverture des services de santé de qualité.

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PREFACE TRANSLATION

It is increasingly recognized that high-quality primary health care is an essential pillar of a strong health system, capable of meeting complex and varied health needs. In October 2018, decision-makers, advocates, patients and partners gathered in Astana, Kazakhstan, to commit support for strong primary healthcare, the foundation and future of universal healthcare, through the Primary Healthcare Performance Initiative.

The PHCPI (Primary Healthcare Performance Initiative) is an alliance between the Bill & Melinda Gates Foundation, the World Bank Group and the World Health Organization, along with technical partners Ariadne Labs and Results for Development. The initiative is based on the conviction that primary healthcare is the backbone of sustainable development, and that improving primary healthcare will require better evaluation.

In April 2019, the Minister of Health confirmed Mauritania's intention to participate in this initiative by appointing a focal point and recruiting technical assistance to identify the key data sources needed to complete the "Vital Signs Profile" and to collect data using the PHCPI progression model.

This report presents the results of the vital signs profiling exercise conducted between 2019 and 2022 as part of the World Bank's Primary Healthcare Performance Initiative. This assessment of the primary health care system in Mauritania draws on available quantitative and qualitative data to analyze the strengths and weaknesses of the primary health care system, with a particular focus on formulating recommendations that can guide programming and planning up to 2030, with a more comprehensive coverage of quality health services in mind.

EXECUTIVE SUMMARY

This report presents the findings of the Primary Health Care (PHC) assessment conducted between 2019 and 2022 by the World Bank's Primary Health Care Performance Initiative (PHCPI) in collaboration with Mauritania's Ministry of Health (MoH). This assessment of the PHC system of Mauritania uses available quantitative and qualitative evidence to analyze the PHC system's strengths and weaknesses and provides recommendations to improve coverage and quality of services. The PHCPI framework used for this assessment organizes various domains and subdomains of primary health care through a logic model approach that encompasses the traditional inputs and outputs of PHC systems, and it also places a strong focus on the processes of service delivery and performance of the PHC system. The primary healthcare system covers the delivery of essential health and nutrition services, as well as the health system's ability to serve the entire population, including governance and cross-sectoral policy environment, financing, and socio-economic determinants of health.

Mauritania's recent improvements in health are not commensurate across rural settings, indicating geographical disparities. Over the past 10 years, Mauritania made significant progress on coverage indicators for Reproductive, Maternal, Neonatal and Child Health (RMNCH), NCDs, and infectious diseases. However, the findings of the VSP indicate that infectious diseases such as malaria and tuberculosis are still major public health problems and non-communicable diseases (NCDs) are rising. In 2016, about 37 percent of all deaths were NCD related deaths (UHC, 2021). Further, the coverage of services like antenatal care (ANC) and child health services dropped since 2015. Health care coverage indicators are compounded by an important inequity measured across three different outcomes identified by the PHCPI assessment in the Vital Signs Profile (VSP): access, coverage, and mortality. In Mauritania, women experience barriers to accessing health care with over half of all women (aged 15 to 49 years old) reporting facing problems such as physical barriers, financial barriers when seeking care which are due to the transportation costs and/or fee for services, especially in rural areas. The barriers are greater for the

poorest population as seventy-one percent of women in the lowest wealth quintile reported financial barriers to access health care compared to 34 percent of women in the highest wealth quintile (DHS, 2022).

The challenges in accessing RMNCH services, and infectious disease services can be linked to the lack of comprehensive and appropriate availability of PHC services in most health facilities -adding to the double burden of disease that the country is facing. The results show that about half of maternal and child health services and infectious diseases services that are considered essential for any population, are provided at the primary health care facilities across Mauritania. Further, for NCD services, less than half of facilities across the country offer diabetes diagnostic and management services, management services for cardiovascular illnesses and chronic respiratory diseases. Infection control, including the adherence to standards and availability of all infection control tracer items dropped considerably between 2016 and 2018 by 23 percent. To strengthen the health system, Mauritania's MoH has implemented several initiatives that address barriers to access to care and quality and utilization of RMNCH-N services, especially in the region that hosts a high number of refugees.

The capacity of the PHC system in Mauritania—including measures of the availability of adequate governance, availability of inputs, and the improvement of population health and facility management—highlights areas of strength and challenges. Mauritania has an effective governance structure with a national health policy that prioritizes primary healthcare, and a strong political commitment to health. Some gaps still remain in health workers' capacity to translate health data and facility management information or guidelines into improvement in the regions and districts. The results indicate limited training of health workers at the facility level to ensure quality across the health system and the absence of a national mechanism for procuring and estimating the needs for essential medicines, supplies and equipment. However, there is also an opportunity to improve health information systems in order to strengthen monitoring of

the quality of care provided in healthcare facilities. In addition, throughout the assessment, the experts consulted highlighted limited harmonized formal structures for coordination and collaboration in healthcare facility management systems and processes. This highlights a gap in governance at the operational level, complicating the monitoring of care and representing a significant challenge to the ability of healthcare facilities to deliver high-quality primary healthcare.

The assessment of the PHC system's capacity showed adequate structures for input management but limited availability of medicines, distribution of human resources, and availability of health facilities with essential basic health service packages- posing a challenge to the delivery of high-quality services. There is an inequitable distribution of the workforce and infrastructure challenges across the country. The distribution of human resources specifically remains an important challenge to universal, high-quality health services. Particularly, compared to the Africa region average of 14 health professionals (doctors, nurses, and midwives) per 10,000 population, Mauritania has 11 health professionals per 10,000 population. This highlights the need for a wide range of health personnel, including community health workers. However, there is no reported evidence of job description standards for this specific group of health care workers making their integration into the PHC systems challenging. The coordination and collaboration within health facility teams is also affected by these barriers. The decline of the government financial contribution for the PHC system also affects the quality of services across the PHC facilities, as described in greater detail in the financing section.

The following recommendations have been developed as a result of the PHC assessment to address the challenges identified in Mauritania:

1. **Build on well-defined PHC policies by developing an implementation plan to improve the organization of services with an essential and comprehensive package of services that meets the needs of the population.**

Updating the essential and comprehensive health service packages that meet population needs and outline services to be delivered by each type of provider, allows the health system to prioritize PHC as the initial point of contact and ensures the provision of comprehensive, coordinated, continuous, and person-centered services. The implementation of Mauritania's National Health Policy, which prioritizes PHC, can be improved through better collaboration between diverse stakeholders, promoting the use of existing data, and integrating services across the health system. This includes explicitly defining the types of essential services to be provided at each level of the healthcare system, improving the service delivery capacity of all PHC facilities and outreach teams, and strengthening coordination between facilities.

2. **Implement a new, people-centered model of care based on individual needs and a comprehensive health services package.**

   The equitable distribution of skilled and motivated providers is paramount to meeting the evolving needs of the population. A robust primary healthcare workforce must be multidisciplinary and adhere to evidence-based practices. To achieve this, Mauritania could strengthen human resources capacity by improving initial and ongoing training opportunities and implementing strategies that encourage task shifting, while improving supervision of health personnel, with a targeted strategy for CHWs. Initiatives to set up multidisciplinary teams of healthcare workers can foster the creation of an effective team-based care model for patient, integrating an appropriate diversity of skills to ensure continuity of care. This approach can also stimulate community involvement in health system decision-making processes, which can positively influence demand for care services.

3. **Capitalize on investments in digital health to drive quality improvement.**

Mauritania has made important investments to improve its digital health infrastructure, nonetheless the MoH currently lacks sufficient nationwide information for data driven decision making, highlighting inefficiencies in monitoring patients' needs and health workers' performance, and in managing essential inputs. The need for robust information systems is emphasized for rapid identification of quality problems and appropriate action. Comprehensive information systems, including health management, medical records, human resources and logistics management, are crucial for collecting quality data at all levels of the healthcare system. Information systems for care management could include personal care records with patients' history and experience over time. A high-performing information system is vital for effective surveillance, priority setting, health facility management, and assurance of key primary healthcare functions. In addition, management information systems are essential to strengthen the management of logistics and commodities across a broader range of health and disease priorities. Lastly, improved human resource information systems can facilitate better monitoring of provider performance and aid in decision-making regarding the distribution of the PHC workforce across the country. Long-term, targeted investment to improve the information system for integrating medical records, strengthening logistics management, supporting human resources, and equipping healthcare facilities are recommended to enable staff and managers to acquire the skills needed to exploit data for decision-making.

4. **Improve financial protection.**

The National Health Development Plan 2012-2020 identifies financial protection as a priority, proposing measures such as extending health insurance coverage to ensure affordable access to healthcare

services, particularly for vulnerable populations. To improve the financial protection offered to the Mauritanian population, the government could consider expanding the scope of existing health insurance schemes, offering affordable health services to low-income vulnerable groups, while maintaining a sustained political and financial commitment. This could be achieved by strengthening subsidies for vulnerable groups and expanding the range of services covered to meet their specific needs. In addition, the application of capitation payment systems to healthcare providers in the fields of reproductive health and the control of non-communicable diseases can prove effective in reducing high costs and optimizing the use of services. In addition, Mauritania can optimize existing public-private partnerships with NGOs and global initiatives to strengthen financial protection as well as healthcare accessibility and quality, by exploring collaborations for referral, training, accreditation and clinical data integration.

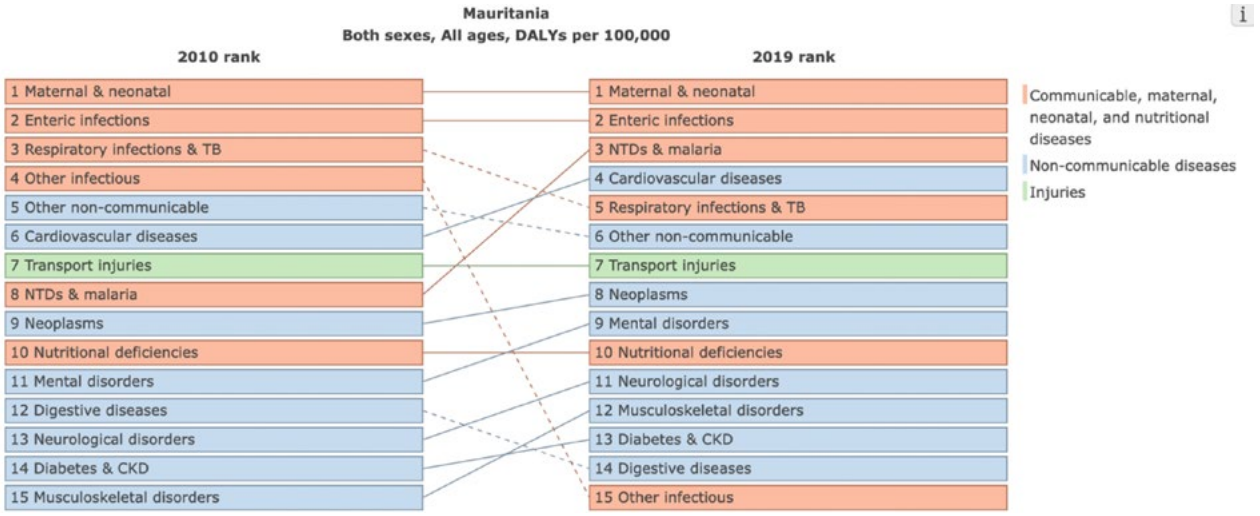
INTRODUCTION

In the past two decades, the PHC system in Mauritania greatly contributed to the increased access to preventive and curative health services, leading to improved population health outcomes including advancements in life expectancy and reported reduction in maternal, neonatal and child mortality. Life expectancy at birth has increased from 63 years in 2010 to 68 years in 2019 for both men and women (Global Health Observatory, 2019). Over the same period, maternal mortality declined by 122 deaths per 100,000 live births. However, it remains high compared to neighboring countries, with a ratio of 464 per 100,000 live births as reported by the WHO's Global Health Observatory, 2020 or 424 per 100,000 live births according to Demographic and Health Survey (DHS) 2019-2021. According to the DHS 2019 - 2021, the neonatal mortality rate is 22 per 1,000 live births. Among the 14 regions that were covered by the survey (the Inchiri region was not covered by the survey), the rate varies from 55 per 1,000 live births in the Adrar region to 9 per 1,000 in the Nouakchott Sud region. Three causes are directly responsible for neonatal deaths: prematurity (36 percent), asphyxia (22 percent) and sepsis (19 percent). Mother-child morbidity remains largely dominated by causes of maternal mortality, in particular post-partum hemorrhage in a context of frequent anemia (72.6 percent of maternal mortality) and eclampsia, but also by causes of infant and child mortality linked to acute respiratory infections, diarrhea, and malaria in a context of high prevalence of malnutrition (WHO, 2020).

Contributing to high mortality and morbidity rates, non-communicable diseases are rising, as are infectious diseases, which continue to dominate Mauritania's national epidemiological profile in Mauritania. While communicable diseases are a major contributor, non-communicable diseases are a growing cause of morbidity and mortality, particularly among the most vulnerable groups (mothers and children) (WHO, 2020). Mauritania is facing a double burden of disease, with an increase in non-communicable diseases (NCDs). Among adults, 21.3 percent of women and 8.2 percent of men live with obesity (GNR, 2022), while more than one in five (27 percent) women aged 15 to 49 are obese

(GNR, 2022). In 2006, NCDs were estimated to account for 37% of all deaths (UHC, 2021).

Figure 1. Cause-Specific Morbidity and Mortality, 2010 and 2019



Source: IHME 2022. *Note:* DALYs = disability-adjusted life years.

Major challenges still exist in childhood nutrition outcomes. Recent data indicate that 25 percent of children under 5 years are affected by stunting while 14 percent are affected by wasting (SMART survey 2022). The persisting high malnutrition rates can be attributed to a combination of various factors including poverty, limited access to basic services and infrastructure, low agricultural productivity and frequent droughts, lack of access to safe drinking water and adequate sanitation facilities, and limited access to quality healthcare services, particularly maternal and child health and nutrition services (FEWS, 2015).

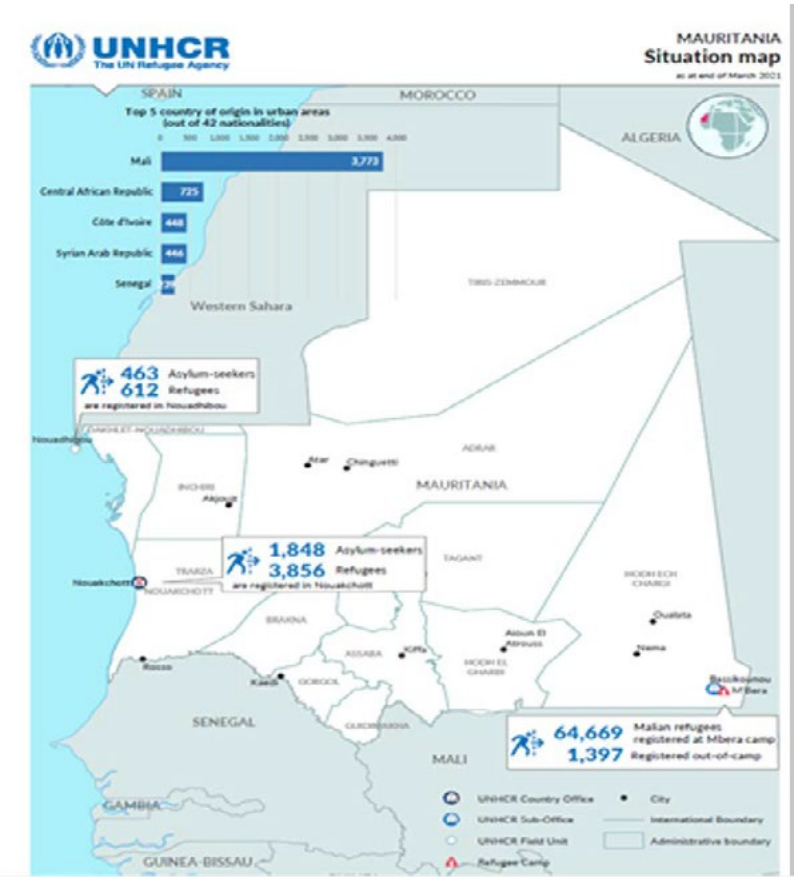
Natural hazards such as droughts and flooding contribute to malnutrition, disrupted livelihoods, and food insecurity in Mauritania. The country is also considerably affected by climate change because the majority of the population relies on traditional agriculture and livestock farming and is heavily dependent on the rainy seasons (FEWS, 2015). During the lean season of 2022, 20 percent of the population were severely food insecure (versus 11 percent in 2021) causing a high risk of a rapid deterioration of the nutritional outcomes. In fact, a broader-scale

emergency response is required. The nutritional emergency affects 22 among 55 districts, with a global acute malnutrition rate of over 15 percent and a severe acute malnutrition (SAM) rate of over 2 percent (UNICEF, 2022).

Recently, Mauritania has made notable progress in population access to improved water and sanitation- however, urban-rural disparities still exist. The percentage of the population living in households using an improved water source increased from 62 in 2015 (Multiple Indicators Cluster Survey (MICS) 2015) to 79 percent in 2021 (DHS 2019-2021). Similarly, the percentage of the population living in households with improved sanitation facilities increased from 40 percent in 2015 (MICS 2015) to 59 percent in 2021 (DHS 2019-2021). The recent improvements are not evident across rural households, indicating geographical disparities. Specifically, as of 2021, most of the population living in urban areas have access to improved water sources (98 percent) and sanitation facilities (85 percent). In contrast, only 61 percent of the population in rural areas have access to improved water sources, and only 35 percent have improved sanitation.

The increasing number of refugees that require health services from the national health system adds to the current health related challenges. As of December 2021, Mauritania continues to host 10,530 urban refugees and asylum-seekers in the cities of Nouakchott and Nouadhibou, as well as 69,766 Malian refugees in the Hodh Charghi region where the Mbera refugee camp is located (Figure 2). The growing refugee population highlights the need to strengthen and adapt PHC. With support from the World Bank, Mauritania launched the INAYA project to improve the quality and utilization of reproductive, maternal, neonatal and child health and nutrition (RMNCH-N) services in provinces with high numbers of refugees. Through this initiative, in close collaboration with the United Nations High Commissioner for Refugees (UNHCR), comprehensive primary and secondary health care, reproductive health, and HIV treatment are available and accessible, especially to refugees and host communities.

Figure 2. Distribution of refugees and asylum-seeking population in Mauritania, 2021.



Source : UNHCR, 2011

The government of Mauritania, with international partners, has been implementing several initiatives to reduce financial barriers to access health services. The initiatives that have already been implemented at a national level include the cost recovery exemptions for refugees with UNHCR and WB support. In 2022, about 1,200,000 people in Mauritania had health insurance coverage, and the MoH is projecting a 50 percent increase in the number of citizens benefiting from health insurance by 2024 (Media, 2022). Current health initiatives and commitments represent opportunities for Mauritania to strengthen its health system by directly encouraging the use of services through the removal of financial barriers.

The health system of Mauritania is organized at three levels: central, regional and Moughataa. At the central level the health system is governed by the MoH leading the strategic direction and coordination of central services and national programs. The system at the regional level consists of all outpatient care delivered in regional hospitals which are mostly autonomous facilities. Regional Directorates of Health Action (DRAS) headed by regional directors, under the authority of the Wilaya's socio-sanitary development council and the technical supervision of the Direction of Child Health, Vaccination and Nutrition, ensure the implementation of the department's health policy at the regional level (PNDS, 2022). The DRAS are also responsible for managing PHC facilities. The Moughataa Health Centers (Centre de santé Moughataa [CSM] in French), directed by senior physicians, are responsible for operations at the peripheral level and are under the technical supervision of the DRAS and ensure preventive and curative services, as well as emergency care and observation. The CSM, health posts of the Moughataa and Health Basic Units (USB) all provide PHC services. The number of USBs is limited across the districts, some are not functional, and some provide a limited number of health care services through mobile clinics to uncovered rural communities. Over the past 10 years, the private sector has played a significant role in the health system but with limited reach in urban areas. Among for profit entities, private pharmacies (118 pharmacies and 380 pharmaceutical depots at the national level) represent a frequent source of medicines for the population. Overall, administratively, the country is divided into 15 Wilayas (regions), 57 Moughataa (departments) and 220 communes, respectively headed by Walis and Hakems. The PHC assessment has made it easier to monitor the improvement of primary healthcare systems and the performance of service delivery within healthcare facilities.

VSP METHODOLOGY

The assessment of the PHC system of Mauritania, presented in this report, uses PHCPI's conceptual framework and methodologies. The PHCPI framework was developed to describe the critical components of a strong PHC system, it results in the Vital Signs Profile (VSP) which is a measurement tool that health system stakeholders can use to identify and track priority areas for an improved primary health care in Mauritania. The PHC assessment, using the VSP, answers some of the most critical questions about PHC systems across four core domains: financing, capacity, performance, and equity. The results include information based on a collection of quantitative and qualitative indicators for a comprehensive analysis as presented in Figure 3. To facilitate the understanding of the PHC assessment results, this report describes economic and health context of Mauritania, explains the assessment's methodology, describes the main findings, and proposes recommendations that can improve the PHC system in Mauritania.

The PHC assessment that results in a VSP is designed to collate data from several national surveys, global databases, and additional data collected in Mauritania- reviewing regulations, strategic plans, and experts' interviews. When available, globally comparable data sources were preferred to promote international comparability. However, in some cases, such data does not exist. The PHCPI team worked with the MoH and other partners to find alternative data sources that are consistent with the PHCPI framework and methodology. The VSP sub-domains (coverage, access, quality, equity, and financing) are measured using quantitative data from available secondary sources, including surveys such as DHS, MICS, and global data sources from WHO, UNICEF, and WB, among others. The data collection started in 2019, but due to COVID-19, the assessment process was finalized in 2022. Additionally, the Capacity domain of the VSP was assessed using the PHC Progression Model, a mixed-methods assessment tool developed to systematically assess the governance capacities, availability and distribution of inputs and the facility management and population

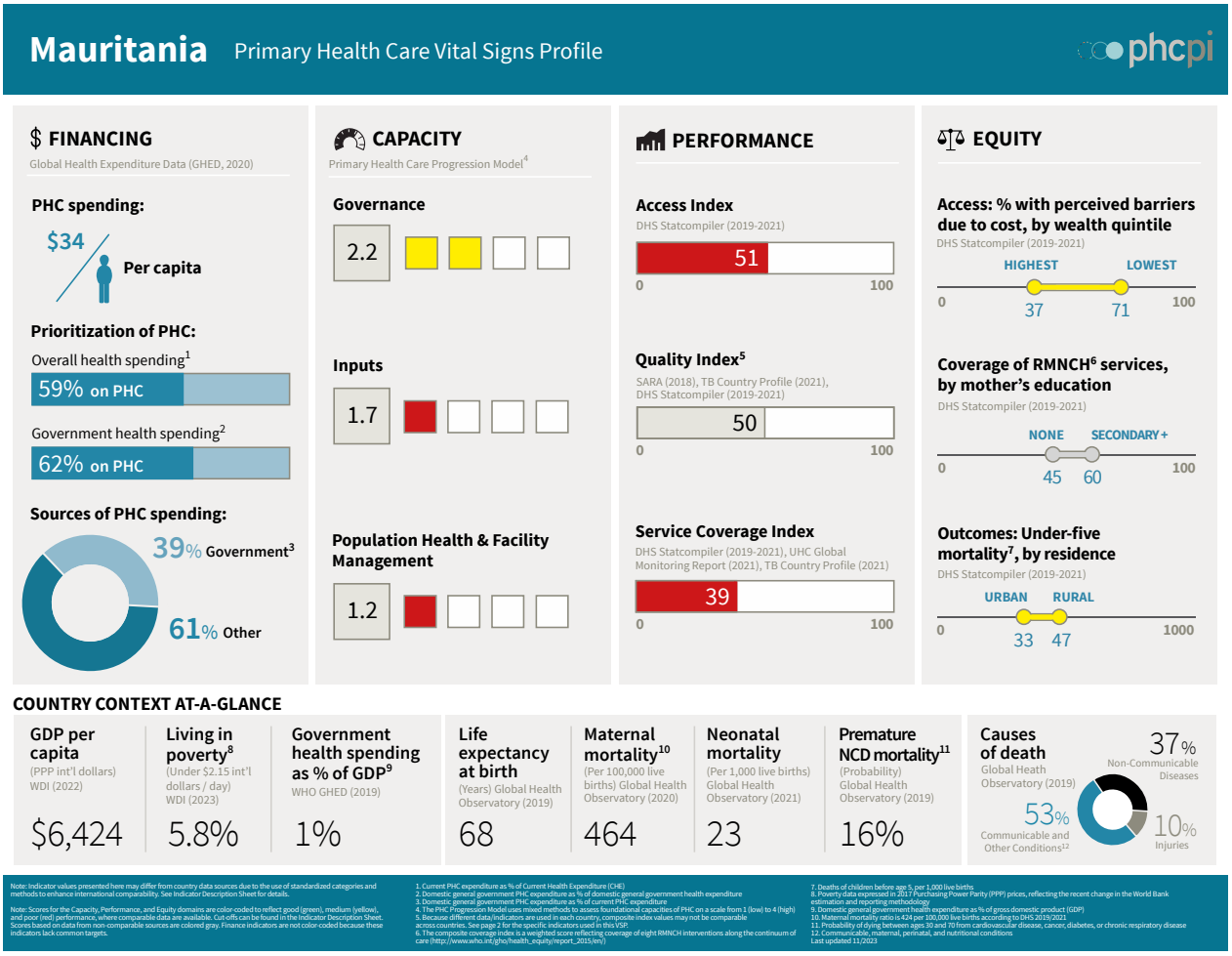
outreach strategies of PHC. The progression model methodology brings together expert stakeholders with varying and complementary knowledge of primary health care from across the country to yield an objective-comparable assessment of PHC capacity.

The initial data compilation process was implemented by a national consultant who did a document review of policies, plans, strategies, reports, and surveys. The consultant conducted 13 interviews with the government, NGOs, and multilateral agencies. The information collected was used to propose an initial score for the 33 Progression Model measures. These scores were validated in a national workshop in September 2022. Consolidation and validation were done in collaboration with the MoH to address disagreements between the internal and external scores. The VSP findings have been outlined to answer the following questions:

- Financing: How much does the health system, and government in particular, spend on PHC and is PHC prioritized in the government's budget?
- Capacity: Have the necessary policies and governance structures, the necessary physical and human inputs and a system for facility management and population outreach been implemented in the country?
- Performance: Does the PHC system ensure access to high-quality services and effective coverage of the population's health needs?
- Equity: Does the PHC system effectively serve the most marginalized and disadvantaged groups in society?

KEY FINDINGS FROM THE VSP

Figure 3. Vital Signs Profile (VSP), Mauritania 2022.



Note: The maternal mortality ratio used by the MoH is 424/100,000 (DHS 2019-2021). The PH-CPI uses the Global Health Observatory 2020 report to allow comparison between countries.

ACCESS

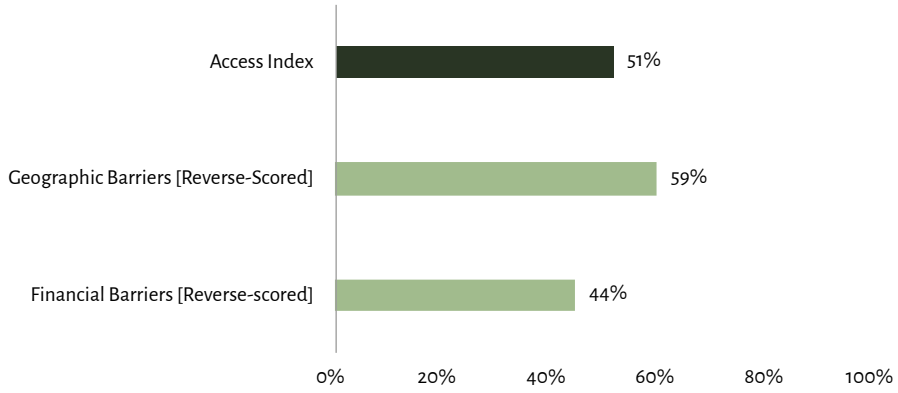
The Access domain in this assessment captures people's perspective on whether services are accessible when needed and without undue financial or geographic barriers. Access to care is an important dimension of PHC performance, as it uncovers how well health systems address the systemic barriers that patients face when accessing care for equitable

access to high-quality and high-performing PHC system. Specifically, Mauritania's VSP results on access includes measurements of perceived financial and geographic barriers to care, using data from the DHS survey of 2021 (see Figure 4). The finding is intended to guide policymakers, who seek to improve PHC performance, reduce geographic and financial barriers to access PHC services.

Women in Mauritania experience large barriers to accessing health care, especially those living in rural areas. According to the 2019-21 DHS, 67 percent of women (aged 15 to 49 years old) reported at least one problem for seeking treatment while being sick. About 56 percent of women indicated not accessing health care due to the cost of consultation or treatment and 41 percent of women referred to the distance to health facilities as a barrier to access services. Mauritania ranks third after Sierra Leone and Guinea, among countries in West Africa for which recent data is available, as having the greatest financial and distance barriers to access[1]. In Mauritania, results show substantial variation by place of residence; access barriers remain high in rural and urban settings as displayed in Figure 5. Specifically, almost two-thirds of women living in rural areas reported that money was a problem (65 percent) for seeking care, compared to almost one-half of women in urban areas (48 percent). Similarly, more than one-half of women living in rural areas reported that distance was a problem (55 percent) for seeking care, compared to less than one-third of women in urban areas (28 percent).

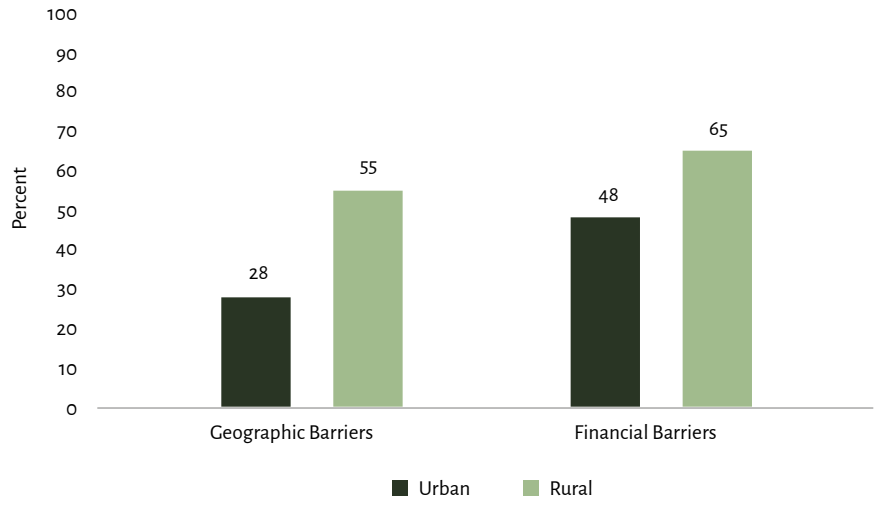
1 In Sierra Leone 66.1 percent of women report financial barriers to access and 44.1 percent report geographic barriers to access (DHS 2019). In Guinea Leone 60.1 percent of women report financial barriers to access and 46.1 percent report geographic barriers to access (DHS 2018).

Figure 4. Barriers to access in Mauritania, DHS 2021



Source: author's calculations using [DHS, 2019-2021]

Figure 5. Geographic and Financial Barriers to Care among women by urban-rural Status in Mauritania 2019-2021



Source: author's calculations using [DHS,2019-2021]

COVERAGE

The Coverage domain encompasses measurement of the effectiveness of service delivery for RMNCH, NCDs, and infectious disease. Table 1 presents the VSP indicators selected through an extensive literature reviews and consultations with international experts intended to measure countries' coverage of PHC services- in this case, Mauritania. Below is a

summary of the coverage of services for RMNCH, infectious diseases, and NCDs, using data from the most recent household surveys (DHS 2019-21& MICS 2015) and monitoring reports in Mauritania. Given that the latest DHS (2019-2021) spanned the pandemic years (except for Nouakchott, where the DHS data was gathered in 2019 before the emergence of COVID-19), its estimates for key coverage indicators may not be directly comparable to the earlier MICS survey due to the interruption of routine services and the potential interference with the data collection process.

Table 1. Coverage of services for RMNCH infectious diseases, NCDs

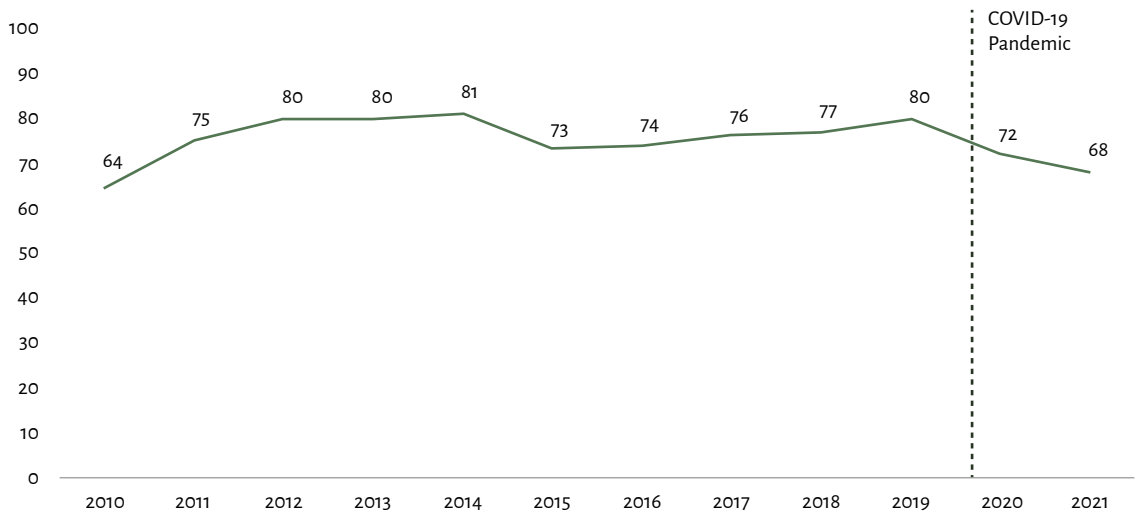
Indicator	Percent (2015-2017)	Percent (2019-2021)	Percentage Point Change	Source
RMNCH-N				
Care-seeking for suspected child pneumonia	34	46	↑12	MICS 2015, DHS 2019-2021
Coverage of DPT3 Vaccination	63	67	↑4	MICS 2015, DHS 2019-2021
Demand for family planning satisfied with modern methods	29	28	↓ 1	MICS 2015, DHS 2019-2021
Antenatal care coverage (4+ visits)	63	39	↓24	MICS 2015, DHS 2019-2021
NCDs				
Age-adjusted adult population with normal blood pressure	68	37	↓ 31	UHC monitoring report, 2021
Infectious disease				
Tuberculosis cases detected and treated with success	57*	46	↓ 11	WHO TB country profile
People living with HIV receiving anti-retroviral treatment	21	62	↑ 41	UHC Global Monitoring Report, DHS 2019-2021
Children under five years of age with diarrhea receiving ORS	25	20	↓ 5	MICS 2015, DHS 2019-2021
Population who slept under ITN the night before a survey	8	11	↑ 3	UHC Global Monitoring Report, DHS2019-2021

Source: WHO TB profile 2017 data. Multiple Indicator Cluster Survey (MICS). Demographic and Health Survey (DHS). ** Subdomain and Indicators are not part of the standard VSP indicators
Note: the table outlines the coverage of services for RMNCH infectious diseases, NCDs, using data from the most recent household surveys and monitoring reports.

Ensuring service coverage of child health services continues to be challenging in Mauritania despite some notable improvements in the recent years. Coverage of child health services is assessed using two standard Universal Health Coverage (UHC) indicators: 1) care seeking for pneumonia; and 2) DPT3 immunization coverage. Mauritania has achieved an increase in the percentage of children that seek care when suffering from pneumonia-like symptoms. In 2021, 46 percent of children under the age of five with pneumonia sought care from a health facility or a provider compared to 34 percent in 2015. However, there is still an opportunity for substantial improvement in care seeking for pneumonia, mainly in rural settings where only 42 percent of children with pneumonia seek care. Meanwhile, an increase from 63 percent to 67 percent of children receiving three doses of diphtheria-pertussis-tetanus (DPT3) by the age of one year shows slight improvements made in DPT3 immunization coverage from 2015 to 2021. Considering the implications of the COVID-19 pandemic during the latest assessment (2019-2021), it is possible that childhood vaccination was affected by routine service interruption, especially during lockdowns. According to triangulated data, it is estimated that there are around 41,583 unvaccinated children in 2021, mainly concentrated in the south and southeast of the country. UHC monitoring report suggested that the DPT3 coverage in Mauritania could have been at least 80 percent in 2021 if prior trends had continued. Furthermore, data from the WHO/UNICEF joint annual reporting on immunization point to the potential impact of COVID-19 on DPT3 vaccination coverage in Mauritania (see Figure 6). Data from the same source also highlights the remaining challenges in reducing the number of Zero-dose children. Specifically, the number of zero-dose children in Mauritania has substantially increased between 2015-2021. Zero-dose children are unevenly distributed throughout the country. The regions most affected by zero-dose children are Hodh Echargui, Gorgol, Nouakchott Sud, Nouakchott Ouest, Assaba and Hodh Gharbi, which account for over 82% of these children. WHO/UNICEF estimates 36,891 zero-dose (25 percent of surviving infants) in 2021. Moreover, DPT1 coverage

was only slightly improving before COVID (from 87 percent in 2015 to 88 percent in 2019). During COVID, DPT1 coverage decreased by 8 percent in 2020 (80 percent) and then decreased by another 5 percent (75 percent) in 2021.

Figure 6. DPT3 Immunization coverage among under-five children in Mauritania 2010-2021 (WHO/UNICEF joint reporting on immunization)

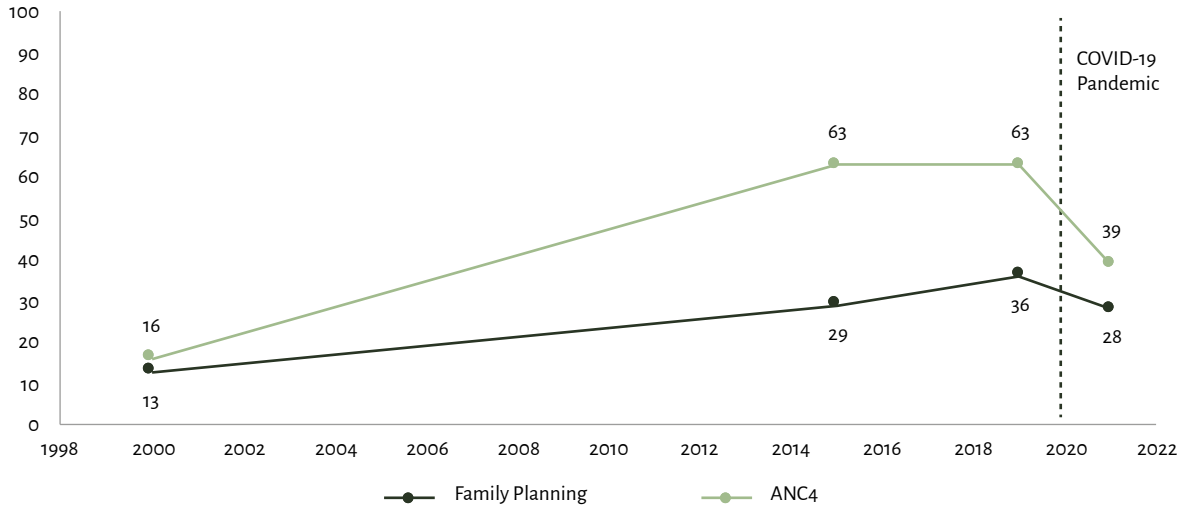


Source: author's calculations using [WHO/UNICEF joint reporting on immunization, 2010-2021]

The latest coverage estimates for Mauritania's maternal health services demonstrate substantial bottlenecks that warrant further investigation. Despite notable improvements since the early DHS survey in 2000-2001, latest results from the DHS and the MICS in Mauritania show that the demand for family planning with modern methods available to women dropped by one percentage point from 29 (2015) to 28 percent (2019-21). Using this indicator for comparison with other countries in the West Africa Region for which recent data is available, Mauritania ranks below all its neighbors with the exception of Benin where the demand of modern family planning methods is at 25.9 percent (DHS 2017-18). The percentage of women receiving four or more ANC consultations dropped markedly from 63 percent in 2015 to 39 percent in 2021, setting Mauritania as second lowest levels among its West African neighbors only after

Guinea (35.7 percent, DHS 2018). Similarly, the DHS estimates have been affected by routine service interruption during the pandemic, especially since data collection in the capital city of Nouakchott (one of the most densely populated areas) was delayed due to the social and public health measures to prevent and control COVID-19. In an attempt to triangulate available data to better understand the situations before the pandemic, we compared actual coverage estimates from MICS 2015 and DHS 2019-21, in addition to the expected coverage estimates from UHC 2021 (see Figure 7). Results show that despite relative improvement in family planning services and maintenance of the coverage levels for ANC between 2015 and 2019, the COVID-19 pandemic impacted the accuracy of the latest DHS estimate on service delivery processes and care-seeking behavior. Over the same period, data collection also became a great challenge.

Figure 7. Coverage of antenatal care and family planning services in Mauritania 2000-2021



Source: author's calculations using [DHS 2000-01, MICS 2015, UHC 2021, DHS 2019-21]

The prevalence of hypertension continues to increase in Mauritania. According to the 2021 UHC report, only 37 percent (adjusted for the population structure) of the adult population in the country had blood pressure within the normal range compared to 68 percent in 2017 (2017

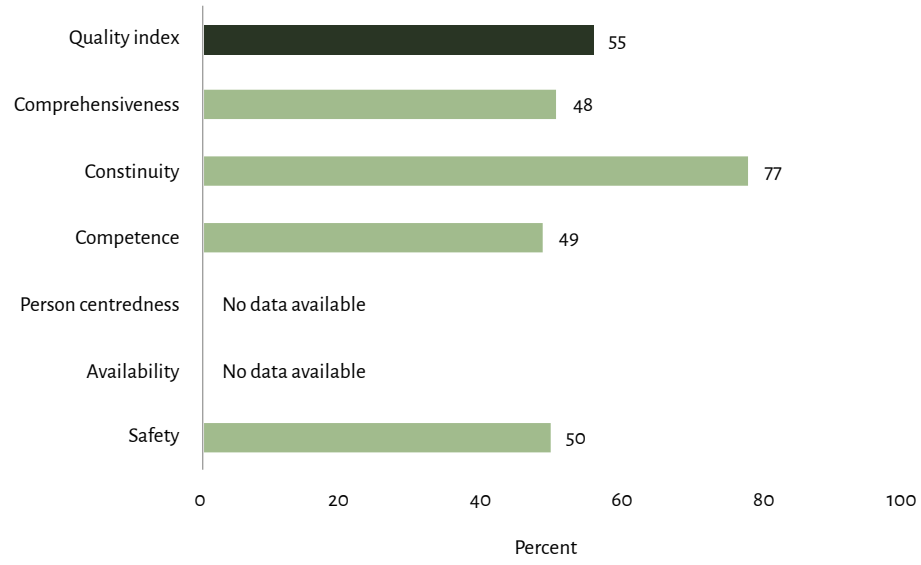
UHC report)– a situation that justifies the implementation of actions aimed at providing essential care for cardiovascular diseases at the different levels of the health pyramid, and the definition of standard protocols for the management of these diseases. According to the latest WHO data published in 2020, coronary heart disease deaths in Mauritania reached 1,636, which represented 6.92 percent of total deaths (Mrabet, 2021), commonly attributed to the country's limited progress in reducing unhealthy diets and a lack of physical activity. Mauritania's obesity prevalence is higher than the regional average of 20.7 percent for women with obesity estimated at 21.3 percent for adult women (aged 18 years and over) compared to 8.2 percent for adult men (GNR 2022). Data from DHS 2019-2021 also shows a prevalence of obesity estimated at 27 percent among women of reproductive age group. Diabetes is also slightly higher for women with an estimate of 10.7 percent of adult women affected compared to 9.8 percent of adult men affected (GNR, 2022).

Coupled with a growing burden of NCDs, the coverage of other infectious diseases is significantly lagging in the country. Despite the improvements in HIV treatment coverage, coverage of other infectious diseases still poses challenges for Mauritania's primary health care system. Based on the 2021 UHC report, 62 percent of persons with HIV received anti-retroviral treatment compared to only 21 percent in 2017 (2017 UHC report). Specifically, more than half (54 percent) of TB patients were not successfully treated in 2021, with an 11-percentage-point increase compared to 2017 estimates (WHO TB country profiles). Moreover, only 20 percent of children with diarrhea received oral rehydration salts (ORS) according to DHS 2019-21, a 5-percentage-point drop compared to 2015 MICS estimates. For malaria prevention, only 11 percent of the population in malaria endemic areas slept under insecticide-treated nets (ITN) according to DHS 2019-21.

QUALITY

In Mauritania, analysis of PHC quality indicates room for improvement across all four quality subdomains for which data are available. Using PHCPI's methodology, PHC quality is measured across components of clinical quality and core principles of service provision such as comprehensiveness, continuity of infectious disease services, provider competence, person-centeredness, availability, and safety. Figure 8 provides a summary of results on quality of PHC and indicates that there are substantial gaps in the competence of RMNCH-N providers, comprehensiveness of services offered at PHC facilities and in communities, continuity of TB treatment, and waste management at PHC facilities, presenting additional challenges to strengthening the quality of care. No data was found in Mauritania to measure person-centeredness or availability of primary health care providers.

Figure 8. Summary scores for quality domain and subdomains in Mauritania, 2021

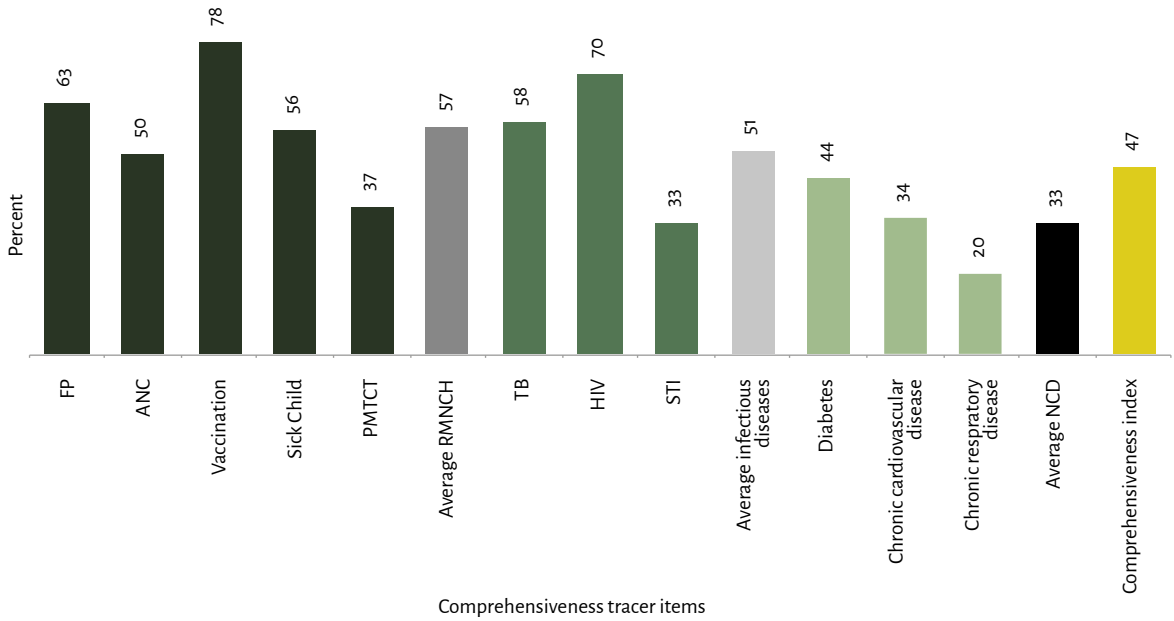


Source: author's calculations using [SARA 2018, TB country profile 2021, DHS 2019-2021]

In Mauritania, there are gaps in the comprehensiveness of RMNCH-N services and infectious disease services, with an opportunity for substantial improvement in the availability of NCD services. A comprehensive PHC system refers to the integration of basic and appropriate care services across and within one facility addressing a spectrum of health problems and treatment modalities for various population groups. A closer look at available indicators shows that half of the facilities in Mauritania have the operational capacity to offer a basic set of RMNCH-N services. About 57 percent of 5 primary maternal and child health services (sick children, prenatal care, immunization, family planning (FP) and prevention of mother-to-child transmission of HIV (PMTCT)) and 54 percent of infectious disease services are provided, and only a third of primary health care facilities can offer basic NCD diagnosis and treatment (LEP, 2018). Further, a breakdown by the type of NCD services indicate that less than half of the health facilities (44 percent) have the operational capacity to offer diabetes diagnosis and treatment services, and one-third of them (34 percent) can provide diagnosis and management services for cardiovascular illnesses. Additional measures of quality assessment show that only one-fifth of PHC facilities (20 percent) can offer diagnosis and management services for chronic respiratory diseases.

There are persisting challenges to ensuring the continuity of care for infectious disease services in Mauritania. Between 2015 and 2021, relative improvements were made in continuity of care, as shown by the DPT3 dropout (from 29 to 21 percent, respectively) as well as TB treatment success rates, which increased from 70 to 81 percent, respectively. However, one in five (21 percent) of the 84 percent of children who received their first DPT vaccination did not receive a third dose, and one-fifth (19 percent) of TB patients did not complete their treatment. Incomplete vaccination or lack of treatment adherence reduces the effectiveness of the prevention and the course of diseases such as TB.

Figure 9. Summary scores for comprehensiveness subdomain in Mauritania, 2021

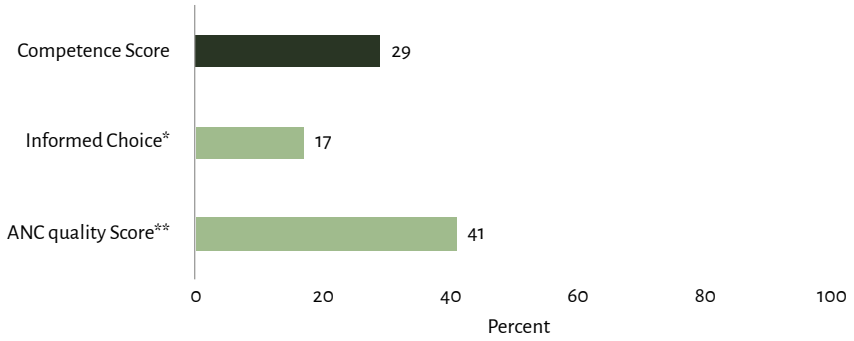


Source: author's calculations using [SARA, 2018]

Provider competence scores indicate a substantial gap in the provision of ANC and family planning services in Mauritania. In the current assessment, we constructed proxy indicators to measure provider competence in ANC and family planning services. Competence in ANC was measured as the average of the required care components as reported by women who had received these services during their last pregnancy. These components include blood pressure and weight measurement, blood and urine sample collection, ultrasound, and nutritional advice. Competence in family planning services was measured using the methodological information index (informed choice) as the average of receiving information on the side effects of the current family planning method, management of side effects of this method, as well as discussing other potential contraceptive methods. According to DHS 2019-21, only two-fifths of the women (41 percent) in Mauritania who received ANC for their most recent pregnancy in the past five years received the required components of care in at least one ANC visit. Furthermore, less than one-fifth (17 percent) of women using modern contraceptive methods were informed about side

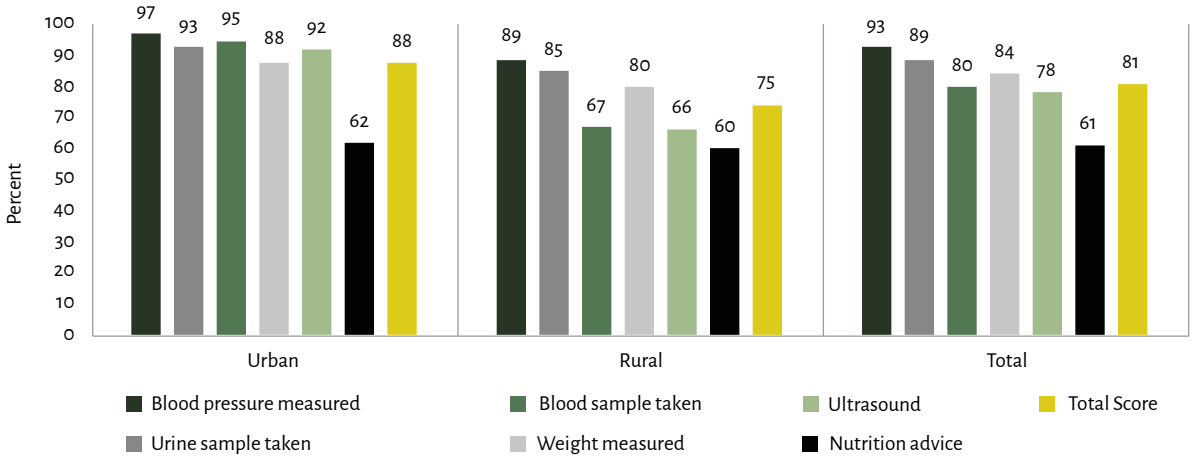
effects or problems of the method used, management of side effects, and other methods of contraception. The competence of providers also showed substantial urban-rural disparities, where 53 percent of women living in urban areas received the recommended components of ANC compared to only 32 percent in rural areas.

Figure 10. Summary scores for provider competence sub-domain in Mauritania, 2021



Source: author's calculations using [DHS, 2019-2021]
Note: *This includes the provision of information on the side effects of the current methods, what to do in case of side effects, and discussion of potential other methods. **This includes the following components in at least one ANC visit: Blood pressure check, urine and blood sample, weight measurement, ultrasound, and nutritional counseling.

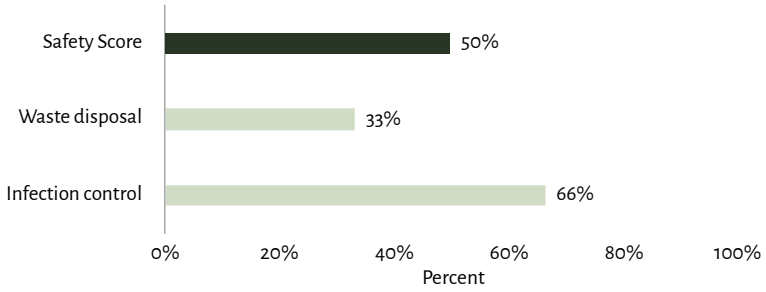
Figure 11. Quality of Antenatal Care by residence in Mauritania 2019-2021



Source: author's calculations using [DHS, 2019-2021]
Note: *This includes the following components: Blood pressure check, urine and blood sample, weight measurement, ultrasound, and nutritional counseling

The most recent facility survey (SARA 2018) indicates room for improvement in patient safety practices. Mauritania experienced a drop in the adequacy of infection control measures between 2016 and 2018, where 66 percent of PHC facilities had a good adherence to standards and availability of all infection control tracer items in 2018 compared to 89 percent of the facilities in 2016. However, adequate waste management remains a major challenge in the country with only one-third of PHC facilities (33 percent) having adequate waste disposal practices in 2018, which is a 3-percentage point drop from 2016 (Figure 12). In this assessment, adequate infection prevention and control and adequate waste disposal measures are used to determine patient safety at health facilities. Both measures refer to the availability infection control tracer items (i.e. soap and running water, or storage for sharps waste) and adherence to standards for disposing of medical and hazardous waste and sharps as well as the availability of guidelines for waste disposal at the facility.

Figure 12. Summary scores for safety sub-domain in Mauritania, 2021



Source: author's calculations using [SARA,2018]

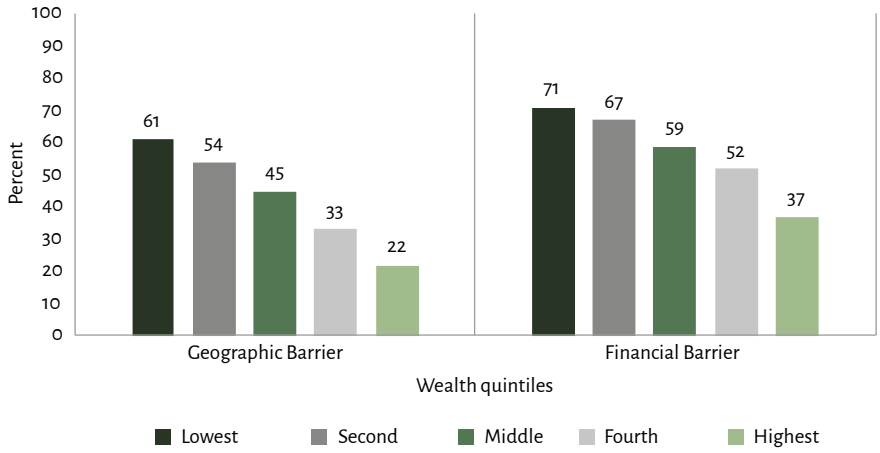
EQUITY

The equity domain in the PHCPI VSP assesses disparities in health outcomes across. The assessment measures equity across access, coverage, and outcomes to understand if the PHC system serves vulnerable

populations equally compared non-vulnerable populations by using indicators disaggregated by socioeconomic status, including wealth, mother's education, and place of residence. It looks at the difference in perceived financial barriers to care, effective coverage of maternal and child health care services based on a mother's level of education, and mortality of children residing in urban and rural areas. In addition to the indicators featured in the VSP, we also reviewed the coverage of select RMNCH-N, infectious disease, and childhood nutrition services by wealth quintile and local government area.

In Mauritania, there is a notable disparity in access and coverage of PHC services between the upper and the lower wealth quintiles. The latest available data (DHS 2019-2021) shows that 71 percent of women in the lowest wealth quintile reported financial barriers when accessing health care compared to 34 percent of women in the highest wealth quintile (see Figure 13). Similarly, 61 percent of women in the poorest quintile reported a perceived geographic barrier to care compared to 22 percent of women in the highest wealth quintile. These marked wealth disparities in access are reflected in the coverage of essential RMNCH-N services across wealth quantiles. For example, the demand for family planning was satisfied by modern methods in only 11 percent of women in the lowest wealth quintile compared to 46 percent of women in the highest wealth quintile. ANC coverage results also indicated disparities as only 26 percent of women in the lowest wealth quintile compared to 49 percent of pregnant women in the wealthiest quintile received at least one ANC visit. Similarly, advice or treatment was sought from a health facility or a provider for only 28 percent of children with ARI symptoms in the lowest wealth quintile, compared to 58 percent of children in the wealthiest quintile.

Figure 13. The difference in financial and geographic barriers to care by wealth quintile in Mauritania 2019-2021

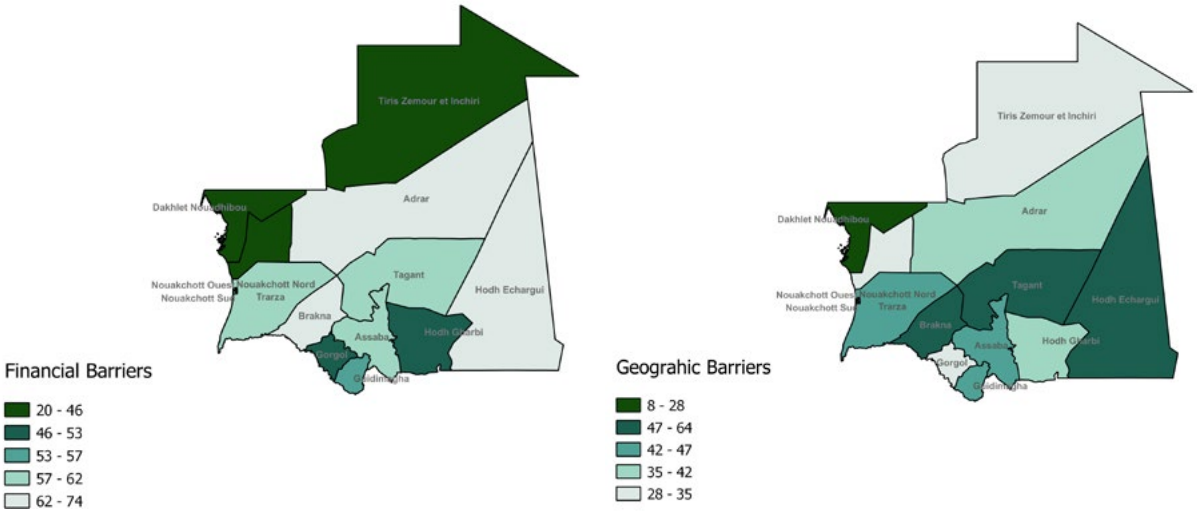


Source: author's calculations using [DHS, 2019-2021]

Further disparities in access and coverage of PHC services were observed across Wilayas in Mauritania. A higher percentage of women in Hodh Charghi, reported challenges in accessing health care due to financial barriers (64 percent) and distance (74 percent) compared to other Wilayas[2]. The same pattern was observed in the coverage of essential RMNCH services. Specifically, 19 percent of women in Hodh Charghi received four or more ANC visits, the lowest coverage estimate compared to other Wilayas. Similarly, the demand for family planning services was satisfied by modern methods for only 7 percent of women living in Hodh Charghi compared to women living in Tiris Zemour and Inchiri and Dakhlet Nouadhibou (53 percent and 50 percent respectively). Only 44 percent of children in Hodh Charghi received three doses of the DPT vaccine compared to almost all the children (97 percent) in Dakhlet Nouadhibou (see Figure 15).

2 However, it is worth noting that the DHS survey did not sample refugee women living in camps, so these estimates may only reflect the barriers to care among the host population living in Hodh Charghi rather than refugee women in Mbera camp who can benefit from free access to healthcare by UNHCR.

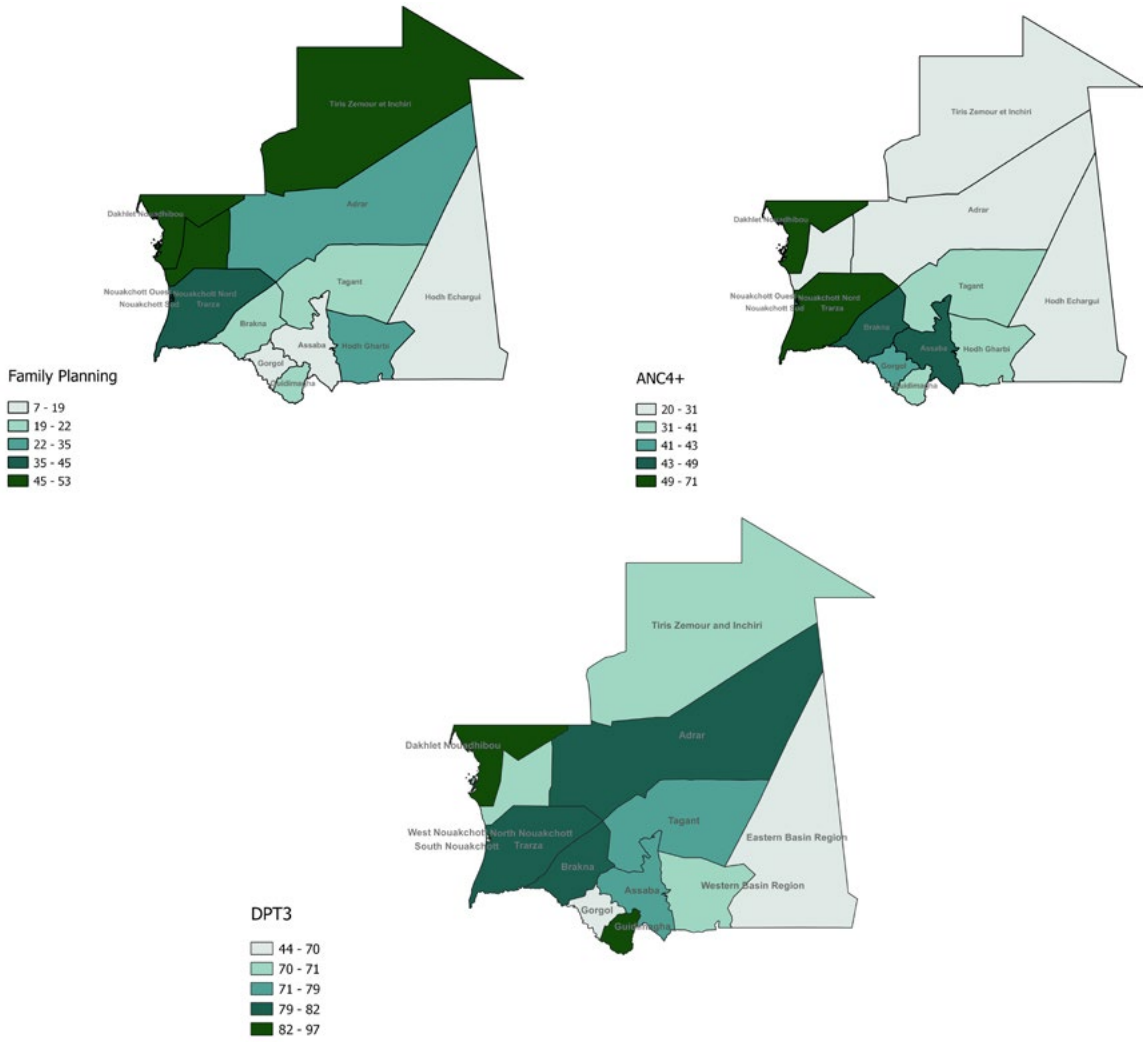
Figure 14. Geographic and financial barriers to care by local governmental area in Mauritania 2019-2021



Source: author's calculations using [DHS, 2019-2021]
Note: Please note that darker shades denote more challenges (higher access barriers)

Notable educational disparities, in line with wealth disparities, were also found between the coverage of RMNCH-N services in households where the mother completed secondary or higher levels of education and those that received no education. In households where the mother completed secondary or more education, about 63 percent of mothers and children receive a complete basic package of RMNCH-N services; while only 47 percent of mothers and children, in families where the mother has not completed primary education, received such care (Figure 16). This disparity is more pronounced in deliveries by skilled birth attendants. A considerably higher number of women with secondary or higher education (97.2 percent) delivered with the assistance of a skilled birth attendant compared to 64.8 percent among women without education.

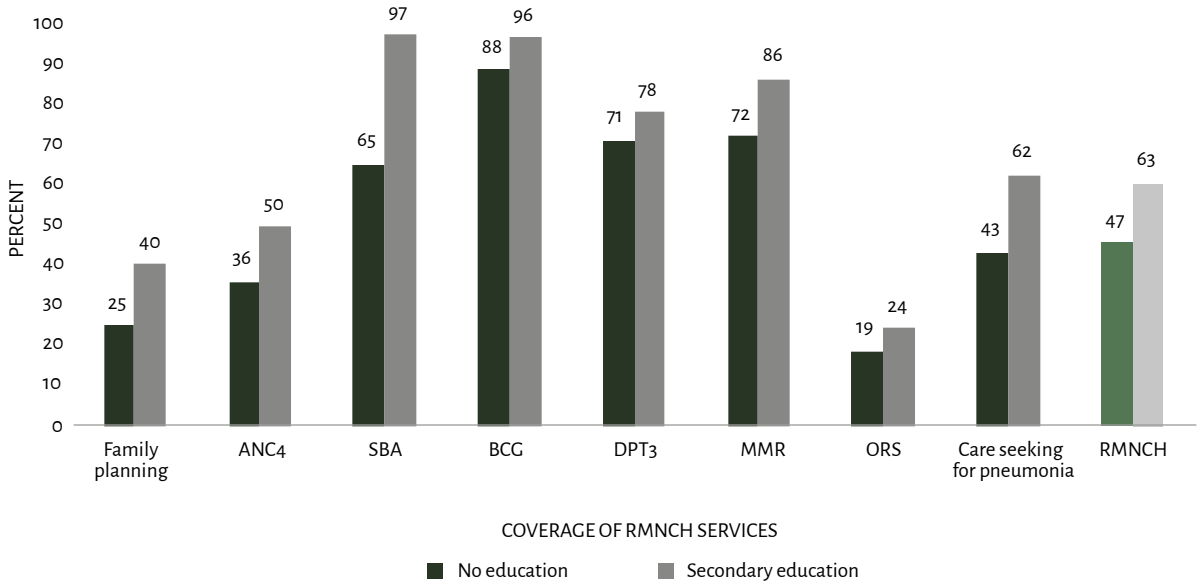
Figure 15. Coverage of PHC services by local governmental area in Mauritania 2019-2021



Source: author's calculations using [DHS, 2019-2021]
Note: Please note that darker shades denote better coverage.

Moderate disparities by residence in the mortality of children under five were also reported in Mauritania. According to the latest 2019-21 DHS, there is a 14-percentage-point difference in under-five mortality rates between urban and rural areas (Figure 17). Specifically, the mortality rate among children under-five years of age in rural areas is 47 deaths

Figure 16. Breakdown of RMNCH-N services coverage by educational status in Mauritania 2019-2021

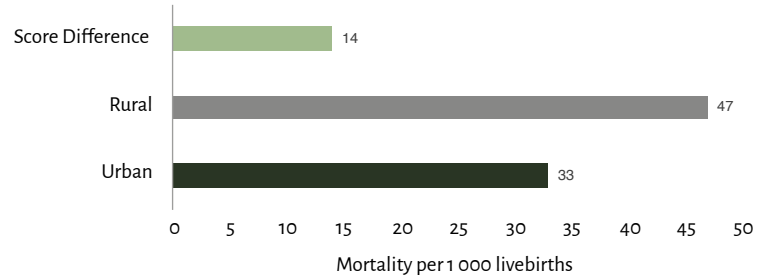


Source: author's calculations using [DHS, 2019-2021]

per 1,000 live births versus 33 deaths per 1,000 live births in urban areas. These disparities highlight the difficulties confronting the PHC system, particularly in rural areas, where the challenge of reducing child mortality remains substantial.

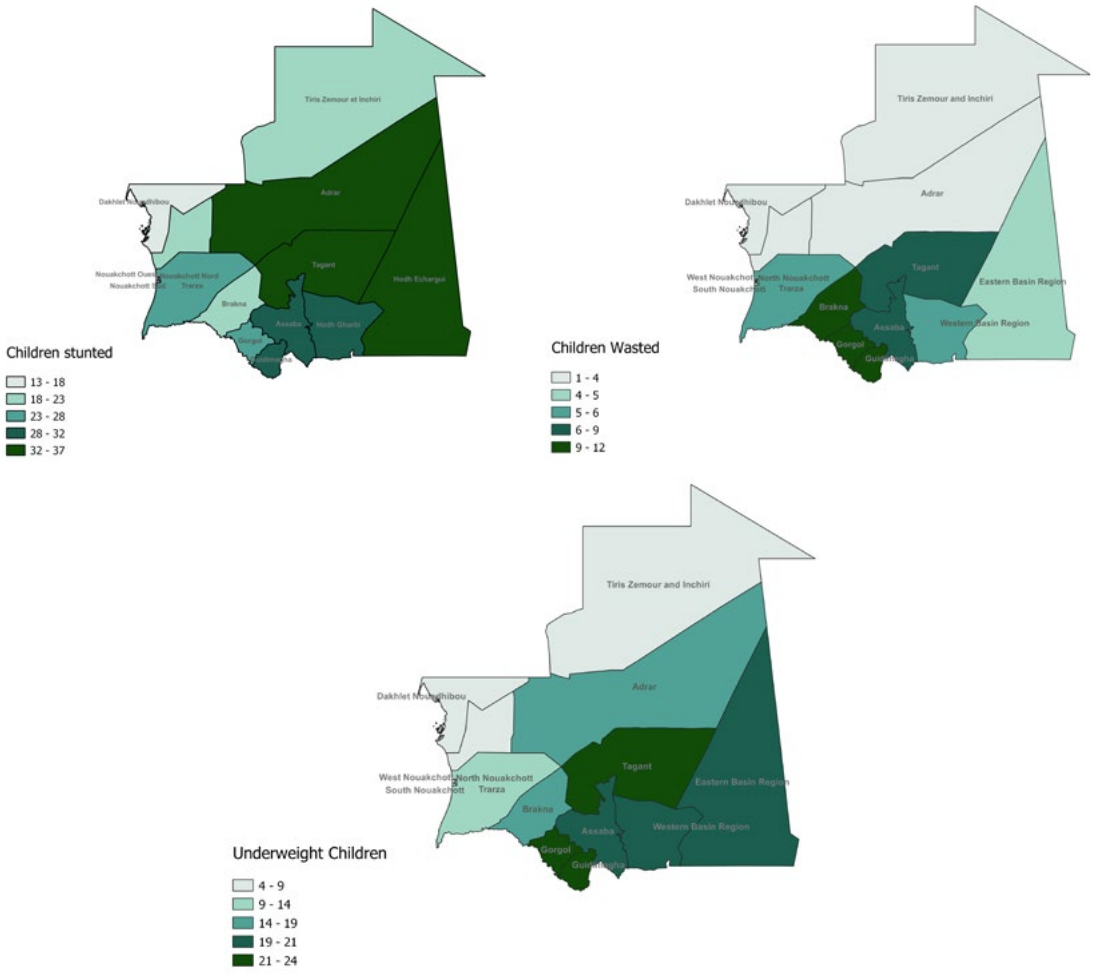
Notable disparities by residence and across Wilayas in childhood nutrition outcomes were observed. Considerable urban-rural disparities exist in childhood nutrition outcomes where 30 percent of children living in rural areas are stunted, compared to 17 percent of children living in urban areas (DHS 2019-2021). Data available from the latest DHS 2019-2021 survey also indicates that prevalence of stunting, wasting and underweight children varied across Wilayas (Figure 18). Specifically, Wilayas such as Hodh Charghi continue to face challenges, with more than one-third (36 percent) of children are stunted compared to the DHS 2019-2021 national average of 26 for stunted children.

Figure 17. Breakdown of under-five mortality by urban-rural status 2019-2021



Source: author's calculations using [DHS, 2019-2021]

Figure 18. Percent of stunting, wasting, and underweight by local government areas in Mauritania 20019-2021



Source: author's calculations using [DHS, 2019-2021]

CAPACITY

The capacity domain relies primarily on qualitative data to measure the ability of a system to deliver high-quality PHC services within three sub-domains: governance, inputs, and population health and facility management. The primary health care system is comprised of elements of a health system structure like governance, the intersectoral policy environment, and inputs according to a community's needs and expectations. Governance refers to PHC policies, quality management infrastructure, and social accountability as well as the ability of the system to appropriately adjust to population health needs. The inputs domain measures the availability, equitable distribution, and quality of essential service delivery inputs, including drugs, supplies, workforce, facility infrastructure, information systems, and funds at the facility level. Population health and facility management includes an assessment of how well population health is managed, including activities such as community outreach and local priority setting (PHCPI 2022). The capacity assessment also captures the PHC systems' leadership, information system use, performance measurement and team-based care. Mauritania's healthcare system capacity demonstrates areas of opportunities. There is an improved Information system including the progress in technical adaptation of the National Health Information System (SNIS), high-level political commitment to health especially programs to improve access to services, and existence of strategies for facility management and supervision.

GOVERNANCE

Mauritania's National Health Policy for 2030 defined PHC as a national priority and the main approach to achieve UHC. However, it is not followed by a specific implementation plan for better integration and coordination of the PHC components identified. The National Health Policy describes the three main PHC components: (i) integrated health services to meet

people's health needs; (ii) addressing the broader determinants of health through multisectoral policy and action; and (iii) empowering individuals, families, and communities to take charge of their own health (PNDS, 2022). To achieve this plan, the MoH has a national committee that follows its implementation, with the regional directorates following the implementation at the regional level. Mauritania also joined the initiative of the International Health Partnership (IHP+) which motivated the development of a National Health Development Plan or Plan National de Développement Sanitaire (PNDS)- with a participatory process involving all actors in the sector (governmental, private, civil society and multilateral cooperation). Even though the National Health Policy prioritizes PHC, the tertiary-level facilities benefit the most from and the government resources**.** There is an inefficiency in resource allocation for PHC facilities. In 2020, low-cost prevention programs such as immunization, reproductive health and malaria received 4 percent of resources, other primary healthcare received 21 percent and hospitals 60 percent (WB, 2020).

At the regional level, the Ministry of Health's leadership is represented by the Regional Health Directors (Direction régionale de l'action sanitaire [DRAS] in French), which oversees the implementation of the National Health Policy. The DRAS have an Executive Committee that ensures the monitoring of the health policies, the PHC Strategy, and the harmonization of sectoral action**.** However, according to experts interviewed, the steering committee often lacks information to measure, monitor, and follow up on the implementation of the PHC Strategy at the regional level. There is also a lack of information and variation in technical capacity from one district to another (PNDS, 2022).

The MoH established a national department responsible for the organization, quality management - Organization and Quality of Care Division (Direction de L'Organisation et de la Qualité des Soins [DOQS] in French)- which develop and manage the implementation of a quality-of-care assurance plan. This direction sets quality standards and organizes

inspection missions to ensure compliance with legislative and regulatory requirements governing medical and pharmaceutical activities. This facilitates the direction's involvement in planning and monitoring the country's PHC strategies. However, results of the validation workshop revealed that there is limited knowledge sharing on issues related to PHC as well as the existence of cross-sectoral integrated planning influencing the reach of the PHC system. This includes the development of systems to collect and share knowledge on the quality of care at facility, sub-national, and national levels.

The MoH has developed the situation analysis report and a two-year operational plan of the community health program in 2023 defining health actions the level of involvement of communities in the governance and the supply of PHC. For community engagement, a few community committees are functional across the country such as the Health Committees (Comités de Santé [COSA] in French) at the health centers and the health posts. They are responsible for carrying out community surveys to verify the performance of health facilities and the satisfaction of healthcare beneficiaries which helps when setting priorities for policies or when making decisions within the facility and about service delivery (MoH, 2019). However, the implementation of community health promotion is affected by limited financial resources allocated to community health and coordination efforts between facilities and community committees. As of 2020, COSAs are in place in 256 health posts (HP) but do not exist in 362 HP (MoH, 2020). Stakeholder engagement across the sector includes several stakeholders: the government, development partners, civil society, the private sector, and community members. Yet, the MoH and the private sector information systems are not connected, limiting the involvement of the private sector in the health sector planning processes.

While the PHC system in Mauritania is intended to promote multi-sectoral collaboration with the established coordination mechanism, there is still a need to improve the participation in the PHC systems across

sectors, including education and agriculture. The National Health Policy aimed for a holistic approach and multi-sectoral collaboration to respond to public health events like high-impact infectious diseases emerging at the interface between humans, animals and the environment (MoH, 2017). For example, Mauritania developed an action plan to improve the consideration and coordination of nutrition in the agricultural sector with an emphasis on the multi-sectoral collaboration between nutrition-related fields the efficiency of nutrition strategies in the Agricultural sector. Through this effort the country identified existing contributions and opportunities for strengthening nutrition programs across sectors. Mauritania's inter-sectoral mechanisms for crisis management are also intended to contribute to building the country's multi-sectoral coordination capacity and strengthen its systems including the health system through decentralization efforts and inclusive private sector growth. To promote intersectoral coordination in health action, multisectoral technical committees are set up around various themes. Mauritania's Social Safety Net System project is a good example as it aligned with the Country Partnership Framework focusing on building human capital for inclusive growth. It aims to expand the coverage of existing social protection programs and reach vulnerable people in the most fragile regions of the country, including refugees in the Hodh Charghi at the Malian border (WB, 2020). The lack of effective coordination can be tied back to budgetary challenges and a shortage of coordination and monitoring mechanisms hindering the execution of multi-sectoral programs, particularly those related to early life (UNICEF, 2020).

Health services delivery prioritization is done using health information data at the national and sub-national levels on an annual basis. Experts reported that the process of evidence-based prioritization is not systematic as there is an absence of some data in the National Health Information System (SNIS). Experts also noted that while activities are reported, there is a lack of analysis and prioritization at the local level. Specifically, the National Health Policy considers the analysis of morbidity and mortality trends and relies on data from population surveys, which are

of good quality. However, the availability of such data is not transferred at the local level and depends on technical and financial support from international counterparts. This weakness in the system influences how well the SNIS is adapted across Mauritania. Although many pilot projects are being conducted, they are often not scaled up at the national level due to the lack of data or relevant information and prioritization.

INPUTS

The existence of an adequate governance structure provides the support to improve access to services through better availability of Inputs including the availability of essential medicines and supplies which is low in Mauritania, especially in rural settings. The essential medicines, equipment, tests, and infection control materials are available in less than one in ten facilities. Of these, essential medicines are available in only 19 percent of health facilities, basic equipment in 27 percent of the facilities, basic diagnostics tests in 19 percent of the facilities, and infectious control materials are available in 8 percent of health facilities (SARA, 2018). The supplies vary significantly between health centers and health posts, and across regions. There is significant insufficient supply of essential medicines to basic health units (USB for its acronym in French) tied back to the lack of integration of the community supply of medicines and equipment into the national supply system. Supplies are also scarce, especially diagnostics and biosafety materials. In Mauritania, the Pharmacy and Laboratories Division issue drug marketing authorizations, monitor drug imports and prepare authorizations for the operation and opening of pharmaceutical establishments and private analysis laboratories, as well as authorizations for the manufacture of medicines. Although, Mauritania has this defined system for supplying medicines, the drugs, consumable depots and small equipment remain unavailable in many health facilities allowing partners to influence the allocation of these supplies. The audit of the Central Medical Store, carried out in 2019-2020, concluded that Mauritania has

a lack of human and material resources, including the logistical tools for storage and distribution and the financial means necessary for supplying and regulating the drug market. Additionally, the coexistence of repeated shortages and expiration dates for medicines can be tied back to the absence of a national mechanism for estimating the needs for essential medicines. In 2023, the Mauritanian Development Gateway reported that sixteen tons of expired adulterated medicines had been incinerated (PMD, 2023).

The availability of basic equipment and diagnostic supplies is also lacking, especially in rural settings. The essential equipment, tests, and infectious control materials are available only in a few of the health facilities. According to SARA 2018, the average availability of basic equipment is 60 percent. The percentage of facilities with all the necessary elements is 27 percent, and the most common equipment in primary health services is the stethoscope, present in 71 percent of facilities, while child scales are available in 55 percent of establishments. The average availability of diagnostic capacities has decreased as it is at 19 percent (2018), compared to 32 percent in 2016. Additionally, a significant majority of health facilities (96 percent) lack the capacity to conduct all five diagnostic tests including hemoglobin, urine glucose, urine protein, blood glucose, and pregnancy (SARA, 2018).

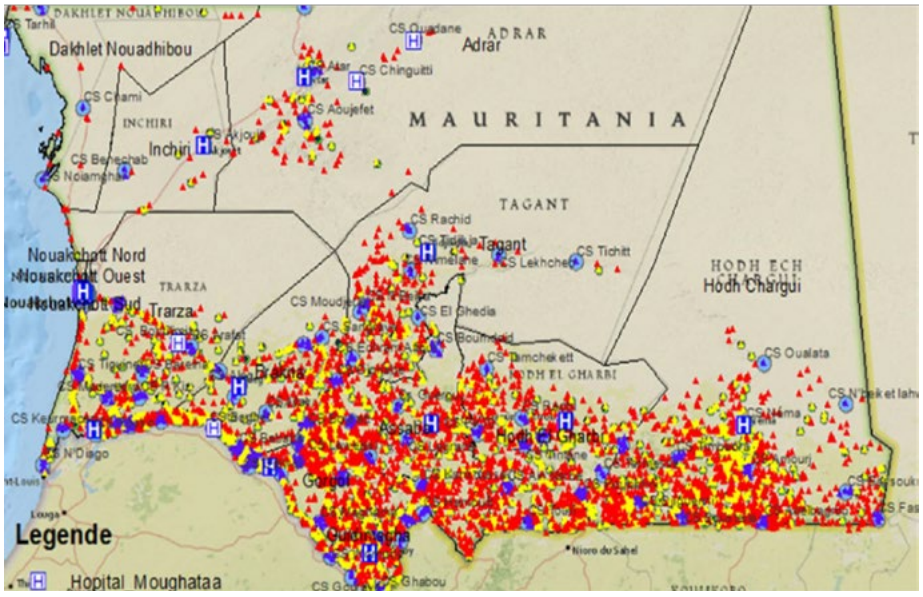
According to recent mapping developed by the MoH, more than 200 small communities of less than 100 people lack health coverage in underserved areas. In 2022, the number of public health facilities include 733 health posts, 117 health centers and 22 hospitals (Figure 19). The country has 1.4 health centers per 50,000 inhabitants and 1.8 health posts per 10,000 inhabitants. The regional health infrastructure coverage varies from 82.3 percent in Inchiri, 69.7 percent in Hodh el Gharbi, and is almost 100 percent in Dakhlet Nouadhibou and Tiris Zemour (MoH, 2023).

Table 2. Regional health infrastructure coverage, Mauritania

Wilaya	Total population of the Wilaya	Pop. covered within 5 Km radius	Health coverage rate (%)
Hodh Charghi	1328	686	72.5
Hodh el Gharbi	925	456	69.7
Assaba	921	456	72.4
Tagant	256	103	69.4
Adrar	139	79	87.3
Brakna	553	390	83.5
Dakhlet Nouadhibou	27	8	98.7
Gorgol	625	389	82.6
Guidimagha	457	301	83.9
Inchiri	22	9	82.3
Tiris Zemour	9	7	98.9
Trarza	623	465	86.1
TOTAL	5885	3349	79.8

Source: MoH https://www.sante.gov.mr/?wpfb_dl=99

Figure 19. Cartography of health facilities distribution and covered population, Mauritania 2021



Source: MoH, cartography health facilities 2021. Note: The MoH estimated that a health post covers the population within 5 km radius and the health center within 10 km radius. The blue spots are the health facilities, and the red spots are communities not covered by these facilities.

The limited availability of health centers, health posts and USB that are able to provide a full package of essential basic health services leaves significant gaps in health service delivery across the country. In Mauritania there are 117 health centers, 17 of which are dental offices, a radiology unit, and a laboratory. The currently defined basic package of services for health centers includes consultation with children and adults, dental care, ANC, family planning, postpartum care, immunization, ophthalmology, ear, nose & throat services (ENT), observation/hospitalization, minor surgery, referral and counter referral, support for malnourished children, laboratory, imaging diagnostic activities and epidemiological surveillance. These services are expected to be provided by a standard list of personnel which includes one medical doctor, one dental surgeon, 4 nurses, 4 midwives, and 2 technicians directed by chief physicians. The 733 health posts in Mauritania, distributed in the communal capitals and their major towns, are expected to be run mostly by nurses. The basic package for health posts includes consultation with children and adults, ANC, family planning, postpartum care, immunization, referral and counter referral, support for malnourished children and epidemiological surveillance. The package is expected to be delivered by a staff of 3 nurses, one midwife, one aid nurse, one maintenance agent, one caretaker, one community health worker (CHW), and two community maintenance agents in each health post. For USBs, the basic package covers preventive and promotive care according to the standards defined by the National Health Community Strategy Plans –and are provided by a standard list of personnel which is one CHW and two Community Volunteers (Relais Communautaires in French). The country has 371 USBs expected to be run by CHWs in settlements with 500 or more inhabitants. In USBs, the CHW are responsible for preventive and promotive services to children under 5 years of age for a specific package (malaria, diarrhea, pneumonia, and malnutrition) and the Community Volunteers oversee health education at the community level. USBs are also responsible for organizing periodically but regularly mobile health outreach activities to provide access to specialized health care activities

for the benefit of the populations they serve. Overall, the essential basic package of health services establishes the list of essential medicines and equipment for each level of care. Of note, the current package does not explicitly include preventive, diagnostic or treatment care for NCDs at lower-level facilities.

Access to the essential health package is also affected by low availability of the key essential amenities (tracer items). Although the availability of the key essential amenities (regular electricity, an improved water source, privacy during consultations, a client latrine, a landline or a mobile phone, and a computer with internet access) varied across health facilities, the average availability decreased from 61 percent in 2016 to 41 percent in 2018. Only 5 percent of health facilities have all the seven tracer items. Specifically, about 80 percent of hospitals, 65 percent of health centers and 33 percent of health posts have five or more key essential amenities. Health posts are particularly disadvantaged in terms of computer and internet availability, as 2 percent of HP had at least five amenities available. At the time of the assessment, more than 50 Percent of health facilities lack improved water sources and sufficient energy sources and the availability of emergency transportation remains below 50 percent (SARA 2018). The average availability of all nine tracer items for infection prevention (medical masks, disinfectants, running water and soap, sterilization equipment, and guidelines for standard precautions) also decreased from 2018 (55 percent) to 2016 (71 percent). Only 8 percent of health facilities have all nine tracer items in 2018. The average availability was the same across facilities as about 71 percent of both hospitals and health centers have at least seven of the tracer items as of 2018 (SARA 2018). The result of the validation workshop points to the availability of infection prevention and control (IPC) potentially improving in the past two years due to the investment to prevent COVID-19.

The lack of investment in the use of the information systems throughout the last decade resulted in limited quality data and analysis of

information at the local level; this is a barrier to the use and management of the National Health Information System (Système national d'information sur la santé [SNIS] in French) implemented by MoH in most health facilities. The SNIS is used to generate information for monitoring healthcare actions and programs. The results show that Mauritania has made progress in the technical adaptation of the information system to the sector's needs and in strengthening its logistical capabilities (such as online applications and rapid SMS). According to expert interviews, the national health information system uses DHIS2, and has been piloted by the MoH but not scaled up to a national level. Health posts continue to submit their information on paper to health centers, which is then made available digitally making the information system partially electronic. Data reported into SNIS includes consultation and emergency services and are collected by the first-level health facilities (health posts and centers) and sent to the CSM in charge of compiling them into quarterly reports. Within the quarterly reports programs such as ANC, immunization and TB/HIV have a nominal registration and measurement of the results for each patient. Once completed, the quarterly reports are reviewed by the DRAS before being forwarded to the central level. The SNIS relies on the DHIS2 system, which allows the entry and compilation of data received from the districts to calculate results on the set indicators and generate periodic reports. Currently, the SNIS network in Mauritania includes all the health districts but does not integrate the private sector into the system. Each district has DHIS2 access, whether online or offline. However, several barriers hinder this process. These include a limited number of trained staff in the regions and districts, challenges with data quality control, and a limited capacity for data analysis and reporting. Key areas of weakness across the health system in Mauritania include the development and use of registries and personal medical records. The registration of children in the civil registry has been making consistent progress. It has increased from 56 percent in 2007 to 66 percent in 2015. On the other hand, the registration of mortality is extremely limited and only occurs in hospitals since cemeteries

do not require a death certificate -nevertheless, many deaths do not occur in the hospital settings. The document review and interviews found that no primary healthcare centers use electronic medical records. Patients are provided with the documents that they are required to bring with them on each visit. There is a registry system in place that records general information about the patient. However, this is paper based with limited opportunity for access to a longitudinal personal care record.

The inadequate supply of services and the lack of skills among healthcare personnel limit the ability of the primary healthcare system to provide responsive and high-quality services. Overall, the proportion of health professionals in Mauritania is low and is concentrated in the capital. In 2018, Mauritania had 11 health professionals (doctors, nurses, and midwives) per 10,000 population, lower than the average of 14 health professionals in the Africa region (GHS Index 2018). Specifically, there were 0.1 nurses/100 inhabitants compared to 0.3 nurses/100 inhabitants and 0.03 midwifes/100 women of childbearing age compared to 0.3 midwifes/100 women of childbearing age in the Africa region (WHO). In Mauritania, about 58 out of the 122 health centers (47.5 percent) have only 1 doctor, 34 out of the 122 health centers have 2 doctors and the remaining 11.5 percent have no doctors. This highlights a worrying situation of insufficient qualified medical and paramedical personnel in health centers, especially at the PHC level. The insufficiency of the supply of health professionals, their reluctance to be deployed to rural areas and the underrepresentation of women and youth in higher-skilled positions significantly contribute to the inequitable distribution of the human resources. Additionally, the non-application of standard quality training in the medical schools and the lack of continuous training contribute to this situation of limited availability of skilled professionals. While health professionals' skills may exist on paper, the management services are not adapted to the skills of physicians who are expected to lead a healthcare institution without proper preparation. However, in many cases, training institutions are actively involved in supervising personnel in the performance of their tasks. Mauritania has a

significant deficit at the decentralized levels and a geographical disparity with an inequitable distribution of the workforce, especially concentration in Nouakchott (MoH, 2019). The document review on health providers' motivation included 16 studies from Sub-Saharan Africa, including Mauritania, where they found that financial incentives like salary increase, and monetary allowances are a major motivation factor for all health cadres. Yet, the allocation to PHC was not increased. The finding also highlighted non-financial motivators such as good working conditions, good infrastructure, the availability of resources and supplies, opportunity for education and career advancement, and provision of staff housing (Kibenge, 2017).

Besides the need for more health workers, the job descriptions or roles of health workers are unclear and not standardized across health facilities. In 2022, Mauritania's CHW coverage of preventive and promotive care was 14 percent. Particularly, CHWs are yet to be fully integrated into the national health system. CHW are responsible for promotional and preventive care in the villages, in particular the promotion of essential family practices (EFP). The supporting elements of the community health approach include promotion of a strengthened community participation, ensuring quality training, supervision and coordination, capacity building for better functioning of the health information system, and ensuring the political will and the financial participation of the State at the desired level. This approach is reported to have been implemented in 7 of the 15 Wilayas. However, there is no indication of all elements of the approach being implemented effectively. Although, CHWs are essential health personnel especially in underserved areas and play a key role in prevention and promotive activities at the community level, there is little communication system in place between the CHWs and facility health professionals like doctors and nurses for knowledge sharing, or skill building which may be a major limitation to the implementation and integration of the community health strategy.

Mauritania has strategies for funds management at the PHC level that can be leveraged to further support the system's improved performance. There is an annual budget for all PHC facilities. The financial allocation comprises of the MoH defining the national budget and sending the resources to each region, and after doing so, the regional directors are responsible for defining the resource for each facility. When distributed, health facilities manage the funds provided by the government along with the funds from user fees. However, according to the expert interviews, PHC facilities capacity for financial management differs from facility to facility. Newly recruited doctors are sometimes assigned as heads of health centers managing the facility activities and resources. In many cases, they are also the only doctors in the peripheral structures highlighting medical doctors limited capacity in management and leadership. The limited autonomy and transparency are further exacerbated by the lack of proper monitoring, supportive supervision and feedback on the use of resources they have access to at the health facility. The inefficacy in the financial tracking system also affects staff renumeration. While remuneration systems are stable, timely, and predictable across the public system, important deficiencies were identified by key interviewees, particularly regarding the salary range for the public sector, the private sector and NGO providers. Public sector employees in Mauritania earn approximately 10 percent more than private sector employees in the same role. Male healthcare practitioner also earns approximately 7 percent more than a female healthcare practitioner for performing the same job (World Salaries, 2019). Additionally, the day-to-day management of most human resource for health (HRH) is the responsibility of regional and departmental administrative authorities, and career management is mostly coordinated by the Ministry of the Civil Service indicating that staff promotions have no connection to their performance or attendance.

POPULATION HEALTH AND FACILITY MANAGEMENT

In Mauritania's national and sub-national level health services delivery prioritization is mostly done based on analyzed data from the NHIS and several health surveys but priorities are not well translated at the local level. Specifically, the National Health Development Plan considers the analysis of morbidity and mortality trends and uses data from the various population surveys carried out periodically. However, the validation workshop process after the PHCPI VSP assessment showed that although the activities are reported from the local facilities, there is no analysis and definition of priorities at the local level. This further indicates that prioritization at the local level is limited. The insufficiency of intervention planning activities carried out at the intermediate and operational level at health centers and health posts hinders the recent improvement made in priority setting.

At the time of the assessment, the country had no allocation to population health management that could be leveraged to improve health care delivery to the population. Nonetheless, the MoH estimated that health posts cover a population within a radius of 5 km and the health centers within 10 km radius. The listing of individuals within a health facility catchment area is not adequately maintained which is a barrier to performing the initial steps of empanelment—the process whereby individuals and families are assigned to a specific health facility whose providers are responsible for their health. The population registration available at health facilities includes registration for specific programs such as HIV, TB and nutrition. For population projections, Mauritania MoH uses the population census conducted every 10 years to provide estimation based on the growth rate. The limited distribution of health workers, allocation of financial resources along with the absence of population census or proactive activity in the community may have contributed to geographical disparity. Although patients are free to choose their health facility, in most cases, there is only one service provider in rural areas. Further, activities in health

and nutrition services are mainly passive and not proactive in Mauritania. Although there are active screening and detection in specific programs including ANC, HIV, and tuberculosis, the home visits by health providers such as community health workers or health facility representatives are not regular and monitored. Overall, the health system ensures that health facilities have a list of the registered indigent population in the social protection program.

A notable weakness of the PHC system is infectivity of health facilities team-based care approaches which makes the monitoring of systematic reviews of health activities and performance difficult in the regions and the CSM. The results show that the concept of teamwork exists, but no responsibilities are defined in writing, and team meetings are also not systematic. Specifically, there are no written job descriptions, procedures, or regular official meetings. In Mauritania, most health centers are managed by doctors, and nurses usually manage the health posts without official or standard training in management. In most cases, these health professionals only receive on-the-job training or short courses focused on management. The systems for supportive supervision comprise of periodic supervision (no more than twice a year) from the national and local authorities of the health facilities. In the regions and Moughataa there are limited formal framework for sharing and coordinating among teams within the same facility leading to a lack of monitoring of health activities. The experts interviewed agree that, in addition to receiving insufficient training, most PHC-level facility district leads also lack continuous feedback on their management capabilities and performance. This can be attributed to the low capacity or high workloads of facility managers, the weaknesses of the data systems, health workers' inabilities to interpret and use data recorded in the DHIS2, or inadequate management information systems (MIS).

Although the rate of coverage for monthly summary reports from basic healthcare facilities is 92 percent, there are issues with the quality, completeness, and timeliness of the data. A list of 92 indicators assessing

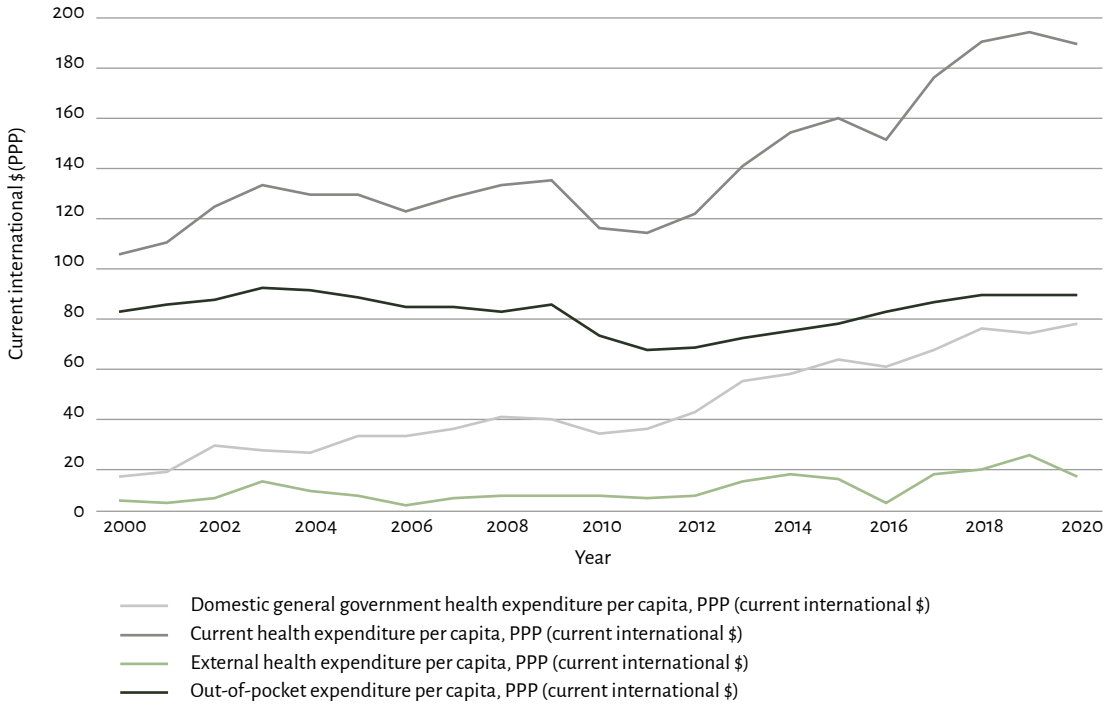
performance at national, regional and Moughataa levels is being developed by the national health information system, but the data are not being used for quality improvement processes or learning at facility level. The limited use of data is also reflected in the limited monitoring of performance. Analyses are mainly conducted at the national level. Further, the absence of regular supportive supervision at the peripheral level remains one of the main factors contributing to the deterioration of services provided at health posts and centers in some areas, as highlighted by the experts interviewed. Systems for supportive supervision comprise another important area for improvement of facility organization and management. Experts agreed that supervisions often focus on controlling access to services and the availability of supplies, with limited impactful supportive system for facility managers.

FINANCING

PHCPI measures health financing by assessing how resources are generated, collected, and re-distributed across the PHC system. Health financing is integrated in all dimensions of PHC systems performance. Revenue collection is most equitable when it is based on 'individuals' ability to pay rather than their need for care. In 2020, Mauritania's the health expenditure was 3.4 percent of the GDP (compared to an average of 3.9 percent for the average of lower-middle-income countries), and the total government health expenditure was 1.4 percent of the GDP -compared to an average of 1.5 percent for the average of lower-middle income countries (WB, 2020). Over the same period, the country spent $ 187 (PPP Int$) per person/year on health with the government contributing $75 (PPP Int$), and $14 (PPP Int$) coming from international sources contribution (WB, 2020), while the out-of-pocket expenditure constituted 47 percent of the health expenditure (WB, 2020). Between 2000 and 2020, the external health expenditure per capita (in PPP Int$) slightly increased, while the government health expenditure markedly increased from $14 (PPP Int$)

to $75 (PPP Int$) (Figure 20). Similarly, according to the national health accounts, total health expenditure is growing at an average annual rate of 14.2 percent, and spending as a percentage of gross domestic product has grown steadily over the past four years, rising from 3.5 percent in 2018 to 3.9 percent in 2021. In terms of external financing, households accounted for 43.1 percent of current expenditure, public administration 40.3 percent, and technical and financial partners (TFPs) 9.5 percent in 2021 (CNS 2018-2021). However, Mauritania's government health expenditure per capita remains below the average of lower middle-income countries (106 PPP Int$) and falls short of the WHO recommendations of $96 (USD) per capita. Although, the value of out-of-pocket expenditure has been stable, the amount that families pay is expected to increase from $32.2 (USD) per person in 2019 to $48.2 (USD) in 2050 (Health data, 2022).

Figure 20. Changes in Health Expenditure by Revenue Source in Mauritania, 2000-2019



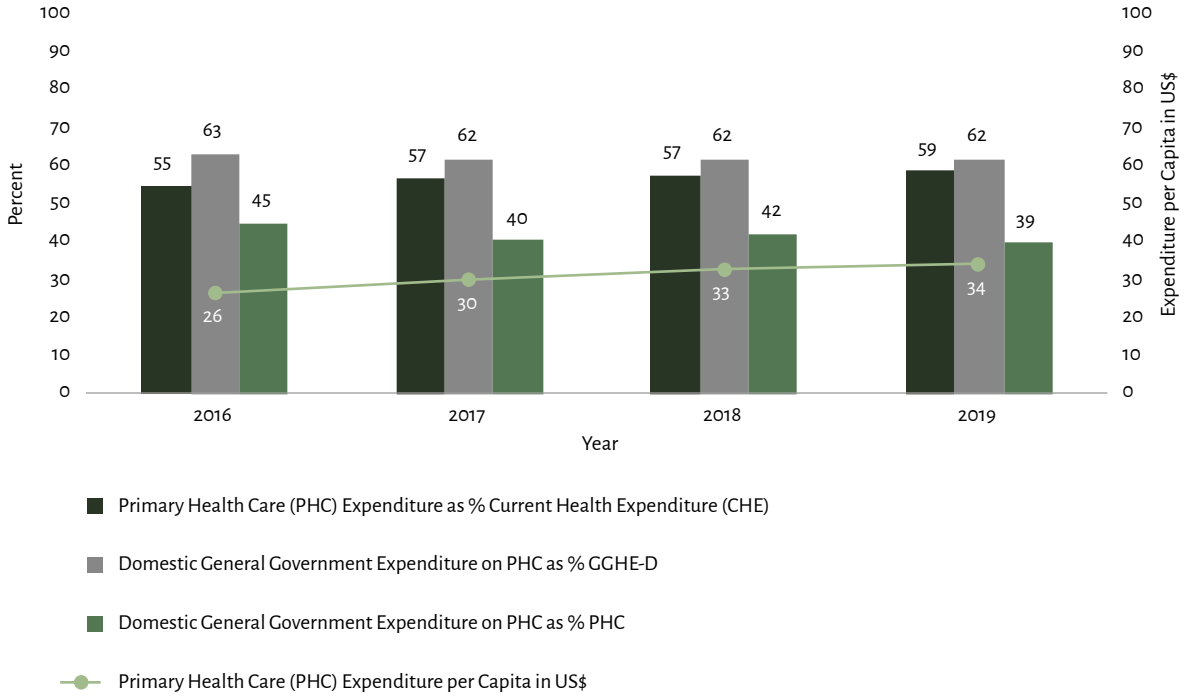
Source: author's calculations using [WDI, 2000-2020 and CNS 2018-2021]
Note : The main national indicators for the national health accounts in Mauritania 2018-2021 can be found in table 1 of the health accounts 2018-2021 report.

Precise measures of financing for PHC can be estimated using the System of Health Accounts (WHO, 2017). In Mauritania the share of the government budget allocated to the public health sector is essentially devoted to human resources and service provision at the secondary and tertiary levels. Very few resources are allocated to the primary level. For this assessment, the following four indicators were used to understand the amount of PHC spending and whether PHC spending is being prioritized: 1) PHC expenditure per Capita in US$; 2) Current PHC expenditure as a percent of current health expenditure; 3) Share of domestic government health spending allocated to PHC; and 4) Domestic government PHC spending as a percent of current PHC spending. Based on the results of these measures, it can be argued that Mauritania made an improvement in the current PHC expenditure per capita. However, there is a gap in government health spending on PHC. Generally, the country prioritizes spending on PHC, where PHC expenditure represents more than half of the current health expenditure. According to the Global Health Expenditure Database (GHED), PHC expenditure per capita in Mauritania increased from $26 (USD) in 2016 to $35 (USD) in 2019. Compared to other sub-Saharan African countries, the country has a relatively high government health spending allocated to PHC with 62 percent out of the total government health spending compared to a median of 56 percent for sub-Saharan African countries. Specifically, when compared to 37 other sub-Saharan African countries with available PHC finance data, Mauritania ranks above the median in terms of PHC spending per capita as well as the prioritization of spending on PHC (current PHC expenditure as a percent of current health expenditure, and the contribution of domestic government health spending allocated to PHC). However, the domestic resource allocation for maternal health and nutrition was only 12.2 percent and 0.2 percent, respectively.

In Mauritania, the government spending on PHC is low and most funds are acquired from other sources. When the sources of PHC spending are considered, the country is lagging and ranks among the lowest sub-Saharan African countries in the contribution of the government health

spending on PHC compared to out-of-pocket expenditure and external health expenditure. In fact, only 39 percent of PHC spending comes from the government, and the rest are from out-of-pocket expenditure and external health expenditure. For many years, financing of the PHC system has been the responsibility of the partners for training, equipment, supervision, and motivation of the CHWs. External resources contribute 7.5 percent to total health expenditure yet, cover three-quarters of preventive care and one-third of expenditure for malnutrition and malaria. In most cases, the PHC services mainly depend on the out-of-pocket expenditures from the families. Moreover, the contribution of the government to primary health care continues to decline and recently decreased by 6 percent-points in 2019 (see Figure 21) affecting the functioning of the other pillars of community health, particularly when it involves domestic resources that guarantee the sustainability of the system and constitute an essential vector of development to meet the objective of UHC (GHED, 2016-2019).

Figure 21. Changes in PHC financial indicators in Mauritania 2016-2019



Source: author's calculations using [GHED, 2016-2019]
Note: We address per capita expenditure in USD. It is also important to note that updated information has recently been released for GHED, 2020 and 2021 data, which the technical team was unable to incorporate due to time constraints for publication of this report.

RECOMMENDATIONS

Mauritania has an opportunity for improvement in the coverage of high-quality PHC Coverage for all. The following four recommendations highlight specific areas -including defined health service package by level, capacity improvement framework and model, the information system, and the financial system- which have the potential to lead to sustainable improvements to the PHC system. An overarching quality improvement focus is embedded into the recommendations, which are aimed at supporting Mauritania in its quest to achieve universal health care coverage.

1. **Build on well-defined PHC policies by developing an implementation plan to improve the organization of services with an essential and comprehensive package of services that meets the needs of the population.** Organization of services refers to the way in which primary health care services are selected, designed, organized, delivered, and supported by different service delivery platforms. Building from Mauritania's National Health Policy that prioritizes PHC, there is a need to improve the organization of services through an implementation plan that updates Mauritania's essential and comprehensive health service packages and the scope of care and health system level for these services. The following recommendations take into account findings relating to (i) governance, which indicates that there is a high-level political commitment to primary healthcare, with limited community involvement, that can be improved through CHWs, (ii) inputs, which relate to insufficient access to the essential healthcare package, and (iii) population health and facility management, which cover the inadequate provision of services across the health facility, with limited collaboration. Improving the organization of Mauritania's health services can help to direct patients to primary health care as the first point of contact and support other primary health care functions including comprehensiveness, coordination, continuity, and person-centeredness.

1.1 Update the essential and comprehensive health service packages: Updating the packages of services and at what level of care they can be delivered, would allow Mauritania to adapt to its diverse health needs, enable effective utilization of care, and promote high-quality care. Key components in the process of design and implementation of such packages across different care delivery sites may include: (1) gathering a diverse, representative set of stakeholders who can regularly convene in the planning process; (2) expanding on the monitoring systems to better explore existing data; (3) prioritizing services in accordance with population needs; (4) integrating services across the health system; and (5) addressing the financial resources necessary to implement both packages. Stakeholders at all levels of the health system can have a role to play in the development of the national health service packages. Mauritania can define its essential health services package (EHSP) by following the example of Ethiopia health systems.

Ethiopia's PHC system improved considerably during the past decade. According to the Essential Health Services Package of Ethiopia (2019), their EHSP is organized into nine components that have been discussed, reviewed for feedback in the series of consultations, analyzed and incorporated into the health systems. An exhaustive list of essential promotive, preventive, curative and rehabilitative sexual and reproductive health, maternal health, neonatal health, child health and adolescent health services were presented, along with their assessed priority rankings (high, medium, low). This was followed by a detailed implementation and integration strategy across priority areas and strategic action to improve service delivery including re-orienting the quality improvement team at the facility-level on the standards of the EHSP service delivery. This also included a plan for training and equipping of the health workforce (MoH of Ethiopia, 2019).

The Mauritanian government can use the EHSP tool developed in Ethiopia as a reference to plan, initiate, coordinate, and oversee priority-setting exercises, while health workers and other stakeholders are solicitated to provide feedback on the feasibility of the government's decisions. Similarly, community engagement can be encouraged to ensure accountability for MoH's decisions. Stakeholders may convene regularly to re-evaluate the priorities of the service package as demographic and epidemiologic needs change. Existing data could be used to identify the leading causes of morbidity and mortality within the country to guide the selection of a range of preventative, curative, and palliative services across the life course. The VSP assessment identified the need to improve delivery of NCD and malnutrition services within such a service package. From this selection, the Ministry of Health could prioritize services based on criteria identified by stakeholders considering cost effectiveness, equity, and financial risk protection.

1.2 Expand service distribution by health facilities including through CHWs and mobile clinics: To improve the integration, continuity, and coordination of services within the health system, the MoH could define the types of services from the package to be provided at each level. The integration of services requires the MoH to: (1) define the scope of care for primary, secondary, and tertiary levels of the health system; (2) determine who delivers what services; and (3) establish referral protocols. The country could consider the population's needs, health workers' capabilities, and access to supplies when determining the scope of care across levels of the health system.

A distinction can also be drawn between the services provided in facilities and those delivered in communities through CHWs and mobile clinics. Considering the substantial portion of the population facing geographical barriers to healthcare access, mobile clinics present an effective strategy to reach underserved populations. For

example, Nigeria has successfully utilized mobile clinics to reach rural populations with PHC services including immunization, ANC, skilled birth attendance, and treatment of minor ailments (Peters et al., 2014). Beyond service provision, mobile clinics can play a vital role in patient education, demonstrated by one study from Tanzania that reported that mobile clinics improved communities' knowledge of RMNCH services (Neke et al., 2018). In Mauritania, a strategic identification of areas where mobile clinics could be deployed is crucial, particularly in offering NCD screening and basic treatment and education services and facilitating further linkage to care.

When determining the health workers who will provide services in communities and at the PHC level, the MoH can consider the competencies of each cadre to deliver services in a safe and effective manner. Situational analysis and capacity gaps assessments can also help integrate other initiatives to help fill the gaps of the current health system in implementing EHSP across facilities. In Mauritania, a strengthened management and logistics information system (MISL) across all stages of the supply chain for medicines and other commodities is also critical to ensuring effective integration of supply chain management of medicines and other community health tools into the health systems. Similar to Ethiopia, the current mechanism to monitor services delivery can be harmonized with future monitoring mechanism to track the implementation status, challenges and lessons regarding the planning and implementation of the package (EHSP, 2019).

1.3 Strengthen communication and coordination across facilities to ensure improved care continuity: Lastly, the implementation plan could detail protocols to promote a strong referral system, establishing primary health care as the first point of contact for a majority of health conditions. Facilities could promote clear communication and coordination between health providers at different levels to ensure

proper follow-up and continued management. Multiple level of coordination can occur, as the government can (a) work with academic institutions and international organizations to coordinate trainings and capacity building initiatives; (b) coordinate with other sector by creating interface and integration with other national strategies, initiatives and strategic priorities; and (c) define annual plans with a set of appropriate targets in relation to each of the components of the EHSP for each health facilities.

2. **Implement a new, people-centered model of care based on individual needs and a comprehensive health services package.** Mauritania can build human resource capacity by improving educational opportunities, promoting task shifting, and improving supervision, with a targeted approach for CHWs. The use of multidisciplinary teams of health professionals can foster an effective model of care and involve the community in decision-making to stimulate demand for health care services. The following recommendations are mainly based on the findings of the access, equity and inputs sub-domains. They include (i) barriers to access to care in health centers, (ii) disparities in PHC access and coverage linked to financial barriers in the Wilayas, (iii) the low proportion of qualified health professionals in the country, and (iii) the need to standardize the roles of health workers.

   2.1 Build human resource capacity through improvements in training opportunities: A competent, motivated, and equitably distributed PHC workforce underpins a country's ability to deliver high-quality PHC for all and begins with strategic policies and planning (WHO, 2018b). Appropriate policies, programs and training opportunities are important to ensure that PHC staff can demonstrate the skills needed to deliver high-quality PHC. These include competencies related to evidence-informed practice and collaboration. Specifying a human-resources for health strategy for PHC would identify the

competencies, skill mix, density, and distribution of the health workforce required to deliver effective and equitable PHC services. The strategy could discuss curriculum development to support training institutions in adjusting curricula through identifying and defining the core competencies required to meet the evolving needs of the population including curricula aimed at preparing health workers to work in multi-disciplinary teams. The strategy could also consider the recruitment of students directly from underserved communities to address the maldistribution of health workers in the country. Ensuring formal collaboration between ministries of health, finance, education, and labor in policy planning is important in the alignment of sectors in addressing current and anticipated health needs.

Vietnam has made significant investments on workforce reforms focused on PHC. Through the Health Professionals Education and Training for Health Systems Reform Project (HPET), in partnership with the World Bank and the European Union, the country aims to improve the quality of education and training for the healthcare workforce and strengthen PHC capacity. HPET supports a range of training programs, including modular and on-the-job training, targeting various PHC professionals. These programs aim to align the competencies of health workers with the specific needs of local communities and emphasize the core principles of high-quality PHC and family medicine. The training initiatives are designed to be integrated into existing education and management structures, ensuring sustainability and accessibility at the community level. Furthermore, HPET has financed the acquisition of modernized equipment for select provinces to ensure that the PHC workforce has the necessary resources to deliver appropriate care. These efforts have contributed to the development of a stronger grassroots workforce trained in essential PHC competencies and have raised

public awareness about the significance of a quality grassroots health system (PAD, 2017; Nguyệt CM, 2017; VMH, 2015).

2.2 Implement Task Shifting strategies in the service delivery system, including for community health workers (CHWs): Beyond improving and expanding training opportunities, implementing strategies to promote task shifting is an additional approach to improving the availability of skilled providers. Task shifting involves optimizing the skill mix of providers by delegating multiple tasks and roles between cadres of health workers. This involves reassigning the responsibilities of one type of health worker to another who may have less comprehensive or in-depth training, but who still possesses the specific skills to deliver a specific service. Integrating a diversity of professions, including mid-level and community workers, can help create a diverse and sustainable workforce with the skills and scope to meet a full range of population health needs. In the Mauritanian context, optimizing the workforce by shifting responsibilities to more managers could prove an effective strategy for increasing capacity and improving provider availability, and ultimately improving patient access to high-quality care.

A meta-analysis conducted to assess the impact of tasks shifting to CHWs revealed that community health workers could safely and effectively deliver interventions for a wide range of diseases, including HIV/AIDS, tuberculosis, malaria, non-communicable diseases (NCDs) and childhood illnesses. Moreover, implementing such programs demonstrated potential cost savings (Seidman and Atun, 2017). In Cameroon, diabetes and hypertension services were successfully integrated into the essential healthcare package, with non-physician health workers assuming expanded roles to deliver these interventions in rural areas. The program was evaluated over a two-year period and demonstrated improved clinical outcomes for both diseases (Labhardt et al., 2010). Mauritania has the potential

to capitalize on the strength of existing CHW programs to expand their roles by setting clear training standards, job descriptions, and incentives, and better integrating their work with providers at health posts. CHWs in Mauritania could be trained and deployed to provide services to rural communities that lack geographic access to care.

2.3 Strengthen supervision for the health care workforce with a targeted strategy for CHWs: The PHC system assessment highlights a lack of regular supervision, monitoring, and evaluation of CHWs' activities and collaboration between CHWs and other health providers. To address this, a formalized and targeted supervision structure can be established to provide CHWs with ongoing feedback on performance embedded into existing systems for monitoring community interventions.

In recent years, there has been an increase in documented examples of dedicated supervision in which supervisors focus solely on managing CHWs rather than assigning supervision tasks to existing staff from different cadres (Perry, 2020; Wesgate et al., 2021). The provision of a dedicated supervisor for CHWs could improve links between CHWs, the health system and the quality of services delivered by CHWs. For example, Mali conducted a randomized controlled trial (RCT) of a CHW supervision strategy known as 360 Supervision. This approach involved routine individual and group supervisory sessions led by a dedicated CHW supervisor. The individual sessions held on a monthly basis encompassed patient feedback obtained during home visits, direct observation of CHWs in action, and personalized feedback to establish goals, strengths, and areas of improvement. Weekly group sessions between CHWs and their supervisor addressed key challenges and explored potential solutions. During the RCT, some CHWs had access to a CHW Performance Dashboard, which allowed them to track feedback on various metrics, including the number of household visits and the number of children and patients treated in

comparison to targets. The study found that when CHWs received monthly supervision, there was a significant improvement in the quantity, timeliness, and quality of care provided by the CHWs over the duration of the study period (Whidden et al., 2018).

Adapting the success of this RCT to the Mauritanian context, a supervisory structure could be reinforced that includes regular supervision of CHWs all USBs every month, adhering to national and subnational plans. Dedicated CHW supervisors could take on roles including reviewing data, conducting quality assurance activities, observing service delivery, and offering coaching or mentorship (Wesgate et al., 2021). Further, to ensure CHWs' knowledge is incorporated into decision-making and priority setting, it is vital to involve the leads of USB management committees in supervision missions. This approach would allow for direct feedback from CHWs and facilitates their active participation in shaping decisions and priorities.

2.4 Make multidisciplinary teams available to ensure the delivery of quality health services: The MoH could use multidisciplinary teams of health workers and paramedical practitioners to successfully manage the population's complex health needs. Given the shortage of health workers in the country, multidisciplinary patient care teams can enable various cadres of health workers to provide specific sets of health services while reporting and referring to providers with more extensive training. Effective teams require an appropriate skill mix across providers with different training, capacities, and expertise, as well as a culture of respect, communication, and trust among team members (Schottenfeld et al., 2016). In Brazil, for example, multidisciplinary health teams consisting of a general practitioner, nurse, auxiliary nurse, and multiple CHWs were assigned panels of families; this strategy formed the backbone of the Family Health Strategy, which is credited with improvements in health outcomes

including child mortality as well as reduced hospital admissions due to diabetes (PHCPI, 2021a). Implementing new patient care team models would entail the development of new protocols, roles, and incentive structures for health workers and could be done through an initial pilot to identify areas for learning and improvement.

2.5 Strengthen empanelment systems to improve continuity in care: A robust system for population empanelment allows health workers to better understand the population in their catchment area and contributes to first contact as well as care continuity (WHO, 2021b and WHO, 2021c). The system establishes a point of contact for individuals and makes healthcare providers and teams responsible for proactively managing care for specific population groups. It also forms the basis for integrated healthcare delivery networks. This user tracking system provides a population denominator that facilitates data interpretation, performance monitoring and more effective service planning. Team selection systems generally encompass three processes: identification of the population, referral to specific health facilities or providers, and periodic review and updating. (JLN, 2019). Countries with robust primary healthcare, such as Brazil and Costa Rica, rely in part on the knowledge and understanding that primary healthcare teams have of their catchment areas, developed over time through user follow-up systems. User follow-up has also been implemented in low- and middle-income countries such as Ghana, where qualified nurses, designated as "community health agents", have led to a remarkable increase in the use of healthcare services (PHCPI, 2021a; PHCPI, 2021b; and PHCPI, 2021c). The MoH could build the empanelment system on the present vertical program registration system, extending it to the population that visits PHC facilities, and the population registered during home visits. A critical component of this process is CHWs' identification and registration of at-risk populations during home visits to link them to an assigned facility for follow-up.

2.6 Support citizen-led initiatives and community participation by revitalizing health committees and promoting the design of person-centered health system: Person-Centered Care organizes a system around the comprehensive needs of people rather than individual diseases. This involves engaging with communities as equal partners in health promotion and maintenance, and valuing their experiences across the health system, including communication, trust, respect and preferences, as well as education and support for active participation in health care and management decisions.

In Guatemala, the Network of Community Defenders of the Right to Health (REDC-Salud) is comprised of 140 devoted volunteer health defenders selected by their communities based on trust. Since 2008, health defenders have been educating citizens about their health rights, accompanying patients in need of healthcare access, monitoring health service delivery, and advocating for system-wide improvements. Health defenders ensure culturally sensitive care in indigenous communities and specifically target their efforts to reach vulnerable groups including women, children, and the elderly. To promote engagement in the health system, they host community discussions to prioritize issues to address in the health system. Through their efforts, they were able to influence municipal authorities to allocate funds for essential medicines and ambulances, illustrating the impact of program contributions based on community needs (Batzin et al, 2020 and Batzin, 2021). Adapting this model to Mauritania and supporting community structures for active participation and supervision could increase demand for care.

In a second example, in Costa Rica, the health system has implemented a formalized structure of community participation though community health boards. The health boards are formalized mechanisms for engagement with local actors at the facility level, representing a variety of interests through elected roles. Every hospital, clinic,

and Health Area is held accountable by a health board. The board members are elected by communities and provide feedback on the quality of health services while also helping to promote preventative care activities in communities. There are explicit guidelines and roles written out in law by the Costa Rican Social Security Fund for engagement with the health boards. According to the established regulation the functions of the Health Board include the following: (a) collaborate with the managers of the health facilities, in the preparation of preliminary projects and budget modifications of these facilities, in accordance with budget allocations and limits set by the Fund's Board of Directors, (b) Ensure the correct execution of the approved budget, (c) issue criteria, prior to negotiation, on the commitments of management of the health facility, (d) issue criteria regarding the candidates for the position of manager of the facility, before appointment, provided that the appointment is competitive for a vacant position, or in cases of manager substitutions lasting more than one year, (e) participate with opinions and recommendations, in the definition of general priorities and policies of the facility in terms of investment, administrative contracting and promotion and incentives for health center workers, in accordance with the Fund's policies.

3. **Capitalize on investments in digital health to drive quality improvement:** Quality of services has been identified as a significant challenge in Mauritania, yet the MoH has limited information with which to monitor and assess quality. Robust information systems are key to identifying quality issues in a timely fashion and enabling course corrections. Effective information systems are comprehensive, capturing data about health services at all levels of the health system. Well-functioning health information systems yield high-quality and comprehensive data and information essential for enabling effective surveillance and priority setting, population health management, facility management, and the achievement of the core functions

of PHC, including coordination, continuity, comprehensiveness, and person-centeredness. Essential types of information systems include routine health management information systems, personal care records, human resource information systems, and logistics management information systems supported by accessible and user-friendly technologies (PHCPI, 2022). This recommendation mainly addresses the results of input and facility management, in particular the lack of investment in the use of information systems, which limits data quality, use, management and analysis of information at local level.

3.1 Improve the information system to better integrate Personal Care Records (PCRs): Personal care records are the cornerstone of strong and effective information systems for care management and an essential component of patient-centered health systems. Comprehensive personal care records record the history and clinical "story" of a patient, summarizing their experiences with the health system over time in one place. While Mauritania's National Health Information System is important in planning, managing, and decision-making at the facility, sub-regional, sub-national levels, personal care records play an important role in fostering quality, continuous, and coordinated care. Mauritania can implement PCRs by building on the existing National Health Information System by following the example of personal care records in Costa Rica.

In Costa Rica, personal care records are an essential part of the health information system and are referred to as the Single Digital Health File (EDUS). The EDUS is a set of digital applications that supports patients in managing their medical appointments, history, diagnoses, medications, and allergies. Patients also can add self-reported information, such as symptoms or changes in their health status. These records are centrally stored and accessible to healthcare providers at government health facilities across the country, ensuring

better-coordinated care (ISSA, n.d.). Adopting a patient care record in Mauritania can enhance the quality of care provided to patients, improve health outcomes, and increase patient satisfaction.

3.2 Strengthen the logistics and supply chain management system: The VSP results highlight that a lack of inputs, including medicines, presents barriers to care at the primary health care level. The MoH can continue to invest in management information systems to strengthen logistics and supply chain management. Such systems, when properly implemented and resourced, can contribute to reducing stockouts of essential medicines and supplies. The MoH could capitalize on these investments to improve logistics and supply chain management for a range of other healthcare products. This could be achieved by developing a robust electronic logistics management information system that coordinates product logistics and distribution within the context of a broader set of health and disease priorities.

To overcome supply challenges, Senegal's Ministry of Health and Social Action and the National Supply Pharmacy worked with partners to develop a nationwide supply distribution scheme that uses real-time data to manage supplies and direct health commodities through routine stock management. Third-party distributors make monthly deliveries of health products directly to facilities, where they evaluate current stock and enter data into an online platform, allowing their logistics managers to track consumption trends and forecast future needs in real time. This strategy lifts the burden of logistics and operational tasks from overburdened health facility staff and shifts the financial risk away from facilities to ensure that monetary constraints do not impede a clinic's ability to provide essential commodities. Transferring supply chain management to trained logisticians has reduced inefficiency and improved data quality, availability, and visibility by ensuring that those responsible

for recording stock information and forecasting have the requisite expertise to complete these tasks (PHCPI, 2019a).

3.3 Build on the Human resource information systems (HRISs): The need for robust information systems to guide decisions on the deployment and management of human resources in the health sector is crucial. Continuous improvement of human resources information systems could strengthen Mauritania's ability to select health workers according to their skills and qualifications, monitor their distribution throughout the country, implement performance monitoring mechanisms, as well as facilitate continuing education and training. For example, performance management systems can track complaints or instances where health workers failed to comply with safety guidelines, providing managers with timely information to take corrective action with targeted training or supervision. Conversely, the development of a simplified digital tool or through DHIS2 to ensure better data management and performance management systems can also help identify the best-performing health workers and could form the basis of reward or incentive programs to boost health worker motivation.

USAID's Capacity Project (2004-2009) and CapacityPlus (2009-2015) was implemented in over 47 countries to support stakeholders in addressing workforce gaps through interventions such as developing improved human resource information systems for decision-making. Key accomplishments of the project included expanding the use of an open-source human resource information system platform, IHRIS, to 20 countries to manage almost a million health workers (H. de Vries et al., 2009).

The Capacity Project in Swaziland, Uganda, and Rwanda, focused on key themes to support the HRIS system including developing participatory HRIS stakeholder leadership, enhancing skills in data-driven decision-making, and building in-country capacity to ensure

sustainability and continuous improvement. The use of HRIS was most successful in Swaziland, where reports were routinely used at the central Ministry of Health and Social Welfare and helped to dramatically reduce the number of vacancies in the system and improve recruitment (H. de Vries et al., 2009).

3.4 Invest in the equipment for information systems and training of facility staff to use data for decision making: To enable high-quality PHC with the information systems outlined above, facilities will need to be better equipped than they are. A long-term infrastructure investment plan could outline the resource needs for information systems as well as other key amenities. In consultation with the Ministry of Finance, the MoH could take steps to ensure there is sufficient and appropriate allocation of budget resources for health facilities, such that they are adequately equipped to provide quality services, can reliably connect electronically to MoH information systems, are intuitively integrated into existing workflows, and have the human resources to translate data used into insights for quality improvement. Investments in information systems can fuel cost savings elsewhere through efficiency gains.

4. **Improve financial protection:** Financial protection refers to the measures in place to protect individuals and households from financial hardship due to health expenditures. In Mauritania, the National Health Development Plan 2012-2020 identifies financial protection as a priority area for improving the country's health system. Mauritania can focus on implementing a few key policies to realize this goal. Firstly, the government can work to expand the coverage of existing health insurance schemes to ensure that all citizens, especially those in vulnerable and low-income populations, have access to affordable healthcare services. The government can also explore innovative financing mechanisms such as capitation and public-private partnerships to further increase access to

affordable healthcare services. Overall, these recommendations can help improve financial protection for health in Mauritania and contribute to the achievement of universal health coverage. The recommendation on improving financial protection covers the results of the coverage sub-domain and the financing domain, addressing the lack of government investment and innovative ways to contribute to investment related to PHC service coverage, as well as the limited existence of formal coordination for private sector participation.

4.1 Expand coverage of existing health insurance schemes: The government of Mauritania can improve the accessibility of quality healthcare services and financial protection for vulnerable and low-income populations by making services, lab tests and medicines readily available across public facilities and offer these to the population at no cost. The Caisse Nationale d'Assurance Maladie (CNAM) offers health insurance to formal employees, and with financial assistance from the World Bank and other donors, the coverage has been extended to include 100,000 low-income families. CNAM provides coverage for occupational accidents and healthcare services for employees' families. Although current enrollment in the scheme Is low, the MoH plans to increase the number of beneficiaries by 800,000 individuals within two years. The government can achieve this objective by increasing health insurance premium subsidies which can be used to incentivize the purchase and distribution of basic inputs as well as widening coverage to more healthcare providers and facilities (PHCPI, 2019b).

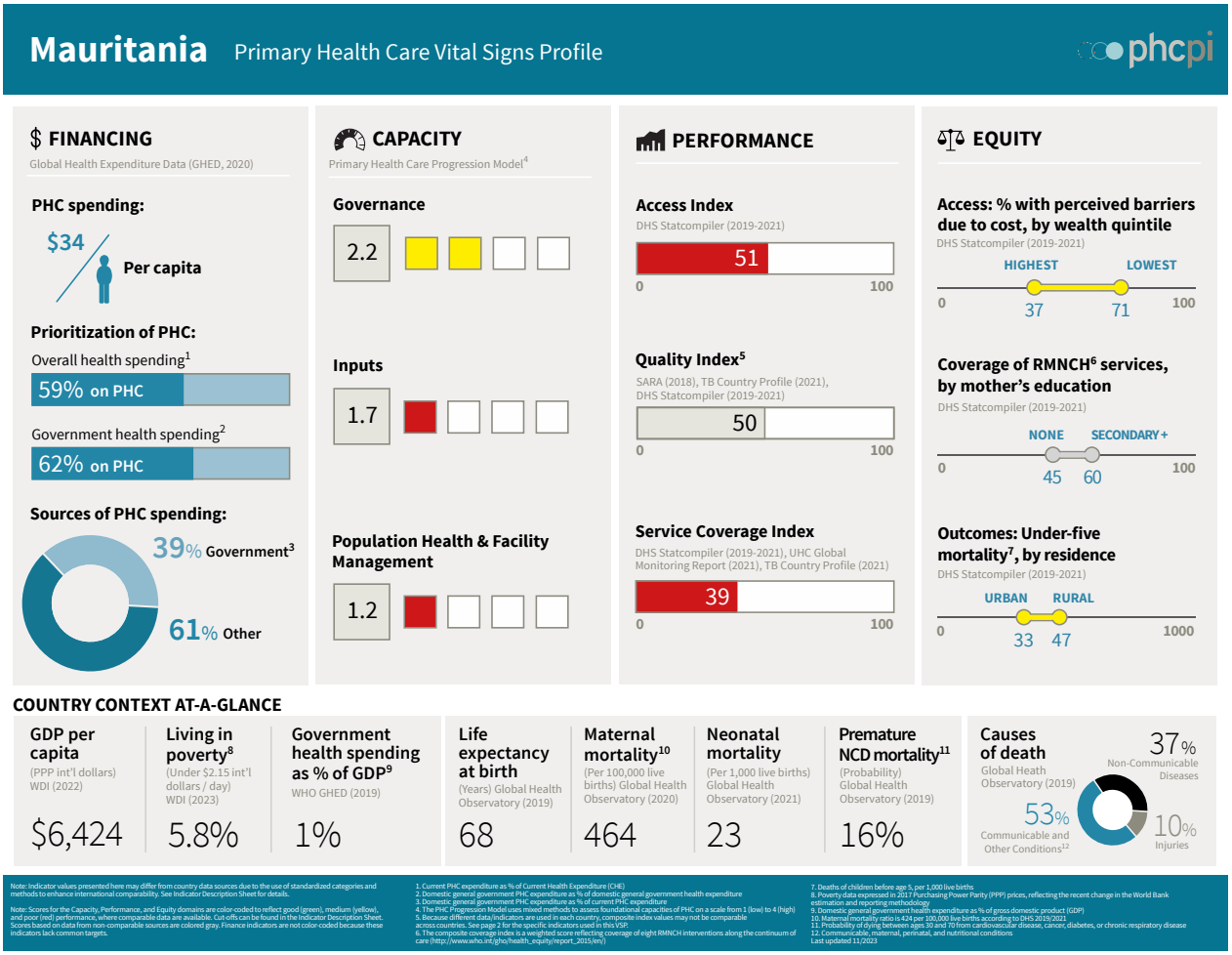
4.2 Introduce voucher payments to cover reproductive and NCD health services and transportation: To address the challenges of financing primary healthcare in Mauritania in a comprehensive way, a multi-faceted approach is recommended. Establishing a unified resource pooling mechanism is crucial to improving redistribution and financial protection. It is necessary to extend the scope of the

existing compulsory health insurance scheme (CNAM) and increase state subsidies for poor households. Close monitoring of the recently introduced CNASS system is essential to resolve problems such as anti-selection and low enrolment rates. In addition, it is recommended to launch a pilot voucher system, inspired by the Ugandan model, to mitigate the high out-of-pocket expenses directly borne by patients and improve access to specialized services such as reproductive health and non-communicable diseases. In addition, the Forfait Obstétrical program should be integrated as a complementary tool to specifically address maternal and neonatal health needs. This specialized program can offer fixed or subsidized costs for essential obstetric services, thereby reinforcing financial protection for pregnant women. Finally, a regular review mechanism must be put in place to ensure the timely adaptation and adjustment of all these health financing strategies (Lopez, 2020).

4.3 Improve the existing public-private partnerships: PHC service delivery in Mauritania involves collaboration between the government and private organizations, mainly NGOs. With more than 18 NGOs working on health, such as the Red Cross, Association Mauritanienne pour la Santé de la Mère et de L'Enfant, and Stop SIDA, these partnerships aim to improve the accessibility and quality of healthcare services in the country. Recently, Mauritania has benefited from the adaptive global and regional initiatives such as AVAT, COVAX, and WB to improve access to COVID-19 vaccines. These partnerships are critical in addressing healthcare challenges in the country and can be leveraged for collaboration on referral pathways, training and qualification, and integration of clinical data or the private sector contributing to PHC functions like the public health surveillance, civil registration processes, the health management information system, and outbreak management (WHO, 2022).

APPENDIX

APPENDIX A. VSP



APPENDIX B. PERFORMANCE DOMAIN

phcpi

PERFORMANCE DOMAIN: DETAILED VITAL SIGNS PROFILE INDICATORS

Mauritania	SCORE	PERCENTAGE	SOURCE	YEAR
ACCESS	51			
Financial				
Perceived access barriers due to treatment costs*		44%	*DHS Statcompiler*	*2019-2021*
Geographic				
Perceived access barriers due to distance*		59%	*DHS Statcompiler*	*2019-2021*
QUALITY	50			
Comprehensiveness				
Avg. availability of 5 tracer RMNCH services		57%	*SARA*	*2018*
Avg. availability of services for 3 tracer communicable diseases		54%	*SARA*	*2018*
Avg. availability of diagnosis & management for 3 tracer NCDs		33%	*SARA*	*2018*
Continuity				
DTP3 dropout rate*		74%	*DHS Statcompiler*	*2019-2021*
Treatment success rate for new TB cases		75%	*TB country profile*	*2021*
Person-Centeredness				
% of caregivers who were told sick child's diagnosis				
Provider availability				
% of family planning, ANC, and sick child visits over 10 minutes				
Provider absence rate*				
Safety				
Adequate waste disposal		33%	*SARA*	*2018*
Adequate infection control		66%	*SARA*	*2018*
SERVICE COVERAGE	39			
Reproductive, Maternal, Newborn and Child Health				
Demand for family planning satisfied with modern methods		28%	*DHS Statcompiler*	*2019-2021*
Antenatal care coverage (4+ visits)		39%	*DHS Statcompiler*	*2019-2021*
Coverage of DTP3 immunization		67%	*DHS Statcompiler*	*2019-2021*
Care-seeking for suspected child pneumonia		46%	*DHS Statcompiler*	*2019-2021*
Infectious diseases				
Tuberculosis cases detected and treated with success		49%	*TB country profile*	*2021*
People living with HIV receiving anti-retroviral treatment		62%	*UHC Global Monitoring Report*	*2021*
Use of insecticide-treated nets (ITN) for malaria prevention		11%	*DHS Statcompiler*	*2019-2021*
Children under 5 with diarrhea receiving ORS		20%	*DHS Statcompiler*	*2019-2021*
Non-Communicable Diseases (NCDs)				
% of population with normal blood pressure***		37%	*UHC Global Monitoring Report*	*2021*

*Indicators where lower values are preferable were transformed before inclusion in the index. The modified indicator was defined as 100-X, where X is the original percentage shown in this table. **Country-specific (proxy) indicator, used in absence of globally comparable survey data. ***Percentage of adult population with normal blood pressure is based on age-standardized estimates. These distributions are rescaled to provide finer resolution before inclusion in the index. Rescaled indicator = (X-50)/ (100-50)*100, where X is the prevalence of normal blood pressure. For more details see Tracking UHC: 2017 Global Monitoring Report. Note: Summary scores for the domains of Access, Quality, and Coverage are calculated by taking the average of indicator values within each subdomain, and then taking the average across subdomain scores.

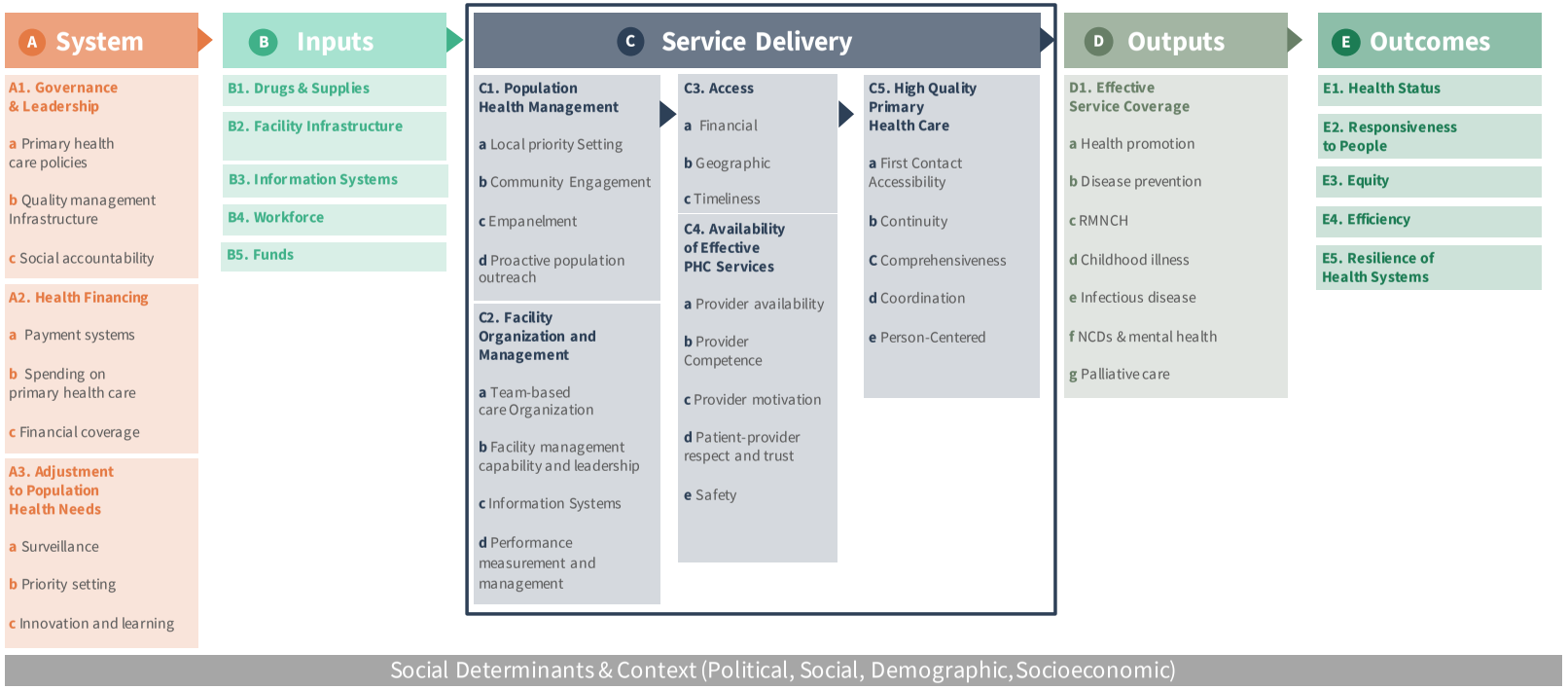
APPENDIX C. CAPACITY DOMAIN

phcpi

CAPACITY DOMAIN: DETAILED VITAL SIGNS PROFILE INDICATORS

Mauritania	SCORE
GOVERNANCE	2.2
Governance and Leadership	2.4
Measure 1: Primary health care policies (1/2)	
Measure 2: Primary health care policies (2/2)	
Measure 3: Quality management infrastructure	
Measure 4: Social accountability (1/2)	
Measure 5: Social accountability (2/2)	
Adjustment to Population Health Needs	2.0
Measure 6: Surveillance	
Measure 7: Priority setting	
Measure 8: Innovation and learning	
INPUTS	1.7
Drugs and Supplies	1.0
Measure 9: Stock-out of essential medicines	
Measure 10: Basic equipment availability	
Measure 11: Diagnostic supplies	
Facility Infrastructure	1.7
Measure 12: Facility distribution	
Measure 13: Facility amenities	
Measure 14: Standard safety precautions and equipment	
Information Systems	1.7
Measure 15: Civil Registration and Vital Statistics	
Measure 16: Health Management Information Systems	
Measure 17: Personal care records	
Workforce	1.3
Measure 18: Workforce density and distribution	
Measure 19: Quality assurance of primary health care workforce	
Measure 20: Primary health care workforce competencies	
Measure 21: Community health workers	
Funds	2.7
Measure 22: Facility budgets	
Measure 23: Financial Management Information System	
Measure 24: Salary payment	
POPULATION HEALTH AND FACILITY MANAGEMENT	1.2
Population Health Management	1.0
Measure 25: Local priority setting	
Measure 26: Community engagement	
Measure 27: Empanelment	
Measure 28: Proactive population outreach	
Facility Organization and Management	1.4
Measure 29: Team-based care organization	
Measure 30: Facility management capability and leadership	
Measure 31: Information system use	
Measure 32: Performance measurement and management (1/2)	
Measure 33: Performance measurement and management (2/2)	

APPENDIX D. PHCPI FRAMEWORK



Source: Veillard et al. 2017

APPENDIX E. RECOMMENDATIONS BASED ON MAURITANIA'S VSP

Recommendation	Resources required, from low (+) to high (+++)	Difficulty of execution, from low (+) to high (+++)	Potential impact, from low (+) to high (+++)	Time horizon from impact (short, medium, or long term)
Build on well-defined PHC policies by developing an implementation plan to improve the organization of services with an essential and comprehensive package of services that meets the needs of the population.				
1.1 Update the essential and comprehensive health service packages	+	+	+++	Short
1.2 Expand service distribution by health facilities including through CHWs and mobile clinics	++	+	+++	Short
1.3 Strengthen communication and coordination across facilities to ensure improved care continuity	+	++	+++	Short
Implement a new, people-centered model of care based on individual needs and a comprehensive health services package.				
2.1 Build human resource capacity through improvements in training opportunities	++	++	+++	Medium
2.2 Implement Task Shifting into the system	+	++	+++	Short
2.3 Strengthen ongoing supervision, including of CHWs	+	++	+++	Short
2.4 Make multidisciplinary teams available for health service delivery	++	++	+++	Long term
2.5 Strengthen empanelment systems to improve continuity in care	+	++	+++	Long term
2.6 Support citizen-led initiatives and community participation by revitalizing health committees and promoting the design of person-centered health system	+	++	+++	Long term

Capitalize on investments in digital health to drive quality improvement.				
3.1 Improve the information system to better integrate Personal Care Records (PCRs)	++	+++	+++	Long term
3.2 Strengthen the logistics and supply chain management system	++	++	+++	Medium
3.3 Build on the Human resource information systems (HRISs)	+	++	+++	Long term
3.4 Strengthen the equipment for information systems	++	++	+++	Medium
Improve financial protection.				
4.1 Expand coverage of existing health insurance schemes	++	+++	+++	Long term
4.2 Introduce voucher payments to cover reproductive and NCD services and transportation	+++	++	++	Medium
4.3 Improve public-private partnerships	++	++	+++	Long term

Source: Elaborated by the authors.
Note: low = +; medium = ++; high = +++. OOPS = out-of-pocket spending; PHC = primary health care.

APPENDIX F. IMPLICATIONS OF THE RECOMMENDATIONS FOR STAKEHOLDERS

Recommendation	National government and health authorities	Regional or divisional health authorities	Service delivery providers	Academia	Patients and citizens
Build on well-defined PHC policies by developing an implementation plan to improve the organization of services with an essential and comprehensive package of services that meets the needs of the population.					
1.1 Update the essential and comprehensive health service packages	F, E, D	M, P	P, I, D	I, P	I, P
1.2 Expand service distribution by health facilities including through CHWs and mobile clinics	F, E, D	M, P	P, I, D	I, P	I, P
1.3 Strengthen communication and coordination across facilities to ensure improved care continuity	F, E, D	M, P	P, I, D	I, P	I, P
Implement a new, people-centered model of care based on individual needs and a comprehensive health services package.					
2.1 Build human resource capacity through improvements in training opportunities	F, E, D	I, P	I, P	E, M, P, I, D	I, P
2.2 Implement Task Shifting into the system	F, E, D	M, I, P	M, P, I	E, P, I	P, I
2.3 Strengthen ongoing supervision, including of CHWs	F, E, M, D	M, I, P	P, I, D	P, I	P, I
2.4 Make multidisciplinary teams available for health service delivery	F, E, D	I, P	M, I, P	I, P	I, P
2.5 Strengthen empanelment systems to improve continuity in care	F, E, M	M, P	P	I	I, P
2.6 Support citizen-led initiatives and community participation by revitalizing health committees and promoting the design of person-centered health system	F, E, D	I, P	I, P	I	M, P, I, D

Capitalize on investments in digital health to drive quality improvement.					
3.1 Improve the information system to better integrate Personal Care Records (PCRs)	F, E, M, D	M, P	P, I	I	I, P
3.2 Strengthen the logistics and supply chain management system	F, E, M, D	M, P	P, I	I	I, P
3.3 Build on the Human resource information systems (HRISs)	F, E, M, D	M, P	P, I	I	I, P
3.4 Strengthen the equipment for information systems	F, E, M, D	M, P	P, I	I	I, P
Improve financial protection for people.					
4.1 Expand coverage of existing health insurance schemes	F, E, M	M, P, D	P, I	I	I, P
4.2 Introduce voucher payments to cover reproductive and NCD services and transportation	F, E, M	M, P, D	P, I	I	I, P
4.3 Improve public-private partnerships	F, E, M	P, I, D	P, I	I	I

Source: Elaborated by the authors.

Note: F = provide financing or financial incentives; E = establish strategic direction, norms and policies; M = manage the program; P = participate in the implementation of the program or support it; I = stay informed on the program activities; D = make informed or strategic decisions. EHSP = Essential Health Service Package, CHWs = Community Health Workers, PCRs = Personal Care Records, HRISs = Human Resource Information Systems, NCD = Non-Communicable Disease

APPENDIX G. PROGRESSION MODEL PARTICIPANTS

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APPENDIX H. PROGRESSION MODEL DOCUMENTS REVIEWED

1. Analyse Situationnelle De La Sante De La Reproduction Maternelle Neo Natale Infantile Des Adolescents Et La Nutrition (SRMNIA+N)
2. Arrêté 1134 portant obligation de notification des cas de décès maternel, néonatals et institutionnalisation des audits des décès maternels et néonatals
3. Arrêté n°202/MS Portant création, organisation et fonctionnement de la structure chargée de piloter, de coordonner et de suivre la mise en œuvre du Plan National de Développement Sanitaire (PNDS)
4. Décret n°178-2016/MS Abrogeant et remplaçant le décret n° 140/2000 du 17 décembre 2000, Fixant l'organisation des Formations Sanitaires Régionales
5. DOCUMENT NATIONAL DE STRATEGIE COMMUNAUTAIRE EN SANTE
6. Organigramme MS 2019
7. Plan de Développement de la DPCIS – Ministère de la santé
8. Plan de suivi et évaluation du PNDS
9. Plan National de Développement de la Santé pour la phase 2017-2020
10. PLAN NATIONAL DE DEVELOPPEMENT SANITAIRE Période 2017-2020
11. PNDS II Analyse situationnelle
12. Politique Nationale de Santé à l'horizon 2030
13. Rapport de l'Atelier d'orientation des DRAS sur le processus de planification opérationnelle 2020 axée sur les résultats

14. Rapport de l'audit institutionnel et organisationnel du Ministère de la Santé. Mauritanie, novembre 2014

15. Rapport sur le diagnostic du système de financement de la santé en Mauritanie

16. Règlement Intérieur du Comité National de Coordination de lutte contre le sida, la tuberculose et le paludisme (CCM) de la Mauritanie

17. Stratégie de Croissance Accélérée et de Prospérité Partagée (SCAPP) 2015 – 2030

18. Stratégie Nationale de Développement de la Cyber-santé 2017 – 2022

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